

# University of Missouri

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**UNIVERSITY CATALOG 2017-18**

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PhD in Learning, Teaching and Curriculum with Emphasis in Reading Education .....	440	EdSp in Special Education with Emphasis in General ....	450
		EdD in Special Education .....	450
		EdD in Special Education with Emphasis in Administration and Supervision of Special Education .....	451
		EdD in Special Education with Emphasis in General .....	451
		MA in Special Education .....	451

MA in Special Education with Emphasis in Behavior Disorders .....	452	Graduate Certificate in Education Policy .....	463
MA in Special Education with Emphasis in Curriculum Development for Exceptional Students .....	453	Graduate Certificate in Elementary Mathematics Specialist .....	463
MA in Special Education with Emphasis in Early Childhood Special Education .....	453	Graduate Certificate in Higher Education Administration .....	464
MA in Special Education with Emphasis in Special Education, General .....	453	Graduate Certificate in Multicultural Education .....	464
MA in Special Education with Emphasis in Learning Disabilities .....	453	Graduate Certificate in Online Educator .....	465
MA in Special Education with Emphasis in Mental Retardation .....	454	Graduate Certificate in Positive Psychology .....	465
MEd in Special Education .....	454	Graduate Certificate in Qualitative Research .....	465
MEd in Special Education with Emphasis in Autism .....	455	Graduate Certificate in Teaching English to Speakers of Other Languages .....	466
MEd in Special Education with Emphasis in Behavior Disorders .....	455	Graduate Minor in Multicultural Psychology .....	466
MEd in Special Education with Emphasis in Combined Early Childhood and Autism .....	456	College of Engineering .....	468
MEd in Special Education with Emphasis in Cross Categorical, Certification .....	456	Biological Engineering .....	474
MEd in Special Education with Emphasis in Curriculum Development for Exceptional Students .....	457	BSBE in Biological Engineering .....	475
MEd in Special Education with Emphasis in Early Childhood Special Education .....	457	MS in Biological Engineering .....	476
MEd in Special Education with Emphasis in Gifted Education .....	457	PhD in Biological Engineering .....	477
MEd in Special Education with Emphasis in Learning Disabilities .....	458	Chemical Engineering .....	477
MEd in Special Education with Emphasis in Mental Retardation .....	458	BSchE in Chemical Engineering .....	478
PhD in Special Education .....	458	BSchE in Chemical Engineering with Emphasis in Biochemical .....	479
PhD in Special Education with Emphasis in Administration and Supervision of Special Education .....	459	BSchE in Chemical Engineering with Emphasis in Environmental .....	480
PhD in Special Education with Emphasis in Behavior Disorders .....	459	BSchE in Chemical Engineering with Emphasis in Materials .....	481
PhD in Special Education with Emphasis in Curriculum Development for Exceptional Students .....	460	MS in Chemical Engineering .....	481
PhD in Special Education with Emphasis in Early Childhood Special Education .....	460	PhD in Chemical Engineering .....	482
PhD in Special Education with Emphasis in General .....	461	Civil Engineering .....	482
PhD in Special Education with Emphasis in Learning Disabilities .....	461	BSCiE in Civil Engineering .....	484
PhD in Special Education with Emphasis in Mental Retardation .....	462	MS in Civil Engineering .....	485
Additional Minors and Certificates .....	462	PhD in Civil Engineering .....	486
Graduate Certificate in College Teaching .....	462	Computer Engineering .....	487
Graduate Certificate in Education Improvement .....	463	BSCoE in Computer Engineering .....	492
		MS in Computer Engineering .....	493
		Computer Science .....	495
		BS in Computer Science .....	498
		Minor in Computer Science .....	500
		MS in Computer Science .....	500
		PhD in Computer Science .....	501
		Electrical And Computer Engineering .....	501
		PhD in Electrical and Computer Engineering .....	505
		Electrical Engineering .....	507

BSEE in Electrical Engineering .....	513	Minor in Aerospace .....	535
MS in Electrical Engineering .....	514	Minor in Computational Neuroscience .....	536
Engineering .....	516	Minor in Energy Engineering .....	536
Minor in Engineering .....	516	Minor in Medical/Health Physics .....	536
ME in Engineering .....	516	Minor in Naval Science .....	536
Industrial Engineering .....	517	Minor in Radioenvironmental Sciences .....	537
BSIE in Industrial Engineering .....	519	School of Health Professions .....	538
MS in Industrial Engineering .....	520	Applied Behavior Analysis .....	540
PhD in Industrial Engineering .....	521	Graduate Certificate in Applied Behavior Analysis .....	540
Information Technology .....	522	MS in Applied Behavior Analysis .....	540
BS in Information Technology .....	523	Athletic Training .....	541
Minor in Information Technology .....	524	BHS in Athletic Training .....	541
Mechanical and Aerospace Engineering .....	524	Clinical and Diagnostic Sciences .....	542
BSME in Mechanical Engineering .....	527	BHS in Clinical and Diagnostic Sciences .....	544
BSME in Mechanical Engineering with Emphasis in Aerospace Engineering .....	528	BHS in Clinical and Diagnostic Sciences with Emphasis in Clinical Laboratory Science .....	544
MS in Mechanical and Aerospace Engineering .....	528	BHS in Clinical and Diagnostic Sciences with Emphasis in Diagnostic Medical Ultrasound .....	545
PhD in Mechanical and Aerospace Engineering .....	529	BHS in Clinical and Diagnostic Sciences with Emphasis in Nuclear Medicine .....	546
Nuclear Engineering .....	530	BHS in Clinical and Diagnostic Sciences with Emphasis in Radiography .....	548
Minor in Nuclear Engineering .....	531	BHS in Clinical and Diagnostic Sciences with Emphasis in Respiratory Therapy .....	549
Graduate Certificate in Energy Efficiency .....	531	MHS in Clinical and Diagnostic Sciences .....	550
Graduate Certificate in Sustainable Energy and Policy ...	531	Communication Science and Disorders .....	551
Graduate Certificate in Nuclear Engineering .....	531	BHS in Communication Science and Disorders .....	552
Graduate Certificate in Nuclear Safeguards Science and Technology .....	532	MHS in Communication Science and Disorders .....	553
MS in Nuclear Engineering .....	532	MHS in Communication Science and Disorders with Emphasis in Speech-Language Pathology .....	554
MS in Nuclear Engineering with Emphasis in Environmental and Regulatory Compliance .....	533	Health Science .....	554
MS in Nuclear Engineering with Emphasis in Health Physics .....	533	BHS in Health Science .....	555
MS in Nuclear Engineering with Emphasis in Materials .....	533	BHS in Health Science with Emphasis in Health & Wellness Services .....	557
MS in Nuclear Engineering with Emphasis in Medical Physics .....	533	BHS in Health Science with Emphasis in Leadership & Policy .....	558
MS in Nuclear Engineering with Emphasis in Thermal Hydraulics .....	534	BHS in Health Science with Emphasis in Pre-Professional .....	558
PhD in Nuclear Engineering .....	534	BHS in Health Science with Emphasis in Rehabilitation Sciences .....	559
PhD in Nuclear Engineering with Emphasis in Environmental and Regulatory Compliance .....	534	Occupational Therapy .....	559
PhD in Nuclear Engineering with Emphasis in Materials .....	535	BHS in Pre-Occupational Therapy .....	560
PhD in Nuclear Engineering with Emphasis in Thermal Hydraulics .....	535	MOT in Occupational Therapy .....	560
Additional Minors and Certificates .....	535	Physical Therapy .....	561

BHS in Pre-Professional Physical Therapy .....	562	BSHES in Human Development and Family Studies with Emphasis in Family and Lifespan Development .....	586
DPT in Physical Therapy .....	562	Minor in Human Development and Family Studies .....	587
Public Health .....	563	MA in Human Development and Family Studies .....	588
BHS in Public Health .....	563	MA in Human Development and Family Studies with Emphasis in Early Childhood Development .....	589
Graduate Certificate in Public Health .....	565	MA in Human Development and Family Studies with Emphasis in Family and Community Services (Great Plains IDEA) .....	589
MPH in Public Health .....	565	MA in Human Development and Family Studies with Emphasis in Family Studies .....	590
MPH in Public Health with Emphasis in Health Promotion and Policy .....	566	MA in Human Development and Family Studies with Emphasis in Gerontology .....	590
MPH in Public Health with Emphasis in Veterinary Public Health .....	566	MA in Human Development and Family Studies with Emphasis in Lifespan Development .....	591
Additional Minors and Certificates .....	566	MA in Human Development and Family Studies with Emphasis in Youth Development .....	591
College of Human Environmental Sciences .....	567	MS in Human Development and Family Studies .....	592
Architectural Studies .....	568	MS in Human Development and Family Studies with Emphasis in Early Childhood Development .....	593
BSHES in Architectural Studies .....	570	MS in Human Development and Family Studies with Emphasis in Family Studies .....	593
BSHES in Architectural Studies with Emphasis in Architectural Studies .....	570	MS in Human Development and Family Studies with Emphasis in Family and Community Services (Great Plains IDEA) .....	594
BSHES in Architectural Studies with Emphasis in Interior Design .....	571	MS in Human Development and Family Studies with Emphasis in Lifespan Development .....	594
Minor in Architectural Studies .....	573	Human Environmental Sciences .....	594
MA in Architectural Studies .....	573	PhD in Human Environmental Sciences .....	595
MA in Architectural Studies with Emphasis in Design with Digital Media .....	574	PhD in Human Environmental Sciences with Emphasis in Architectural Studies .....	595
MA in Architectural Studies with Emphasis in Environment and Behavior .....	574	PhD in Human Environmental Sciences with Emphasis in Human Development and Family Studies .....	596
MS in Architectural Studies .....	575	PhD in Human Environmental Sciences with Emphasis in Personal Financial Planning .....	597
MS in Architectural Studies with Emphasis in Design with Digital Media .....	576	PhD in Human Environmental Sciences with Emphasis in Textile and Apparel Management .....	597
MS in Architectural Studies with Emphasis in Environment and Behavior .....	576	Nutrition and Exercise Physiology .....	598
Dietetics .....	577	MS in Nutrition and Exercise Physiology .....	598
MS in Dietetics .....	578	MS in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology .....	598
Exercise Physiology .....	578	MS in Nutrition and Exercise Physiology with Emphasis in Nutritional Sciences .....	600
PhD in Exercise Physiology .....	579	Nutritional Sciences .....	600
Human Development and Family Studies .....	580	BSHES in Nutritional Sciences .....	601
BSHES in Human Development and Family Studies .....	582	BSHES in Nutritional Sciences with Emphasis in Nutrition and Fitness .....	602
BSHES in Human Development and Family Studies with Emphasis in Child Development and Education .....	583		
BSHES in Human Development and Family Studies with Emphasis in Child Life Specialist .....	583		
BSHES in Human Dev. & Family Studies with Emphasis in Early Childhood Education in a Mobile Society .....	585		
BSHES in Human Development and Family Studies with Emphasis in Family and Consumer Sciences Education .....	585		

BSHES in Nutritional Sciences with Emphasis in Nutrition and Foods .....	603	Graduate Certificate in Youth Development Specialist ....	628
BSHES in Nutritional Sciences with Emphasis in Nutritional Sciences .....	604	School of Journalism .....	629
Minor in Nutritional Sciences .....	605	Journalism .....	637
Personal Financial Planning .....	606	BJ in Journalism .....	640
BSHES in Personal Financial Planning .....	607	BJ in Journalism with Emphasis in Convergence Journalism .....	641
BSHES in Personal Financial Planning with Emphasis in Financial Counseling .....	608	BJ in Journalism with Emphasis in Magazine Journalism .....	643
BSHES in Personal Financial Planning with Emphasis in Personal Financial Management Services .....	608	BJ in Journalism with Emphasis in Photojournalism .....	644
BSHES in Personal Financial Planning with Emphasis in Personal Financial Planning .....	609	BJ in Journalism with Emphasis in Print and Digital News .....	645
Certificate in Personal Financial Planning .....	610	BJ in Journalism with Emphasis in Radio-Television .....	647
MS in Personal Financial Planning .....	610	BJ in Journalism with Emphasis in Strategic Communication .....	649
MS in Personal Financial Planning with Emphasis in Consumer and Family Economics .....	611	Minor in Journalism .....	650
MS in Personal Financial Planning With Emphasis in Personal Financial Planning .....	612	MA in Journalism .....	650
Graduate Certificate in Personal Financial Planning .....	612	MA in Journalism with Emphasis in Health Communication .....	652
Minor in Personal Financial Management Services .....	612	MA in Journalism with Emphasis in Interactive Media .....	652
Social Work .....	613	MA in Journalism with Emphasis in Media Management .....	653
BSW in Social Work .....	614	MA in Journalism with Emphasis in Strategic Communication .....	653
Minor in Social Work-Gerontology .....	616	PhD in Journalism .....	654
MSW in Social Work .....	616	Additional Minors and Certificates .....	655
PhD in Social Work .....	618	Graduate Minor in Law and Conflict Resolution for Journalism Doctoral Students .....	655
Graduate Certificate in Gerontological Social Work .....	619	School of Nursing .....	657
Graduate Certificate in Military Social Work .....	620	Nursing .....	658
Textile and Apparel Management .....	620	BSN in Nursing .....	660
BSHES in Textile and Apparel Management .....	621	DNP in Nursing Practice .....	662
Minor in Textile and Apparel Management .....	625	DNP in Nursing Practice with Emphasis in Adult-Gerontology Clinical Nurse Specialist .....	663
MA in Textile and Apparel Management .....	625	DNP in Nursing Practice with Emphasis in Family Nurse Practitioner .....	663
MS in Textile and Apparel Management .....	625	DNP in Nursing Practice with Emphasis in Family Psychiatric and Mental Health Nurse Practitioner .....	664
Additional Minors and Certificates .....	626	DNP in Nursing Practice with Emphasis in Nurse Leadership and Innovations in Health Care .....	665
Minor in Financial Literacy for Helping Professionals .....	626	DNP in Nursing Practice with Emphasis in Pediatric Clinical Nurse Specialist .....	665
Minor in Social Justice .....	626	DNP in Nursing Practice with Emphasis in Pediatric Nurse Practitioner .....	666
Minor in Wellness .....	627	MS in Nursing .....	667
Graduate Certificate in Financial and Housing Counseling .....	627		
Graduate Certificate in Geriatric Care Management .....	627		
Graduate Certificate in Gerontology .....	628		
Graduate Certificate in Youth Development Program Management and Evaluation .....	628		

MS in Nursing with Emphasis in Adult Health Clinical Nurse Specialist .....	668	MS in Biomedical Sciences with Emphasis in Comparative Medicine (post DVM) .....	683
MS in Nursing with Emphasis in Adult Mental Health Nurse Practitioner .....	668	MS in Biomedical Science with Emphasis in Pathobiology .....	684
MS in Nursing with Emphasis in Advanced Public Health Nurse .....	668	MS in Biomedical Science with Emphasis in Veterinary Medicine and Surgery .....	684
MS in Nursing with Emphasis in Advanced Public Health/School Health Nurse .....	668	MS in Biomedical Sciences with Emphasis in Veterinary Sciences .....	685
MS in Nursing with Emphasis in Family Mental Nurse Practitioner .....	668	MS in Biomedical Sciences with Emphasis in Biomedical Sciences .....	686
MS in Nursing with Emphasis in Family Nurse Practitioner .....	669	Clinical and Translational Science .....	687
MS in Nursing with Emphasis in Leadership in Nursing and Health Care Systems .....	669	MS in Clinical and Translational Science .....	687
MS in Nursing with Emphasis in Nurse Educator .....	669	PhD in Clinical and Translational Science .....	687
MS in Nursing with Emphasis in Pediatric Clinical Nurse Specialist .....	670	Data Science and Analytics .....	687
MS in Nursing with Emphasis in Pediatric Nurse Practitioner .....	670	MS in Data Science and Analytics .....	687
PhD in Nursing .....	670	MS in Data Science and Analytics with Emphasis in Biotechnology .....	688
Additional Minors and Certificates .....	672	MS in Data Science and Analytics with Emphasis in High Performance Computing .....	688
Graduate Certificate in Participatory Health Research ....	672	MS in Data Science and Analytics with Emphasis in Strategic Communications and Data Journalism .....	689
Graduate Minor in Health System Innovations .....	672	MS in Data Science and Analytics with Emphasis in Human Centered Data .....	689
Graduate Minor in Nursing Education .....	673	Graduate Certificate in Data Science and Analytics .....	689
School of Public Affairs .....	674	Dispute Resolution .....	690
Public Affairs .....	674	LLM in Dispute Resolution .....	690
Graduate Certificate in Global Public Affairs .....	675	Genetics Area Program .....	691
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Additional Minors and Certificates .....	676	MHA in Health Administration .....	693
Graduate Certificate in Organizational Consulting and Change .....	677	Health Informatics and Bioinformatics .....	695
Graduate Certificate in Grantsmanship .....	677	MS in Health Informatics and Bioinformatics .....	696
Graduate Certificate in Nonprofit Management .....	677	MS in Health Informatics and Bioinformatics with Emphasis in Bioinformatics .....	698
Graduate Certificate in Public Management .....	678	MS in Health Informatics and Bioinformatics with Emphasis in Health Informatics .....	698
Graduate Certificate in Public Policy .....	678	Graduate Certificate in Health Informatics .....	698
Interdisciplinary Academic Programs .....	678	Informatics .....	699
Academic Medicine .....	679	PhD in Informatics .....	700
MS in Academic Medicine .....	679	PhD in Informatics with Emphasis in Bioinformatics .....	701
American Law .....	680	PhD in Informatics with Emphasis in Health Informatics .....	703
LLM in American Law .....	680	Medical Pharmacology and Physiology .....	704
Biomedical Sciences .....	680	MS in Medical Pharmacology and Physiology .....	705
PhD in Biomedical Sciences .....	682		

PhD in Medical Pharmacology and Physiology .....	706	Juris Doctor (JD) .....	737
Microbiology .....	707	Graduate Certificate in Dispute Resolution .....	738
MS in Microbiology .....	708	Graduate Certificate in Electronic, Commercial and Intellectual Property Law .....	739
PhD in Microbiology (MED) .....	708	Graduate Certificate in Taxation .....	739
Neuroscience .....	712	Juris Doctor with Emphasis in Criminal Justice .....	739
Graduate Certificate in Neuroscience .....	713	Juris Doctor with Emphasis in Tax Law .....	739
MS in Neuroscience .....	713	Master of Laws (LLM) .....	739
PhD in Neuroscience .....	713	Additional Academic Programs .....	739
Nutrition Area Program .....	714	School of Medicine .....	742
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Pathobiology Area Program .....	715	DVM in Veterinary Medicine .....	745
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MS in Pathology .....	718	Accreditation .....	749
Social Work/Public Health .....	719	Important Facts .....	750
MSW/MPH in Social Work/Public Health .....	719	Notifications .....	751
Additional Minors and Certificates .....	720	Statement of Values .....	752
Certificate in Digital Global Studies .....	720	Supporting Offices .....	753
Certificate in Environmental Studies .....	721	Undergraduate Academic Assessment Goals .....	755
Certificate in General Honors .....	721	University Organization .....	755
Minor in Entrepreneurship .....	722	Academic Policies .....	757
Graduate Certificate in Autism and Neurodevelopmental Disorders - Interdisciplinary .....	725	Course Numbering .....	787
Graduate Certificate in Center for the Digital Globe .....	725	Curriculum Designator Abbreviations .....	789
Graduate Certificate in Community Processes .....	727	Faculty .....	2335
Graduate Certificate in Conservation Biology .....	727	Glossary .....	2405
Graduate Certificate in Epidemiology .....	728	Index .....	2408
Graduate Certificate in European Union Studies - Interdisciplinary .....	728		
Graduate Certificate in Global Public Health .....	728		
Graduate Certificate in Health Ethics .....	728		
Graduate Certificate in Informatics for Public Health .....	729		
Graduate Certificate in Life Science Innovation and Entrepreneurship .....	729		
Graduate Certificate in Society and Ecosystems - Interdisciplinary .....	730		
Graduate Minor in Ancient Studies .....	730		
Graduate Minor in College Teaching .....	732		
Graduate Minor in Gerontology Studies .....	732		
Graduate Minor in International Development .....	733		
Honors College .....	733		
School of Law .....	736		





# Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates

Superscripts on emphasis areas correspond to superscripts on that degree program's majors where the emphasis is applicable. See tables following the degree listing for Keys to the College and Degree abbreviations.

Degree Programs (emphasis)	College	Undergraduate	Graduate	Professional
Academic Medicine	MED		MS (p. 679)	
Accountancy	BUS	BSAcc (p. 329)	MAcc (p. 331), PhD (p. 332)	
Accounting Information Systems	BUS		Cert (p. 358)	
Aerospace	ENGR	Minor (p. 535)		
Aerospace Studies	A&S	Minor (p. 312)		
Afro-Romance Literatures in Translation	A&S	Minor (p. 312)		
Agribusiness Management	CAFNR	BS (p. 50)		
Agricultural Economics (Public Policy*)	CAFNR	BS* (p. 56), Minor (p. 58)		
Agricultural Education (Leadership*, Teacher Certification*)	CAFNR	BS* (p. 58), Minor (p. 61)	PhD (p. 61)	
Agricultural Leadership	CAFNR	Minor (p. 128)		
Agricultural Leadership, Communication and Education	CAFNR		MS (p. 62)	
Agricultural Systems Management	CAFNR	BS (p. 64), Minor (p. 65)		
Agricultural and Applied Economics	CAFNR		MS (p. 53), PhD (p. 54)	
Agriculture (Sustainable Agriculture*)	CAFNR	BS* (p. 65)		
Agroforestry	CAFNR		Cert (p. 131)	
American Constitutional Democracy	A&S	Minor (p. 312), Cert (p. 310)		
American Law	GRAD		LLM (p. 680)	
Analysis of Institutions and Organizations	CAFNR		Cert (p. 131)	
Ancient Studies	GRAD		Minor (p. 730)	
Animal Sciences	CAFNR	BS (p. 69), Minor (p. 71)	MS (p. 70), PhD (p. 71)	
Anthropology	A&S	BA (p. 141), Minor (p. 142)	MA (p. 143), PhD (p. 143)	
Applied Behavior Analysis	HP		MS (p. 540), Cert (p. 540)	
Applied Mathematics	A&S		MS (p. 227)	
Architectural Studies (Architectural Studies*, Interior Design*, Design with Digital Media^ ", Environment and Behavior^ ")	HES	BSHES* (p. 570), Minor (p. 573)	MA^ (p. 573), MS" (p. 575)	
Art	A&S	BA (p. 146), BFA (p. 147), Minor (p. 148)	MFA (p. 148)	

Art History and Archaeology	A&S	BA (p. 150), Minor (p. 152)	MA (p. 152), PhD (p. 153)
Assurance	BUS		Cert (p. 358)
Astronomy	A&S	Minor (p. 313)	
Athletic Training	HP	BHS (p. 541)	
Autism and Neurodevelopmental Disorders - Interdisciplinary	GRAD		Cert (p. 725)
Biochemistry	CAFNR	BS (p. 72)	MS (p. 74), PhD (p. 74)
Biological Engineering	ENGR	BSBE (p. 475)	MS (p. 476), PhD (p. 477)
Biological Sciences	A&S	BA (p. 156), BS (p. 157), Minor (p. 158)	MA (p. 159), PhD (p. 159)
Biomedical Sciences (Biomedical Sciences*, Comparative Medicine^, Pathobiology*, Veterinary Medicine and Surgery*, Veterinary Sciences*)	GRAD		MS* (p. 681), MS(post DVM)^ (p. 683), PhD (p. 682)
Black Studies	A&S	Minor (p. 313)	Minor (p. 322)
Business	BUS	Minor (p. 350)	
Business Administration ( Business^, Economics*, Finance and Banking*, International Business-Economics*, International Business-Finance*, International Business-Management*, International Business-Marketing*, Management*, Marketing*, Real Estate*)	BUS	BSBA* (p. 336)	MBA (p. 350), PhD^ (p. 352)
Canadian Studies	A&S	Minor (p. 313)	
Captive Wild Animal Management	CAFNR	Minor (p. 128)	
Career and Technical Education (Business and Marketing Education*^****, Human Resources Education***, Vocational Technical Education*^****)	EDUC		MEd* (p. 365), EdSp^ (p. 365), EdD" (p. 365), PhD** (p. 367)
Center for the Digital Globe	GRAD		Cert (p. 725)
Chemical Engineering (Biochemical*, Environmental*, Materials*)	ENGR	BSchE* (p. 478)	MS (p. 481), PhD (p. 482)
Chemistry	A&S	BA (p. 161), BS (p. 161), Minor (p. 163)	MS (p. 163), PhD (p. 163)
Chinese Studies	A&S	Minor (p. 314)	
Civil Engineering	ENGR	BSCIE (p. 484)	MS (p. 485), PhD (p. 486)
Classical Languages	A&S		MA (p. 167)
Classical Studies	A&S		PhD (p. 167)
Classics (Classical Humanities*^, Classical Languages*, Greek*^, Latin*^)	A&S	BA* (p. 164), Minor^ (p. 166)	

Clinical and Diagnostic Sciences (Clinical Laboratory Science*, Diagnostic Medical Ultrasound*, Nuclear Medicine*, Radiography*, Respiratory Therapy*)	HP	BHS* (p. 543)	MHS (p. 543)
Clinical and Translational Science (Clinical Research*, Health Services Research*, Translational Biomedicine*)	MED		MS (p. 687), PhD* (p. 687)
College Teaching	EDUC		Cert (p. 462)
College Teaching	GRAD		Minor (p. 732)
Communication	A&S	BA (p. 169)	MA (p. 170), PhD (p. 171)
Communication Science and Disorders (Speech-Language Pathology*)	HP	BHS (p. 552)	MHS* (p. 553)
Community Processes	GRAD		Cert (p. 727)
Computational Neuroscience	ENGR	Minor (p. 536)	
Computer Engineering	ENGR	BSCoE (p. 492)	MS (p. 493)
Computer Science	ENGR	BS (p. 498), Minor (p. 500)	MS (p. 500), PhD (p. 501)
Conservation Biology	GRAD		Cert (p. 727)
Data Science and Analytics (Biotechnology*, High Performance Computing*, Strategic Communications and Data Journalism*, Human Centered Data*)	GRAD		MS* (p. 687), Cert (p. 689)
Dietetics	HES		MS (p. 578)
Digital Global Studies	PROVOST	Cert (p. 720)	
Digital Storytelling	A&S	BA (p. 172)	
Dispute Resolution	GRAD		LLM (p. 690)
Dispute Resolution	LAW		Cert (p. 738)
Early Childhood Education	EDUC	BSEd (p. 367)	
East Asian Studies	A&S	Minor (p. 314)	
Economics (Econometrics and Quantitative Economics*^)	A&S	BA (p. 175), BS (p. 176), Minor (p. 177)	MA* (p. 177), PhD^ (p. 178)
Education Improvement	EDUC		Cert (p. 463)
Education Policy	EDUC		Cert (p. 463)
Educational Leadership	EDUC		EdD (p. 397)

<p>Educational Leadership and Policy Analysis (Educational Administration**; Educational Policy Studies**; Higher Education**); PK-12 Educational Leadership and Administration, Elementary Principal, Certification^; PK-12 Educational Leadership and Administration, Secondary Principal, Certification^; PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification^; PK-12 Educational Leadership and Administration, Superintendent, Certification"; PK-12 Educational Leadership Administration, Elementary Principal and Superintendent, Certification"; PK-12 Educational Leadership and Administration, Secondary Principal and Superintendent, Certification"; PK-12 Educational Leadership and Administration, Elementary and Secondary Principal and Superintendent, Certification")</p>	<p>EDUC</p>		<p>MA* (p. 393), MEd^ (p. 394), EdSp" (p. 398), PhD** (p. 403)</p>
<p>Educational Studies (Interdepartmental*)</p>	<p>EDUC</p>	<p>BES* (p. 405)</p>	
<p>Educational, School, and Counseling Psychology (Career Counseling Psychology^; Counseling Psychology**); Educational Psychology**; Educational Research Methods and Analysis**; Health Education and Promotion**; Mental Health Practices in Schools^; Positive Coaching^; School Counselor, Elementary, Certification^; School Counselor, Elementary and Secondary, Certification^; School Counselor, Secondary, Certification^; School Psychology^; School Psychology, Certification***; Sport Psychology^)</p>	<p>EDUC</p>		<p>MA* (p. 373), MEd^ (p. 374), EdSp" (p. 384), PhD** (p. 387)</p>
<p>Electrical Engineering</p>	<p>ENGR</p>	<p>BSEE (p. 513)</p>	<p>MS (p. 514)</p>

Electrical and Computer Engineering	ENGR		PhD (p. 505)
Electronic, Commercial and Intellectual Property Law	LAW		Cert (p. 739)
Elementary Education (Elementary Education*)	EDUC	BSEd* (p. 407)	
Elementary Mathematics Specialist	EDUC		Cert (p. 463)
Energy Efficiency	ENGR		Cert (p. 531)
Energy Engineering	ENGR	Minor (p. 536)	
Engineering	ENGR	Minor (p. 516)	ME (p. 516)
English	A&S	BA (p. 181), Minor (p. 182)	MA (p. 182), PhD (p. 183)
English Writing	A&S	Minor (p. 182)	
Entrepreneurship	PROVOST	Minor (p. 722)	
Environmental Sciences (Atmosphere*, Land and Soil*, Outreach and Education*, Water*)	CAFNR	BS* (p. 75)	
Environmental Studies	PROVOST	Cert (p. 721)	
Epidemiology	GRAD		Cert (p. 728)
European Union Studies - Interdisciplinary	GRAD		Cert (p. 728)
Exercise Physiology	HES		PhD (p. 579)
Film Studies (Film Production*)	A&S	BA* (p. 187), Minor (p. 188)	
Financial Literacy for Helping Professionals	HES	Minor (p. 626)	
Financial and Housing Counseling	HES		Cert (p. 627)
Food Safety and Defense	CAFNR		Cert (p. 132)
Food Science	CAFNR		MS (p. 84), PhD (p. 86)
Food Science and Nutrition	CAFNR	BS (p. 82), Minor (p. 85)	
Forestry	CAFNR	Minor (p. 129)	
French	A&S	Minor (p. 315)	
General Honors	PROVOST	Cert (p. 721)	
General Studies	A&S	BGS (p. 189)	
Genetics Area Program	GRAD		PhD (p. 692)
Geographical Information Science - Interdisciplinary	A&S	Cert (p. 193)	Cert (p. 194)
Geography (General Geography*, Geographic Information Sciences*, Physical/Environmental*, Regional/Cultural*)	A&S	BA* (p. 191), Minor (p. 193)	MA (p. 193)
Geological Sciences	A&S	BA (p. 195), BS (p. 196), Minor (p. 197)	
Geology	A&S		MS (p. 197), PhD (p. 197)
Geospatial Intelligence	A&S		Cert (p. 320)
Geriatric Care Management	HES		Cert (p. 627)
German	A&S	BA (p. 199), Minor (p. 199)	MA (p. 200)
Gerontological Social Work	HES		Cert (p. 619)

Gerontology	HES		Cert (p. 628)
Gerontology Studies	GRAD		Minor (p. 732)
Global Public Affairs	PUBAF		Cert (p. 675)
Global Public Health	GRAD		Cert (p. 728)
Grantsmanship	PUBAF		Cert (p. 677)
Health Administration	GRAD		MHA (p. 693)
Health Ethics	GRAD		Cert (p. 728)
Health Informatics	GRAD		Cert (p. 698)
Health Informatics and Bioinformatics (Bioinformatics*, Health Informatics*)	GRAD		MS* (p. 696)
Health Science (Health and Wellness Services*, Leadership and Policy*, Pre-Professional*, Rehabilitation Sciences*)	HP	BHS* (p. 555)	
Health System Innovations	NURS		Minor (p. 672)
Higher Education Administration	EDUC		Cert (p. 464)
History (Public History*)	A&S	BA* (p. 201), Minor (p. 202)	MA (p. 202), PhD (p. 204)
Hospitality Management (Conference and Event Planning Management*, Food and Beverage Management*, Lodging Management*, Sport Venue Management*)	CAFNR	BS* (p. 89), Minor (p. 91)	
Human Development and Family Studies (Child Development and Education*, Child Life Specialist*, Early Childhood Development^, Early Childhood Education in a Mobile Society*, Family and Community Services (Great Plains IDEA)^, Family and Consumer Sciences Education*, Family and Lifespan Development*, Family Studies^, Gerontology^, Lifespan Development^, Youth Development^)	HES	BSHES* (p. 582), Minor (p. 587)	MA^ (p. 588), MS" (p. 592)
Human Environmental Sciences (Architectural Studies*, Human Development and Family Studies*, Personal Financial Planning*, Textile and Apparel Management*)	HES		PhD* (p. 595)
Human Resource Management	BUS	Cert (p. 357)	
Industrial Engineering Informatics (Bioinformatics*, Health Informatics*)	ENGR	BSIE (p. 519)	MS (p. 520), PhD (p. 521)
	GRAD		PhD* (p. 700)

Informatics for Public Health	MED		Cert (p. 729)
Information Science and Learning Technologies (Learning Systems Design and Development" *, Library Media Specialist, Certification^, Library Science^, Online Educator" *, Technology in Schools" *)	EDUC		MA^ (p. 408), MEd" (p. 409), EdSp* (p. 411), PhD (p. 414)
Information Technology	ENGR	BS (p. 523), Minor (p. 524)	
Interdisciplinary (Black Studies*, Environmental Studies*, Peace Studies*, Women's and Gender Studies*)	A&S	BA* (p. 208)	
International Agriculture, Food & Natural Resources	CAFNR	Minor (p. 129)	
International Development	GRAD		Minor (p. 733)
International Studies (East Asian Studies*, Environmental Studies*, European Studies*, International Business*, Latin American Studies*, Peace Studies*, South Asian Studies*)	A&S	BA* (p. 215)	
Italian Area Studies	A&S	Minor (p. 315)	
Japanese Studies	A&S	Minor (p. 315)	
Jazz Studies	A&S	Minor (p. 315), Cert (p. 311)	Cert (p. 320)
Journalism (Convergence Journalism*, Health Communication^, Interactive Media^, Magazine Journalism*, Media Management^, Photojournalism*, Print and Digital News*, Radio-Television*, Strategic Communication*)	JOURN	BJ* (p. 640), Minor (p. 650)	MA^ (p. 650), PhD (p. 654)
Korean Studies	A&S	Minor (p. 316)	
Latin American Studies	A&S	Minor (p. 316)	
Law (Criminal Justice*, Tax Law*)	LAW		JD* (p. 737)
Law and Conflict Resolution	JOURN		Minor (p. 655)
Leadership and Public Service	A&S	Minor (p. 316)	



Learning, Teaching and Curriculum (Art Education**"; Art Education, Certification**"; Early Childhood Education**"; Early Childhood Education, Certification**"; Elementary Education** ^ ^"; Elementary Education , Teaching Fellow**"; English Education**"; English Education, Teaching Fellow**"; Foreign Language Education"; General* ^ ^"; Literacy Education** ^"; Mathematics Education** ^"; Mathematics Education, Certification**"; Mathematics Education, Teaching Fellow**"; Music Education* ^"; Music Education, Certification**"; Music Education, Teaching Fellow**"; Reading Education^"; Science Education** ^"; Science Education, Certification**"; Science Education, Teaching Fellow**"; Social Studies Education**"; Social Studies Education, Teaching Fellow**"; Teaching English to Speakers of Other Languages**)	EDUC		MA* (p. 422), MEd** (p. 423), EdSp^ (p. 419), EdD^^ (p. 417), PhD" (p. 435)
Life Science Innovation and Entrepreneurship	GRAD		Cert (p. 729)
Lifespan Development	A&S		Cert (p. 320)
Linguistics	A&S	BA (p. 220), Minor (p. 221)	Minor (p. 221)
Luso-Brazilian Area Studies	A&S	Minor (p. 316)	
Marketing Analytics	BUS		Cert (p. 358)
Mathematics (Actuarial Science and Mathematical Finance*)	A&S	BA (p. 223), BS* (p. 223), Minor (p. 225)	MA (p. 225), MST (p. 228), PhD (p. 229)
Mechanical Engineering (Aerospace Engineering*)	ENGR	BSME* (p. 527)	
Mechanical and Aerospace Engineering	ENGR		MS (p. 528), PhD (p. 529)
Medical Pharmacology and Physiology	GRAD		MS (p. 705), PhD (p. 706)
Medical/Health Physics	ENGR	Minor (p. 536)	
Medicine	MED		MD (p. 742)
Medieval and Renaissance Studies	A&S	Minor (p. 316)	Minor (p. 323)
Microbiology	GRAD		MS (p. 708), PhD (p. 708)
Middle East Studies	A&S	Minor (p. 317)	

Middle School Education (Language Arts*, Mathematics*, Science*, Social Studies*)	EDUC	BSEd* (p. 443)	
Military Science	A&S	Minor (p. 318)	
Military Social Work	HES		Cert (p. 620)
Multicultural Education	EDUC		Cert (p. 464)
Multicultural Psychology	EDUC		Minor (p. 466)
Multicultural Studies	A&S	Cert (p. 311)	
Museum Studies	A&S		Minor (p. 323)
Music (Collaborative Piano", Composition*", Conducting", Jazz Performance and Pedagogy", Music Education*, Music History*, Music Theory*", Musicology^, Performance*", Piano Pedagogy")	A&S	BA (p. 232), BM* (p. 233), Minor (p. 242)	MA^ (p. 243), MM" (p. 244)
Music Entrepreneurship	A&S	Cert (p. 311)	Cert (p. 322)
Natural Resource Science and Management (Fisheries and Wildlife*, Forest Resources*, Human Dimensions*, Terrestrial Ecosystems*)	CAFNR	BS* (p. 92)	
Natural Resources (Agroforestry*; Fisheries and Wildlife Sciences*^; Forestry*^; Human Dimensions of Natural Resources*^; Parks, Recreation and Tourism*; Soil, Environmental and Atmospheric Sciences*^; Water Resources*^)	CAFNR		MS* (p. 98), PhD^ (p. 106)
Naval Science	ENGR	Minor (p. 536)	
Neuroscience	GRAD		MS (p. 713), PhD (p. 713), Cert (p. 713)
Nonprofit Management	PUBAF		Cert (p. 677)
Nuclear Engineering (Environmental and Regulatory Compliance* ^, Health Physics*, Materials* ^, Medical Physics*, Thermal Hydraulics* ^)	ENGR	Minor (p. 531)	MS* (p. 532), PhD^ (p. 534), Cert (p. 531)
Nuclear Safeguards Science and Technology	ENGR		Cert (p. 532)

Nursing (Adult Health Clinical Nurse Specialist*, Adult Mental Health Nurse Practitioner*, Advanced Public Health Nurse*, Advanced Public Health/School Health Nurse*, Family Mental Health Nurse Practitioner*, Family Nurse Practitioner*, Leadership in Nursing and Health Care Systems*, Nurse Educator*, Pediatric Clinical Nurse Specialist*, Pediatric Nurse Practitioner*)	NURS	BSN (p. 660)	MS* (p. 667), PhD (p. 670)
Nursing Education	NURS		Minor (p. 673)
Nursing Practice (Adult-Gerontology Clinical Nurse Specialist*, Family Nurse Practitioner*, Family Psychiatric and Mental Health Nurse Practitioner*, Nurse Leadership and Innovations in Health Care*, Pediatric Clinical Nurse Specialist*, Pediatric Nurse Practitioner*)	NURS		DNP* (p. 662)
Nutrition Area Program	GRAD		PhD (p. 714)
Nutrition and Exercise Physiology (Exercise Physiology*, Nutritional Sciences*)	HES		MS* (p. 598)
Nutritional Sciences (Nutrition and Fitness*, Nutrition and Foods*, Nutritional Sciences*)	HES	BSHES* (p. 601), Minor (p. 605)	
Occupational Therapy	HP		MOT (p. 560)
Online Educator	EDUC		Cert (p. 465)
Organizational Consulting and Change	PUBAF		Cert (p. 677)
Parks, Recreation and Sport (Natural Resource Recreation Management*, Recreation Administration*, Sport Management*, Tourism Development*)	CAFNR	BS* (p. 112)	
Participatory Health Research	NURS		Cert (p. 672)
Pathobiology Area Program	GRAD		PhD (p. 717)
Pathology	GRAD		MS (p. 718)
Peace Studies	A&S	Minor (p. 318)	
Personal Financial Management Services	HES	Minor (p. 612)	

Personal Financial Planning (Consumer and Family Economics <sup>^</sup> , Financial Counseling <sup>*</sup> , Personal Financial Management Services <sup>*</sup> , Personal Financial Planning <sup>*^</sup> )	HES	BSHES <sup>*</sup> (p. 607), Cert (p. 610)	MS <sup>^</sup> (p. 610), Cert (p. 612)
Philosophy	A&S	BA (p. 250), BS (p. 251), Minor (p. 252)	MA (p. 252), PhD (p. 252)
Physical Therapy	HP		DPT (p. 562)
Physics (Astronomy <sup>*</sup> ; Biological Physics <sup>*</sup> , Materials Science <sup>*</sup> )	A&S	BA (p. 255), BS <sup>*</sup> (p. 256), Minor (p. 259)	MS (p. 259), PhD (p. 260)
Plant Sciences (Breeding, Biology and Biotechnology <sup>*</sup> ; Crop Management <sup>*</sup> ; Horticultural Science and Design <sup>*</sup> ; Turfgrass Science <sup>*</sup> )	CAFNR	BS <sup>*</sup> (p. 116), Minor (p. 121)	
Plant, Insect and Microbial Sciences	CAFNR		MS (p. 119), PhD (p. 121)
Political Science (Public Policy <sup>*</sup> )	A&S	BA (p. 264), Minor (p. 265)	MA <sup>*</sup> (p. 265), PhD (p. 266)
Positive Psychology	EDUC		Cert (p. 465)
Pre-Occupational Therapy	HP	BHS (p. 560)	
Pre-Professional Physical Therapy	HP	BHS (p. 562)	
Precision Agriculture Technology	CAFNR	Cert (p. 130)	
Psychological Statistics and Methods	A&S		Minor (p. 323)
Psychology (Child Clinical & Developmental Psychology <sup>^</sup> , Child Development & Developmental Psychology <sup>*</sup> , Clinical & Quantitative Psychology <sup>^</sup> , Clinical Psychology <sup>*^</sup> , Cognition & Neuroscience <sup>*^</sup> , Developmental Psychology <sup>*^</sup> , Quantitative Psychology <sup>^</sup> , Quantitative Psychometrics <sup>*</sup> , Social/Personality Psychology <sup>*^</sup> )	A&S	BA (p. 268), BS (p. 270), Minor (p. 273)	MA <sup>*</sup> (p. 273), PhD <sup>^</sup> (p. 274)
Public Affairs	PUBAF		MPA (p. 675), PhD (p. 676)
Public Health (Health Promotion and Policy <sup>*</sup> , Veterinary Public Health <sup>*</sup> )	HP	BHS (p. 563)	MPH <sup>*</sup> (p. 565), Cert (p. 565)
Public Management	PUBAF		Cert (p. 678)
Public Policy	PUBAF		Cert (p. 678)
Qualitative Research	EDUC		Cert (p. 465)
Radioenvironmental Sciences	ENGR	Minor (p. 537)	
Religious Studies	A&S	BA (p. 277), Minor (p. 278)	MA (p. 278)
Risk Management and Insurance	BUS	Cert (p. 357)	

Romance Languages (French <sup>^</sup> , Spanish <sup>^</sup> , Language Teaching <sup>^</sup> )	A&S	BA* (p. 279)	MA <sup>^</sup> (p. 281), PhD (p. 286)
Romance Literatures in Translation	A&S	Minor (p. 318)	
Rural Sociology	CAFNR	Minor (p. 124)	MS (p. 123), PhD (p. 124)
Russian	A&S	BA (p. 290), Minor (p. 291)	
Russian and Slavonic Studies	A&S		MA (p. 291)
Sales and Customer Development	BUS	Cert (p. 357)	
Science Outreach	A&S		Cert (p. 322)
Science and Agricultural Journalism	CAFNR	BS (p. 127)	
Secondary Education (Art Education*, Biology*, Chemistry*, Earth Science*, General Science*, Language Arts*, Mathematics Education*, Physics*, Social Studies*)	EDUC	BSEd* (p. 445)	
Social Justice	HES	Minor (p. 626)	
Social Work	HES	BSW (p. 614)	MSW (p. 616), PhD (p. 618)
Social Work - Gerontology	HES	Minor (p. 616)	
Social Work/Public Health (Health Promotion and Policy)	GRAD		MSW/MPH (p. 719)
Society and Ecosystems - Interdisciplinary	GRAD		Cert (p. 730)
Sociology	A&S	BA (p. 292), Minor (p. 294)	MA (p. 294), PhD (p. 294)
Soil, Environmental and Atmospheric Sciences	CAFNR	Minor (p. 129)	
South Asian Studies	A&S	Minor (p. 319)	
Spanish	A&S	Minor (p. 319)	
Special Education (Administration and Supervision of Special Education" "" , Autism <sup>^</sup> , Behavior Disorders <sup>** ^</sup> "" , Combined Early Childhood and Autism <sup>^</sup> , Cross Categorical, Certification <sup>^</sup> , Cross Categorical Special Education*, Curriculum Development for Exceptional Students <sup>** ^</sup> "" , Early Childhood Special Education <sup>** ^</sup> "" , General <sup>^^</sup> "" "" , Gifted Education <sup>^</sup> , Learning Disabilities <sup>** ^</sup> "" , Mental Retardation <sup>** ^</sup> "" , Special Education, General <sup>**</sup> )	EDUC	BSEd* (p. 450)	MA <sup>**</sup> (p. 451), MEd <sup>^</sup> (p. 454), EdSp <sup>^^</sup> (p. 450), EdD <sup>"</sup> (p. 450), PhD <sup>""</sup> (p. 458)
Statistics (Biostatistics*, Data Analytics*)	A&S	BA (p. 296), BS (p. 297), Minor (p. 298)	MA* (p. 298), PhD (p. 300), Minor (p. 301)

Strategic Studies	A&S	Minor (p. 319)	
Sustainable Agriculture	CAFNR	Minor (p. 130)	
Sustainable Energy and Policy	ENGR		Cert (p. 531)
Taxation	BUS		Cert (p. 358)
Taxation	LAW		Cert (p. 739)
Teaching English to Speakers of Other Languages	EDUC		Cert (p. 466)
Teaching High School Physics	A&S		Cert (p. 262)
Textile and Apparel Management	HES	BSHES (p. 621), Minor (p. 625)	MA (p. 625), MS (p. 625)
Theatre (Design/Technical*, Performance*, Writing for Performance*)	A&S	BA* (p. 303), Minor (p. 305)	MA (p. 305), PhD (p. 307)
Veterinary Medicine	VETM		DVM (p. 745)
Viticulture & Enology	CAFNR	Minor (p. 130)	
Wellness	HES	Minor (p. 627)	
Women's and Gender Studies	A&S	Minor (p. 319)	Minor (p. 324)
Youth Development Program Management and Evaluation	HES		Cert (p. 628)
Youth Development Specialist	HES		Cert (p. 628)

College abbreviations	
CAFNR	College of Agriculture, Food and Natural Resources
A&S	College of Arts and Science
BUS	Trulaske Collee of Business
EDUC	College of Education
ENGR	College of Engineering
GRAD	Graduate School
HP	School of Health Professions
HES	College of Human Environmental Sciences
JOURN	School of Journalism
LAW	School of Law
MED	School of Medicine
NURS	Sinclair School of Nursing
PROVOST	Office of the Provost
PUBAF	School of Public Affairs
VETM	College of Veterinary Medicine

Degree abbreviations	
BA	Bachelor of Arts
BES	Bachelor of Education Studies
BFA	Bachelor of Fine Arts
BGS	Bachelor of General Studies

BHS - Bachelor of Health Science
BJ - Bachelor of Journalism
BM - Bachelor of Music
BS - Bachelor of Science
BSAcc - Bachelor of Science Accounting
BSBA - Bachelor of Science Business Administration
BSBE - Bachelor of Science Biological Engineering
BSCHE - Bachelor of Science Chemical Engineering
BSCiE - Bachelor of Science Civil Engineering
BSCoE - Bachelor of Science Computer Engineering
BSEd - Bachelor of Science Education
BSEE - Bachelor of Science Electrical Engineering
BSHES - Bachelor of Science Human Environmental Science
BSIE - Bachelor of Science Industrial Engineering
BSME - Bachelor of Science Mechanical Engineering
BSN - Bachelor of Science Nursing
BSW - Bachelor of Social Work
Cert - Certificate
DNP - Doctor of Nurse Practitioner
DPT - Doctor of Physical Therapy
DVM - Doctor of Veterinary Medicine
EdD - Doctor of Education
EdSp - Education Specialist
JD - Juris Doctorate
LLM - Master of Laws
MA - Master of Arts
MAcc - Master of Accounting
MBA - Master of Business Administration
MD - Doctor of Medicine
ME - Master of Engineering
MEd - Master of Education
MFA - Master of Fine Arts
MHA - Master of Health Administration
MHS - Master of Health Science
MM - Master of Music
MOT - Master of Occupational Therapy
MPA - Master of Public Affairs
MPH - Master of Public Health
MS - Master of Science
MST - Master of Science for Teachers
MSW - Master of Social Work
PhD - Doctor of Philosophy

# Major and Career Exploration

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The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in Academic Exploration and Advising Services (AEAS) (<http://aeas.missouri.edu>) by calling (573)884-9700.
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu>) in the lower level of the Student Success Center. No appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 17) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.
- If you want information on what you can do with a major, contact or visit:
  - Faculty or staff in the home academic department for that major,
  - the What Can I do With This Major (<http://career.missouri.edu/index.php/majors-careers/explore-majors>) website,
  - the LinkedIn Field of Study Explorer (<https://www.linkedin.com/edu/fos>). (LinkedIn account required for login)
- If you are interested in information about occupations you're considering, visit O\*Net (<https://www.onetonline.org>) or the Occupational Outlook Handbook (<http://www.bls.gov/ooh>).
- If you are curious about employment opportunities including internships and after-graduation employment, contact or visit the appropriate MU Career Services Office (<http://hiremizzoutigers.com/career-offices>).



# University Level Academic Degree Requirements

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## Undergraduate

Undergraduate Requirements (University) (p. 32)

Common Credit Limitations (p. 32)

General Education Requirements (p. 33)

## Degree Audits for Undergraduates

The degree audit is an automated report reflecting a student's academic progress toward the completion of a degree. Degree Audits are not available for all programs; however, please consult with the appropriate college or school for audit information.

**MU students who have attended since August 2007** can request a degree audit by logging in to myZou (<http://myzou.missouri.edu>) and navigating to Self Service, then Student Center, and clicking on "Request Degree Audit." The audit automatically pulls in the student's MU course work, transfer courses and courses in progress.

**MU students who have NOT attended since August 2007** can request a degree audit by contacting the Academic Advising Unit of the division in which they were last enrolled at MU. For contact information, go to <http://advising.missouri.edu/contact/>.

**For newly admitted or prospective students**, MU degree audits can be created at <http://www.transfer.org>. Information on the college credits already earned will have to be manually entered before it can be evaluated against current degree requirements.

For additional details on degree audits, go to <http://registrar.missouri.edu/degree-audits/index.php>.

## Graduate and Professional

Master's Requirements (University) (p. 34)

Educational Specialist Requirements (University) (p. 38)

Doctoral Requirements (Graduate School) (p. 39)

Doctoral Requirements (Law School) (p. 45)

Details on the academic requirements for medical students can be found at <http://medicine.missouri.edu/education/curriculum.html>.

Details on the academic requirements for veterinary medical students can be found at <http://vetmed.missouri.edu/current.htm>.

## Undergraduate Requirements (University)

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Undergraduate students must complete all University requirements as well as all requirements specified for the degree(s) and major(s), and requirements of the college or school, and department offering the degree. This would include the University general education requirements as well as the following:

- A second MU Writing Intensive course<sup>\*</sup> must be completed in a student's major. It needs to be a 3000/4000 level MU WI course approved as part of the curriculum by the faculty of a student's major.

- Complete an approved capstone course<sup>\*</sup> with MU course work in the student's major
- Complete 30 of the last 36 credits with MU authored courses
- Complete no fewer than 120 credit hours of coursework.
- Students may transfer more than 64 credit hours for lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major
- Complete all University, general-education requirements (See the University General Education Requirements section in the catalog.)
- Earn no less than a 2.00 GPA, as defined by the GPA of Record
- Complete any additional divisional, degree or major requirements as specified by the academic unit offering the degree

<sup>\*</sup> Must be completed with a grade of C- or better.

## Common Credit Limitations

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The following credit limitations are applicable to all undergraduate students, regardless of degree program. Please check with advisor for more information.

### Chemistry

- A student can earn a maximum of 10 hours of credit towards graduation from the following courses: CHEM 1000 Introductory Chemistry, CHEM 1100 Atoms and Molecules with Lab CHEM 1320 College Chemistry I, CHEM 1330 College Chemistry II. CHEM 1310 (General Chemistry I) is also included in this maximum if you took the course prior to Fall 2013.

### Economics

- Students may not receive credit towards graduation for more than one of the following courses: ECONOM 1014 Principles of Microeconomics, ECONOM 1024 Fundamentals of Microeconomics, ECONOM 1051, or AG\_EC 1041 Applied Microeconomics.
- Students may not receive credit towards graduation for more than one of the following courses: ECONOM 1015 Principles of Macroeconomics, ECONOM 1051H, or ECONOM 1000 General Economics, or AG\_EC 1042 Applied Macroeconomics.

### History

- Students may not earn credit towards graduation for both HIST 1100 Survey of American History to 1865 and HIST 1400 American History.
- Students may not earn credit towards graduation for both HIST 1200 Survey of American History Since 1865 and HIST 1400 American History.

### Mathematics

- Students can only have a total of 5 hours of credit towards graduation from the following courses: MATH 1320 Elements of Calculus, MATH 1400 Calculus for Social and Life Sciences I, MATH 1500 Analytic Geometry and Calculus I.
- Students can only have a total of 5 hours of credit towards graduation from the following courses: MATH 1100 College Algebra,

MATH 1120, MATH 1140 Trigonometry, MATH 1160 Precalculus Mathematics.

- No hours for MATH 1050 MATH 1050 Quantitative Reasoning will count for credit if a student has already earned credit for MATH 1300 Finite Mathematics, MATH 1400 MATH 1400 Calculus for Social and Life Sciences I, or MATH 1500 MATH 1500 Analytic Geometry and Calculus I.

## Physics

- Students may not earn credit towards graduation for both PHYSICS 1210 College Physics I and PHYSICS 2750 University Physics I.
- Students may not earn credit towards graduation for both PHYSICS 1220 College Physics II and PHYSICS 2760 University Physics II.

## Psychology

- Students may not receive credit towards graduation for more than one of the following courses: PSYCH 2410 Developmental Psychology, H\_D\_FS 3420 Early and Middle Childhood, or ESC\_PS 2500 Child Development.

## Statistics

- Students may not receive credit towards graduation for more than one of the following courses: STAT 1200 Introductory Statistical Reasoning, STAT 1300 Elementary Statistics, or STAT 1400 Elementary Statistics for Life Sciences.
- Students may not receive credit towards graduation for more than one of the following courses: STAT 2500 Introduction to Probability and Statistics I or STAT 2530 Statistical Methods in Natural Resources.
- Students may only receive a maximum of 4 hours of credit towards graduation from the following courses: STAT 1200 Introductory Statistical Reasoning, STAT 1300 Elementary Statistics, STAT 1400 Elementary Statistics for Life Sciences, STAT 2200 Introductory Statistical Methods, STAT 2500 Introduction to Probability and Statistics I, or STAT 2530 Statistical Methods in Natural Resources.
- A student may not receive credit toward an undergraduate degree for any statistics course numbered 2999 or below if a statistics course numbered 4000 or above was successfully completed prior to or concurrent with the course in question. Exceptions may be approved at the discretion of the department.

## General Education Requirements

General education requirements are the foundation of knowledge upon which all University of Missouri degrees are built. They are specifically intended to prepare students as citizens who must make informed judgments about issues that go beyond the narrow area of their academic specialization. Students must complete the University General Education Requirements listed below. With careful planning, some courses may be chosen to meet both University General Education Requirements and one or more of the divisional, degree and major requirements. Students are strongly encouraged (and in some divisions they are required) to meet with an academic advisor to ensure adequate progress towards the selected degree and major. More information can be found at: <http://generaleducation.missouri.edu/>.

## Common University General Education Requirements for all MU degrees

- College Algebra (MATH 1100) or transferable equivalent<sup>1</sup> (3 credits). Students may satisfy this requirement by:
  - Completing an appropriate math course (MATH 1100 or MATH 1160),
  - Completing a calculus course at MU (MATH 1400, MATH 1500, MATH 1700, or MATH 2300)<sup>1</sup>, which provides back-credit for MATH 1100 (or MATH 1160),
  - Passing the Proctored ALEKS Exam with a sufficient score, thereby demonstrating proficiency in College Algebra, or
  - Possessing the minimum ACT or SAT Math subscores, thereby providing an exemption (See [mathplacement.missouri.edu](http://mathplacement.missouri.edu) for further details)
- English Exposition and Argumentation (ENGLSH 1000 or ENGLSH 1000H) or transferable equivalent<sup>1</sup> (3 credits)
  - This course in expository prose, which stresses writing as a process involving critical reading and thinking skills, should be taken during your freshman year.
- Writing Intensive course<sup>1,2,3</sup> (6 credits, 2 courses)
- American History or Government<sup>2,5</sup> (3 credits)
- Math Reasoning Proficiency Course<sup>1,2</sup> (these courses must state that College Algebra is a prerequisite)
- Complete an approved capstone course<sup>1</sup> with MU course work in the student's major
- Distribution Requirement (27 credits) providing a breadth and depth of knowledge in three broad areas of study. The course work must include at least one course numbered 2000 or higher in two of the areas of distribution as described below.
  - Must include 9 credits in these sciences: biological science, physical science, and / or mathematical science<sup>4</sup>
  - including at least one biological or physical science and its related laboratory component<sup>6</sup>
  - representing two different areas of science
  - Must include 9 credits of behavioral and/or social science
  - Courses must be from at least two different departments in these areas
  - Must include 9 credits of humanities and/or fine arts
  - including courses from at least two different departments in these areas  
Of special note related to the humanities and or fine arts distribution:
  - Only one course of specified of Humanities and Fine Arts courses can be counted.
  - For specified courses, the category will be designated per section per semester.
  - Students in CAFNR, Engineering, SHP, HES, SNR, and Nursing may use this course towards fulfillment of the humanities distribution requirement, but only if the entire 12-13 hour elementary language sequence is completed. This course may NOT be used to fulfill the humanities requirement in A&S, Business, Education, Journalism and Social Work.
  - For the full list of courses that fulfill this distribution and the noted exceptions, go to: <http://generaleducation.missouri.edu/courses/>

- 1 Must be completed with a grade of C- or better.
- 2 Designated courses may also be used toward the distribution requirement.
- 3 Course must be taken at MU unless requirement is waived via completion of an AA degree from a regionally-accredited, Missouri institution.
- 4 Must be courses in mathematics or statistics with College Algebra as a prerequisite.
- 5 Fulfills State Law Requirement.
- 6 The term "laboratory" is used in reference to courses or portions of courses that satisfy the following criteria:
  - They provide students with an opportunity for the active collection and/or analysis of data from real-world observations and experiments. These activities need not take place in a conventional "laboratory" setting but may be undertaken anywhere that an appropriate experiment or observation can take place (e.g., in the field).
  - They promote scientific literacy and critical thinking/problem solving skills.
  - Whenever possible, they include opportunities for students to design experimental or observational protocols.
  - If the laboratory is directly associated with a specific lecture course or is included as part of a course that also includes lecture, the laboratory activities promote understanding of the content presented in the lecture.

## Transfer Students and University General Education Requirements

All University, general-education requirements are considered completed for students who transfer to MU with an AA degree from a regionally-accredited Missouri institution. Transfer credits for other students are evaluated on a course-by-course basis. All students must complete University graduation requirements beyond the University general education requirements.

NOTE: Many departments, degrees and majors have more specific requirements for foundation course work in addition to the University, general-education requirement. However, the reverse is not true. Departments or academic units may not have fewer general education requirements than described by the University general education requirements. Careful planning will allow students to simultaneously meet University, general-education requirements and prepare for many of the more specific foundation courses required by their field of study.

## Master's Requirements (University)

The purpose of this section is to provide an overview of the Office of Graduate Studies policies. Students considering a master's degree should read all of the information below to fully understand the requirements of advanced study (e.g., residency, plan of study and time lines for completion) at MU.

MU confers a variety of master's, dual master's degrees (<http://gradschool.missouri.edu/academics/process/dual-masters-process>) or **dual master's/ professional degrees** to students who satisfy the general requirements of the Graduate School and the specific requirements of the degree-granting department or area program. Designated **graduate minors** and **certificates** are available in some academic fields. **Thesis and non-thesis options** are available for select plans of study; students must consult with individual degree programs for more information.

## Master's Residency Requirements

The faculty of each graduate program determines its own residency requirements for master's degrees, subject to initial review by the Graduate Faculty Senate. Consult with the academic program for requirements. For academic programs that choose to maintain the traditional regulation concerning residency for master's students, the following applies: the student must complete a minimum of 24 semester hours of MU graduate courses which are taught by MU faculty and which are approved by the academic program and the Graduate School. Students who cannot fulfill residency requirements are encouraged to consider Mizzou Online for available degrees.

## Graduation and Commencement Deadlines and Forms

It is recommended that students refer often to the Graduation & Commencement Deadlines for Master's Students (<http://gradstudies.missouri.edu/academics/graduation-commencement/timeline-deadlines/master-timeline.php>) to avoid missing any important graduation or commencement deadlines. In addition to various deadlines, student must also submit a variety of necessary paperwork. By the end of the first year of master's work at MU, a student must begin submitting degree program forms, which will aid the department and the Office of Graduate Studies in planning an academically appropriate course of study and in tracking the student's progress toward degree completion. These forms include the following:

*Program of Study.* Outlines the course work to be included in the student's degree program. Due in the Office of Graduate Studies by the end of the second semester unless the degree can be completed in two semester. In that case, the form is due by the end of the first semester. Plan of Study (M1) form (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m1.pdf>) Request for Thesis Committee (thesis option only). Is a membership proposal for the student's thesis committee. Due in the Graduate School by the end of the second term. Request for Thesis Committee (M2) form (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m2.pdf>)

*Report of Master's Examining Committee.* Reports the results of the thesis defense, master's comprehensive exam, project presentation, portfolio review, etc. Due in the Graduate Studies two weeks prior to graduation. Report of Master's Examining Committee (M3) form (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m3.pdf>).

## Choosing an Advisor

Graduate Committee Membership for Jointly Appointed Faculty Chapter 320 of the Collected Rules and Regulations for the University of Missouri requires that all jointly appointed faculty members will have designated Primary Appointment and Primary Departments well as affiliation with one or more involved academic programs. These affiliations affect membership status of jointly appointed faculty on graduate student committees as follows:

- Faculty members may serve as advisor/committee chair when their Primary Appointment is in the graduate student's home academic program.
- When the graduate student's home academic program is the involved academic program for a jointly appointed faculty member, this person may serve as chair/advisor with the approval of the director of graduate studies from the student's home academic department.

- A faculty member can serve as an Internal Member only when their Primary Appointment is in the graduate student's home academic program.
- When a graduate student's home academic program is the involved academic program for a jointly appointed faculty member, he or she may serve as either an Internal or External Member of the committee.

## Graduate Committee Membership for Adjunct Faculty

Adjunct Faculty may serve as a Committee Chair or Committee Member only in academic programs in which they are appointed and approved for Graduate or Doctoral Faculty membership as appropriate for the student's degree (Master's or Doctoral). Service on graduate committees outside the academic program in which they are appointed requires a recommendation by the director of graduate studies from the student's home academic program and approval by the vice provost for advanced studies and dean of the Graduate Studies.

## Master's Plan of Study

The Graduate Faculty Senate has established a campus wide minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent) for a master's degree. Fifteen of the 30-hour minimum must be selected from courses numbered at 8000 or 9000 level. No more than 40 percent of the 30-hour credit requirement can be satisfied by a combination of special investigations, Research, Readings and / or Problems courses. Master's Plan of study. (<http://gradschool.missouri.edu/academics/process/plan-of-study/masters.php>)

## Completing a Plan of Study Form

After performing satisfactorily for a minimum of one semester, the student, with the advisor's assistance, completes the Plan of Study form (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m1.pdf>) that outlines the plan of study for the student's graduate program. The form is forwarded through the academic program's director of graduate studies to the Office of Graduate Studies for approval. The Plan of Study form must be filed with Graduate Studies by the end of the student's second semester of enrollment or at least one semester prior to graduation. Upon approval of the program by the Office of Graduate Studies, the student is a candidate for the degree. If a change is necessary to a student's approved Plan of Study form, a Plan of Study Substitution form (<http://gradschool.missouri.edu/forms-downloads/repository/subform.pdf>) must be used.

**Note:** An academic program may have additional credit hour (or other) requirements. Check with the program of interest to confirm degree requirements.

## Transfer Credit Toward a Master's Degree

A maximum of 20 percent of the number of credit hours required for a student's degree may be graduate credits transferred from another university, including another campus of the University of Missouri system upon the recommendation of the advisor, the approval of the academic program director of graduate studies and the Office of Graduate Studies.

**Note:** the above represents a change in policy and becomes effective for graduate students beginning their master's programs during the fall semester 2001. Students who began their master's programs prior to the fall semester 2001 have the option of using the above regulation or the regulation in place at the time they began their degree program. The MU

Office of Graduate Studies will review the transfer request to determine if the credit meets the minimum guidelines.

If so then the Office of Graduate Studies will process the request so that each transfer course will appear on the student's transcript.

## How to Request Transfer of Credit

1. The request or transfer credit must first be approved by the student's advisor and the department's director of graduate studies.
2. Once approved the student submits his/her Plan of Study or Course Substitution form to add the transfer work to the Plan of Study along with an unopened, official transfer transcript if one is not currently on file with the Graduate School.
3. Once the Graduate School has received the request it will be reviewed to determine if minimum requirements have been met.
4. If approved then the Graduate School will process the request so that the transfer credit appears on the MU student record.

## Minimum Transfer Requirements

Transfer course work:

- must be less than eight years old by the time the master's degree is conferred;
- was taken for graduate credit and clearly marked as such on the transfer transcript, complete with credit hours and a grade;
- is limited to no more than 20 percent of the total course work on the student's Plan of Study form;
- is from a regionally accredited institution in the U.S. or an overseas institution that is recognized by its country's Ministry of Education as a graduate degree granting institution; and
- is not extension or correspondence credit (see policy on correspondence credit above)

## Credit Toward a Second Master's Degree

A student who has completed one master's degree at the University of Missouri or elsewhere may, upon recommendation of the advisor and approval by the academic program's director of graduate studies and the Office of Graduate Studies, present a maximum of eight hours of credit earned in the previous program toward a second master's degree.

## Forming a Master's Thesis Committee

When a thesis is required for completion of a master's degree, the student is required to submit a Request for Thesis Committee (M2 form) (<http://gradschool.missouri.edu/forms-downloads/repository/m2.pdf>) or a dual-masters Request for Thesis Committee (DM2 form) (<http://gradschool.missouri.edu/forms-downloads/repository/dm2.pdf>) for approval by the academic program's director of graduate studies and the office of Graduate Studies by the end of the student's second semester. A thesis committee is composed of three members of the MU faculty: a major advisor from the academic program, a second reader from the academic program and an outside reader who is a member of the graduate faculty from a different MU graduate program.

After the Request for Thesis Committee form has been filed, any changes must be submitted through the Change of Committee form (<http://gradschool.missouri.edu/forms-downloads/repository/cocform.pdf>).

## Approval of a Non-MU Faculty Member

Upon approval of the academic program's director of graduate studies, the student may petition the Office of Graduate Studies to allow a

person who is not a member of the MU graduate faculty to serve as the third reader. The petition should include a written justification for such a request and a copy of the person's curriculum vitae. The Office of Graduate Studies maintains copies of curricula vitae previously received and approved, and if such a request is anticipated, the student should contact the Office of Graduate Studies to see if the curriculum vitae of a particular person is already on file.

## The Thesis Process

If a thesis is required, it must be the student's own work and must demonstrate a capacity for research and independent thought. A student writing a thesis should refer to the Graduate Studies Guidelines for Preparing Theses and Dissertations (<http://gradschool.missouri.edu/forms-downloads/repository/etd-guidelines.pdf>). Academic programs may have additional requirements. The Office of Graduate Studies sets deadlines for master's students (<http://gradschool.missouri.edu/academics/graduation-commencement/timeline-deadlines/master-timeline.php>) for completion and submission of the thesis.

## Thesis Acceptance

A thesis must be approved by the major advisor, a second reader from the academic program and an outside reader who is a member of the graduate faculty from a different MU graduate program. Students need to supply committee members with copies for review/evaluation. After successfully defending the thesis, the student will make any needed adjustments in format and corrections, based on input from the committee. The thesis is then submitted as PDF file on a CD ROM or electronically to the Office of Graduate Studies by the established master's deadline.

Review the Office of Graduate Studies web pages for additional information on the master's thesis process (<http://gradschool.missouri.edu/academics/thesis-dissertation/process>).

A searchable thesis and dissertation archive is maintained by the MU Libraries.

## Grades at the Graduate Level-Graduation Requirement

To become eligible for a master's degree, a student must have completed all MU graduate work attempted with a GPA of 3.0 (A=4.0) or higher. Review grading policies (p. 773) for more information.

## Examination Process

### Thesis Option

Where a thesis is presented in partial fulfillment of graduation requirements, students must form a thesis committee. In the final semester, the student must successfully present (defend) the thesis. Three members of the student's committee must sign the Report of the Master's Degree Examining Committee (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m3.pdf>), which is then forwarded through the academic program's director of graduate studies to the Graduate School by the semester deadline.

### Non-Thesis Option

Where no thesis is presented by the candidate, a final examination committee, composed of three members from the academic program, is designated by the academic program's director of graduate studies with the approval of the office of Graduate Studies. During the final semester, the Report of the Master's Examining Committee (pdf), signed

by the director of graduate studies, is forwarded to the Office of Graduate Studies by the semester deadline. All candidates for the MA or MS degrees must complete either a thesis or a substantial independent project that cannot be coauthored.

## Enrollment at the Master's Level

For general master's enrollment requirements go to the Office of Graduate Studies web page on master's enrollment requirements (<http://gradschool.missouri.edu/academics/progress/graduate-stud-progress/master-stud-progress.php>).

## Enrollment

The master's candidate must be enrolled at the University during the semester or session in which a thesis is defended, a master's project is presented, or the completion of a master's comprehensive exam is certified.

## Scheduling Exams, etc.

Comprehensive exams, thesis defenses, portfolio presentations and the like may be offered during the regular semester session. Dates that are excluded from graduation examinations include breaks between regular semester sessions, national holidays where the University is not in operation and weekends.

## Enrollment for Graduate Examination

Master's and educational specialist degree candidates who have completed all requirements except the final examination or the defense of the thesis/project must be enrolled when the final examination is given or the thesis/project is defended. Students who do not wish to enroll in course work during this time can enroll in "Graduate Examination" hours only.

**Note:** Registration in the "Graduate Examination" does not count toward enrollment certification. Students enrolled in the "Graduate Examination" would not be considered full-time or part-time.

Graduate students must be enrolled in at least nine credit hours to be considered full-time students and at least four credit hours to be considered half-time students during fall and spring terms. For summer terms, graduate students must be enrolled in four hours to be considered full-time and two hours to be considered half-time students.

Students with financial aid or a visa should discuss plans with the Student Financial Aid (<http://financialaid.missouri.edu>) office before registering for Graduate Examination hours. International students with a visa should discuss plans with MU's International Center (<http://international.missouri.edu>) before registering for the Graduate Examination. Failure to do so could cause serious consequences for a student's financial aid or visa status.

## How Enrollment Status Affects Access to Campus Resources

Students who enroll in the Graduate Examination will not have a valid student ID and thus will not have regular access to the Student Health Center, MU Libraries, the Student Recreation Center or campus computing centers. If a student needs to use any of these services, registration in a one-, two-, or three-hour course (including graduate research courses) is required. Extra fees apply for access too.

## Time Limit for Master’s Degree Completion

The program for the master’s degree must be completed within a period of eight years beginning with the first semester of enrollment in which the student is accepted to a degree program or from the date of the oldest coursework used on the plan of study. Individual academic programs may stipulate a shorter time period. Time spent in the armed services will not count toward the eight-year limit (see also Active Duty Policy). For any extension of this time limitation, the student must petition the Office of Graduate Studies by submitting a request to the advisor who, in turn, submits a written recommendation to the Office of Graduate Studies that is endorsed by the academic program’s director of graduate studies. The Office of Graduate Studies will notify the advisor in writing of the final decision.

For academic advice or assistance with degree program planning, students should contact their advisors. See master’s graduation requirements. (<http://gradschool.missouri.edu/academics/graduation-requirements/masters-grad-requirements.php>)

## Reasonable Rate of Progress for Master’s Students

Reasonable rate of progress is governed by both the campus-wide policies of the Office of Graduate Studies as well as academic program regulations which may be more restrictive. Failure to satisfy the Office of Graduate Studies rate of progress policies leading to dismissal is handled by the Request for Extension (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) process.

## Deadline for Submission of Thesis After Successful Defense

After successful defense of the thesis or dissertation, students must comply with their academic program’s and/or the International Center’s enrollment requirements. Students are required to submit their final dissertation or thesis by the end of the following semester after a successful defense unless a letter asking for an extension is submitted to the Graduate Dean by the student’s advisor and program’s DGS.

## Extension Requests for Master’s Students

Extenuating circumstances that inhibit a student’s rate of progress are handled through the Request for Extension (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) process.

## Dismissal

Dismissals arising from violation of academic program policies may be appealed using the Appeals Process. For additional details, graduate students should refer to the Dismissal Policy (<http://gradschool.missouri.edu/academics/progress/probation-termination.php>) and the Extension Requests and Appeals Process (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>).

## Dual Degrees: Master’s Students

As the US workforce becomes increasingly interdisciplinary, some master’s students elect to concurrently pursue two advanced study degrees. All dual-degree programs at the graduate level require Graduate Faculty Senate approval. Please refer to the A-Z list of graduate degree

programs (<http://gradschool.missouri.edu/academics/programs/a-z>) to learn what is currently available.

The two types of dual master’s degrees are the dual master’s degree and the dual master’s-professional degree.

Degree Type	Dual Master’s Degree	Dual Master’s-Professional Degree
Description	This is a cooperative degree, arranged between two graduate degree granting programs and approved by the Graduate Faculty Senate.	This is a cooperative degree arranged between a graduate degree granting program and a professional degree granting program (e.g., law or medicine) and approved by the Graduate Faculty Senate.
Application Processes	Students must simultaneously submit a separate application to both degree programs to be considered for admittance. Because some students may not be aware of an approved dual-degree program before their arrival at MU, the option to participate in an approved dual-degree program may be postponed until no later than the end of a student’s second semester at MU. Start your online application process at <a href="http://gradschool.missouri.edu/admissions/index.php">http://gradschool.missouri.edu/admissions/index.php</a>	The Office of Graduate Studies oversees the master’s degree portion of the dual master’s/professional degree. Students must apply to both the Office of Graduate Studies and the professional program, notifying both of their interest in the dual program. Start your online application process to the Graduate School at <a href="http://gradschool.missouri.edu/admissions/index.php">http://gradschool.missouri.edu/admissions/index.php</a>
Forms and Policies	Students must fill out an Application for Dual Enrollment (pdf) no later than the end of a student’s second semester at MU.	For Graduate Studies policies and forms pertaining to the master’s portion of the dual master’s/professional degree, refer to the Master’s Degrees Requirements and Policies on the website.

## Note on Dual Degrees for Law Students

Dual-degree programs with the Law School enable students to earn the Juris Doctor (JD) concurrently with a Master’s or PhD degree. Dual-degree students must fulfill entrance requirements for both schools, including the graduate school’s entrance exam (if required) and the LSAT. Contact the Law School (p. 736) for more information on their dual-degree programs.

## Note on Dual Degrees for Medical Students

Additional information concerning medical dual degrees for both master's and doctoral students can be found on the doctoral dual degree (<http://gradschool.missouri.edu/academics/graduation-requirements/dual-degree-requirements.php>) page.

## Counting Credits

A student must complete a minimum of 18 hours of graduate courses for each degree program respectively. A minimum of 3 hours must be 8000-level courses. Additionally, the student must complete 12 hours of shared 8000-level graduate credit, which can include thesis/project research credit, as applicable.

Thus,  $18 + 18 + 12 = 48$  hours of graduate credit which is the minimum total hours for a dual master's degree program.

For example, for a dual master's degree program in Applied Mathematics and Electrical Engineering, a student's plan of study must show 18 hours of Applied Mathematics graduate course work that applies only to the Applied Mathematics degree and 18 hours of Electrical Engineering graduate course work that applies only to the Electrical Engineering degree. The additional 12 hours of shared 8000-level graduate credit brings the total earned graduate credit hours to 48.

## Transfer Credit

Up to eight hours of transfer credit may be applied as follows: to one of the two degree programs, or divided between the two degree programs. The eight hours of transfer credit cannot be applied to each degree program separately.

## Advising & Committees

There will be a separate advisor and committee for each degree program.

*Dean's Note:* the option of a combined committee structure may be included in proposals for Graduate Faculty Senate consideration, e.g., co-advisors who would also serve as outside members, plus one additional member from each degree program, for a total of four committee members.

## Dual Degree Progress Forms

Special dual master's degree program forms will be used to certify plans of study, committee members and final defense/examinations. The forms are available from the Master's Requirements Time Line (<http://gradschool.missouri.edu/academics/graduation-commencement/timeline-deadlines/master-timeline.php>).

## Conferral of Dual Degrees

The Office of Graduate Studies will confer two separate diplomas upon completion of all degree program requirements.

## Educational Specialist Requirements

This degree, offered through the College of Education, is a 30-hour program of specialization built upon the education specialist degree, of which 24 hours must be taken with MU faculty. Six semester hours must be completed within one semester or summer session to provide an in-residence experience. Students have eight years to complete the degree from the time they are first admitted to the degree program. A student is required to take a final examination, and the report of the results must be

approved by a majority of the candidate's advisory committee members and submitted to the Graduate School. For additional information on the Educational Specialist degree (<http://gradschool.missouri.edu/academics/graduation-requirements/educ-spec-requirements.php>), consult the College of Education's site (<http://education.missouri.edu>).

## Required Educational Specialist Forms

The Graduate School obtains students' official academic records as soon as they complete their first terms of enrollment. Each of the following forms is completed at the departmental/program level, routed for required signatures and forwarded to the Graduate School in 210 Jesse Hall.

Forms are reviewed by staff in the Office of Graduate Studies, given the Associate Vice Chancellor for Graduate Studies' signature if approved, and an electronic copy is made available to the academic program office. If changes/corrections are needed, or if any signatures are missing, the forms will be returned to the department for corrective measures. If any faculty signatures are illegible, we ask that departments print a correct spelling below any such signatures.

Request for the Educational Specialist Advisory Committee (<http://gradschool.missouri.edu/forms-downloads/repository/s1.pdf>) (S-1 form, PDF)

The S-1 form serves as official documentation of who serves on a student's advisory committee. It should be submitted to the Office of Graduate Studies by the end of a student's second semester or at least one semester prior to degree completion.

Plan of Study for the Educational Specialist Degree (<http://gradschool.missouri.edu/forms-downloads/repository/s2.pdf>) (S-2 form, PDF)

The S-2 form provides the student, academic program/department and the Office of Graduate Studies with a plan for all the course work that will comprise a plan of study. It serves as a general plan to follow. Changes on the plan of study can be made easily by submitting a Course Substitution form (<http://gradschool.missouri.edu/forms-downloads/repository/subform.pdf>). The S-2 form should be submitted to the Graduate School preferably by the end of a student's second semester or at least one semester prior to degree completion.

Report of the Educational Specialist Examining Committee (<http://gradschool.missouri.edu/forms-downloads/repository/s3.pdf>) (S-3 form, PDF)

This form is submitted by the academic program/department and reports the final results of a student's comprehensive examination. Students are encouraged to consult with their departments to make sure the departments submit the S-3 form shortly after the exam has been graded.

## Transfer Credit Toward the Educational Specialist Degree

A maximum of 20 percent of the number of credit hours required for a student's degree may be graduate credits transferred from another university, including another campus of the University of Missouri system upon the recommendation of the advisor, the approval of the academic program director of graduate studies and the Office of Graduate Studies.

**Note:** The above represents a change in policy and becomes effective for graduate students beginning their education specialist programs during the fall semester 2001. Students who began their education specialist programs prior to the fall semester 2001 have the option of using the above regulation or the regulation in place at the time they began their degree program. The MU Office of Graduate Studies will review the

transfer request to determine if the credit meets the minimum guidelines. If so then the Graduate School will process the request so that each transfer course will appear on the student's transcript.

## How to Request Transfer of Credit

1. The request or transfer credit must first be approved by the student's advisor and the department's director of graduate studies.
2. Once approved the student submits his/her Plan of Study or Course Substitution form to add the transfer work to the Plan of Study along with an unopened, official transfer transcript if one is not currently on file with the Office of Graduate Studies.
3. Once the Office of Graduate Studies has received the request it will be reviewed to determine if minimum requirements have been met.
4. If approved then the Office of Graduate Studies will process the request so that the transfer credit appears on the MU student record.

## Minimum Transfer Requirements

Transfer course work:

- must be less than eight years old by the time the education specialist degree is conferred;
- was taken for graduate credit and clearly marked as such on the transfer transcript, complete with credit hours and a grade;
- is limited to no more than 20 percent of the total course work on the student's Plan of Study form;
- is from a regionally accredited institution in the U.S. or an overseas institution that is recognized by its country's Ministry of Education as a graduate degree granting institution.

## Special Types of Credit for the Educational Specialist Degree

A maximum of six semester hours completed with a grade of B or better may be accepted in transfer from institutions accredited to offer doctoral degrees. Off-campus courses authorized for graduate credit and offered by MU faculty members and courses offered through MizzouOnline taught by MU faculty may be included in the program.

## Grades at the Graduate level-Graduation requirement

To become eligible for a education specialist degree, a student must have completed all MU graduate work attempted with a GPA of 3.0 (A=4.0) or higher. Review grading policies (p. 773) for more information.

## Enrollment

The educational specialist candidate must be enrolled at the University during the regular semester session in which comprehensive exams are taken, portfolio or project is presented, etc.

## Time Limit for Education Specialist Degree Completion

The program for the education specialist degree must be completed within a period of eight years beginning with the first semester of enrollment in which the student is accepted to a degree program or from the date of the oldest coursework used on the plan of study. Individual academic programs may stipulate a shorter time period.

Time spent in the armed services will not count toward the eight-year limit (see Active Duty Policy (<http://veterans.missouri.edu/forms/active-duty.php>)). For any extension of this time limitation, the student must petition the Office of Graduate Studies by submitting a request to the adviser who, in turn, submits a written recommendation to the Graduate School that is endorsed by the academic program's director of graduate studies. The Office of Graduate Studies' staff will notify the advisor in writing of the final decision.

For academic advice or assistance with degree program planning, students should contact their advisors.

## Reasonable Rate of Progress for Education Specialist Students

Reasonable rate of progress is governed by both the campus wide policies of the Graduate School as well as academic program regulations which may be more restrictive. Failure to satisfy the Graduate School's rate of progress policies leading to dismissal are handled by the Request for Extension process, and the decision of the Associate Vice Chancellor for Graduate Studies in these matters is binding.

## Extension Requests for Education Specialist Students

Extenuating circumstances that inhibit a student's rate of progress are handled through the Request for Extension (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) process. The decision regarding an extension is made by the vice provost for advanced studies and dean of the Graduate School, and is binding.

## Dismissal

Dismissals arising from violation of academic program policies may be appealed using the Appeals Process. For additional details, graduate students should refer to the Dismissal Policy (<http://gradschool.missouri.edu/academics/progress/probation-termination.php>) and the Extension Requests and Appeals Process (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) pages on the Office of Graduate Studies website.

## Doctoral Requirements (Graduate Studies)

The University of Missouri grants four types of doctoral degrees: the doctor of philosophy (PhD), the doctor of education (EdD), the doctor of physical therapy (DPT), and the doctor of nursing practice (DNP). Consult with individual departments to learn about the availability of degrees. To obtain a doctoral degree, a student must follow the general regulations of the Graduate Faculty Senate well as special requirements of the degree program. It is the student's responsibility to adhere to all regulations and satisfy the graduation requirements of the Office of Graduate Studies and the degree program. An individual who has held, at any time, a regular tenure-track appointment in an MU academic program is not eligible for a doctoral degree from that department or the area program in which that department participates.



## Doctoral Qualifying Examination or Process

Prior to official admission into a doctoral program, the student must pass a qualifying examination or process. A department or area program may limit the number of times this examination or process may be attempted. After the qualifying process is complete and the doctoral committee has been confirmed, the Qualifying Examination Results and Doctoral Committee Approval (D1) (<http://gradstudies.missouri.edu/forms-downloads/repository/d1.pdf>) form should be submitted to the Office of Graduate Studies, no later than the end of the second semester of enrollment.

## Selecting a Doctoral Advisor

The student selects an advisor or co-advisors, by mutual consent, from doctoral faculty members who are dissertation supervisors in the department or area program in which the major work is planned. In the event that an advisor retires or leaves MU, he/she may continue to serve as a student's advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the director of graduate studies, will assist to ensure that a replacement is found.

## Forming a Doctoral Program Committee

The doctoral program committee must be recommended by the student's advisor and approved by the academic program's director of graduate studies and the Office of Graduate Studies before one year has elapsed following the student's first registration as a doctoral student. The Qualifying Examination Results and Doctoral Committee Approval (D1) (<http://gradstudies.missouri.edu/forms-downloads/repository/d1.pdf>) form is due to the Graduate School office by the end of the student's second semester.

## Committee Changes

Changes to the committee must be submitted on the Change of Committee form.

## Duties

All members of the doctoral program committee will be intimately involved and will actively participate in the activities of the doctoral student at all the stages of the student's career at MU, except in some cases in the qualifying examination/process. The committee also may participate in the assessment of a student's background and potential for success in the academic program's doctoral program. Committee members may call a meeting of the full committee at any time to discuss the student's progress.

## Membership Requirements for Doctoral Committees

The doctoral program committee shall be composed of a minimum of four members of the MU graduate faculty and will include at least three members from the student's doctoral degree program and an outside member from a different MU program. At least two of the doctoral committee members must be MU doctoral faculty. (Note: This policy is effective for students who begin their doctoral programs during the Fall 2005 Term. For students who began their doctoral programs before

the fall 2005 semester, consult the appropriate catalog or the Office of Graduate Studies.)

Additional committee members with specialized expertise who do not meet the criteria for the MU graduate faculty or doctoral faculty may serve on a doctoral committees as a fifth or sixth member, with special permission of the Associate Vice Chancellor for Graduate Studies.

## Graduate Committee Membership for Jointly Appointed Faculty

Chapter 320 of the Collected Rules and Regulations ([http://www.umsystem.edu/ums/rules/collected\\_rules/personnel/ch320](http://www.umsystem.edu/ums/rules/collected_rules/personnel/ch320)) for the University of Missouri requires that all jointly appointed faculty members will have a designated Primary Appointment and Primary Department as well as affiliation with one or more involved departments or units. These affiliations affect membership status of jointly appointed faculty on graduate student committees as follows:

### Committee Chair/Advisor

A faculty member may serve as advisor/committee chair when his or her primary appointment is in the graduate student's home academic program. When the graduate student's home academic program is the involved academic program for a jointly appointed faculty member, the person may serve as chair/advisor with the approval of the director of graduate studies from the student's home academic program.

### Doctoral Committee Member

A faculty member can serve only as an Internal Member when his or her Primary Appointment is in the graduate student's home academic program. When a graduate student's home academic program is the Involved academic program for a jointly appointed faculty member, he or she may serve as either an Internal or External Member of the committee.

### Graduate Committee Membership for Adjunct Faculty

Adjunct faculty may serve as a committee chair or committee member only in academic programs in which they are appointed and approved for graduate or doctoral faculty membership as appropriate for the student's degree (master's or doctoral). Service on graduate committees outside the academic program in which an adjunct member is appointed requires a recommendation by the director of graduate studies from the student's home academic program and approval by the Associate Vice Chancellor for Graduate Studies.

## Doctoral Plan of Study & Degree Requirements

The doctoral program committee provides academic program approval of the student's Plan of Study which will prepare the student for research or scholarly investigation in the chosen field of study. The plan of study includes a list of the courses and the credit to be earned. By successfully completing the plan by deadlines, a doctoral student will:

- Prepare the student for research or scholarly investigation in the chosen field of study.
- Satisfy the credit-hour and residency requirement of the academic program.
- Satisfy any special requirements (proficiency in foreign languages, collateral field, doctoral minor, other special research skills) imposed by the department or area program.

- Satisfy the requirement for a minimum of 15 hours of MU coursework at the 8000/9000 level (exclusive of research, readings, and problems).

The committee also recommends to the Associate Vice Chancellor for Graduate Studies, as part of the Plan of Study, any request for transfer of graduate credit. Changes to the plan of study should be submitted on the Plan of Study Course Substitution form (<http://gradstudies.missouri.edu/forms-downloads/repository/subform.pdf>).

## Doctoral Credit-Hour Requirement

MU requires a minimum of 72 semester hours beyond the baccalaureate degree for the PhD and EdD degrees. The student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond these minimums.

## Transfer Credit

The doctoral committee may recommend up to 30 hours of post-baccalaureate graduate credit from a regionally accredited university be transferred toward the total hours required for the doctoral degree. It is the responsibility of the doctoral committee to determine the appropriateness of course work for transfer credit. All requests for exceptions to this policy must be approved by the Associate Vice Chancellor for Graduate Studies.

*Note:* This policy applies to students who begin their enrollment during the Fall Term 2006 and subsequent semesters. For students who began their doctoral programs prior to the fall 2006 semester, consult the appropriate catalog or the Office of Graduate Studies for policies pertaining to transfer of credit.

## Extension & Correspondence Credit in Doctoral Programs

The doctoral committee may recommend that courses taken through MU's Extension division be counted toward the credit-hour requirement. Extension or correspondence course work from institutions other than MU may not be used to meet the total hours required for the doctoral degree.

## Time Limits on Transfer Credits

All courses to be applied to the plan of study must be completed within eight years of filing the plan.

## Grades at the Graduate Level

To become eligible for a degree, a doctoral student must have completed all MU graduate work attempted with a GPA of 3.0 (A=4.0) or higher. Review grading policies (p. 773) for more information.

## Foreign Language Proficiency

In general, an English-speaking student may establish foreign language proficiency, if it is required, by demonstrating an ability to translate into English two foreign languages; or by demonstrating a high order of fluency in one language; that is the ability to read, write and converse in that language and to translate that language into English and English into that language.

## Plan of Study Completion Before Doctoral Comprehensive Exam

The student must substantially complete the course work outlined in the Plan of Study to the satisfaction of the doctoral program committee and the Office of Graduate Studies before being declared ready for the comprehensive examination (<http://gradstudies.missouri.edu/academics/process/doctoral-process/comprehensive-exam.php>).

## Doctoral Comprehensive Examination

The student must be enrolled to take the doctoral comprehensive examination (<http://gradstudies.missouri.edu/academics/process/doctoral-process/comprehensive-exam.php>). It is to be administered only when MU is officially in session. The comprehensive examination is the most advanced posed by MU. It consists of written and oral sections. It must be completed at least seven months before the final defense of the dissertation. The two sections of the examination must be completed within one month.

## Written Section

The written section or sections of the examination may be conducted in one or both of the following two ways:

1. The written sections may be arranged and supervised by the major advisor, in which case questions are prepared and graded by the doctoral program committee.
2. The major advisor may delegate responsibility for arranging, preparing, supervising and grading the written sections of the examination to one or more departmental/program committees appointed for this purpose.

## Successful Completion

For the comprehensive examination to be successfully completed, the doctoral program committee must vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote. A report of examination results, carrying the signatures of all members of the committee, must be sent to the Office of Graduate Studies and the student no later than two weeks after the comprehensive examination is completed.

## Exam Failure

A failure of either the written or oral section of the exam constitutes failure of the comprehensive exam. If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student's work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination.

## Request for Clarification

If the student believes that the advice given by the committee is inadequate, the student may send a written request for clarification to the committee. A copy of this request should be sent to the Office of Graduate Studies as well. The committee must respond to this request in writing within two weeks and a copy must be filed with the Office of Graduate Studies.

## Retaking the Comprehensive Examination

The student who fails may not take a second comprehensive examination for at least 12 weeks. Failure to pass two comprehensive examinations automatically prevents candidacy.

## Doctoral Candidacy & Continuous Enrollment

Candidacy for a doctoral degree is established by passing the comprehensive examination. Status as a continuous enrollment doctoral student begins the term after the term in which the comprehensive exam was successfully completed. Students must maintain continuous enrollment during their candidacy (the period after successful completion of the comprehensive examination).

### Procedure for Continuous Enrollment

Candidacy is maintained by enrolling in 9090 Research (or 9990 Research for some Engineering students) for two semester hours each fall and spring semester and for one semester hour each summer session, or an equivalent number of hours through enrollment in other coursework, up to and including the term in which the dissertation is defended. Continuous enrollment provides access to an advisor's support, doctoral program committee guidance and university research facilities for completion of the dissertation. Failure to enroll continuously in the appropriate number of hours until the doctoral degree is awarded terminates candidacy.

### Reestablishing Candidacy After Time Off

Candidacy may be reestablished by paying the registration and late fees owed and completing the requirements specified by the student's doctoral program committee. Registration fees owed may not exceed the amount owed for seven terms, regardless of the number of terms beyond seven for which the student failed to continuously enroll. The committee's requirements may include a second comprehensive examination or evidence of currency in the research field as suggested by publications in refereed journals. Candidacy is reestablished when the student's advisor and the departmental, area program or divisional director of graduate studies submits a written request to the Office of Graduate Studies explaining the basis for the decision. Once approved, a Reactivation Form (<http://gradstudies.missouri.edu/forms-downloads/repository/reactivation.pdf>) must be completed by the student and sent to the department/program for processing.

## The Doctoral Dissertation

The dissertation must be written on a subject approved by the candidate's doctoral program committee, must embody the results of original and significant investigation and must be the candidate's own work.

### Enrollment Status and Reporting

The candidate must be continuously enrolled (<http://gradstudies.missouri.edu/admissions/types-of-enrollment/continuous-enrollment.php>) to defend the dissertation, which can only be defended when MU is officially in session. A report of the dissertation defense (<http://gradstudies.missouri.edu/forms-downloads/repository/d4.pdf>), carrying the signatures of all members of the committee (<http://gradstudies.missouri.edu/academics/process/forming-committees/doctoral.php>), is sent to the Office of Graduate Studies before the deadline preceding the anticipated date of graduation. For the

dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

### Required Dissertation Format

Every doctoral candidate should review the Guidelines for Preparing Theses and Dissertations from Graduate Studies and should consult their director of graduate studies for academic program style requirements. All dissertation defenses shall be open to the general faculty. Academic programs are encouraged to announce dissertation defense dates to academic program colleagues.

### Submission of Dissertation to the Office of Graduate Studies

The final copy of the dissertation must be submitted to the Office of Graduate Studies electronically or as a PDF file on a CD-ROM. Specific instructions are provided in the Guidelines for Preparing Theses and Dissertations.

### Reasonable Rate of Progress

Reasonable rate of progress is governed by both the campus wide policies of the Graduate Faculty Senate listed below as well as academic program regulations which may be more restrictive. Failure to satisfy the Graduate Faculty Senate's rate of progress policies leading to dismissal is handled by the Request for Extension process (<http://gradstudies.missouri.edu/academics/progress/requests-for-extensions-appeals.php>). For academic advice or assistance with degree program planning, students should contact their advisors. Dismissals arising from violation of academic program policies may be appealed using the Appeals Process (<http://gradstudies.missouri.edu/academics/progress/requests-for-extensions-appeals.php>). Students should also refer to the section on the Dismissal Policy (<http://gradstudies.missouri.edu/academics/progress/probation-termination.php>) for additional details.

### Time Limits for Doctoral Degree Completion

Three Graduate Faculty Senate policies govern the Reasonable Rate of Progress established for doctoral students. To determine which is applicable to a particular student, see the policies below:

#### Students Who Began Their Program in Fall 2000 to the Present

Effective fall semester 2000, a doctoral student must successfully complete the comprehensive examination within a period of five years beginning with the first semester of enrollment as a PhD student. In addition, the program for the doctoral degree must be completed within five years of passing the comprehensive examination. Individual departments or area programs may stipulate a shorter time period. For an extension of this time the student must petition the Graduate School by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate School which has been endorsed by the department or area program director of graduate studies.

#### Doctoral Students Who Passed Comps Between Fall 1994 and Summer 2000

Doctoral candidates who passed their comprehensive examinations between the beginning of the fall semester 1994 through summer session

2000 will have no more than five years after passing the comprehensive examination to complete the doctoral degree.

## Doctoral Students who Passed Comps Before Fall 1994

Doctoral candidates who passed their comprehensive examinations before fall semester 1994 must complete their degree programs within eight calendar years beginning with the first semester of enrollment as a doctoral student.

## Doctoral Degree Extension Request

Regardless of when a student entered the program or passed the comprehensive exam, any candidate requiring additional time must submit a request for an extension. On petition of the candidate and the candidate's academic program, an extension of time may be granted by the Office of Graduate Studies. Academic programs specifically reserve the right to re-certify currency in the discipline. All requests for extensions should be endorsed by the academic program's director of graduate studies and accompanied by a description of the process whereby currency in the discipline is certified, if required by the academic programs. See also Active Duty Policy (<http://veterans.missouri.edu/forms/active-duty.php>).

## Doctorate of Education (EdD): Special Requirements and Policies

### Admission

To be admitted into a doctorate of education program, the student must have attained the degree of master of arts with a major in education, a degree of master of education, or the quantitative and qualitative equivalent of one of these degrees from an accredited college or university.

### EdD Qualifying Exam

If required, the qualifying examination must be successfully completed before the plan of study is determined by the advisor and the student in cooperation with the doctoral advisory committee. This program must constitute a well organized plan of professional specialization in one of the major fields of education, with one or more supporting fields.

### EdD Plan of Study

A minimum of 72 semester hours of graduate level course work beyond the bachelor's degree is required for the degree of doctor of education degree. The plan of study is specifically intended to meet the professional needs of the candidate. As well as pursuing course work in the professional areas of specialization, the student must take courses in educational statistics, advanced educational statistics, methods of educational research and one research elective course. Foreign languages are not required, except as may be determined by the student's doctoral advisory committee.

### EdD Advisory Committee

The student's advisor officially recommends for the approval by the Graduate School a doctoral advisory committee of at least five members. For students admitted Fall 2006 and later, the requirement is at least four committee members. In addition to planning the doctoral program with the student, this committee may administer a qualifying examination, which

helps to assess the student's general background and potential for the EdD degree. It also guides the planning of the plan of study.

## EdD Comprehensive Examination

When the doctoral advisory committee determines that the needed course work has been completed with satisfactory grades, it plans the comprehensive examination (a written and oral examination that includes the candidate's major field of interest) for the degree. This examination must be taken no earlier than the second year of graduate work and be completed at least seven months before graduation. A student must be enrolled to take the comprehensive examination. It is not administered unless MU is officially in session.

For the comprehensive examination to be completed successfully, the committee must vote to pass the student with no more than one dissenting or abstaining vote. If failure is reported, the committee recommends suggested work or remedial measures. See Comprehensive Examination (<http://gradstudies.missouri.edu/academics/process/doctoral-process/comprehensive-exam.php>) under PhD Degree Regulations.

The student who fails may not take a second examination for at least 12 weeks. Failure on two comprehensive examinations automatically prevents candidacy.

## Continuous Enrollment

EdD candidates are subject to the same policies and procedures as PhD candidates. See enrollment requirements (p. 769) for graduate studies.

## Dissertation Defense

EdD candidates are subject to the same policies and procedures as PhD candidates. The dissertation must be reviewed and approved by the doctoral program committee (<http://gradstudies.missouri.edu/academics/thesis-dissertation/dissertation-process.php>).

## Time Limits for Doctoral Degree Completion

Effective fall semester 2000, a doctoral student must successfully complete

- the comprehensive examination within a period of five years beginning with the first semester of enrollment as a PhD student.
- the doctoral degree within five years of passing the comprehensive examination.

Individual departments or area programs may stipulate a shorter time period.

For time limit policies prior to academic year 2000-2001, consult the Graduate School Catalog archive dissertation format EdD candidates are subject to the same dissertation formatting and submission requirements as PhD candidates. The dissertation must be reviewed and approved by the doctoral program committee. Policies can be found at <http://gradstudies.missouri.edu/academics/graduation-requirements/doctoral-grad-requirements.php>.

## Dissertation Submission

The final copy of the EdD dissertation must be submitted to the Graduate School as a PDF file on a CD-ROM. Specific instructions are provided in the Guidelines for Preparing Theses and Dissertations (<http://gradstudies.missouri.edu/forms-downloads/repository/etd-guidelines.pdf>).

## Deadline for Submission of Dissertation/ Thesis after Successful Defense

After successful defense of the thesis or dissertation, students must comply with their academic program's and/or the International Center's enrollment requirements. Students are required to submit their final dissertation or thesis by the end of the following semester after a successful defense unless a letter asking for an extension is submitted to the Associate Vice Chancellor for Graduate Studies by the student's advisor and program's DGS.

## Doctoral Degree Extension Request

Regardless of when a student entered the program or passed the comprehensive exam, any candidate requiring additional time must submit a request for an extension. On petition of the candidate and the candidate's academic program, an extension of time may be granted by the Associate Vice Chancellor for Graduate Studies.

Academic programs specifically reserve the right to re-certify currency in the discipline. All requests for extensions should be endorsed by the academic program's director of graduate studies and accompanied by a description of the process whereby currency in the discipline is certified, if required by the academic programs. (See also Active Duty Policy.)

## Doctoral Dual Degrees

### Dual Doctoral-Professional Degrees

As the US workforce becomes increasingly interdisciplinary, some graduate students elect to concurrently pursue a PhD (doctoral) degree in combination with a law or medical (professional) degree. Examples include the MD/PhD and the JD/PhD. Dual degrees are cooperatively arranged between a graduate degree granting program and a professional degree granting program. The Graduate School oversees the doctoral (PhD) degree portion of the dual doctoral/ professional degree. Dual degrees are approved by the Graduate Faculty Senate.

Students must apply to **both** the Office of Graduate Studies and the professional degree program, notifying both of their interest in a dual program. Please refer to the A-Z list of graduate degree programs (<http://gradstudies.missouri.edu/academics/programs/a-z>) to learn what is currently available.

Because some students may not be aware of an approved dual-degree program before their arrival at MU, the option to participate in an approved dual-degree program may be postponed until no later than the end of a student's second semester at MU.

The governing policies for dual degrees are the same for master's and doctoral students. Please refer to the dual-degree information for master's students (<http://gradstudies.missouri.edu/academics/process/dual-masters-process>) for more information.

### Dual Degrees for Medical Students

The MD/PhD program is for the student seeking a biomedical research career. Additional years are integrated into the medical curriculum to satisfy requirements for the PhD. (A MD/MS dual degree is another option). The graduate degree (MS or PhD) is typically accomplished after completion of the MD program. PhD programs are available in diverse areas at MU.

Students are accepted to the joint program by a single committee. Students interested in this dual-degree program should inquire at the dean's office in the School of Medicine.

## Financial Support

Financial support may be provided for the graduate portion of the dual-degree program. Fellowship support may be provided for the PhD portion of this program, while loan and scholarship funds may be available for the MD curriculum.

## Applying Credit

Students participating in the MD/PhD Program at the University of Missouri may apply up to 30 hours of credit for courses taken during the preclinical phase of the MD program towards the 72 hour requirement for the PhD degree. These MD courses, however, cannot be used to satisfy the requirement for 15 hours of 8000/9000 of graduate level course work.

The following table lists the distribution of credits for the preclinical courses among areas of study that can be used by the student and their committee in determining how many credit hours should be applied toward the PhD.

Course	Applicable Hours Toward the PhD
Biochemistry	6 hrs
Microbiology	4 hrs
Immunology	3 hrs
Pharmacology	4 hrs
Physiology	4 hrs
Pathology	6 hrs
Neurosciences	3 hrs

## Advising & Committees

There will be a separate advisor and committee for each degree program.

*Note:* The option of a combined committee structure may be included in proposals for Graduate Faculty Senate consideration, e.g., co-advisors who would also serve as outside members, plus one additional member from each degree program, for a total of four committee members.

## Dual Degree Progress Forms

Special dual degree program forms will be used to certify plans of study, committee members and final defense/examinations.

## Timelines for PhD Completion

Policies governing doctoral degree completion, including but not limited to examinations, forms, continuous enrollment, and dissertation format, defense and submission, are detailed in the doctoral degree requirements section of the Graduate Catalog and web site.

## Conferral of Dual Degrees

Upon completion of all degree program requirements, the Graduate School and the professional school will confer separate diplomas.

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## Doctoral Requirements (School of Law)

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The Juris Doctor (J.D.), or "law degree," is a three year post-baccalaureate program. Students must complete 89 credit hours of law courses roughly one-half of which are required courses.

[View JD Degree Requirements Here \(p. 737\)](#)

The wide variety of academic courses are complemented by a variety of clinics and skills courses designed to provide graduates with a solid foundation for the practice of law.

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# Undergraduate & Graduate

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Information in the catalog is current as of May 2017. The next catalog will be published in May 2018. In the interim, new courses will be announced in myZou (<https://myzou.missouri.edu>) (MU's online student information system), and are usually available in October for the upcoming Spring semester, and in March for the upcoming Summer and Fall semesters. Mid year changes to current courses (titles, descriptions and credit hours) are not reflected here, and will only show in myZou.

## Undergraduate Study

MU grants 25 percent of the bachelor's degrees from Missouri public universities, providing an intellectually diverse environment and 360-degree learning for students from every state in the nation and more than 120 countries.

MU offers more than 300 degree programs through 19 colleges and schools and is a member of the prestigious Association of American Universities. Ninety-two percent of full-time, ranked faculty hold doctorates or the highest degree in their field. A highly interdisciplinary campus, it's common for faculty and students from one school at Mizzou to collaborate on projects with those from other schools and colleges. For example, some courses in the sciences are taught in conjunction with MU's medical school, and humanities classes include such areas as music composition and creative writing.

MU also offers an honors college for high-achievers and unmatched real-world experiences, including managing a bed and breakfast (The Gathering Place), operating a floral shop (Tiger Garden), preparing income taxes for families, studying abroad, volunteering for credit, providing health care, working at the country's only university-owned TV network affiliate (KOMU), performing at Carnegie Hall and co-authoring articles in leading scientific journals. Mizzou students also hold patents and create startup companies.

For more information about undergraduate study, contact Undergraduate Admissions (<http://admissions.missouri.edu>).

## Graduate Study

The University of Missouri Graduate Studies offers nearly 100 master's degree programs, over 70 doctoral degree programs, and 6 educational specialist degree programs; 13 graduate minors; and 40+ graduate certificates. Opportunities for e-learning, including online graduate degrees, are available. An A-Z list of graduate degrees is available in this catalog as part of a total MU degrees listing (p. 17). For more information, contact Graduate Admissions (<http://gradschool.missouri.edu>).

## College of Agriculture, Food and Natural Resources

### Administration

Marc Linit, Interim Vice Chancellor and Dean, Senior Associate Dean, Research and Extension; Associate Director, Agricultural Experiment Station  
 Bryan L. Garton, Associate Dean and Director of Academic Programs  
 Shari Freyermuth, Assistant Dean, Academic Programs  
 Robert Kallenbach, Assistant Dean, Agriculture and Natural Resources Extension

### College of Agriculture, Food and Natural Resources Office of Academic Programs

2-64 Agriculture Building • (573) 882-8301 • <http://cafnr.missouri.edu>

Matt Arri, Coordinator of Career Services  
 Dana Brown, Coordinator of Alumni Relations and Events  
 Laura Friedrich, Coordinator of Student Services  
 Megan McCauley, Assistant Coordinator of Student Services  
 Shanon Dickerson, Director of Study Abroad  
 Jan E. Russell, Executive Assistant  
 Julie Scroggs, Coordinator of Student Recruitment  
 Cheryl Stevens, Administrative Assistant  
 Marc Strid, Director of Educational Technologies

### The School of Natural Resources Office of Academic Programs

124 Anheuser-Busch Natural Resources Building • (573) 882-7045 • <http://www.snr.missouri.edu>

Shibu Jose, Director  
 Keith Goyne, Associate Director  
 Laura Hertel, Coordinator of Student Services  
 Nichole Wood, Administrative Assistant

### About the College

The mission of the College of Agriculture, Food and Natural Resources includes quality teaching, cutting-edge research and the extension of that research to the people of Missouri.

From entering freshmen to postdoctoral scientists, students prepare for a wide range of careers. Professional development through campus organizations and interaction with business and industry prepares our graduates to have an impact in the food system, business, government policy, environmental awareness, education, law, medicine and other areas.

The Missouri Agricultural Experiment Station develops new technology in animal, biochemical, plant, food and natural resource sciences to keep the state's agribusiness system competitive in world markets and to provide consumers with a safe, low-cost food supply.

Technology reaches the people through the college's Agriculture and Natural Resources Extension program. State specialists within the college and area specialists in county centers interact with the public for real-life application of research in solving problems.

Finally, the college helps developing nations become trading partners by improving their economies through better agriculture. This also provides a valuable exchange of knowledge and understanding with students, teachers and scientists from many cultures.

### Undergraduate

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- Special Programs (p. 47) (Pre-Veterinary Track and Pre-Medical Track)
- B.S. Degree Requirements (p. 48)
- University graduation and CAFNR Requirements (p. 48)
- CAFNR Honors Requirements (p. 48)
- Probation, Suspension and Dismissal (p. 49)
- Advising (p. 49)
- Career Development and Professional Opportunities (p. 49)
- Experiential Learning (p. 49)
- Study Abroad (p. 49)
- Student Activities (p. 49)

### Admissions

Students admitted to the University of Missouri are encouraged to enter the College of Agriculture, Food and Natural Resources, including the School of Natural Resources, as freshmen. Current Mizzou students who are looking to transfer divisions to CAFNR need to contact the Office of Academic Programs first as some degree programs have specific GPA requirements.

### Special Programs

#### Preveterinary Track

Students wishing to prepare for application to the College of Veterinary Medicine may enroll in the College of Agriculture, Food and Natural Resources under programs that emphasize science, such as animal sciences or fisheries and wildlife. In satisfying the science program requirements, the requirements for entering veterinary medicine also may be satisfied.

A minimum of 60 credits is required for admission to the College of Veterinary Medicine. Before applying, a student should make certain that the requirements listed below have been satisfied. Questions concerning required admission credits should be directed to the College of Veterinary Medicine. (Note: Tracks are not listed on transcripts or diplomas.)

Composition or courses in communication skills such as Speech or Technical Writing	6
College Algebra or more advanced mathematics	3
Biochemistry (requires organic chemistry prerequisite)	3
Physics (comprehensive introductory course or courses) **	5
Biological Science	10
Social Science and/or Humanistic Studies	10
Electives	
<b>Minimum Total Semester Credit Hours*</b>	<b>60</b>

\* Multiply quarter credits by 0.67 to convert to semester credits.

\*\* 5 hrs. in only the first of a companion series in introductory physics will not suffice.



A- Inorganic chemistry courses that prepare them for organic chemistry and, finally, biochemistry;

B- Biology Department courses that may be selected from zoology and botany or as required in foundation courses for a biology major.

**NOTE:** Whenever there is doubt as to whether a course will fulfill the requirements to apply, the applicant should contact the Admissions Advisor, MU College of Veterinary Medicine, as soon as possible. If the course is acceptable, the applicant is advised to produce a copy of the response letter when submitting their application.

### Elective Courses

The faculty of the College of Veterinary Medicine strongly encourage applicants to include as many of the following courses as possible among their electives. We have found that anatomy and physiology are especially challenging for students lacking a background in those subjects.

- Animal Nutrition
- Animal Reproduction
- Anatomy
- Animal Husbandry
- Physiology
- Business or Accounting
- Genetics
- Microbiology
- Psychology
- Statistics
- Cell Biology
- Any Biomed 1000-4000 level course at MU.

### Premedical Track

Students interested in a medical career may choose from a variety of science-based majors. The most common choice of students is biochemistry because it is a collaborative program between CAFNR and the School of Medicine. Questions concerning required admission credits should be directed to the School of Medicine. (Note: Tracks are not listed on transcripts or diplomas.) The following course work is required for admission:

English composition	6 credits or 2 semesters
College-level mathematics (or calculus eligibility)	3 credits or 1 semester
General biology, including laboratory	8 credits or 2 semesters
Organic chemistry, including laboratory	8 credits or 2 semesters
General physics, including laboratory	8 credits or 2 semesters

## Bachelor of Science (B.S.) Degree Requirements

Students should refer to degree program sections for course requirements and credit hour requirements.

## University Graduation and CAFNR Requirements

- Students are required to meet all University graduation and degree program requirements to earn their degree. Refer to specific CAFNR degree programs to determine specific course requirements.
- Complete 30 of the last 36 hours with MU course work. Obtain approval of faculty advisor, degree program advisor chair, and associate dean prior to enrolling in courses at another institution
- Earn no less than a 2.00 GPA, as defined by the GPA of Record (UM cumulative GPA)

### Transfer Credits

- University general education requirements are considered completed for students transferring with an Associate of Arts (AA) degree from a regionally accredited Missouri institution
- Transfer credit from a regionally accredited non-Missouri institution will be evaluated on a course by course basis

## CAFNR Honors Requirements

Students are eligible to enter the honors program when they have obtained a cumulative GPA of 3.3 or above based on 30 credits earned at the University of Missouri. Transfer students are eligible after completing 15 credits at MU with a cumulative GPA of 3.3 or higher.

Students must be admitted to the honors program prior to the first day of classes for the last semester they are enrolled in residence in CAFNR. No student is admitted retroactively. The student is officially admitted to the program upon approval of the associate dean of academic programs.

Eligible students should complete an application as early in their undergraduate degree program as possible. The honors program application should be signed by at least two faculty members and the undergraduate advisor chair before it can be approved. The faculty members co-signing the application will comprise the honor student's advisory committee.

An honors project (HP) is required and should be planned by the student and approved by the honor student's advisory committee. The honors project should involve a significant research effort by the honors student, culminating in a written and oral presentation of the results. Departmental HP requirements must be approved by the CAFNR Honors Program Oversight Committee.

Students are officially admitted to the CAFNR Honors Program when the application has been approved and signed by the CAFNR associate dean of academic programs. To remain in good standing in the CAFNR Honors Program, a student must maintain a cumulative GPA of 3.3 or more. A student whose GPA falls below 3.3 will be allowed a two-semester grace period to raise the GPA to the 3.3 level.

## Dual Enrollment for Senior Undergraduates

Qualified undergraduate students are eligible to enroll in up to 12 hours of graduate credit during the last 30 hours of their undergraduate

program. Graduate credit cannot be counted toward undergraduate degree credit requirements. See the Office of Graduate Studies (<http://gradstudies.missouri.edu>) for additional details.

## Probation, Suspension and Dismissal

In addition to the Academic Standing Policy (p. 760) of the University, CAFNR's academic policies can be located at <https://cafnr.missouri.edu/current-students/>. (<http://CAFNR.missouri.edu>)

## Advising

When entering the college, each student is assigned a faculty advisor/mentor to assist in defining career goals and planning courses for a program of study that leads to graduation. The advisor also serves as a resource person for the student in a variety of academic and individual situations.

One of a student's first priorities is to meet and become acquainted with their advisor early in the semester. The student should consult with their advisor when planning or changing the academic program. The advisor and advisor chair must approve the program of study for graduation.

Questions dealing with advisement should be directed to Office of Academic Programs, 2-64 Agriculture Building, (573) 882-8301.

## Career Development and Professional Opportunities

CAFNR believes in career development as a key part of the student experience. Our college provides career resources targeted specifically toward student interests and strengths. The CAFNR Career Services team focuses efforts to help educate, empower, and connect CAFNR students with their future careers. The resources in CAFNR expand beyond résumé reviews, mock interviews and one-on-one sessions to explore career possibilities. We focus on making valuable employer connections to help expand each student's professional network. Students also have access and are encouraged to use [www.HireMizzouTigers.com](http://www.HireMizzouTigers.com) (<http://www.hiremizzoutigers.com>) to search open job and internship postings.

CAFNR graduates find rewarding careers in a variety of career fields, including: private industry, state and federal agencies, start-ups, production agriculture, and more.

You can receive relevant career planning updates from CAFNR delivered directly to your social media newsfeed. Simply like us at [www.Facebook.com/CAFNRcareers](https://www.facebook.com/CAFNRcareers) (<https://www.facebook.com/CAFNRcareers>) or link up with us at [linkd.in/12RIKRD](http://www.linkedin.com/groups/MU-College-Agriculture-Food-Natural-1208727/about) (<http://www.linkedin.com/groups/MU-College-Agriculture-Food-Natural-1208727/about>).

We invite you to reach out in the traditional ways, too! Stop by our office in 2-64 Agriculture Building, call us at (573) 882-0088 or email [CAFNRcareerservices@missouri.edu](mailto:CAFNRcareerservices@missouri.edu).

## Experiential Learning

Employers want to hire students who have experience! CAFNR students have a variety of options when it comes to experiential learning. CAFNR's focus on internships, study abroad, industry tours, and student organizations help students gain relevant experience that employers want to see. Exploring these opportunities gives students the professional growth and network needed for career success after graduation.

Click here to check out some of the most recent student experiences (<https://www.facebook.com/media/set/?set=a.631051863580078.1073741826.565193606832571&type=3>) to see the kinds of opportunities CAFNR students explore. Interested in gaining your own experiences? We want to help you reach your goals! You can reach us in a variety of ways. Stop by our office in 2-64 Agriculture Building, call us at (573) 882-0088 or email [CAFNRcareerservices@missouri.edu](mailto:CAFNRcareerservices@missouri.edu).

## Study Abroad

CAFNR provides students with opportunities to study abroad on academic year, semester, summer, short term and winter break programs. Study Abroad complements and enhances a student's academic program. On these programs, students gain maturity and self confidence, broaden their horizons to the larger world around them, and earn academic credit. Increasingly, employers are looking for students who have increased their skill set through study abroad.

For more information about CAFNR study abroad programs, contact the Shanon Dickerson, CAFNR Director of Study Abroad, Office of Academic Programs, 2-64 Agriculture Building, at [dickersonsm@missouri.edu](mailto:dickersonsm@missouri.edu) or (573) 882-8301.

## Student Activities

CAFNR offers a variety of extracurricular student activities that contribute to a student's education and professional development. Clubs and organizations sponsor activities related to professional interests as well as social events. Involvement in extracurricular activities fosters leadership development. Involvement in activities outside the classroom also may prove beneficial when applying for scholarships or jobs. Many organizations and companies look favorably on a student who has received good grades while being involved in clubs and other University organizations. Each class and club elects a representative to the CAFNR Student Council. More information can also be found at Fall Round-up each fall semester.

## Graduate

Graduate studies in CAFNR are taking an innovative, high-tech approach to traditional agriculture, food and natural resources. Our students are highly engaged with expert faculty mentors who are impacting the future with findings on health breakthroughs, sustainable agriculture techniques and food safety. Prospective students are able to choose from a range of academic programs consistently recognized for excellence:

- Agricultural and Applied Economics
- Agricultural Education and Leadership
- Animal Sciences
- Biochemistry
- Biological Engineering
- Food Science
- Natural Resources
  - Fisheries and Wildlife
  - Forestry
  - Parks, Recreation and Tourism
  - Soil, Environmental and Atmospheric Sciences
  - Agroforestry
  - Human Dimensions of Natural Resources
  - Water Resources

- Plant Sciences
  - Crop, Soil and Pest Management
  - Entomology
  - Horticulture
  - Plant Breeding, Genetics, and Genomics
  - Plant Stress Biology
- Rural Sociology

Find CAFNR degree program descriptions by following the links in the left navigation column.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Agribusiness Management

Harvey James, Chair  
 Agricultural and Applied Economics  
 College of Agriculture, Food and Natural Resources  
 146 Mumford Hall  
 (573) 884-9682  
 HJames@missouri.edu

The Department of Agricultural and Applied Economics offers a BS degree with a major in Agribusiness Management, a BS degree with a major in Agricultural Economics, and MS and PhD degrees with a major in Agricultural & Applied Economics. A minor in Agricultural Economics is also available. The Department is home to several programs and research centers where students can seek on-campus work experience.

- Agricultural Electronic Bulletin Board, a web-based clearinghouse for information related to farming and production agriculture
- Center for Applied Research and Environmental Systems, a spatial economics and information research and education center
- Commercial Agriculture Program, a multi-disciplinary approach to researching issues and incorporating innovation into production agriculture
- Contracting and Organizations Research Institute, dedicated to enabling and encouraging interdisciplinary empirical research on contracting and organizational structure
- Food Equation Institute, a research center with a focus on biotechnology and other agricultural and technologies relating to food production, distribution and consumption
- Economics and Management of Agrobiotechnology Center, a research institute with a focus on applications of biotechnology on agriculture and food production and distribution
- Food and Agricultural Policy Research Institute, a Congressionally-enacted center whose mission is to provide objective analysis of food, agricultural, nutritional and environmental issues
- McQuinn Center for Entrepreneurial Leadership, promotes research, teaching, and outreach on the nature, causes, and consequences of entrepreneurship
- Missouri Institute of Cooperatives, coordinates information and leadership training for cooperatives serving Missouri

## Faculty

**Professor** M. L. Cook\*\*, J. Findeis\*\*, H. S. James\*\*, N. Kalaitzandonakes\*\*, L. M. J. McCann\*\*, J. Parcell\*\*, J. I. Stallman\*, R. E. Westgren\*\*, P. Westhoff\*\*, H. Williamson Jr.\*

**Associate Professor** M. S. Kaylen\*, M. J. Monson, K. C. Moore\*, M. E. Sykuta\*\*, W. Thompson, C. B. Valdivia\*\*

**Extension Professor** R. Massey\*\*

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**Assistant Teaching Professor** J. Palacios Rivera

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\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agribusiness Management (p. 50)

The degree in agribusiness management offers the student a general business background while emphasizing applications to various types of food and agricultural businesses. This program prepares students to assume leadership roles in business. The broad background allows maximum flexibility when entering the job market.

Students transferring into agribusiness management from other departments at MU or from other colleges must have a 2.7 cumulative GPA for all work attempted.

## Graduate

While MU does not offer graduate degrees specifically in agribusiness management, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## BS in Agribusiness Management

### Degree Program Description

Agribusiness Management combines skills in management, finance, marketing and agriculture production. Students can address bottom-line questions about the production, distribution and use of the world's agricultural resources and apply business concepts and problem-solving techniques to resource allocation and business decisions that affect the global food supply. The solid foundation of business skills and agricultural knowledge acquired prepares students for any number of careers, including Finance, Marketing and Management. In Finance graduates become a leader in both the public and private business and finance sectors. Whether making decisions about the daily operation

of a small business or cooperative to the complex marketing issues of a multi-national company or large agribusiness cooperative, the financial services provided are in high demand at each stage of the supply chain – from farm inputs to the supermarket. In Marketing, one of the key competitive advantages of our students is the understanding of supply chain management which is extremely important to grasp in marketing food and biofuels. Agribusiness management graduates often are employed in a wide variety of careers that involve the buying, selling, distribution and promotion of agricultural food, fiber and biofuels products, assisting an organization such as the National Corn Growers Association with its promotion efforts or develop advertising strategies for a food-processing company such as Nabisco. In Management, Agribusiness Management majors take leadership roles in developing new companies and leading existing corporations and cooperatives. These range from small rural businesses to international powerhouses like Monsanto or Land O'Lakes.

## Major Program Requirements

Students earning a Bachelor of Science in Agribusiness Management are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational Courses

MATH 1400 or MATH 1500	Calculus for Social and Life Sciences I Analytic Geometry and Calculus I	3-5
Prior approval by adviser chair required to replace MATH 1400 and AG_EC 2123 with MATH 1500		
BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1030 or BIO_SC 1200 or BIO_SC 1500 or F_W 1100	General Principles and Concepts of Biology and General Biology Laboratory General Principles and Concepts of Biology with Laboratory General Botany with Laboratory Introduction to Biological Systems with Laboratory Introductory Zoology with Laboratory	5
CHEM 1100 or CHEM 1320 or BIOCHM 2110 or BIOCHM 2112	Atoms and Molecules with Lab College Chemistry I The Living World: Molecular Scale Biotechnology in Society	3-4
AG_EC 1041 or ECONOM 1014	Applied Microeconomics Principles of Microeconomics	3
AG_EC 1042 or ECONOM 1015	Applied Macroeconomics Principles of Macroeconomics	3
AG_ED_LD 2220 or COMMUN 1200	Verbal Communication in Agriculture, Food and Natural Resources Public Speaking	3
PHIL 1200	Logic and Reasoning	3

### Department core requirements

AG_EC 2123	Quantitative Applications in Agricultural Economics	3
AG_EC 2183	The Agricultural Marketing System	3
AG_EC 2225 or STAT 2500	Statistical Analysis Introduction to Probability and Statistics I	3
AG_EC 3282 or FINANC 3000	Agribusiness Finance Corporate Finance	3
AG_EC 4251	Agricultural Prices	3

### Supporting courses

AG_EC 1200	Applied Computer Applications	3
ACCTCY 2036 or ACCTCY 2136H or ACCTCY 2026	Accounting I	3
ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027	Accounting II	3
AG_EC 4301	Topics in Agricultural Economics	3

### Supporting Agriculture Sciences

Courses in biological engineering, agricultural systems management, animal sciences, fisheries and wildlife, food science, forestry, natural resources, plant sciences, soil and atmospheric sciences, and biochemistry

### Agribusiness Management Major Core Requirements

AG_EC 3256	Agribusiness and Biotechnology Law	3
AG_EC 3283	Fundamentals of Entrepreneurship	3
AG_EC 3286	Economics of Managerial Decision Making	3

### Students will choose from 2 of the 3 following courses

AG_EC 4971W	Agribusiness Management Strategy - Writing Intensive	3
AG_EC 4972	Agri-Food Business and Cooperative Management	3
AG_EC 4983	Strategic Entrepreneurship in Agri-Food	3

### Business Electives

AG_EC 2223	Agricultural Sales	3
AG_EC 3150	International Agribusiness	3
AG_EC 3230	Agricultural and Rural Economic Policy	3
AG_EC 3224W	New Products Marketing - Writing Intensive	3
AG_EC 3241W	Ethical Issues in Agriculture - Writing Intensive	3
AG_EC 3283	Fundamentals of Entrepreneurship	3
AG_EC 3286	Economics of Managerial Decision Making	3
AG_EC 3294	Agricultural Marketing and Procurement	3
AG_EC 4972	Agri-Food Business and Cooperative Management	3
AG_EC 4295	Agricultural Risk Management	3
AG_EC 4990	Economic Analysis of Policy and Regulation	3
ECONOM 3229	Money, Banking and Financial Markets	3

Students may select, business courses 3000+

### International Electives

AG_EC 3150	International Agribusiness	3
AG_EC 3271	International Agricultural Development	3
AG_EC 3272	International Food Trade and Policy	3
AFNR 2190	International Agriculture and Natural Resources	3
AFNR 2191	International Agriculture and Natural Resources - Humanities	3

### Farm & Ranch Professional Option Major Core Requirements

AG_EC 3257	Rural and Agricultural Law	3
AG_EC 3260	General Farm Management	3
AG_EC 3294	Agricultural Marketing and Procurement	3
AG_EC 4962	Planning the Farm Business	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR	
AG_EC 1041 or ECONOM 1014	3 AG_EC 1042 or ECONOM 1015	3	
AG_EC 1010	3 BIO_SC 1010	3	
AG_EC 1200	3 ENGLISH 1000	3	
MATH 1100	3 MATH 1400	3	
PHIL 1200	3 POL_SC 1100, 2100, HIST 1100, or HIST 1200	3	
		15	15
Second Year			
Fall	CR Spring	CR	
AG_ED_LD 2220 or COMMUN 1200	3 AG_EC 2225 or STAT 2500	3	
AG_EC 2123	3 AG_EC 3256	3	
ACCTCY 2036, 2026, or 2136H	3 Supporting Agriculture Science	6	
AG_EC 2183	3 ACCTCY 2037, 2027, or 2137H	3	
CHEM 1100, 1320, BIOCHM 2110, or BIOCHM 2112	3 BIO_SC 1020	2	
		15	17
Third Year			
Fall	CR Spring	CR Summer	CR
AG_EC 3282 or FINANC 3000	3 AG_EC 3286	3 AG_EC 4940	3
AG_EC 3283	3 AG_EC 4301	3	
AG_EC 4251	3 Supporting Agriculture Science	3	
International Elective	3 Business Elective	6	
Humanities Elective	3		
		15	15
3			
Fourth Year			
Fall	CR Spring	CR	
AG_EC 4971	3 AG_EC 4972 or 4983	3	
Business Elective	6 Free Electives	9	
Free Electives	4		
		13	12

Total Credits: 120

The following foundational courses are included in the Semester Plan above and are used by the Department to meet MU's General Education Requirements (p. 33) and University Undergraduate Requirements (p. 32).

- ENGLISH 1000
- MATH 1100
- MATH 1400
- BIO\_SC 1010 and BIO\_SC 1020
- CHEM 1100

- AG\_EC 1041
- AG\_EC 1042
- POL\_SC 1100, HIST 1100 or HIST 1200
- AG\_ED\_LD 2220 or COMMUN 1200
- PHIL 1200

## Agricultural and Applied Economics

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 Fax (573) 882-3958  
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\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in agricultural and applied economics, the University does offer bachelors degrees in the closely related areas of Agricultural Economics (p. 55), and Agribusiness Management (p. 50), as well as other related areas both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Agricultural and Applied Economics (p. 53)
- PhD in Agricultural and Applied Economics (p. 54)

Department of Agricultural Economics  
214 Mumford Hall; Columbia, MO 65211  
(573) 882-3747  
<http://dass.missouri.edu/agecon/>

**Director of Graduate Studies:** Harvey James ([hjames@missouri.edu](mailto:hjames@missouri.edu))

## About the Graduate Programs

The graduate program in the Department of Agricultural and Applied Economics is recognized for its innovative approach to graduate training in agricultural economics. A distinguishing feature of the program is the integration of organizational, institutional and welfare economics in both applied and theoretical research. This approach gives the program a competitive advantage.

A PhD or MS degree in agricultural and applied economics prepares students for a rewarding career in academia, agricultural business, government or international agriculture. Students can study agribusiness management, contracting and strategy; collective action and cooperative theory; econometrics and price analysis; entrepreneurship; environmental and natural resource economics; food, biofuel and agricultural policy and regulation; international development; regional economics and rural development policy; science policy and innovation; sustainable agriculture and applied ethics. The MS program may be a step toward the PhD but may also be used as a terminal program for those interested in careers in agribusiness, extension or government. Programs are flexible. All PhD and most MS students become involved in research, but those whose career interests lie in other directions find the department willing to accommodate them.

## Admission Criteria

Fall deadline: February 15

Spring deadline: September 15

Minimum TOEFL score: 80 Internet-based; 550 Paper-based  
GRE required

## Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Admissions documents

*To the Agricultural Economics Program:*

- Departmental Application
- 3 letters of recommendation
- Statement of purpose
- Transcripts
- GRE score report

## Internal Funding

A 3.25 GPA (A=4.0) is generally a minimum requirement for financial assistance such as fellowships and assistantships for research and teaching. Reasons for supporting a student with a GPA below 3.25 must be documented in detail.

## MS in Agricultural and Applied Economics

### Degree Requirements

For the MS degree, students must complete a minimum of 30 hours selected from courses in one of three focus areas (Agricultural Economics and Policy Analysis; Environmental and Development Economics; Organizational Economics). Specific course requirements are determined by each focus area. All course work needs to be from courses numbered 7000-9000. The program includes graduate-level courses in microeconomic theory and quantitative methods. Students opting for the MS thesis must complete at least six credit hours of research as part of the minimum 30 hours. An alternative MS non-thesis program requires that additional course work be substituted for thesis research. Before admission to the MS program, a student should have completed at least nine hours of agricultural economics or economics, a course in calculus and one in statistics. *Note: Focus areas do not appear on diplomas or transcripts.*

### Sample Plan of Study

- 9 hours designated as the MS focus area core
- 6 hours of AG\_EC 8090 Masters Thesis Research
- 15 hours of Agricultural and Applied Economics courses and/or electives

### Thesis/Non-Thesis Requirements

Students in the Thesis track are expected to produce a thesis with the organization, degree of analysis, and style of presentation that can be readily converted into a professional publication.

Students in the non-Thesis track substitute coursework for the Thesis hours. Students also write a technical paper that represents a collaborative research agenda with his/her advisor. A typical paper would analyze an issue or problem of mutual interest to the student and advisor, such as a phenomenon in local, regional, or national economy;

an analysis of a policy implementation or change; or a firm-level decision, such as a feasibility study or an organizational case study.

## Admissions

The Department's Graduate Studies Committee and Focus Area faculty oversee the admissions process. Admission into the MS program is determined by an assessment of program prerequisites and application materials. Domestic and international students are equally welcome to apply.

## For More Information

For further information on admissions or financial assistance, write to Harvey James, director of graduate studies in agricultural economics, 200 Mumford Hall, Columbia, MO 65211, or [hjames@missouri.edu](mailto:hjames@missouri.edu).

## PhD in Agricultural and Applied Economics

- Sample Plan of Study (p. 54)
- Qualifying Process (p. 55)
- Comprehensive Examination Progress (p. 55)
- Dissertation Requirements (p. 55)
- Admissions (p. 55)

## Degree Requirements

The PhD program emphasizes preparation for research, teaching and extension work in academia, as well as for careers in agrifood business, government and international agriculture. The program usually requires about three years beyond the master's program to complete. The size, quality and diversity of the faculty provide a broad choice of advisors and research topics. Students and their advisory committees have latitude in developing a plan of study.

Doctoral candidates will choose specialties from one of the following Focus Areas (FAs) (will not appear on transcripts or diplomas).

**Agricultural Economics and Policy Analysis:** This Focus Area seeks knowledge about how agricultural and food policy and innovation influence markets and, ultimately, human well-being. The program relies on a rigorous approach to agricultural economics that underpins applied analysis, including experimental and behavioral economic models, strategic interaction models, structural economic models, investment or firm models, systems simulation, mathematical programming and econometrics. The FA relies on coursework and research with widely recognized centers for agricultural economics, such as the Food and Agricultural Policy Research Institute (FAPRI), Agricultural Markets and Policy (AMAP) and the Economics and Management of Agrobiotechnology Center (EMAC).

**Environmental and Development Economics:** This Focus Area helps students develop skills and knowledge that can be used to address some of society's most pressing problems. There are many linkages between environmental and natural resource issues and development, both in developed and developing economies. This is particularly true where agriculture plays a significant role in the livelihoods of people and rural communities, since soil and water resources are critical determinants of both agricultural productivity and human well-being. The importance of these linkages is evidenced by the emphasis on sustainable development in policy circles. Institutions affect environmental outcomes, economic

development, and risk so comparing institutions across differing contexts can provide useful insights. An emerging research area is behavioral economics, which can be productively applied to environmental and development issues. Students will apply theory from economics and other social sciences using rigorous analytical tools to address real-world problems. We are interested in students who want to create knowledge that matters through translational research.

**Organizational Economics:** The Focus Area represents a coherent area of study for preparing students for academic careers in applied economics, management, and cognate fields, and for careers in government and industry. The program design is based upon a set of courses offered in the Department that support MS and PhD training in microeconomic theory, institutional and neo-institutional economics, and organizational economics. This set of courses is augmented by courses in qualitative and quantitative methods and a cognate area that supports the student's research. The cognate area is chosen consultation with the major advisor and committee input.

The general course requirements for the PhD consist of theory and methods courses, followed by a well-balanced selection of elective and research courses in agricultural and applied economics and other disciplines at the graduate level. The course of study will prepare students for the qualifying exam taken after the first year of courses, the comprehensive exam assessing competency in his or her chosen fields of study, and independent research. A dissertation embodying the results of original research must be written on a subject approved by the program committee. An oral examination over the dissertation completes the degree requirements.

The minimum requirements for the PhD are as follows:

- 72 credit hours (minimum) from courses numbered 7000 – 9000, and within the 72 credit minimum are the following constraints:
- No more than 30 credit hours can be transferred from an MS program
- 15 credits must be from courses numbered 8000 – 9000, exclusive of dissertation research, problems or independent study
- 6 credit hours designated as the PhD FA Theory core
- 6 credit hours designated as the PhD FA Methods core (can be met from any combination of quantitative, qualitative, mixed or other methods courses)
- 3 credit hours of AG\_EC 8010 Research Methodology
- 12 credit hours of AG\_EC 9090 Doctoral Dissertation Research in Agricultural Economics
- 45 credit hours designated as electives and/or additional required EA courses

Prerequisites for the PhD program include courses in intermediate microeconomics and macroeconomics; quantitative or mathematical economics; statistics, econometrics or regression and correlation analysis; and calculus. A master's degree in economics, agricultural economics, or a related field, is preferred but not required for admittance into the PhD program. However, applicants to the PhD program without a master's degree will be admitted initially into the MS program with the expectation that they complete the MS degree including MS thesis before continuing with their doctoral studies.

## Sample Plan of Study

Fall semester, year 1: AG\_EC 9040 Advanced Microeconomics Theory and Applications I; FA methods course; Elective

Spring semester, year 1: AG\_EC 8010 Research Methodology; FA theory course; FA core course or Elective

Fall semester, year 2: FA field courses and/or Electives

Spring semester, year 2: FA field courses and/or Electives

Subsequent semesters: Field Courses and/or Electives; Research and Dissertation hours

## Qualifying Process

After completing the first year sequence, students complete a qualifying exam process determined by the research Focus Area faculty.

Examinations are completed in May with a retake, if needed, offered in August. Students must pass the qualifying exam process to continue in the PhD program.

## Comprehensive Examination Process

Students take the Comprehensive Exam after passing the qualifying exam process and completing coursework, including core courses and field courses. The Comprehensive Exam consists of three parts: the written dissertation proposal, a written comprehensive exam, and an oral examination. The Comprehensive Exam is administered by the student's Doctoral Program Committee.

## Dissertation Requirements

Two types of dissertations are acceptable. The first type of dissertation is organized around a single topic and typically is a lengthy monograph of your research findings. The second type of dissertation is a compilation of three narrow-topic essays that are loosely related to a single, general theme or topic. Students select dissertation topics in consultation with their Doctoral Program Committee.

## Admissions

The Department's Graduate Studies Committee and Focus Area faculty oversee the admissions process. Admission into the PhD program is determined by an assessment of program prerequisites and application materials. Domestic and international students are equally welcome to apply.

## For More Information

For further information on admissions or financial assistance, write to Harvey James, director of graduate studies in agricultural economics, 200 Mumford Hall, Columbia, MO 65211, or [hjames@missouri.edu](mailto:hjames@missouri.edu).

## Agricultural Economics

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- Commercial Agriculture Program, a multi-disciplinary approach to researching issues and incorporating innovation into production agriculture
- Contracting and Organizations Research Institute, dedicated to enabling and encouraging interdisciplinary empirical research on contracting and organizational structure
- Food Equation Institute, a research center with a focus on biotechnology and other agricultural technologies relating to food production, distribution and consumption
- Food and Agricultural Policy Research Institute, a Congressionally-enacted institute whose mission is to provide objective analysis of food, agricultural, nutritional and environmental issues
- McQuinn Center for Entrepreneurial Leadership, promotes research, teaching, and outreach on the nature, causes, and consequences of entrepreneurship
- Missouri Institute of Cooperatives, coordinates information and leadership training for cooperatives in Missouri

## Faculty

**Professor** M. L. Cook\*\*, J. Findeis\*\*, H.S. James\*\*, N. Kalaitzandonakes\*\*, L. M. J. McCann\*\*, J. Parcell\*\*, J. I. Stallman\*, R. E. Westgren\*\*, P. Westhoff\*\*, H. Williamson Jr.\*

**Associate Professor** M. S. Kaylen\*, M. J. Monson\*, K. C. Moore\*, M. E. Sykuta\*\*, W. Thompson \*\*, C. B. Valdivia\*\*

**Extension Professor** R. Massey\*\*

**Extension Assistant Professor** D. S. Brown\*\*

**Assistant Teaching Professor** J. Palacios Rivera

**Research Assistant Professor** J. Binfield

**Instructor** J. Moreland, L. F. Sowers

**Adjunct Faculty** H. Gedikoglu, J. Kruse, D. Miller

**Professor Emeritus** M. Bennett, C. Braschler, M. E. Bredahl, T. Brown, B. J. Deaton\*\*, G. Devino, G. A. Grimes, C. Headley, N. A. Hein, J. E. Ikerd, V. Jacobs, T. Johnson\*\*, S. F. Matthews, W. H. Meyers\*\*, D. D. Osborn, R. Plain\*, A. A. Prato, V. J. Rhodes, K. Schneeberger, D. L. VanDyne, P. F. Warnken, A. W. Womack

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agricultural Economics (p. 56)
  - with emphasis in Public Policy (p. 56)
- Minor in Agricultural Economics (p. 58)

Programs in agricultural economics focus on understanding and solving problems in the production, distribution and use of agricultural goods, services and natural resources. The focus is on courses in management, marketing and production, as well as on courses covering economic principles and computer skills.



Substantial career opportunities exist in food processing and manufacturing, international production, development and trade, biotechnology, agricultural and natural resource management, risk management and merchandising, as well as aspects of agribusiness.

## Graduate

**The last term in which a student could be admitted to the MS and PhD programs in Agricultural Economics was Fall 2013. Students pursuing the MS or PhD in Agricultural Economics should refer to a prior year's edition in the Archived Catalogs (<http://catalog.missouri.edu/archives>) for their degree information.**

**Going forward, students are being admitted into the MS in Agricultural and Applied Economics (p. 53) and the PhD in Agricultural and Applied Economics (p. 54). Please refer to those pages within this catalog for details on the programs.**

Department of Agricultural & Applied Economics  
214 Mumford Hall  
Columbia, MO 65211  
(573) 882-3747  
<http://dass.missouri.edu/agecon/>

## BS in Agricultural Economics

### Degree Program Description

In the field or in public service, agricultural economists apply economic concepts and problem-solving skills to effectively and efficiently manage farm, environmental and commercial decisions. Agricultural Economics is for students interested in improving food production and processing, developing agricultural policy, helping rural communities preserve and develop their economic strengths, or protecting our natural resources.

The solid foundation of economic skills and agricultural knowledge acquired prepared students for any number of careers, including Policy Analysis, Farm and Ranch Management, Resource Economics and Management, and Business. In Policy Analysis, Agricultural economists often are employed by environmental groups, government agencies, commodity organizations and media to interpret how agricultural policies affect various interest groups. These policies include all aspects of agriculture, from water and soil use to technology adoption to international trade patterns. Such policies affect all of us through food and energy prices, the quality of our water and air, product development, and international trade and negotiations.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Economics are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements.

Students transferring into agricultural economics from other degree programs at MU or from other colleges or universities must have a 2.7 cumulative GPA for all work attempted.

#### Foundational Courses

MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	

Prior approval by adviser chair required to replace MATH 1400 and AG\_EC 2123 with MATH 1500

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or F_W 1100	Introductory Zoology with Laboratory	
CHEM 1100	Atoms and Molecules with Lab	3-4
or CHEM 1320	College Chemistry I	
or BIOCHM 2110	The Living World: Molecular Scale	
or BIOCHM 2112	Biotechnology in Society	
AG_EC 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
AG_EC 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	
PHIL 1200	Logic and Reasoning	3

#### Department core requirements 18

AG_EC 2123	Quantitative Applications in Agricultural Economics	3
AG_EC 2183	The Agricultural Marketing System	3
AG_EC 2225	Statistical Analysis	3
or STAT 2500	Introduction to Probability and Statistics I	
AG_EC 3282	Agribusiness Finance	3
or FINANC 3000	Corporate Finance	
AG_EC 4251	Agricultural Prices	3

#### Supporting courses 24

AG_EC 1200	Applied Computer Applications	3
ACCTCY 2036	Accounting I	3
or ACCTCY 2136H	Honors Accounting I	
or ACCTCY 2026		
ACCTCY 2037	Accounting II	3
or ACCTCY 2137H	Honors Accounting II	
or ACCTCY 2027		
AG_EC 4301	Topics in Agricultural Economics	3

#### Supporting Agriculture Sciences 9

Courses in biological engineering; agricultural systems management; animal sciences; fisheries and wildlife; food science; forestry; natural resources; plant science; soil and atmospheric science; and biochemistry

#### Electives 19-22

### Semester Plan

A semester plan is not currently available for this degree.

## BS in Agricultural Economics with Emphasis in Public Policy

### Degree Program Description

In the field or in public service, agricultural economists apply economic concepts and problem-solving skills to effectively and efficiently manage farm, environmental and commercial decisions. Agricultural Economics is for students interested in improving food production and processing,

developing agricultural policy, helping rural communities preserve and develop their economic strengths, or protecting our natural resources. This emphasis is for students specifically interested in public policy, government, and pursuing graduate studies and/or law school. It prepares students in focus areas such as environmental and natural resource management, international economic development, and international trade and agricultural policy. Many of these careers are in the public sector or relate and work with public institutions. In Policy Analysis, Agricultural economists often are employed by environmental groups, government agencies, commodity organizations and media to interpret how agricultural policies affect various interest groups. These policies include all aspects of agriculture, from water and soil use to technology adoption to international trade patterns. Such policies affect all of us through food and energy prices, the quality of our water and air, product development, and international trade and negotiations.

### Major Program Requirements

In addition to the Bachelor of Science in Agricultural Economics degree program requirements (p. 56), the following courses are required within the public policy emphasis:

Emphasis core requirements		24
AG_EC 2070W	Environmental Economics and Policy - Writing Intensive	3
AG_EC 3230	Agricultural and Rural Economic Policy	3
AG_EC 3271 or AG_EC 3272	International Agricultural Development or International Food Trade and Policy	3
AG_EC 4990	Economic Analysis of Policy and Regulation	3
ECONOM 4351	Intermediate Microeconomics	3
Public Policy Electives		9
AG_EC 3241W	Ethical Issues in Agriculture - Writing Intensive	
AG_EC 3272	International Food Trade and Policy	
AG_EC 3256	Agribusiness and Biotechnology Law	
AG_EC 3257	Rural and Agricultural Law	
AG_EC 3260	General Farm Management	
AG_EC 3286	Economics of Managerial Decision Making	
AG_EC 3294	Agricultural Marketing and Procurement	
AG_EC 4972	Agri-Food Business and Cooperative Management	
ECONOM 4315	Public Economics	
International Electives		3
AG_EC 3150	International Agribusiness	
AG_EC 3271	International Agricultural Development	
AG_EC 3272	International Food Trade and Policy	
AFNR 2190	International Agriculture and Natural Resources	
AFNR 2191	International Agriculture and Natural Resources - Humanities	

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
AG_EC 1041 or ECONOM 1014	3 AG_EC 1042 or ECONOM 1015	3

AG_EC 1010	3 BIO_SC 1010	3
AG_EC 1200	3 BIO_SC 1020	2
MATH 1100	3 ENGLISH 1000	3
PHIL 1200	3 MATH 1400	3
	POL_SC 1100, 2100, HIST 1100, or HIST 1200	3
		15
		17

Second Year		
Fall	CR Spring	CR
AG_EC 2183	3 AG_EC 2070W	3
AG_EC 2225 or STAT 2500	3 AG_EC 2123	3
ACCTCY 2036, 2026, or 2136H	3 AG_EC 3230	3
CHEM 1100, 1320, BIOCHM 2110, or BIOCHM 2112	3 AG_ED_LD 2220 or COMMUN 1200	3
Humanities Elective	3 ACCTCY 2037, 2027, or 2137H	3
		15
		15

Third Year			
Fall	CR Spring	CR Summer	CR
AG_EC 3271 or 3272	3 AG_EC 3282 or FINANC 3000	3 AG_EC 4940	3
AG_EC 4251	3 Supporting Agriculture Science	6	
AG_EC 4301 or ECONOM 4351	3 Public Policy Elective	6	
International Elective	3		
Supporting Agriculture Science	3		
		15	3

Fourth Year		
Fall	CR Spring	CR
Public Policy Electives	6 AG_EC 4990	3
Free Electives	7 Free Electives	9
		12

Total Credits: 120

The following foundational courses are included in the Semester Plan above and are used by the Department to meet MU's General Education Requirements (p. 33) and University Undergraduate Requirements (p. 32).

- ENGLISH 1000
- MATH 1100
- MATH 1400
- BIO\_SC 1010 and BIO\_SC 1020
- CHEM 1100
- AG\_EC 1041
- AG\_EC 1042
- POL\_SC 1100, HIST 1100 or HIST 1200
- AG\_ED\_LD 2220 or COMMUN 1200
- PHIL 1200

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## Minor in Agricultural Economics

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A minor in agricultural economics requires 18 credits in agricultural economics with at least 9 credits at the 3000 level or above. A student earning an agribusiness management major is not eligible for an agricultural economics minor.

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## Agricultural Education

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Anna L. Ball, Professor and Department Chair  
College of Agriculture, Food and Natural Resources  
127 Gentry Hall  
(573) 882-7451  
Fax: (573) 884-4444

Administrative Assistant: swaimc@missouri.edu  
<http://aged.missouri.edu>

The agricultural education degree program provides students with the opportunity to combine an interest in agriculture, food and natural resources with their enjoyment of working and communicating with people. A degree in agricultural education leads to careers in which students can influence the understanding of agriculture and its role in society and the global economy.

The department offers the BS with a major in Agricultural Education, as well as an MS and a PhD. A minor is also available.

## Faculty

**Professor** A. L. Ball\*\* B. L. Garton\*\*, L. G. Schumacher\*\*

**Associate Professor** T. J. Kitchel\*\*

**Assistant Professor** J. C. Simonsen\*\*

**Assistant Professor** J. D. Tummons\*

**Professional Development** R. Scheiderer

**Professor Emeritus** R. E. Linhardt, B. R. Stewart

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agricultural Education (p. 58)
  - with emphasis in Leadership (p. 59)
  - with emphasis in Teacher Certification (p. 60)
- Minor in Agricultural Education (p. 61)

Students pursuing a degree in agricultural education choose between two emphasis areas. The leadership emphasis focuses on developing students' leadership, communication and human relation skills. Students learn how to plan, manage and disseminate information in educational and public settings. Teacher certification emphasis prepares students to meet state teacher licensure requirements and teach agriculture, food and natural resources to secondary and adult learners through Missouri public schools. Students in both the teacher certification and leadership emphasis areas have the opportunity to specialize in an area of interest by completing course work in one or more agriculture, food or natural resource disciplines.

Students transferring into agricultural education from other MU degree programs or from other institutions must have at least a 2.3 GPA for all course work attempted.

## Major Core Requirements

See university general education and graduation requirements as well as the College of Agriculture, Food and Natural Resources listings. The requirements specific to agricultural education are also available at <http://aged.missouri.edu>.

## Emphasis Areas

Students majoring in the agricultural education select the Teacher Certification emphasis or Leadership emphasis.

## Graduate

- PhD in Agricultural Education (p. 61)

Department of Agricultural Education and Leadership  
121 Gentry Hall, Columbia, MO 65211  
(573) 882-7451  
[aged@missouri.edu](mailto:aged@missouri.edu)  
<http://dass.missouri.edu/aged/grad/>

The agricultural education programs are designed for students with interests in agricultural education and leadership development. Coursework includes program and professional development, evaluation, teaching and learning theories and practices, social sciences research methods, organization and administration, leadership and communication.

The department also offers a MS in Agricultural Leadership, Communication and Education (p. 62).

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## BS in Agricultural Education

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### Degree Program Description

Agricultural Education combines interests in agriculture, working with people, shaping the next generation's understanding of agriculture and its role in society, and using communication and human relation skills to obtain leadership roles in many agricultural industries. The degree program is individualized by choosing between two degree options – teaching or leadership. Some agricultural education careers include Agriculture teachers, Public Relations Specialist, and Youth Specialist. As an Agriculture teacher, graduates work for both public schools and adult education programs. They are responsible for teaching their students about the many facets of agriculture – from crops and livestock to economics and marketing – and how that system provides the food we eat. As Public relations specialists graduates work for a variety of private companies and non-profit organizations. They are responsible for communicating messages about their company's products or their organization's cause to the public. They utilize various media, such as radio, television and print publications, to accomplish their goals. As Youth specialists graduates work for non-profit groups such as 4-H, as well as outreach and extension services. They are responsible for developing educational programs for youth in their area.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Education are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major

requirements, including selected foundational courses, which may fulfill some University general education requirements. Approximately one-third of the course work for the degree is completed in agricultural education or professionally related courses. In addition, the curriculum includes courses in agriculture, food and natural resource disciplines including agricultural economics, agricultural systems management, animal science, food science, horticulture, plant science and natural resources.

Students majoring in agricultural education select the Teacher Certification emphasis or Leadership emphasis. Please see the individual emphasis areas (p. 58) for degree and major requirements.

## Foundational Courses

CHEM 1100	Atoms and Molecules with Lab	3
or CHEM 1320	College Chemistry I	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
AG_EC 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
AG_ED_LD 2250	Introduction to Leadership	3
or AG_ED_LD 2260	Team and Organizational Leadership	
AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3

## Semester Plan

Below is a sample plan of study, semester by semester for a student that has selected the Teacher Certification emphasis area. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
AG_ED_LD 1000 <sup>^</sup>	1 MATH 1100 <sup>*</sup>	3
PLNT_S 2075 <sup>^</sup>	3 AN_SCI 1065 <sup>^</sup>	2
AN_SCI 2165	3 HIST 1100 <sup>*</sup>	3
AG_EC 1041 <sup>*</sup>	3 COMMUN 1200 <sup>*</sup>	3
ENGLSH 1000 <sup>*</sup>	3 BIO_SC 1020 <sup>*</sup>	2
	BIO_SC 1010 <sup>*</sup>	3
	13	16
Second Year		
Fall	CR Spring	CR
ESC_PS 2010	3 AG_ED_LD 2220 <sup>*</sup>	3
AG_ED_LD 2271 <sup>^</sup>	1 CHEM 1100 <sup>*</sup>	3
AG_S_M 1020 <sup>^</sup>	3 PLNT_S 2110	3
THEATR 1400 <sup>*</sup>	3 RU_SOC 1000	3
AG_ED_LD 2250 <sup>*</sup>	3 LTC 2040 <sup>^</sup>	3
AG_ED_LD 2270 <sup>^</sup>	3	
	16	15
Third Year		
Fall	CR Spring	CR
SPC_ED 4020	3 SCI_AG_J 3210	3
AG_EC 2223	3 AG_ED_LD 2260	3
AG_ED_LD 4310 <sup>^</sup>	3 AG_ED_LD 4320 <sup>^</sup>	3
STAT 1400 <sup>*</sup>	3 AG_ED_LD 4321 <sup>^</sup>	1
PLNT_S 3260	4 AG_EC 2183	3

	AN_SCI 2114	3
	16	16
Fourth Year		
Fall	CR Spring	CR
LTC 4560	3 AG_ED_LD 4087 <sup>^</sup>	3
AG_EC 3224	3 AG_ED_LD 4995 <sup>^</sup>	9
AG_ED_LD 3320 <sup>^</sup>	3	
AG_ED_LD 4330 <sup>^</sup>	3	
AG_ED_LD 4331 <sup>^</sup>	1	
PLNT_S 3230	3	
	16	12

Total Credits: 120

\* Denotes University General Education Requirements

<sup>^</sup> Denotes Degree Program Requirements

## BS in Agricultural Education with Emphasis in Leadership

### Degree Program Description

Agricultural Education combines interests in agriculture, working with people, shaping the next generation's understanding of agriculture and its role in society, and using communication and human relation skills to obtain leadership roles in many agricultural industries. The degree in Agricultural Education with emphasis in Leadership focuses on the development of leadership and communication skills in agriculture, food and natural resources. Students are encouraged to develop a diverse background in agriculture with an emphasis on communication, leadership and human relations skills. Students have the opportunity to specialize in an area of interest by completing coursework in one or more agriculture, food or natural resource disciplines. In addition to agricultural education and leadership course requirements, students complete course work in agricultural economics, agricultural sales and marketing, plant science, agricultural systems management, natural resources and food science. The capstone experience involves a supervised educational internship with an agricultural business, public or private agency or commodity organization.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Education are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses (p. 58), which may fulfill some University general education requirements.

### Leadership Emphasis

The leadership emphasis focuses on developing students' leadership, communication and human relation skills. Students are encouraged to develop a diverse background by completing course work in a variety of disciplines in the College of Agriculture, Food and Natural Resources. Students also have the opportunity to specialize and earn minors in disciplines of interest. The capstone experience involves a supervised internship with an agricultural business, public or private agency, or commodity organization in the area of education, training, communication and/or development.

<b>Emphasis Core Requirements</b>	17-20
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AG_ED_LD 1000	Orientation to Agricultural Education and Leadership	1
AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
AG_ED_LD 2250	Introduction to Leadership	3
AG_ED_LD 2260	Team and Organizational Leadership	3
AG_ED_LD 2270	Leadership Development in Youth Organizations	3
AG_ED_LD 4340	Designing and Delivering Educational/Leadership Programs	3
AG_ED_LD 4993	Internship in Agricultural Education and Leadership	1-4
<b>Additional requirements (minimum 15)</b>		<b>15</b>
PSYCH 1000	General Psychology	
RU_SOC 1000	Rural Sociology	
RU_SOC 2010	Leadership in Today's World	
SCI_AG_J 3210	Fundamentals of Communications	
SCI_AG_J 3240	Communicating on the Web	
<b>Focus Area (minimum 9) (as approved by advisor)</b>		<b>9</b>
<b>Agricultural Economics</b>		<b>6</b>
AG_EC 2223	Agricultural Sales	3
AG_EC 3241	Ethical Issues in Agriculture	3
or AG_EC 3283	Fundamentals of Entrepreneurship	
<b>Animal Science</b>		<b>3</b>
Animal Science Elective		3
<b>Plant and Soil Science</b>		<b>3</b>
Plant Science Elective		3
<b>Natural Resources/ Hospitality Management/Ag Systems Management</b>		<b>3</b>
Natural Resources/Hospitality Management/Ag Systems Management Elective		3
<b>Electives</b>		<b>29</b>
CAFNR Electives		21
General Electives		9-13

## Semester Plan

Refer to the Semester Plan for the BS in Agricultural Education (p. 58) and visit with an advisor to discuss the differences in the Leadership emphasis area.

## BS in Agricultural Education with Emphasis in Teacher Certification

### Degree Program Description

Agricultural Education combines interests in agriculture, working with people, shaping the next generation's understanding of agriculture and its role in society, and using communication and human relation skills to obtain leadership roles in many agricultural industries. The degree in Agricultural Education with emphasis in Teacher Certification prepares students to meet state teacher certification requirements and teach agriculture in public schools at the secondary and adult levels. In addition to courses in agricultural education, the teaching option curriculum includes courses in general education, technical agriculture (agricultural economics, agricultural business and management, animal science, plant and soil science, agricultural systems management, horticulture, natural resources and forestry) and professional teacher certification courses

offered through the College of Education. The capstone experience involves a 16-week student teaching internship.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Education are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses (p. 58), which may fulfill some University general education requirements.

### Teacher Certification Emphasis

The Teacher Certification emphasis prepares students to meet state teacher licensure requirements to teach agriculture in Missouri public schools at the secondary and adult levels. In addition to courses in agricultural education, the curriculum includes a diverse selection of courses in agriculture, food and natural resources and professional teacher certification courses offered through the College of Education. The capstone experience involves a semester-long teaching internship in a selected secondary agriculture program.

<b>Emphasis core requirements</b>		<b>28</b>
AG_ED_LD 1000	Orientation to Agricultural Education and Leadership	1
AG_ED_LD 2270	Leadership Development in Youth Organizations	3
AG_ED_LD 2271	Early Field Experience	1
AG_ED_LD 4310	Intracurricular Program Management in Agricultural Education	3
AG_ED_LD 4320	Methods of Teaching I	3
AG_ED_LD 4321	Field Experience I	1
AG_ED_LD 4330	Methods of Teaching II	3
AG_ED_LD 4331	Field Experience II	1
AG_ED_LD 4087	Internship Seminar in Agricultural Education and Leadership	3
AG_ED_LD 4995	Student Teaching Internship in Agriculture	9
<b>College of Education</b>		<b>12</b>
ESC_PS 2010	Inquiry Into Learning I	3
LTC 2040	Inquiring into Schools, Community and Society I	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4560	Reading and Writing in the Content Areas	3
<b>Agricultural Economics</b>		<b>6</b>
AG_EC 2183	The Agricultural Marketing System	3
or AG_EC 3224	New Products Marketing	
or AG_EC 2223	Agricultural Sales	
AND Agricultural Economics Elective		3
<b>Animal Science</b>		<b>5</b>
AN_SCI 1065	Animal Science Laboratory Practicum	2
AND Animal Science Elective		3
<b>Agronomy</b>		<b>3</b>
PLNT_S 2110	Plants and their Cultivation	3
or SOIL 2100	Introduction to Soils	
or PLNT_S 3275	Grain Crops	
or PLNT_S 3270	Forage Crops	
<b>Agricultural Systems Management</b>		<b>6</b>
AG_S_M 1020	Introduction to Agricultural Systems Management	3

AG_ED_LD 3320	Metal Fabrication and Laboratory Management	3
<b>Horticulture</b>		
PLNT_S 2075	Environmental Horticulture	3
PLNT_S 3260	Greenhouse Management	4
or PLNT_S 4365	Greenhouse Crops Production	
<b>Electives</b>		
CAFNR electives		9
General Electives		9

## Semester Plan

Refer to the Semester Plan for the BS in Agricultural Education (p. 58) and visit with an advisor because an actual plan may vary based on course choices where options are available.

## Minor in Agricultural Education

The Agricultural Education minor focuses on learning, teaching and the dissemination of information about agriculture, food and natural resource topics. The minor requires 15 credits of agricultural education course work with a minimum of 6 credits at the 3000 level or above.

## PhD in Agricultural Education

### Degree Requirements

A total of 72 credit hours beyond the baccalaureate degree must be completed. The student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond the minimum.

Within the 72 credit hour requirement, students should complete 12 credit hours of course work that focuses on developing an area of expertise. The student's doctoral program committee will approve the area and content of the concentration. Concentrations may include, but are not limited to, Teacher Education, Extension Education, and Communication/Journalism.

AG_ED_LD 8410	Philosophical Foundations of Agricultural Education and Leadership	3
AG_ED_LD 8330 & AG_ED_LD 8350	Advanced Methods of Teaching and College Teaching of Agriculture, Food and Natural Resources	6
or AG_ED_LD 9410	Foundations and Practices of Teacher Education	
AG_ED_LD 8430	Evaluation of Educational Programs	3
AG_ED_LD 8250	Leadership Theory and Application	3
	Theory Course (in consultation with doctoral committee)	3
ESC_PS 7170	Introduction to Applied Statistics	3
or SOCIOL 7120	Social Statistics	
AG_ED_LD 8510	Research Methods and Design	3
AG_ED_LD 9510	Data Collection, Analysis and Interpretation	3
AG_ED_LD 8540	Methods of Qualitative Research	3
	Advanced Studies in Methods/Analysis - examples include but not limited to:	6
ESC_PS 8830	Quantitative Analysis in Educational Research I	
ESC_PS 8840	Quantitative Analysis in Educational Research II	
or SOCIOL 9837	Seminar in Multivariate Analysis Techniques	

ESC_PS 9620	Qualitative Methods in Educational Research II	
or SOCIOL 9287	Seminar in Qualitative Methods in Sociology	
Electives (including minimum of 12 credit hours for Concentrations) *		27
AG_ED_LD 9090	Doctoral Research in Agricultural Education and Leadership	9

\* Electives - should be selected in consultation of the student's advisor and must be approved by the student's committee, and should total 27 credit or more.

Concentrations - should total at least 12 credits and are counted as part of the electives, should focus on developing an area of expertise such as Teacher Education, Adult Education, Journalism, Educational Leadership, etc.

## Qualifying Process

Details regarding the Qualifying Process can be found in the program's Graduate Handbook (<http://dass.missouri.edu/aged/grad/grad-handbook.pdf>).

## Comprehensive Examination Process

Candidacy for a doctoral degree is established by passing the comprehensive examination. The comprehensive examination includes written and oral sections and is completed as the candidate is completing the prescribed coursework. Details regarding the examination process can be found in the program's Graduate Handbook (<http://dass.missouri.edu/aged/grad/grad-handbook.pdf>).

## Dissertation Requirements

After passing the comprehensive examination, the program for the doctoral degree must be completed within five years. Upon completions of the dissertation research project, the candidate defends the dissertation before his/her doctoral research committee. Details regarding the dissertation process can be found in the program's Graduate Handbook (<http://dass.missouri.edu/aged/grad/grad-handbook.pdf>).

During the time when a student is working on the dissertation, candidacy is maintained by enrolling in AG\_ED\_LD 9090 Doctoral Research in Agricultural Education and Leadership for two credit hours each fall and spring semester, and for one credit hour each summer semester, up to and including the term in which the dissertation is defended. Continuous enrollment provides access to an advisor's support, doctoral program committee guidance, and University research facilities for completion of the dissertation. Failure to continuously enroll in AG\_ED\_LD 9090 until the doctoral degree is awarded terminates candidacy.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Agricultural Education program (<http://gradschool.missouri.edu/academics/programs/agricultural-education/doctorate.php>) and the minimum requirements of the graduate faculty, enforced by the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials

will be reviewed by both the Graduate School and the degree program to which you've applied.

## Agricultural Leadership, Communication and Education

Jon Simonsen, Associate Professor and Department Chair  
 College of Agriculture, Food and Natural Resources  
 126 Gentry Hall  
 (573) 884-7375  
 Fax: (573) 884-4444

Administrative Assistant: swaimc@missouri.edu  
<http://aged.missouri.edu>

The agricultural education degree program provides students with the opportunity to combine an interest in agriculture, food and natural resources with their enjoyment of working and communicating with people. A degree in agricultural education leads to careers in which students can influence the understanding of agriculture and its role in society and the global economy.

The department offers the BS and PhD in Agricultural Education, as well as an MS in Agricultural Leadership, Communication and Education. A minor is also available.

### Faculty

- Professor** A. L. Ball\*\*, B. L. Garton\*\*, L. G. Schumacher\*\*
- Associate Professor** J. C. Simonsen\*\*
- Assistant Professor** D. A. Cletzer\*
- Assistant Teaching Professor** J. D. Tummons\*
- Assistant Teaching Professor** S. Wood-Turley\*
- Professional Development** C. Abbott
- Professor Emeritus** R. E. Linhardt, B. R. Stewart

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in agricultural leadership, communication and education, the University does offer bachelors degrees in the closely related areas of Agricultural Education (p. 58), as well as other related areas both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- MS in Agricultural Leadership, Communication and Education (p. 62)

The department also offers a BS (p. 58) and PhD (p. 58) in Agricultural Education.

## MS in Agricultural Leadership, Communication and Education

### Degree Requirements

The program consists of a minimum of 32 credits of graduate coursework beyond the bachelor's degree for the non-thesis/creative component option, and 30 credits for the thesis option. For a full explanation of the thesis/non-thesis options, see section below on Thesis/Non-Thesis Requirements (p. 63).

#### Core course required for all students (regardless of option):

Education and Communication	3
AG_ED_LD 8330   Advanced Methods of Teaching	
JOURN 8000     Mass Media Seminar	
Ag Communication Theory Course through AG*IDEA	
Leadership	3
AG_ED_LD 8250   Leadership Theory and Application	
Philosophy and Ethics	3
AG_ED_LD 8410   Philosophical Foundations of Agricultural Education and Leadership	
LTC_V 8310     Foundations of Career and Technical Education	
JOURN 8080     Media Ethics	
Communicating Ethical Issues through AG*IDEA	
Research Methods and Design	3
AG_ED_LD 8510   Research Methods and Design	

#### Additional course requirements for Creative Component Option

Select one of the following: *	3
AG_ED_LD 8430   Evaluation of Educational Programs	
AG_ED_LD 8540   Methods of Qualitative Research	
ESC_PS 7170     Introduction to Applied Statistics	
AG_ED_LD 8080   Creative Component in Agricultural Education and Leadership	
Specialization and/or Electives (example, not limited to) **	14-15
AG_ED_LD 7340   Designing and Delivering Educational/Leadership Programs	
AG_ED_LD 7350   Inservice Course in Agricultural Education and Leadership ***	
AG_ED_LD 8351   Induction Year Teaching I	
AG_ED_LD 8352   Induction Year Teaching II	
AG_ED_LD 8087   Seminar in Agricultural Education and Leadership	
AG_ED_LD 8340   Student and Teacher Development in Agricultural Education and Leadership	
AG_ED_LD 8350   College Teaching of Agriculture, Food and Natural Resources	

- \* or equivalent, in consultation with your advisor/committee
- \*\* Additional courses selected by the student and approved by her/his graduate committee may be selected to meet the goals of the student.
- \*\*\* Limited to 8 credits maximum

#### Additional course requirements for Creative Component with Teacher Certification Option

Consult with faculty on layering Teacher Certification requirements with the Creative Component option.

#### Additional course requirements for Thesis Option

AG_ED_LD 8090	Thesis Research in Agricultural Education and Leadership	4-6
ESC_PS 7170	Introduction to Applied Statistics	3
or AG_ED_LD 8540	Methods of Qualitative Research	
Specialization and/or Electives (example, not limited to)		9-11
AG_ED_LD 7340	Designing and Delivering Educational/Leadership Programs	
AG_ED_LD 7350	Inservice Course in Agricultural Education and Leadership ***	
AG_ED_LD 8351	Induction Year Teaching I	
AG_ED_LD 8352	Induction Year Teaching II	
AG_ED_LD 8087	Seminar in Agricultural Education and Leadership	
AG_ED_LD 8340	Student and Teacher Development in Agricultural Education and Leadership	
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	
AG_ED_LD 8430	Evaluation of Educational Programs	

## Sample Plan of Study

Because students in the M.S. program are from a wide variety of circumstances, and pursue the M.S. at all different paces, a sample plan of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

## Thesis/Non-Thesis Requirements

The program offers students three options:

### 1. Creative Component Option

This option is oriented toward improving a practitioner's professional proficiency in teaching, curriculum development, program planning and evaluations. The program of study should include courses and learning experiences that will develop the student's knowledge and skills in the processes of learning and teaching. The Creative Component option requires a minimum of 32 hours of graduate credit (to include a minimum of 29 hours of formal graduate courses, plus a maximum of 3 hours of 8080 Creative Component) with a minimum of 16 credit hours at the 8000 level and a minimum of 16 credit hours taken in Agricultural Education and Leadership. Candidates must also complete an approved creative component project.

### 2. Creative Component with Teacher Certification Option

This option is designed for individuals who have earned a B.S. degree in an agricultural discipline and desire the initial teacher certification to teach agriculture at the secondary level. Included in the course work for this option are some of the classes needed for certification to teach secondary high school agriculture in Missouri.

### 3. Thesis Option

This option is research-oriented, focusing on designing and conducting research in the social sciences. The program of study should include courses and learning experiences that will maximize a student's progress in developing skills that will enable the student to continue his/her education in a research-oriented area. The Thesis option requires a minimum of 30 hours of graduate credit (to include a minimum of 24 hours of formal graduate courses, plus a maximum of six hours of 8090 Research) with a minimum of 15 credit hours at the 8000 level

and a minimum of 15 credit hours taken in Agricultural Education and Leadership. Candidates must also complete an approved thesis based on original research.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Agricultural Education program (<http://gradschool.missouri.edu/academics/programs/agricultural-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Agricultural Systems Management

Leon G. Schumacher, Chair  
 College of Agriculture, Food and Natural Resources  
 Division of Food Systems and Bioengineering  
 207 Agricultural Engineering Building  
 (573) 882-2731  
 ASM@missouri.edu

Agricultural systems management integrates physical systems with agricultural science and management skills to provide graduates with abilities to function in sales, service and maintenance management positions in agribusiness industries. The uniqueness of agricultural systems management graduates lies in their knowledge of the principles of physical systems that are the backbone of modern agricultural and food industries. The department offers the Bachelor of Science with a major in Agricultural Systems Management. A minor is also available.

## Faculty

**Professor** D. Brune\*, W. Downs, L. Schumacher\*

**Associate Professor** D. Baker\*, S. Borgelt\*, K. Sudduth\*\*, A. Thompson\*\*

**Assistant Professor** B. Broz, B. Koc\*, T. Lim\*, J. Zulovich\*

**Research Associate** K. Funkenbusch

**Extension Associate** D. Downing

**Professor Emeritus** D. Currence, J. Frisby, B. Hires, J. Hoehne, D. Pfost

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agricultural Systems Management (p. 64)
- Minor in Agricultural Systems Management (p. 65)

## Graduate

While MU does not offer graduate degrees in ASM, the University does offer post-baccalaureate opportunities in a number of related areas, both



within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## BS in Agricultural Systems Management

### Degree Program Description

Agricultural Systems Management combines interests in machines and business. The business and technical skills acquired prepares students for any number of careers in many industries, including Agricultural and Power Equipment Manufacturing, Equipment Sales, Food Production and Processing, and Government. In Agricultural and Power Equipment Manufacturing, companies such as Caterpillar, Case IH and John Deere seek product developers, managers and supervisors trained in the latest in precision agriculture, hydraulics, electrical circuits, engines and machinery management. In Equipment Sales, local and regional dealerships who sell agricultural machinery to agricultural producers seek technical sales representatives who possess strong product knowledge and an understanding of business finance and marketing to provide producers with the equipment they need. In Food Production and Processing, companies such as Anheuser-Busch, Archer Daniels Midland, Frito-Lay, Pioneer Hi-Bred, Cargill and Purina Mills seek grain elevator and mill operators and managers to properly handle, store and process agricultural crops and materials. In Government, state and federal agencies such as the Missouri Department of Natural Resources, the U.S. Department of Agriculture and the Natural Resources Conservation Service seek consultants and specialists to oversee and regulate pesticide application, water handling and irrigation systems, animal waste management systems, and watershed management.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Systems Management are required to complete all University general education (p. 33), (p. 33) University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements.

#### Foundational Courses

AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	
CHEM 1100	Atoms and Molecules with Lab	3-4
or CHEM 1320	College Chemistry I	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
AG_EC 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
AG_EC 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
<b>Core requirements</b>		<b>9</b>
AG_S_M 1020	Introduction to Agricultural Systems Management	3

AG_S_M 1040	Physical Principles for Agricultural Applications	3
AG_S_M 4970	Agricultural Systems Management - Capstone	3
<b>Select at least three courses from the following</b>		<b>9</b>
AG_S_M 2220	Agricultural/Industrial Structures	3
AG_S_M 2360	Fluid Power	3
AG_S_M 4020	Agricultural Safety and Health	3
AG_S_M 4220	Material Handling and Conditioning	3
AG_S_M 4140	Electricity: Wiring and Equipment	3
AG_S_M 4320	Agricultural Equipment and Machinery	3
<b>Select at least one course from the following</b>		<b>3</b>
AG_S_M 4420	Surface Water Management	3
AG_S_M 4460	Irrigation and Drainage	3
<b>Agricultural System Management Electives</b>		<b>31</b>
AG_S_M 2320	Internal Combustion Power	3
AG_S_M 2340	Pesticide Application Equipment	3
AG_S_M 2345	Chemical Application Systems	2-3
AG_S_M 3350	Problems in Agricultural Systems Management (up to 6)	1-5
AG_S_M 4150	Biorenewable Systems Technology	3
AG_S_M 4225	Preservation of Grain Quality	2
AG_S_M 4360	Precision Agriculture Science and Technology	3
AG_S_M 4365	Machinery Management Using Precision Agriculture Technology	3
AG_S_M 4366	Data Management and Analysis Using Precision Agriculture Technology	3
AG_S_M 4368	Profit Strategies Using Precision Agriculture Technology	3
AG_S_M 1002	Topics in Agricultural Systems Management-Biological/Physical/Math	3
AG_S_M 1120	Agricultural/Industrial Materials and Processes	3
AG_S_M 4120	Advanced Agricultural/Industrial Materials and Processes	2-3
AG_S_M 4350	Problems in Agricultural Systems Management	1-3
AG_S_M 4940	Agricultural Systems Management Internship	2-5
<b>AFNR Supporting courses</b>		
AFNR 1120	Computing and Information Technology	1-2
or AFNR 2120	Working with Data Using Excel	
PLNT_S 2100	Introduction to Soils	2-3
or PLNT_S 2110	Plants and their Cultivation	
or AN_SCI 1065	Animal Science Laboratory Practicum	
<b>Business/Economics (select 5 courses)</b>		
ACCTCY 2036	Accounting I	3
MANGMT 3000	Principles of Management	3
AG_EC 2183	The Agricultural Marketing System	3
AG_EC 2223	Agricultural Sales	3
AG_EC 3224	New Products Marketing	3
AG_EC 3256	Agribusiness and Biotechnology Law	3
AG_EC 3260	General Farm Management	3
AG_EC 3282	Agribusiness Finance	3
or FINANC 1000	Principles of Finance	
<b>Electives</b>		<b>27</b>

In consultation with their advisor, students may select elective courses to bring their total credit hours to the 120 hour minimum. Typically electives are chosen to provide emphasis in one of the following areas:

- Natural resource and environment
- Materials handling and crop processing
- Power and machinery systems
- Production agriculture

## Agricultural Equipment Dealership Management Program

Students who participate in the Agriculture Equipment Dealership Management program take a comprehensive sequence of courses in agricultural systems management and agricultural business management. Each student plans and completes an internship with a sponsoring dealer. Up to 6 credits may be earned through an Internship.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
AG_S_M 1020	3 AG_S_M 1040	3
AG_EC 1041	3 AG_EC 1042	3
BIO_SC 1020	2 AFNR 2120	1
MATH 1100	3 ENGLISH 1000	3
BIO_SC 1010	3 HIST 1100, 1200, POL_SC 1100, or POL_SC 2100	3
	CHEM 1100	3
	14	16
Second Year		
Fall	CR Spring	CR
Humanistic Studies and/or Fine Arts	3 AG_S_M 2320	3
AG_ED_LD 2220	3 AG_S_M 2340	3
AG_S_M 2360	3 SOIL 2100	3
BIOCHM 2112	3 STAT 1400	3
AG_EC 2223	3 AFNR Elective	3
	15	15
Third Year		
Fall	CR Spring	CR
AG_S_M 4140	3 AG_S_M 4020	3
FINANC 1000	3 AG_S_M 4220	3
AG_EC 2183	3 AG_S_M 4940	3
AFNR Elective	3 ACCTCY 2026	3
SCI_AG_J 3240	3 AFNR Elective	3
	15	15
Fourth Year		
Fall	CR Spring	CR
AG_S_M 4970	3 AG S M Elective	3
AG_S_M 4320	3 AG S M Elective	3
AG_S_M 4368	3 AG S M Elective	3
AG_S_M 4366	3 AG_EC 3256	3

AG_EC 3260	3 AG_S_M 4360	3
	15	15

Total Credits: 120

## Minor in Agricultural Systems Management

15 hours of Agricultural Systems Management coursework. Of the 15 hours, 9 hours must be 3000 level or above.

### Agriculture

Bryan Garton, Associate Dean, Academic Programs  
 Shari Freyermuth, Assistant Dean, Academic Programs  
 Mary Hendrickson, Coordinator Sustainable Agriculture Program

### Faculty

See Listing for Faculty in areas of concentration by referring to the degree listings available under the College of Agriculture, Food and Natural Resources.

### Undergraduate

- BS in Agriculture (p. 65)
  - with emphasis in Sustainable Agriculture (p. 66)

Students may choose to get a BS in Agriculture without the emphasis.

Dickinson Student Achievement Center  
 2-64 Agriculture Building  
 (573) 882-8301  
[www.cafnr.missouri.edu](http://www.cafnr.missouri.edu)

The agriculture degree program is for students searching for a well-rounded education that builds on the diversity of the other degree programs in the College of Agriculture, Food and Natural Resources (CAFNR). The flexibility of agriculture degree enables students to tailor a program to fit their individual interests and career goals. Students earn a Bachelor of Science in Agriculture.

Students choose agriculture for a variety of reasons. Some may enter the program with a specific career goal in mind. Others may choose agriculture to obtain a broader education that will give them more flexibility.

### Graduate

While the College of Agriculture, Food and Natural Resources does not offer a graduate degree in Agriculture, the College does offer graduate degrees and certificates in a number of disciplinary areas. The catalog provides a complete list of these degree options (p. 17) for all Schools and Colleges that make up the University of Missouri.

## BS in Agriculture

### Degree Program Description

The agriculture degree program is for students searching for a well-rounded education that builds on the diversity of the other degree programs in the College of Agriculture, Food and Natural Resources (CAFNR). The flexibility of agriculture degree enables students to tailor a

program to fit their individual interests and career goals. Students earn a Bachelor of Science in Agriculture.

## Major Program Requirements

Students earning a Bachelor of Science in Agriculture are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational Courses

CHEM 1100 or CHEM 1320	Atoms and Molecules with Lab College Chemistry I	3
BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1030 or BIO_SC 1200 or BIO_SC 1500	General Principles and Concepts of Biology and General Biology Laboratory General Principles and Concepts of Biology with Laboratory General Botany with Laboratory Introduction to Biological Systems with Laboratory	5
AG_EC 1041 or ECONOM 1014	Applied Microeconomics Principles of Microeconomics	3
AG_EC 1042 or ECONOM 1015	Applied Macroeconomics Principles of Macroeconomics	3
AG_ED_LD 2220 or COMMUN 1200	Verbal Communication in Agriculture, Food and Natural Resources Public Speaking	3

### Degree and Major Courses

- Students in agriculture also must complete three areas of concentration from CAFNR programs that offer a major or a minor. The primary concentration area requires completion of 18 or more credits. Two additional concentration areas of at least 15 credits each are also required. (See below.)
- These courses shall not be used to fulfill the requirements of a minor.
- Within each concentration area, at least six credits must be at the 3000-level or above.
- Within each concentration area, at least 50 percent of the credits must be earned through MU courses.
- Credits used to meet the University general education requirements can be used to meet requirements in concentration areas.
- No more than six credits in the primary area and three credits in the secondary areas may consist of problems, readings, internships, travel courses and other non-structured courses.
- The capstone experience for agriculture majors can be a capstone course in a concentration area, an internship or capstone project. This capstone is in addition to credits in the concentration areas.

### Areas of Concentration

- Agricultural Economics
- Agricultural Education
- Agricultural Leadership
- Agricultural Systems Management
- Animal Sciences
- Fisheries and Wildlife Sciences
- Food Science and Nutrition
- Forestry
- Hospitality Management

- Parks, Recreation and Tourism
- Plant Sciences
- Rural Sociology
- Science and Agricultural Journalism
- Soil, Environmental, and Atmospheric Sciences

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR	
AG_EC 1041	3 MATH 1100	3	
ENGLSH 1000	3 AG_EC 1042	3	
AFNR 2120	1 BIO_SC 1020	2	
RU_SOC 1000	3 Humanities Elective	3	
HIST 1100	3 BIO_SC 1010	3	
AFNR 1120	2		
	15	14	
Second Year			
Fall	CR Spring	CR Summer	CR
AG_ED_LD 2220	3 STAT 1200	3 Study Abroad recommended	3
CHEM 1100	3 Elective	3	
Humanities Elective	3 Concentration Area(s)	9	
Concentration Area(s)	6		
	15	15	3
Third Year			
Fall	CR Spring	CR Summer	CR
Electives	6 BIOCHM 2112	3 Internship Recommended	3
Concentration Area(s)	9 Concentration Area(s) Writing Intensive Elective Other Elective	6 3 3	
	15	15	3
Fourth Year			
Fall	CR Spring	CR	
Concentration Area(s)	9 Concentration Area(s)	9	
Electives	3 Senior Capstone Elective	3 1	
	12	13	

Total Credits: 120

## BS in Agriculture with Emphasis in Sustainable Agriculture

### Degree Program Description

Sustainable agriculture meets the needs of both farmers and consumers by creating agricultural systems that produce food for a growing population in a way that protects the environment and supports healthy,

dynamic communities. Increasingly, farmers are looking for creative ways to increase and diversify farm income, while consumers are seeking sustainably raised food produced close to home. A Bachelor of Science degree in Agriculture with an emphasis in Sustainable Agriculture provides the skills and knowledge to incorporate economic viability, environmental stewardship, and social responsibility in food and farming systems. Some of the areas studied include: theory and practice of sustainable agriculture, community food systems, advanced sustainable production systems, and an introduction to soils. Some career opportunities include production, sales and marketing, government, and non-governmental organizations.

## Major Program Requirements

CAFNR offers an emphasis area in Sustainable Agriculture as part of its Agriculture degree program. A minimum of 48 credits is required for the emphasis area (major) degree.

Primary Concentration		18
AFNR 2215	Introduction to the Theory and Practice of Sustainable Agriculture	3
AFNR 3215	Community Food Systems	3
AFNR 3315	Advanced Practices in Sustainable Agriculture	3
SOIL 2100	Introduction to Soils (Concurrent enrollment in SOIL 2106 recommended)	3
Choose two courses from the following		
AN_SCI 2111	Sophomore Seminar: Societal Issues Facing Animal Agriculture	3
PLNT_S 2110	Plants and their Cultivation	3
RU_SOC 1120	Population and the Environment	3
NAT_R 1060	Ecology and Conservation of Natural Resources	3
NAT_R 1070	Ecology and Renewable Resource Management	3
Secondary Concentration		15
AG_EC 2070	Environmental Economics and Policy	3
AG_EC 2183	The Agricultural Marketing System	3
AG_EC 3241	Ethical Issues in Agriculture	3
Choose one course from the following		
AG_EC 3260	General Farm Management	3
AG_EC 3224	New Products Marketing	3
Choose one course from the following		
RU_SOC 2225	Science, Technology and Society	3
BIOCHM 2112	Biotechnology in Society	3
SCI_AG_J 4414	Field Reporting on the Food System and Environment	3
Secondary Concentration		15
[Choose Community Food Systems OR Production Systems]		
Community Food Systems (15 hrs total)		
AG_EC 2223	Agricultural Sales	3
AG_EC 3271	International Agricultural Development	3
AG_EC 3283	Fundamentals of Entrepreneurship	3
AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
AG_ED_LD 2250	Introduction to Leadership	3
AG_ED_LD 2260	Team and Organizational Leadership	3
AG_ED_LD 4340	Designing and Delivering Educational/Leadership Programs	3

AN_SCI 2111	Sophomore Seminar: Societal Issues Facing Animal Agriculture	3
FINPLN 2183	Personal and Family Finance	3
NEP 4590	Community Nutrition	3
RU_SOC 3235	Global Perspectives and Realities	3
RU_SOC 3325	Sociology of Food and Nutrition	3
RU_SOC 4341	Building Communities from the Grassroots	3
RU_SOC 4325	American Community Studies	3
RU_SOC 4370	Environmental Sociology	3
Production Systems (15 hrs total)		
AG_EC 4962	Planning the Farm Business	3
AN_SCI 2111	Sophomore Seminar: Societal Issues Facing Animal Agriculture	3
AN_SCI 2165	Introduction to Ruminant Livestock Production	3
AN_SCI 2175	Introduction to Monogastric Production	3
AN_SCI 3212	Principles of Animal Nutrition	3
FOREST 4385	Agroforestry I: Theory, Practice and Adoption	3
PLNT_S 2075	Environmental Horticulture	3
PLNT_S 2125	Plant Structure and Function	3
PLNT_S 3210	Principles of Weed Science	4
PLNT_S 3230	Plant Propagation	3
PLNT_S 3260	Greenhouse Management	4
PLNT_S 3270	Forage Crops	3
PLNT_S 3275	Grain Crops	3
PLNT_S 3710	Introductory Entomology	3
PLNT_S 3715	Insect Diversity	2
PLNT_S 4730	Insect Pest Management for Plant Protection	3
SOIL 3290	Soils and the Environment	3
SOIL 4308	Soil Conservation	3
SOIL 4312	Environmental Soil Microbiology	3
SOIL 4313	Soil Fertility and Plant Nutrition	3

## Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## Animal Sciences

Division of Animal Sciences  
 College of Agriculture, Food and Natural Resources  
 S102 Animal Sciences Center  
 (573) 882-7446  
 Fax: (573) 882-6827  
<http://animalsciences.missouri.edu>

**Interim Division Director:** Dr. William Lamberson

Animal sciences is a broad field centered on the study of agriculturally important animals and their products. Graduates in animal sciences have employment opportunities in many areas including agribusiness (feed, pharmaceutical and meat industries; dairy and poultry products; public relations and research), production and management (farming/ranching; managers of livestock and poultry operations; zookeepers; consultants and technical service representatives), governmental agencies (USDA) and educational institutions (extension, teaching and research).

Students seeking admission into graduate and professional schools usually take more courses in the sciences than students in production and management, who select more business-related courses. Students and their faculty advisors select courses that fit the students' needs, interests and objectives. The most specialization occurs at the graduate level.

The department offers BS, MS and PhD degrees with majors in Animal Sciences. A minor is also available.

## Faculty

**Curators Professor** R. S. Prather\*\*, R. M. Roberts\*\*, M. F. Smith\*\*, J. F. Taylor\*\*

**Professor** E. Bailey, J. D. Firman\*\*, R. D. Geisert\*\*, M. S. Kerley\*\*, W. R. Lamberson\*\*, C. Lorenzen\*\*, M. C. Lucy\*\*, T. McFadden\*\*, D. J. Patterson\*\*, R.M Roberts\*\*, T. J. Safranski\*\*, M. C. Shannon\*\*, J. N. Spain\*, T.E. Spencer\*\*, P. Sutovsky\*\*, K. Sharpe Timms\*\*, B. Wiegand\*\*

**Associate Professor**, C. Elsik\*\*, J. A. Green\*\*, R. Rivera\*\*, R. Schnabel\*, K. Wells\*\*

**Assistant Professor** J. Decker\*\*, A. Meyer\*\*

**Assistant Teaching Professor** T. Strauch\*

**Associate Research Professor** T. Ezashi\*

**Assistant Research Professor** A. Alexenko, D. Hagen\*, J. Kim, E. Walters\*\*

**Adjunct Professor** D. Lubahn\*

**Assistant Adjunct Professor** Y. Agca, S. Behura\*, D. Bickart, G. Conant, L. Lyons\*, W. Pittroff, L. Schulz\*\*, J. Sexton, K. Stewart, C. Tubbs, W. Tumen\*, A. Wurst

**Instructor** M. Crosby, S. Hamilton

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Animal Sciences (p. 69)
- Minor in Animal Sciences (p. 71)

## Divisional Honors Program

In addition to the guidelines for the honors program in the College of Agriculture, Food and Natural Resources, students must meet the following requirements for the honors program in animal sciences. A student must be a junior or senior to participate in the honors program.

- Successful completion of either an internship or undergraduate research or a combination of both for 6 credits in animal sciences honors
- Program approval by a three-member departmental honors committee
- Submission of a written report plus an oral or poster presentation

## Ag Scholars Program

This program provides early assurance of admission to the MU College of Veterinary Medicine for selected animal science majors on the University of Missouri campus.

High School seniors and MU freshman with an ACT composite score of 27 or more or an equivalent SAT score are eligible to apply for the Ag Scholars Program.

Students must have demonstrated experience or interest in livestock production and health. Examples of appropriate experience may include participation in a livestock enterprise as either a family member or an employee; enrollment in at least two years of high school agricultural coursework; and participation in FFA, 4H or equivalent organizations with projects directly related to livestock production or health; or completion of an internship of at least 250 supervised hours working in livestock production or a livestock health enterprise prior to applying for program admission.

For additional information, contact:

Preveterinary Medical Scholars and Ag Scholars Programs  
W-203 Veterinary Medicine Bldg.  
College of Veterinary Medicine  
University of Missouri  
Columbia, Missouri 65211  
(573) 884-3341

## Agreement with the College of Veterinary Medicine

The Division of Animal Sciences and the College of Veterinary Medicine have an articulation agreement which enables MU Animal Science majors who are admitted to the College of Veterinary Medicine before completing their B.S. degree to earn a B.S. degree in Animal Sciences during their days as a professional veterinary medicine student. In order to earn a B.S. degree in Animal Sciences the following requirements must be met:

- The student will successfully meet all General Education (p. 33) requirements established by the University of Missouri campus.
- The student will meet any additional college or divisional requirements.
- The student will be required to complete all MU Animal Sciences requirements except for 9 hours of Animal Science Senior electives.
- The student will also be able to substitute up to 20 hours completed in the College of Veterinary Medicine in lieu of general electives in order to complete the total number of student credit hours necessary for a B.S. degree in Animal Sciences.
- The B.S. degree in Animal Science will be granted after successful completion of the first year of Veterinary Medicine.

## Graduate

- MS in Animal Sciences (p. 70)
- PhD in Animal Sciences (p. 71)

Division of Animal Sciences  
920 E. Campus Drive, Columbia, MO 65211  
(573) 882-8336  
<http://animalsciences.missouri.edu/academics/graduates.php>

**Director of Graduate Studies:** William Lamberson

## About Animal Sciences Graduate Programs

The Division of Animal Sciences has a broad-based teaching program, and our faculty members are noted for teaching and mentoring excellence. Our PhD program was recently ranked among the best in

the country by the National Research Council and our research program among the best in the world by Reuters. Our graduate program has maintained or increased numbers, support, and placement rates over the past five years. The Division strives to maintain a diverse faculty qualified to teach relevant courses in five discipline areas (reproductive and environmental physiology, ruminant and monogastric nutrition, genetics/genomics, meat science and livestock production) and across six species (swine, dairy cattle, beef cattle, poultry, companion animals and horses) to serve the demand for graduates to be employed nationwide in research, teaching and industry.

## BS in Animal Sciences

### Degree Program Description

Humans have been improving the value of animals as companions, transportation, laborers and food since the first dogs, horses, donkeys and cattle were domesticated. Animal science provides an in-depth focus on whole-animal biology and contributes to advances in livestock production, animal health and human health through cutting-edge research and direct application of that new knowledge. Animal Scientists apply the latest in genetics, physiology and nutrition to any of these diverse fields. By employing a whole-animal approach to science, this degree prepares students for any number of careers, including Agribusiness, Livestock Production, Research, Veterinarians, Captive Wild Animal Management, Animal Products and Equine Industry. In Agribusiness, our graduates are in demand to fill sales and management positions with feed and pharmaceutical companies such as Land O'Lakes, MFA, Zoetis and Elanco. In Livestock Production, graduates who prefer to work directly with animals find rewarding positions as managers of various farm companies, such as Tyson Foods, Smithfield, Cargill and other private companies. In Research, graduates with a passion for research are needed as lead scientists and laboratory technicians in industry and academia. As a Veterinarian, an animal sciences degree is often the starting point for the study of veterinary medicine. Some vets specialize in care for companion animals, such as dogs and cats, while others focus on livestock, horses or wildlife. In Captive Wild Animal Management, zoological parks hire animal sciences graduates to manage the care and well-being of the park's collection. In addition to animal care, zookeepers also can be involved with research and conservation efforts. In Animal Products, students with a specific interest in meat, dairy products and eggs are in high demand for positions with companies such as Farmland, Hormel, Hy-Vee and Sam's Club. Opportunities abound in procurement, sales, quality assurance and food safety. In Equine Industry, the degree focuses on the science behind equine management and as such students are placed in positions at prominent equine breeding, sales or training facilities throughout the U.S. Students have multiple opportunities to gain hands-on experience by using horses in the MU Quarter Horse Program.

### Major Program Requirements

Students earning a Bachelor of Science in Animal Sciences are required to complete all University undergraduate general education requirements (p. 33), and divisional major requirements, including selected foundational courses, which may fulfill some University general education requirements.

#### Foundational Courses

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
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or F_W 1100	Introductory Zoology with Laboratory	
CHEM 1320	College Chemistry I	4
BIOCHM 2110	The Living World: Molecular Scale	3
or BIOCHM 2112	Biotechnology in Society	
or CHEM 2030	Survey of Organic Chemistry	
or CHEM 2100	Organic Chemistry I	
ACCTCY 2010	Introduction to Accounting	3
or AG_EC 1041	Applied Microeconomics	
or AG_EC 1042	Applied Macroeconomics	
or ECONOM 1014	Principles of Microeconomics	
or ECONOM 1015	Principles of Macroeconomics	
or FINANC 1000	Principles of Finance	
or FINANC 2000	Survey of Business Finance	
or FINPLN 2183	Personal and Family Finance	
COMMUN 1200	Public Speaking	3
or AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	
Statistics or higher mathematics course		3

#### Division Requirements

Animal Sciences Orientation		1
Animal Science Introductory Courses/w Lab		8
Careers in Animal Sciences		1
Animal Products w/lab		4
Physiology w/lab		5
Advanced Physiology		3
Animal Nutrition w/lab		4
AN_SCI 2111	Sophomore Seminar: Societal Issues Facing Animal Agriculture	3
AN_SCI 3213	Genetics of Agricultural Plants and Animals	3
AN_SCI 4312	Monogastric Nutrition	3
or AN_SCI 4332	Ruminant Nutrition	
AN_SCI 4314	Physiology of Reproduction	3
AN_SCI 4323	Applied Livestock Genetics	2
or AN_SCI 4324	Genomics of Plants and Animals	
<b>Animal Sciences Production Systems (Choose 2)</b>		<b>6</b>
AN_SCI 4975	Beef Production and Management	3
or AN_SCI 4976	Dairy Production	
or AN_SCI 4977	Horse Production	
or AN_SCI 4978	Swine Production	
or AN_SCI 4979	Poultry Production	

#### Animal Science Senior Electives

(7 hr. Min)

AN_SCI 3085	Problems in Animal Science (Swine Science On-Line (min. 2 modules))	
or AN_SCI 3214	Principles of Meat Science	
or AN_SCI 3231	Principles of Dairy Foods Science	
or AN_SCI 3275	Meat Animal Evaluation	
or AN_SCI 4312	Monogastric Nutrition	
or AN_SCI 4314	Physiology of Reproduction	
or AN_SCI 4323	Applied Livestock Genetics	
or AN_SCI 4324	Genomics of Plants and Animals	
or AN_SCI 4332	Ruminant Nutrition	
or AN_SCI 4344	Processing Muscle Foods	
or AN_SCI 4384	Reproductive Management	
or AN_SCI 4387	Equine Breeding Management	
or AN_SCI 4437	Environmental Physiology	
or AN_SCI 4940	Internship in Animal Science & Technology	

or AN_SCI 4950	Undergraduate Research in Animal Science
or AN_SCI 4975	Beef Production and Management
or AN_SCI 4976	Dairy Production
or AN_SCI 4977	Horse Production
or AN_SCI 4978	Swine Production
or AN_SCI 4979	Poultry Production
or AFNR 2190	International Agriculture and Natural Resources

## Semester Plan

Below is a sample plan of study, semester by semester. **A student's actual plan may vary based on course choices where options are available.**

First Year		
Fall	CR Spring	CR
Animal Sciences Orientation	1 Animal Science Intro. w/lab	4
Animal Science Intro. w/lab	4 BIO_SC 1500	5
AG_EC 1041	3 ENGLISH 1000	3
MATH 1100	3 Elective	3
HIST 1100	3	
	14	15
Second Year		
Fall	CR Spring	CR
Careers in Animal Science	1 AN_SCI 2111	3
Animal Products w/lab	4 Physiology w/lab	5
CHEM 1320	4 AG_ED_LD 2220	3
Humanities	3 Humanities	3
Social Science	3 Elective	2
	15	16
Third Year		
Fall	CR Spring	CR
Animal Nutrition w/lab	4 AN_SCI 3213	3
AN_SCI 3214	3 AN_SCI 4314	3
Advanced Physiology	3 AN_SCI 4323 or 4324	2
CHEM 2030	3 STAT 1400	3
Elective	3 Elective	3
	16	14
Fourth Year		
Fall	CR Spring	CR
AN_SCI 4978	3 AN_SCI 4975	3
AN_SCI 4976	3 AN_SCI 4977	3
AN_SCI 4384	3 AN_SCI 4979	3
AN_SCI 4312	3 Elective	6
Elective	3	
	15	15

Total Credits: 120

## MS in Animal Sciences

### Degree Requirements

You and your committee develop a program of study cooperatively. An official form or letter must accompany any change in a program. A satisfactory scholastic standard must be maintained. All courses taken for graduate credit must have a cumulative average of 3.0 or higher. If the GPA falls below 3.0 cumulative, you will be placed on academic probation. There will be no waiver of fees during this probationary period.

You must regain a 3.0 level at the end of the following semester or become subject to dismissal. This GPA must be maintained exclusive of problems, research and departmental seminars.

Graduate students taking 7000 level courses should expect course requirements beyond those of undergraduate students in order to warrant receiving graduate credit for those courses. The Division of Animal Sciences allows no more than two 7000 level Animal Science courses in a graduate program.

### Seminars

Two credit hours in seminar are required for the Master of Science degree. To meet the seminar requirement courses must require presentations of technical information. Seminars provide an opportunity to develop skills in presenting technical information to a group of peers and permit you to become acquainted with specialists in the area of animal and biological sciences.

### Responsible Conduct of Research

M.S. students are encouraged to take a course in "Responsible Conduct of Research". This requirement can be met by taking either:

BIOCHM/BIO_SC 8060	Ethical Conduct of Research	1
V_PBio 8641	Introduction to Research Ethics	1
Other Responsible Conduct of Research course approved by the Director of Graduate Studies		1

### Sample Plan of Study

Because students in the M.S. program are from a wide variety of circumstances, and pursue the M.S. at all different paces, a sample plan of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

### Thesis/Non-Thesis Requirements

#### Thesis Option Requirements

Course Work	24
	(minimum)
(15 hours must be at 8000-level)	
8090 research	6
	(minimum)
Seminars	2
	(minimum)
Approved Thesis	
<b>Total Minimum Hours</b>	<b>30</b>

#### Non-Thesis Option Requirements

Non-Thesis M.S. program does not serve in preparing a student for candidacy for a Ph.D. program.

Course Work	36
	including 3 hours of 8450 research
<b>Total Minimum Hours</b>	<b>36</b>

### Admissions

Admission Contact Information:

Gloria Johnson  
920 E. Campus Drive  
Columbia, MO 65211  
(573) 882-8336

<http://animalsciences.missouri.edu/academics/graduates.php>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Animal Science program (<http://gradstudies.missouri.edu/academics/programs/animal-sciences/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Minor in Animal Sciences

To earn a minor in animal sciences, a student must meet the following requirements.

- A minimum of 15 hours of course credit in Animal Sciences
- A minimum of 9 hours of course work in Animal Sciences courses numbered 3000 or above.
- Students may select any combination of animal sciences courses excluding problems and internships to meet the above requirements; however, all students will be expected to meet prerequisites of animal sciences courses.
- Up to six transfer credits can be applied toward the minor; however, these transfer credits can only apply toward the lower level courses. Hence, a student must complete nine credit hours of Animal Science credits at MU that are 3000 level or higher.

## PhD in Animal Sciences

### Degree Requirements

Graduate students taking 7000 level courses should expect course requirements beyond those of undergraduate students in order to warrant receiving graduate credit for those courses. The Division of Animal Sciences allows no more than two 7000 level Animal Science courses in a graduate program.

The number of credit hours in formal course work and in research varies with the student's background, training, interests, and the nature of the research. At least 4 hours of seminar and a responsible conduct of research course are required. A dissertation based on original research is required of each candidate. Completion of requirements for a doctoral degree is generally expected within three years (five years without prior MS) after admission to the PhD program.

### Seminars

Four credit hours in seminar are required for the PhD degree. To meet the seminar requirement courses must require presentations of technical information. Seminars provide an opportunity to develop skills in presenting technical information to a group of peers and permit you to become acquainted with specialists in the area of animal and biological sciences.

### Responsible Conduct of Research

PhD students are required to take a course in "Responsible Conduct of Research". This requirement can be met by taking either:

BIOCHM/BIO_SC 8060	Ethical Conduct of Research	1
V_PBio 8641	Introduction to Research Ethics	1
Other Responsible Conduct of Research course approved by the Director of Graduate Studies		1

## Qualifying Process

## Comprehensive Examination Process

## Dissertation Requirements

## Admissions

Admission Contact Information

Gloria Johnson

920 E. Campus Drive

Columbia, MO 65211

(573) 882-8336

<http://animalsciences.missouri.edu/academics/graduates.php>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Animal Sciences program (<http://gradstudies.missouri.edu/academics/programs/animal-sciences/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Biochemistry

Gerald Hazelbauer, Chair

College of Agriculture, Food and Natural Resources

117 Schweitzer Hall

Phone: (573) 882-4845

Fax: (573) 882-5635

A course of study in the Department of Biochemistry emphasizes the application of chemical principles to biological systems and leads to the Bachelor of Science in Biochemistry. The program requires rigorous course work in the basic sciences, culminating with a two course capstone experience of discipline specific problems and laboratory techniques. Students are encouraged to gain research experience through independent projects in faculty labs. The biochemistry degree prepares students for further study in graduate or professional school or for a career in biochemistry, biotechnology or the biological, chemical or medical sciences.

## Faculty

**Professor** L. Beamer\*\*, D. Burke\*\*, S. J. Chen\*, S. Deutscher\*\*, D. Emerich\*\*, W. Folk\*\*, K. Gates\*, T. Guilfoyle\*\*, M. Hannink\*\*, G. Hazelbauer\*\*, M. Henzl\*\*, D. Lubahn\*\*, T. Mawhinney\*\*, B. McClure\*\*, S. Peck\*\*, M. Petris\*\*, T. Quinn\*\*, L. Randall\*\*, R. M. Roberts\*\*, S. Sarafianos\*\*, F. Schmidt\*\*, K. Sharma\*\*, G. Stacey\*\*, L. Sumner\*\*, J. Tanner\*, J. Thelen\*\*, P. Tipton\*\*, R. Tsika\*\*, S. Van Doren\*\*, J. Wall\*\*, G. Weisman\*\*, S. Zhang\*\*

**Associate Professor** P. Cornish\*\*, A. Heese\*\*, G. King\*, M. Martin\*, B. Peculis\*, C. Phillips\*, M. Siegel\*, X. Zou\*\*

**Assistant Professor** X. Heng\*\*, A. Koo\*\*



**Research Associate Professor** L. Erb\*

**Research Assistant Professor** Z. Lei, B. Mooney, V. Mossine, T. White\*

**Adjunct Professor** J. Miernyk\*\*

**Associate Teaching Professor** S. Freyermuth

**Assistant Teaching Professor** C. Lee, M. Pennella

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Biochemistry (p. 72)

## Graduate

- MS in Biochemistry (p. 74)
- PhD in Biochemistry (p. 74)

College of Agriculture, Food and Natural Resources; School of Medicine  
117 Schweitzer Hall

(573) 882-4846

<http://www.biochem.missouri.edu/>

**Director of Graduate Studies:** Thomas Quinn

Biochemistry at the University of Missouri is a division of the College of Agriculture, Food and Natural Resources and a department of the School of Medicine. As a nationally ranked top 10 biochemistry department among public medical schools, we offer outstanding training that help students achieve their goals. We have 39 core faculty members and approximately 10 additional members, all of whom are available to mentor students in biochemistry. Nearly all facets of contemporary biochemical research are represented in their collective research interests. Our highly interactive program is an integral part of a campus-wide network of research programs including life sciences, genetics, nutrition, plant biochemistry and structural biology.

## Interdisciplinary Area Programs

- PhD in Nutrition Area Program (p. 714)
- PhD in Genetics Area Program (p. 691)
- Minors in Business (p. 350), and College Teaching (p. 732)

The graduate programs of the Department of Biochemistry prepare students for professional careers in academic institutions, industry and government. The Department of Biochemistry is administered by the College of Agriculture, Food and Natural Resources and the School of Medicine. It provides a great range of opportunities for multidisciplinary study in plant, animal and microbial biochemistry, molecular biology, structural biology, and chemical biology.

## Faculty Research

Virtually every important area of biochemistry and molecular biology is represented among the research interests of the faculty. These interests focus on plant biochemistry, hormonal control of plant and animal-cell metabolism, growth-factor structure and function, enzyme reaction mechanisms, biochemistry of development, biochemistry of human disease, lipid and carbohydrate metabolism, molecular biology, analytical biochemistry, proteomics, systems biochemistry, and structural biochemistry.

## Facilities

The department has modern, well-equipped laboratories in the Life Sciences Center, Schweitzer Hall, Schlundt Annex, and Stephens Hall. Additional faculty are housed in the Animal Sciences Research Center, Chemistry Building, Dalton Cardiovascular Research Center, Mason Eye Institute, and the Truman Veterans Hospital.

## Plans of Study

All students participate in individually planned research programs and have a supervised teaching experience along with course work. Students are expected to complete a program of courses in biochemistry and selected courses in modern biology and chemistry.

## Careers

Biochemistry at the University of Missouri provides world-class training that can open the door to a wide variety of career opportunities in the life sciences. Our graduates have career opportunities available in academia, industry, agriculture or medicine.

## Required Application Materials

All pre-requisites and application materials must be submitted by the annual deadline.

## MD/PhD in Biochemistry Dual Degree Program

Students already accepted into the School of Medicine at MU may apply to the Department for acceptance into the MD/PhD program. Students matriculating in the MD/PhD degree program must complete degree requirements of both the School of Medicine and the Graduate School. For information and for application forms, email [gradprogram@missouri.edu](mailto:gradprogram@missouri.edu) or write the Director of Graduate Admissions in Biochemistry, 117 Schweitzer Hall, Columbia, MO 65211, or visit the website <http://www.biochem.missouri.edu>.

## BS in Biochemistry

### Degree Program Description

Biochemists are the locksmiths of life science. They use their imagination, ingenuity and understanding of the basics of living processes to unlock life's mysteries. By unraveling the complexities of nature, they improve the quality of life. Biochemistry combines the tools of biology, chemistry and genetics to fight human disease, increase the production and quality of food, and protect the environment. The knowledge acquired through the program prepares students for careers in many areas, including Medicine, Biotechnology, Agriculture and Government. For Medicine, the degree provides excellent preparation for the intellectual demands of the medical profession. This training includes, as part of the degree requirements, all of the science courses necessary for application to medical school or related professional fields. Many graduates of this program matriculate at medical, dental, veterinary, pharmacy or optometry schools. In Biotechnology, some of the nation's largest and most respected private biotechnology companies, such as Bayer, Johnson & Johnson and Pfizer, employ biochemists in a wide range of specialties, including molecular biology, genetics engineering, pharmaceutical development and microbiology. Many graduates have chosen to pursue Masters or Doctoral degrees at major research institutions across the country. Some have been selected

for internships at National Institute of Health and others have earned National Science Foundation Pre- Doctoral Awards. In Agriculture, biochemists find employment with agricultural industry companies such as Cargill, Monsanto and Novartis. They may work on projects to develop new varieties of crops that resist drought and insects, produce pharmaceutical compounds, or tolerate herbicide application. In Government, state and federal agencies such as the U.S. Food and Drug Administration, U.S. Department of Energy and the Missouri Department of Agriculture employ biochemists in many fields. They might research biological alternatives for reclaiming sites contaminated with radioactive material or search for ways to protect against food-borne pathogens.

## Major Program Requirements

Students earning a Bachelor of Science in Biochemistry are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational Courses

CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
MATH 1500	Analytic Geometry and Calculus I	5
or MATH 1500H	Analytic Geometry and Calculus I - Honors	
AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	

### Degree and Major Courses

#### Major core requirements

<b>Biochemistry</b>		<b>24</b>
BIOCHM 1090	Introduction to Biochemistry	3
BIOCHM 1094	Introductory Biochemistry Laboratory (Spring semester only)	2
BIOCHM 2480	Introduction to Macromolecular Structure and Function (Spring semester only)	2
BIOCHM 2484	Macromolecular Techniques Laboratory (Fall semester only)	2-3
or BIOCHM 2484HW	Macromolecular Techniques Laboratory - Honors/Writing Intensive	
BIOCHM 4270	Biochemistry (I: First semester of two semester sequence)	3
BIOCHM 4272	Biochemistry (II: Continuation of BIOCHM 4270)	3
BIOCHM 4300	Physical Chemistry of Biological Systems	3
BIOCHM 4974W	Biochemistry Laboratory - Writing Intensive	5
BIOCHM 4970	Senior Capstone in Biochemistry (Capstone)	2
<b>Biology</b>		<b>4</b>
BIO_SC 2200	General Genetics	4
or AN_SCI 3213	Genetics of Agricultural Plants and Animals	
or PLNT_S 3213	Genetics of Agricultural Plants and Animals	
<b>Chemistry</b>		<b>12</b>
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3

CHEM 2130	Organic Laboratory I (Concurrent with CHEM 2110)	2
<b>Mathematics</b>		<b>5</b>
MATH 1700	Calculus II	5
<b>Physics</b>		<b>8</b>
PHYSICS 1210	College Physics I	4-5
or PHYSICS 2750	University Physics I	
PHYSICS 1220	College Physics II	4-5
or PHYSICS 2760	University Physics II	
<b>Advanced science*</b>		<b>9 or more</b>

\* Science courses that are not used to fulfill other major requirements. See list of approved courses here: <http://biochem.missouri.edu/undergrad-program/graduation-requirements-II.php>. 6 of the 9 credit hours must be 3000 level or above.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BIOCHM 1090		3 CHEM 1330	4
CHEM 1320		4 ENGLISH 1000	3
BIO_SC 1500		5 MATH 1500	5
RU_SOC 1000		3 BIOCHM 1094	2
		Elective (Social or Behavioral Science)	3
		<b>15</b>	<b>17</b>
Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
BIO_SC 2200		4 CHEM 2130	2
BIOCHM 2484		2 BIOCHM 2480	2
MATH 1700		5 BIO_SC 2300	4
		Elective	3
		<b>14</b>	<b>14</b>
Third Year			
Fall	CR	Spring	CR
BIOCHM 4270		3 BIOCHM 4272	3
PHYSICS 1210		4 PHYSICS 1220	4
HIST 1100		3 AG_ED_LD 2220	3
Elective (Writing Intensive)		3 Advanced Science Elective (3000 level or above)	4
Elective		2	
		<b>15</b>	<b>14</b>
Fourth Year			
Fall	CR	Spring	CR
BIOCHM 4300		3 BIOCHM 4970	2
Advanced Science Elective (3000 level or above)		3 BIOCHM 4974W	5
Humanities Elective		3 Humanities Elective	3
Elective		6 Electives	6
		<b>15</b>	<b>16</b>

Total Credits: 120

## MS in Biochemistry

### Contact Information:

gradprogram@missouri.edu  
 117 Schweitzer Hall  
 Columbia, MO 65211  
 (573) 882-4846

Information regarding the MS in Biochemistry is available only upon written request.

## PhD in Biochemistry

### Degree Requirements

Along with courses and seminars, students embark on lab rotations, dissertation research, qualifying and comprehensive exams and committee meetings, culminating in the dissertation defense. Prior to successfully completing the comprehensive examination, a student must complete nine credit hours per semester, or four per summer, to remain a full-time graduate student. Following successful completion of both parts of the comprehensive exam, each student should register for a minimum of two hours of thesis/dissertation research per semester (or one in summer) to maintain continuous enrollment. More than the minimum may be needed to obtain the 72 credit hours required by the MU Graduate School (<http://gradschool.missouri.edu>) for completion of the PhD.

#### Core Course Work

BIOCHM 8240	Introduction to Graduate Biochemistry I *	4
BIOCHM 8260	Macromolecular Systems Integration *	4

#### Elective Course Work

PhD students are required to take two additional 8000/9000-level science courses. The following are recommended and pre-approved:

BIOCHM 9430	Molecular Biology I #	4
BIOCHM 9432	Molecular Biology II #	4
BIOCHM 8430	Physical Biochemistry #	3
BIOCHM 8432	Enzymology and Metabolic Regulation #	3

#### Ethics Seminar

BIOCHM 8060	Ethical Conduct of Research	1
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\* All graduate students are required to earn a grade of B or better.

# A student who earns a grade of C or lower in any of these courses must retake the course.

### Department Seminars

Students are expected to attend all department seminars (<http://www.biochem.missouri.edu/news-events/seminars>).

### Teaching Experience

An important part of graduate education is learning to communicate effectively as a teacher. Two semesters enrolled in BIOCHM 9001 helps prepare the students for their teaching assistant experience which consists of one semester in an undergraduate laboratory or lecture venue. This is a required component of PhD degrees and typically is performed in the second year of graduate study. Students must satisfy this teaching experience requirement with a grade of B or better to remain in good standing as a graduate student in Biochemistry. This teaching experience usually involves assisting a faculty member in one of several courses and interacting with the students fairly extensively. The Biochemistry Department also offers a Zahler Fellowship for graduate

students interested in teaching as a career. Missouri requires that students whose first language is not English demonstrate adequate oral proficiency before assisting in teaching.

### Qualifying Process

Students who have earned grades of B or better in the required courses of BIOCHM 8240 Introduction to Graduate Biochemistry I and BIOCHM 8260 Macromolecular Systems Integration and are in good standing academically (cumulative GPA 3.0) should take the oral qualifying exam in May after their second semester. Failure to complete the oral qualifying exam by June of the second year will result in dismissal from the PhD program. Students who have received a C in a core course must retake the course and receive a grade of B or better to remain in the PhD program, even after passing the oral qualifying exam.

### Comprehensive Examination Process

Students who have passed the qualifying exam should complete the written comprehensive exam within the next one to two semesters (by May of their second year). This examination involves writing a proposal for doctoral research in the format of a federal postdoctoral fellowship application. The student must then orally defend the proposal before his/her doctoral program committee plus a member of the graduate education committee. This is designed to assess the student's ability to think critically about science and to communicate effectively both in writing and in an oral presentation.

### Dissertation Requirements

#### BIOCHM 9087

Students should enroll in the first round of the one-hour seminar BIOCHM 9087 during the first semester. BIOCHM 9087 in the fall semester is designed to teach the fundamental techniques of oral presentation of scientific information, slide preparation, computer graphics, overhead preparation, etc., as well as research-compliance training. Students should complete three additional semesters of BIOCHM 9087 in spring semesters for a total of four credit hours. A student's first spring BIOCHM 9087 seminar is devoted to a presentation of the proposed dissertation research. The second should provide an update of research progress or a review of major journal papers in the student's research area. The third should be a practice for the dissertation defense. The student's thesis committee is expected to attend these presentations at the invitation of the student. A meeting with the doctoral program committee (DPC) can be arranged after the seminar presentation and may serve as the required annual meeting.

#### Thesis/Dissertation Research

#### BIOCHM 9090

Prior to successfully completing the comprehensive examination, a student must complete nine credit hours per semester, or four per summer, to remain a full-time graduate student. Following successful completion of both parts of the comprehensive exam, each student should register for a minimum of two hours of thesis/dissertation research per semester (or one in summer) to maintain continuous enrollment. More than the minimum may be needed to obtain the 72 credit hours required by the MU Graduate School (<http://gradschool.missouri.edu>) for completion of the Ph.D.

### Research Rotations

Starting in the fall semester of the first year, each student completes three laboratory rotations with the aim of identifying a lab in which to

conduct PhD thesis research. By the end of the second semester, most students have chosen their labs. Each rotation should be conducted for a period of at least eight weeks. Two rotations are performed in the first semester, with the second rotation ending Dec. 31. The third rotation begins Jan. 1 or soon after. One-half of the student's time and effort should be directed toward the rotation project and the other half toward course work. The rotation laboratory should serve as an academic home, and the student should participate in all usual laboratory activities, including weekly group meetings.

## Admissions

Biochemistry Graduate Admissions Support  
117 Schweitzer Hall  
Columbia, MO 65211  
(573) 882-4846, (800) 647-2414  
gradprogram@missouri.edu

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Biochemistry program (<http://gradstudies.missouri.edu/academics/programs/biochemistry/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Environmental Sciences

Patrick S. Market, Degree Program Coordinator  
Environmental Sciences  
School of Natural Resources  
College of Agriculture, Food, and Natural Resources  
331 Anheuser-Busch Natural Resources Building  
(573) 882-7045

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government

agencies, non-government agencies (NGOs), and private consulting firms.

## Faculty

**Professor** S. H. Anderson\*\*, A. R. Lupo\*\*, P. S. Market\*\*, P. P. Motavalli\*\*

**Professor Emeritus** C. J. Gantzer\*\*, S. E. Mudrick

**Associate Professor** N. I. Fox\*\*, K. W. Goyne\*\*

**Associate Professor Emeritus** R. J. Miles \*\*

**Adjunct Professor** N. R. Kitchen\*\*, R. J. Kremer\*\*, E. J. Sadler\*, P. C. Scharf\*, W. G. Stevens\*, C. K. Wikle\*

**Adjunct Associate Professor** C. Baffaut\*, F. Eivazi\*, R. N. Lerch\*\*, I. I. Mokhov, J. Yang\*

**Adjunct Assistant Professor** J. O. Adegoke\*, T. Eichler, S. Lack, B. Myers, M. Nathan, B. Pettegrew, F. J. Young\*

**Associate Research Professor** R. P. Udawatta\*\*

**Assistant Professor** A. Argerich, C. J. Li, R. North

**Instructor** E. Aldrich, D. Freeman, P. Quackenbush

**Extension Assistant Professor** P. E. Guinan\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Environmental Sciences (p. 76)
  - with emphasis in Atmosphere (p. 77)
  - with emphasis in Land and Soil (p. 78)
  - with emphasis in Outreach and Education (p. 79)
  - with emphasis in Water (p. 80)

## Dual Degree - Geological Sciences and Environmental Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Department of Geological Sciences offer a dual BS in Geological Sciences and in Environmental Sciences. The dual degree program requires 132 credits for graduation. For more information on the dual degree program, contact an advisor in the Department of Soil, Environmental and Atmospheric Sciences or the Department of Geological Sciences.

## Dual Degree - Biochemistry and Environmental Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Division of Biochemistry offer a dual BS degree in Biochemistry and in Environmental Sciences. The dual degree program requires 134 credits for graduation. For more information on the dual degree program, contact an advisor in the Department of Soil, Environmental and Atmospheric Sciences or the Division of Biochemistry.

## Dual Degree - Forestry and Environmental Sciences

The Department of Soil, Environmental and Atmospheric Sciences and the Department of Forestry offer a dual degree in Forestry and

in Environmental Sciences. The dual degree requires 136 credits for graduation. For more information on the dual degree program, contact an advisor in the Department of Soil, Environmental and Atmospheric Sciences or the Department of Forestry.

## Graduate

School of Natural Resources  
 Soil, Environmental and Atmospheric Sciences  
 302 Anheuser-Busch Natural Resources Building  
 (573) 882-6301  
<http://www.snr.missouri.edu/seas/academics/graduate-program.php>

### Emphasis Area Coordinator for Graduate Program:

Dr. Stephen Anderson  
 Department of Soil, Environmental and Atmospheric Sciences  
 University of Missouri  
 302 Anheuser-Busch Natural Resources Building  
 Columbia, MO 65211 USA  
 Tel. no. (573) 884-6303  
 Email: [andersons@missouri.edu](mailto:andersons@missouri.edu)

Graduate study at the University of Missouri (MU) in soil, environmental, and atmospheric sciences is designed to prepare students for professional careers in research, teaching or practical application of the principles of soil, environmental and atmospheric sciences (SEAS).

As of the fall 2013 semester, options for graduate study in SEAS will be offered through the MS in Natural Resources with an emphasis in SEAS (p. 102) and the PhD in Natural Resources with an emphasis in SEAS (p. 109). Focus areas in soil science, environmental science or atmospheric science are available through these options. Details on both degree programs, including recommended preparation, admission criteria, required application materials, degree requirements and financial aid, are provided in the graduate tab of the Natural Resources section (p. 97) of the catalog under the College of Agriculture, Food and Natural Resources.

## Graduate Focus Areas

### Atmospheric Science

Atmospheric science students participate in an area of research such as dynamic and physical meteorology, general circulation, global climate change, severe storms, remote sensing and applied climatology with emphasis on environmental and socioeconomic impacts.

The program has a specialized computer laboratory that includes significant hardware and software to support thesis and dissertation research. There are also occasional opportunities for joint research programs with the National Center for Atmospheric Research.

### Environmental Science

Environmental science students may participate in environmental quality, hydrology, watershed management, and water quality focus areas. State-of-the-art equipment for chemical, biological and physical analysis of water and earth materials is available for use in laboratories maintained by the SEAS Department in the School of Natural Resources.

The program has a working scale-nested watershed study spanning native lands as well as agricultural, and urban environments, thus supplying an excellent outdoor teaching and research laboratory.

## Soil Science

Soil science students may participate in one of the following focus areas: environmental quality, pedology, soil chemistry and biochemistry, soil microbiology, soil physics and conservation, soil management, or soil fertility and plant nutrition.

State-of-the-art equipment for chemical, biological and physical analysis of soils is available for use in laboratories maintained by the SEAS Department in the School of Natural Resources. Access to additional chemical analysis equipment, computing facilities, digital imaging equipment, field facilities, greenhouse space, radiochemistry and scanning electron microscopes is available within the University of Missouri.

## Financial Aid from the Program

Check the program website (<http://www.snr.missouri.edu/seas/academics/graduate-program.php>) or contact the program for details on scholarships or graduate assistantships that may be available.

## BS in Environmental Sciences

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

### Major Program Requirements

In addition to university general education (p. 33) requirements, students must meet school requirements, as well as the degree requirements below:

General Education		34-38
MATH 1100	College Algebra	3
or MATH 1160	Precalculus Mathematics	
MATH 1400	Calculus for Social and Life Sciences I	3
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1320	College Chemistry I	4

STAT 1400 or STAT 2530	Elementary Statistics for Life Sciences Statistical Methods in Natural Resources	3
American History or Government Course (HIST 1100, HIST 1200, HIST 1400, POL_SC 1100 or POL_SC 1700)		3
Economics/Business Elective		3
Behavioral and Social Science Elective		3
ENGLISH 1000	Exposition and Argumentation	3
COMMUN 1200 or AG_ED_LD 2220 or SCI_AG_J 2210	Public Speaking Verbal Communication in Agriculture, Food and Natural Resources Communicating Science to the Public	3
Fine Arts and Humanities Electives		6
<b>Major Core Requirements</b>		<b>46-48</b>
ENV_SC 4305 & ENV_SC 4306 or PHYSCS 1210 or PHYSCS 2750	Environmental Soil Physics and Environmental Soil Physics Laboratory College Physics I University Physics I	4-5
ENV_SC 1100	Introduction to Environmental Science	3
ATM_SC 1050	Introductory Meteorology	3
GEOG 3040 or NAT_R 4325	Introduction to Geographic Information Systems GIS Introduction to Geographic Information Systems	3
Additional Computer Science course, including courses with designators AFNR (basic computing skills), INFOTC and CMP_SC (programming skills), and GEOG and NAT_R (GIS skills)		3
Capstone Course (one of the following, unless specified by emphasis area):		3-4
ATM_SC 4320 or ENV_SC 4320 or SOIL 4320	Atmospheric Dynamics Hydrologic and Water Quality Modeling Genesis of Soil Landscapes	4
Additional Atmospheric Science, Environmental Science, or Soil Science Electives		17
Additional Science Electives		10
<b>Free Elective Credit</b>		<b>39-45</b>
Additional professional course credits approved by faculty or professional advisor to fulfill 125 credit hour requirements.		

## Semester Plan

Refer to the Semester Plans for the BS in Environmental Sciences designed for the emphasis areas of Atmosphere (p. 77), Land and Soil (p. 78), Water (p. 80), Outreach and Education (p. 79).

# BS in Environmental Sciences with Emphasis in Atmosphere

## Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies

of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

## Major Program Requirements

In addition to university general education (p. 33) requirements, students must meet the degree requirements below:

### Emphasis in Atmosphere

<b>Mathematical Science</b>		21
MATH 1160	Precalculus Mathematics	5
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
<b>Physics</b>		10
PHYSCS 2750	University Physics I	5
PHYSCS 2760	University Physics II	5
<b>Additional Emphasis Area Requirements</b>		<b>22</b>
ATM_SC 2720	Weather Briefing	1
ATM_SC 3600	Climates of the World	3
ATM_SC 4710	Synoptic Meteorology I	4
ATM_SC 4720	Synoptic Meteorology II	4
ATM_SC 4310	Atmospheric Thermodynamics	4
ATM_SC 4550	Atmospheric Physics	3
ATM_SC 4590	Radar Meteorology	3
<b>Capstone Experience</b>		<b>4</b>
ATM_SC 4320	Atmospheric Dynamics	4
<b>Electives approved by faculty or professional advisor to complete 125 credit total; select at least one additional writing intensive course</b>		<b>28</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 SOCIOL 1000 or PSYCH 1000	3
ENGLISH 1000	3 COMMUN 1200	3
HIST 1100 or POL_SC 1100	3 MATH 1700	5
ATM_SC 1050	3 ATM_SC 2720	1
	Computer Science Course	3
14		15

Second Year		
Fall	CR Spring	CR
AG_EC 1041 or 1042	3 ATM_SC 3600	3
MATH 2300	3 MATH 4100	3
PHYSICS 2750	5 PHYSICS 2760	5
Humanities Elective	3 STAT 1300 or 1400	3
	Atmospheric Science Elective	3
	<b>14</b>	<b>17</b>

Third Year		
Fall	CR Spring	CR
ATM_SC 4710	4 ATM_SC 4720	4
ATM_SC 4550	3 CHEM 1320	4
Science Elective	3 ATM_SC 4590	3
INFOTC 1040	3 Social Science Elective	3
Humanities Elective	3 Humanities Elective	3
	<b>16</b>	<b>17</b>

Fourth Year		
Fall	CR Spring	CR
ATM_SC 4310	4 ATM_SC 4320	4
Atmospheric Science Elective	9 ATM_SC 4990	3
Computer Programming or Geographic Information Sciences Course	3 Atmospheric Science Elective	6
	Other Elective	3
	<b>16</b>	<b>16</b>

Total Credits: 125

## BS in Environmental Sciences with Emphasis in Land and Soil

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

### Major Program Requirements

In addition to university general education (p. 33) requirements, students must meet school requirements as well as the degree requirements below:

#### Land and Soil Emphasis Area

<b>Biological Science</b>		15
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 3650	General Ecology	5
or FOREST 4320	Forest Ecology	
<b>Chemistry</b>		4
CHEM 1330	College Chemistry II	4
<b>Geology</b>		8
GEOL 1100	Principles of Geology with Laboratory	4
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4
<b>Policy/Regulation</b>		3
NAT_R 4353	Natural Resource Policy/Administration	3
<b>Soil Science</b>		5
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
<b>Additional Emphasis Area Requirements</b>		30-32
PLNT_S 2125	Plant Structure and Function	3-4
or FOREST 2151	Dendrology	
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 3290	Soils and the Environment	3
SOIL 4313	Soil Fertility and Plant Nutrition	3-4
or FOREST 4330	Practice of Silviculture	
or F_W 4600	Ecosystem Management	
ENV_SC 4940	Environmental Science Internship	1-99
Select from the following classes or course approved by academic advisor to achieve an additional 15 credits at the 3000/4000 levels. Must take at least one Atmospheric, Environmental, or Soil Science course, and one course that involved computer modeling.		
AG_S_M 4360	Precision Agriculture Science and Technology	
AG_S_M 4420	Surface Water Management	
ATM_SC 3600	Climates of the World	
BIOL_EN 4150	Soil and Water Conservation Engineering	
ENV_SC 4305	Environmental Soil Physics	
ENV_SC 4306	Environmental Soil Physics Laboratory	
ENV_SC 4312	Environmental Soil Microbiology	
ENV_SC 4318	Environmental Soil Chemistry	
ENV_SC 4320	Hydrologic and Water Quality Modeling	
F_W 3600	Introduction to Conservation Biology	
F_W 4500	Animal Population Dynamics and Management	
F_W 4600	Ecosystem Management	
FOREST 3207	Forest Fire Control and Use	
FOREST 4370	Wildland Fire Management	
FOREST 4375	Forest Stand Dynamics	
FOREST 4380	Forest Resource Management	
FOREST 4390	Watershed Management and Water Quality	
GEOG 3610	Physical Geography of the United States	

GEOG 3630	Earth Surface Systems
GEOG 3830	Remote Sensing
GEOG 4710	Spatial Analysis in Geography
GEOG 4940	Advanced Geographic Information Systems (GIS II)
NAT_R 4385	Landscape Ecology and GIS Analysis I
PLNT_S 3270	Forage Crops
PLNT_S 3275	Grain Crops
RU_SOC 3310	Society, Agriculture and Natural Resources
SOIL 4313	Soil Fertility and Plant Nutrition
<b>Capstone Experience</b>	<b>4</b>
SOIL 4320	Genesis of Soil Landscapes

## Semester Plan

First Year			
Fall	CR Spring	CR	
HIST 1100 or POL_SC 1100	3 ENGLISH 1000	3	
ENV_SC 1100	3 MATH 1100	3	
BIO_SC 1200	5 Humanities Elective	3	
RU_SOC 1000	3 ATM_SC 1050	3	
	GEOL 1100	4	
	14	16	
Second Year			
Fall	CR Spring	CR	
BIO_SC 1500	5 AG_EC 2070	3	
CHEM 1320	4 CHEM 1330	4	
GEOL 2400	4 ENV_SC 3500	3	
Electives	3 RU_SOC 2225	3	
	SOIL 2100	3	
	16	16	
Third Year			
Fall	CR Spring	CR Summer	CR
BIO_SC 3650	5 F_W 3400	3 ENV_SC 4940	3
Humanities Elective	3 NAT_R 4325	3	
STAT 1400	3 NAT_R 4353	3	
SOIL 2106	2 ENV_SC 3330	3	
Elective	4 Humanities Elective	3	
	17	15	3
Fourth Year			
Fall	CR Spring	CR	
ENV_SC 4305	3 GEOL 4100	3	
ENV_SC 4306	2 F_W 4800	3	
ENV_SC 4320	3 ENV_SC 4318	3	
F_W 4100	4 Other Electives	4	
FOREST 4390	3		
	15	13	

Total Credits: 125

# BS in Environmental Sciences with Emphasis in Outreach and Education

## Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms

## Major Program Requirements

In addition to university general education (p. 33) requirements, students must meet the degree requirements below:

### Emphasis in Outreach and Education

<b>Biological Science</b>		10
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
<b>Environmental Policy</b>		3
AG_EC 2070	Environmental Economics and Policy	3
<b>Geology/Geography</b>		6-7
GEOL 1100	Principles of Geology with Laboratory	4
GEOG 1600	Climate Change: Science and Public Policy	3
GEOG 2660	Environmental Geography	3
<b>Learning/Education</b>		13-14
AG_ED_LD 4340	Designing and Delivering Educational/Leadership Programs	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
NAT_R 4024	Foundations of Environmental Education	3
<b>Soil Science</b>		5
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
<b>Additional Emphasis Area Requirements</b>		30
ENV_SC 3290	Soils and the Environment	3
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 4940	Environmental Science Internship	1-99
P_R_TR 3230	Introduction to Parks and Outdoor Recreation Services	3



P_R_TR 3231	Principles of Interpretive Outdoor Recreation	3
Select from the following classes or course approved by academic advisor to achieve an additional 15 credit hours at the 3000/4000 levels (must take at least one Atmospheric, Environmental, or Soil Science course).		15
ATM_SC 3600	Climates of the World	
BIO_SC 3650	General Ecology	
or FOREST 4320	Forest Ecology	
ENV_SC 4305	Environmental Soil Physics	
ENV_SC 4312	Environmental Soil Microbiology	
ENV_SC 4318	Environmental Soil Chemistry	
F_W 3400	Water Quality and Natural Resource Management	
F_W 3600	Introduction to Conservation Biology	
P_R_TR 4340	Advanced Recreation Land Management	
RU_SOC 4370	Environmental Sociology	

<b>Capstone Experience</b>		3
ENV_SC 4320	Hydrologic and Water Quality Modeling	3

1-8 Electives approved by faculty or professional advisor to complete 125 total credits

## Semester Plan

First Year			
Fall	CR Spring	CR	
BIO_SC 1200	5 ATM_SC 1050	3	
MATH 1100	3 ESC_PS 2000	3	
HIST 1100	3 CHEM 1320	4	
ENV_SC 1100	3 GEOG 1600	3	
	COMMUN 1200	3	
	14	16	

Second Year			
Fall	CR Spring	CR	
STAT 1400	3 SOIL 2100	3	
ENGLISH 1000	3 SOIL 2106	2	
BIO_SC 1500	5 NAT_R 4325	3	
AG_EC 2070W	3 GEOL 1100	4	
ESC_PS 2014	1 Humanities Elective	3	
	15	15	

Third Year				
Fall	CR Spring	CR Summer	CR	
BIO_SC 3650	5 ENV_SC 3250	3 ENV_SC 4940	3	
ESC_PS 2010	3 NAT_R 2080	2		
ENV_SC 3290W	3 MATH 1400	3		
General Electives	2 Humanities Elective	3		
Emphasis Area Course	3 General Elective	5		
	16	16	3	

Fourth Year			
Fall	CR Spring	CR	
P_R_TR 3230	3 P_R_TR 3231	3	
P_R_TR 4340	3 ATM_SC 3600	3	
Computer Course	3 F_W 3600	3	
Humanities Elective	3 General Elective	6	

General Elective	3	
	15	15

Total Credits: 125

## BS in Environmental Sciences with Emphasis in Water

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

### Major Program Requirements

In addition to university general education (p. 33) requirements, students must meet school requirements as well as the degree requirements below:

#### Water Emphasis Area

Biological Science		15
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 3650	General Ecology	5
Recommended Elective		
F_W 2700	Ichthyology	4
<b>Chemistry</b>		4
CHEM 1330	College Chemistry II	4
<b>Geology</b>		7
GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	
GEOL 2200	Oceanography	3
or GEOL 2450	Global Water Cycle	
<b>Policy/Regulation</b>		3
NAT_R 4353	Natural Resource Policy/Administration	3
or CV_ENG 4250	Environmental Regulatory Compliance	

or RU_SOC 3310	Society, Agriculture and Natural Resources	
<b>Soil Science</b>		<b>5</b>
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
<b>Additional Emphasis Area Requirements</b>		<b>27</b>
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 3290	Soils and the Environment	3
ENV_SC 4940	Environmental Science Internship	1-99
F_W 3400	Water Quality and Natural Resource Management	3
or FOREST 4390	Watershed Management and Water Quality	
or AG_S_M 4420	Surface Water Management	
Students may identify a specific track and select from the following classes or courses approved by an academic advisor to achieve an additional 15 credit hours at the 3000/4000 levels (must take at least one Atmospheric, Environmental or Soil Science course).		
Students not wishing to work in a specific track may select from either list to achieve an additional 15 credit hours at the 3000/4000 levels and at least one course must be in Atmospheric, Environmental, or Soil Science		
(Tracks do not appear on transcripts or diplomas)		
<b>Hydrology Track</b>		
AG_S_M 4420	Surface Water Management	3
ATM_SC 3600	Climates of the World	3
ATM_SC 4400	Micrometeorology	3
ATM_SC 4590	Radar Meteorology	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
CV_ENG 3700	Fluid Mechanics	3
CV_ENG 3702	Hydrology	4
ENV_SC 4305	Environmental Soil Physics	3
ENV_SC 4306	Environmental Soil Physics Laboratory	2
ENV_SC 4318	Environmental Soil Chemistry	3
F_W 3400	Water Quality and Natural Resource Management	3
FOREST 4390	Watershed Management and Water Quality	3
GEOG 4630	River and Stream Dynamics	3
GEOL 4100	Groundwater Hydrology	3
<b>Water Quality Track</b>		
AG_S_M 4420	Surface Water Management	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
ENV_SC 4305	Environmental Soil Physics	3
ENV_SC 4306	Environmental Soil Physics Laboratory	2
ENV_SC 4312	Environmental Soil Microbiology	3
ENV_SC 4318	Environmental Soil Chemistry	3
F_W 3400	Water Quality and Natural Resource Management	3
F_W 3900	Ecology of Fishes	3
F_W 4100	Limnology	3-4
F_W 4800	Environmental Toxicology	3
FOREST 4390	Watershed Management and Water Quality	3
GEOL 4300	Introduction to Low-Temperature Geochemistry	3
PLNT_S 4720	Aquatic Entomology	3
SOIL 4313	Soil Fertility and Plant Nutrition	3
<b>Capstone Experience</b>		<b>3</b>
ENV_SC 4320	Hydrologic and Water Quality Modeling	3

**Electives approved by faculty or professional advisor to complete 125 credits** 6-11

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR	
HIST 1100 or POL_SC 1100	3 CHEM 1320	4	
MATH 1100	3 ENGLISH 1000	3	
BIO_SC 1200	5 SOIL 2100	3	
ENV_SC 1100	3 SOIL 2106	2	
	Humanities Elective	3	
		14	15
Second Year			
Fall	CR Spring	CR	
ATM_SC 1050	3 AG_EC 2070	3	
BIO_SC 1500	5 CHEM 1330	4	
RU_SOC 1000	3 ENV_SC 3500	3	
MATH 1400	3 SOIL 2100	3	
ENV_SC 3290	3 SOIL 2106	2	
		17	15
Third Year			
Fall	CR Spring	CR Summer	CR
BIO_SC 1200	5 F_W 3400	3 ENV_SC 4940	3
BIO_SC 3650	5 NAT_R 4325	3	
STAT 2530	3 NAT_R 4353	3	
Humanities Elective	3 ENV_SC 3330	3	
	Humanities Elective	3	
		16	15
			3
Fourth Year			
Fall	CR Spring	CR	
ENV_SC 4305	3 GEOL 4100	3	
ENV_SC 4306	2 F_W 4800	3	
ENV_SC 4320	3 ENV_SC 4318	3	
F_W 4100	4 GEOL 2200	3	
FOREST 4390	3 COMMUN 1200	3	
		15	15

Total Credits: 125

## Food Science and Nutrition

Food Science  
256 William Stringer Wing  
(573) 882-4113  
Fax: (573) 884-0104

Ingolf Gruen, Program Chair

(573) 882-6746  
grueni@missouri.edu  
<http://foodscience.missouri.edu>

Andrew Clarke, Undergraduate Advisor Chair  
(573) 882-2610

clarkea@missouri.edu

Azlin Mustapha, Director of Graduate Studies  
 (573) 882-2649  
 mustaphaa@missouri.edu

Typical employment areas for graduates of the food science program include quality assurance, quality control, product development, sensory science and flavor chemistry. The food science curriculum meets the standards established by the Institute of Food Technologists.

## Faculty

**Professor** F. H. Hsieh\*\*, A. Mustapha\*\*  
**Associate Professor** A. D. Clarke\*\*, I. U. Gruen\*\*, M. Lin\*\*  
**Assistant Professor** M. Kwasniewski\*, B. Vardhanabuthi\*  
**Adjunct Associate Professor** L. Occena-Po\*  
**Adjunct Assistant Professor** G. Zheng\*  
**Research Professor Emeritus** M. Ellersieck\*  
**Professor Emeritus** R. T. Marshall\*, N. Unklesbay\*  
**Adjunct Instructor** J. Elmore, M. Jones

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Food Science and Nutrition (p. 82)
- Minor in Food Science and Nutrition (p. 85)

The department offers the Bachelor of Science degree with a major in Food Science and Nutrition within four tracks, namely Food Science, Food Business, Enology and Culinary Sciences. A minor is available.

Note: Tracks do not appear on transcripts or diplomas.

## Graduate

- MS in Food Science (p. 84)
- PhD in Food Science (p. 86)

College of Agriculture, Food and Natural Resources  
 256 William Stringer Wing  
 (573) 882-4113  
<http://foodscience.missouri.edu>

**Director of Graduate Studies:** Azlin Mustapha

## About Food Science

Candidates are prepared for careers in research or advanced professional careers in the food industry, teaching positions in community and junior colleges, 4-year colleges and in supporting roles in academics or industry. Graduates also may play leadership roles in extension or other adult education programs, food production and quality assurance, or government agencies. Selected careers include research and development for private industry or the federal government, food plant supervision, technical operation, product development, nutrition, distribution, food service and food regulatory work.

## Facilities and Resources

Departmental cooperation with the food industry is excellent. Special facilities for food science study and research include chemical, microbiological and analytical laboratories, as well as pilot plants to study food processing.

## Funding

Assistantships are available on a competitive basis to qualified students from funds provided by the Agricultural Experiment Station, research contracts and grants. Fellowships supported by industry and professional societies, based on national competition, are also available.

## BS in Food Science and Nutrition

### Degree Program Description

From creating low-fat ice cream flavors that don't taste low-fat, to developing packaging that protects food from E. coli and other pathogens, food scientists work to ensure the foods that fill your shopping cart are safe, nutritious and delicious. Food Science and Nutrition uses the latest in food manufacturing to turn agricultural commodities into products that consumers want to buy. A degree in food science and nutrition provides the skills needed to succeed in a variety of food science careers. The degree can be individualized by choosing between four degree tracks: Food Science, Food Business, Enology (Winemaking), Culinary Science. Some careers include Food technologist, product developers and quality assurance supervisors. Food technologists are employed by some of the world's largest and most respected private industry companies, including Del Monte Foods, General Mills, H.J. Heinz and Kellogg. They apply the principles of many scientific disciplines, such as biology, chemistry, engineering, physics, molecular biology, nutrition and microbiology to the challenges of food production. Product developers find employment with many of the same companies as food technologists. Their job, however, focuses more on other aspects of food manufacturing such as consumer acceptability, economics, production feasibility and marketing. Developers also explore new ways to enhance nutritional value and health benefits. Quality assurance supervisors work in private industry but also are employed by government agencies such as the U.S. Department of Agriculture and the Food and Drug Administration. They are responsible for reviewing safety and manufacturing protocol to ensure that the food you eat is safe and of the highest quality.

### Major Program Requirements

Students earning a Bachelor of Science in Food Science and Nutrition are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including foundational courses, which may fulfill some University general education requirements.

#### Foundational Courses

CHEM 1320	College Chemistry I	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
AG_EC 1041 or AG_EC 1042	Applied Microeconomics Applied Macroeconomics	3
AG_EC or Business course at the 2000-level or higher		3
COMMUN 1200	Public Speaking	3

or AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	
Logic course select from PHIL 2400, 2420, 2600, or 2700		3
<b>Core Degree Requirements</b>		21-23
F_S 1030	Food Science and Nutrition	3
F_S 2172	Elements of Food Microbiology	3
F_S 2199	Seminar in Professional Development	1
F_S 4199	Food Industry Senior Seminar	1
F_S 4310	Food Chemistry and Analysis	4
F_S 4370	Food Microbiology	3
AG_S_M 1040	Physical Principles for Agricultural Applications	3
or PHYSCS 1210	College Physics I	
CHEM 1330	College Chemistry II	4
CHEM 2030	Survey of Organic Chemistry	3
CHEM 2130	Organic Laboratory I	2
STAT 1300	Elementary Statistics	3
or STAT 1400	Elementary Statistics for Life Sciences	
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
BIOCHM 3630	General Biochemistry	3
Total Credits		78-82

## Food Science Track

(Note: Tracks are not listed on transcripts or diplomas.)

<b>Food Science Track Core Courses (39 credits required)</b>		
NEP 2340	Human Nutrition I	3
F_S 4330	Principles of Food Processing	3
F_S 4311	Investigation of Food Properties	3
F_S 4315	Food Chemistry and Analysis Laboratory	3
F_S 4375	Food Microbiology Laboratory	2
F_S 4380	Sensory Analysis of Food and Beverages	3
<b>Capstone course</b>		
Choose either F_S 4970 or F_S 4980		3
<b>Study Abroad or Internship</b>		
Choose either F_S 3190 or F_S 4941		3
<b>Commodity Block</b>		
Choose two selections from the Commodity Block		12-14
<b>Professional Electives</b>		
Choose any course(s) from the Professional Electives		2-4

## Food Business Track

(Note: Tracks are not listed on transcripts or diplomas.)

<b>Food Business Track Core Courses (39 credits required)</b>		
<b>Business Courses</b>		
AG_EC 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
ACCTCY 2036 & ACCTCY 2037	Accounting I and Accounting II	6
AG_EC 3224	New Products Marketing	3
Ag law (choose one: AG_EC 2156, AG_EC 3256 or AG_EC 3257)		3
AG_EC 3260	General Farm Management	3
Ag Econ elective (choose one: AG_EC 2183, AG_EC 2223, AG_EC 3230, AG_EC 3150, AG_EC 3271, AG_EC 3272, AG_EC 3286, or AG_EC 3294)		3

<b>Capstone Course</b>		
Choose either F_S 4970 or F_S 4980		3
<b>Study Abroad or Internship</b>		
Choose either F_S 3190 or F_S 4941		3
<b>Commodity Course</b>		
Choose either F_S 4331, F_S 4344, or F_S 4440		3-4
<b>Professional Electives</b>		
Choose courses from the list of Professional Electives		8-9

## Enology Track

(Note: Tracks are not listed on transcripts or diplomas.)

<b>Enology Track Core Courses (39 credits required)</b>		
F_S 1010	Introduction to Viticulture and Enology	1
F_S 2195	Grapes and Wines of the World	3
F_S 3240	Principles of Viticulture I	4
F_S 4315	Food Chemistry and Analysis Laboratory	3
F_S 4340	Principles of Viticulture II	4
F_S 4375	Food Microbiology Laboratory	2
F_S 4380	Sensory Analysis of Food and Beverages	3
F_S 4440	Principles of Winemaking and Wine Chemical Analysis	4
F_S 4441	Cellar Operations and Special Vinifications	3

<b>Capstone course</b>		
Choose F_S 4970 or F_S 4980		3
<b>Study Abroad or Internship</b>		
Choose F_S 3190 or F_S 4941		3
<b>Professional Electives</b>		
Choose courses from the Professional Electives		6

## Culinary Science Track

(Note: Tracks are not listed on transcripts or diplomas.)

<b>Culinary Science Track Core Courses (39 credits required)</b>		
<b>Core Hospitality Mgmt courses</b>		
HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 2100	Hospitality Law	3
HSP_MGMT 2300	Fundamentals of the Food and Beverage Industry	3
HSP_MGMT 3310	Food Service Budgeting and Controls	3
<b>Core Food Science courses</b>		
NEP 2340	Human Nutrition I	3
F_S 4330	Principles of Food Processing	3
F_S 4380	Sensory Analysis of Food and Beverages	3
<b>Capstone course</b>		
Choose either F_S 4970 or F_S 4980 and HSP_MGMT 4380		3
<b>Study Abroad or Internship</b>		
Choose either F_S 3190 or F_S 4941		3
<b>Commodity Course</b>		
Choose one of F_S 3214, F_S 3231 or F_S 4440		3
<b>Professional Elective</b>		
Choose course from the Professional Electives		1
<b>Professional Elective 2</b>		
Choose course from the Professional Electives		3
<b>Professional Elective 3</b>		
Choose course from the Professional Electives		3

## Commodity Blocks

Select two pairs of courses to fulfill science track requirements

F_S 3214	Principles of Meat Science	3
F_S 4344	Processing Muscle Foods	3
or F_S 3231	Principles of Dairy Foods Science	
F_S 3231	Principles of Dairy Foods Science	3
F_S 4331	Technology of Dairy Products and Ingredients	3
or F_S 3240	Principles of Viticulture I	
F_S 3240	Principles of Viticulture I	4
F_S 4440	Principles of Winemaking and Wine Chemical Analysis	4

## Professional Electives

Select courses from this list to fulfill specific track requirements

F_S 1010	Introduction to Viticulture and Enology	1
F_S 2114	Live Animal and Meat Evaluation	3
F_S 2131	Dairy Products Evaluation	2
F_S 2195	Grapes and Wines of the World	3
F_S 3210	Kitchen Chemistry	3
F_S 3385	Problems in Food Science	1-99
F_S 4301	Topics in Food Science	1-99
F_S 4340	Principles of Viticulture II	4
F_S 4354	Physiology and Biochemistry of Muscle as Food	3
F_S 4385	Problems in Food Science	1-99
F_S 4390	Optimization and Management of Food and Agricultural Systems	3
F_S 4441	Cellar Operations and Special Vinifications	3

## Electives

Select electives to fulfill 120 credits with the following as recommended courses

SOCIOL 1000	Introduction to Sociology	1-3
PSYCH 1000	General Psychology	3
RU_SOC 1000	Rural Sociology	3
AFNR 1115	Foundations for College Success	1
GEOG 1600	Climate Change: Science and Public Policy	3

## Semester Plan

Below is a sample plan of study for the Food Science Track, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
AFNR 1115	1 CHEM 1330	4
F_S 1030	3 ENGLISH 1000	3
MATH 1100	3 MATH 1400 or 1500	3
CHEM 1320	4 BIO_SC 1500	5
HIST or POL SC	3	
		15
Second Year		
Fall	CR Spring	CR
Humanities Elective	3 AG_S_M 1040	3

Food Science Commodity Course	3 F_S 2172	3
Electives	3 BIOCHM 3630	3
CHEM 2030	3 COMMUN 1200	3
CHEM 2130	2 Food Science Commodity Course	3
		15

### Third Year

Fall	CR Spring	CR
AG_EC 1041	3 NEP 2340	3
STAT 1400	3 F_S 2199	1
F_S 4370	3 F_S 4315	3
F_S 4375	2 F_S 4980	3
Psychology, Sociology or Rural Sociology	3 Food Science Commodity Course	3
		Professional Elective
		3
		16

### Fourth Year

Fall	CR Spring	CR
F_S 4199	1 F_S 3190	3
F_S 4310	4 F_S 4311	3
F_S 4330	3 F_S 4380	3
F_S 4970	3 Ag Econ course	3
Food Science Commodity Course	3 Elective	3
Philosophy course	3	
		17
		15

Total Credits: 120

## MS in Food Science

### Degree Requirements

- Minimum of 30 hours of graduate-level coursework.
- 15 hours must be at the 8000-level or above.
- Maximum of 40% of coursework can be F\_S 8090 or F\_S 8085 hours.

While a basic goal of the M.S. program is to provide students with specialized skills and training in research methods, the Food Science graduate faculty (including faculty from Food Science, Hospitality Management and Agricultural Systems Management) believe that it is important for M.S. students to understand something of the breadth of the discipline as well.

There are three tracks in the Food Science M.S. program: **Food Science**, **Hospitality Management** and **Agricultural Systems Management**. Each track includes specific required courses.

#### Food Science Track Required Courses:

Chemistry and Analysis		3-4
F_S 7310	Food Chemistry and Analysis	4
or F_S 7311	Investigation of Food Properties	
or F_S 7315	Food Chemistry and Analysis Laboratory	
Engineering/Processing		3-4
F_S 7330	Principles of Food Processing	4
or BIOL_EN 7160	Food Process Engineering	
Microbiology		3-5

F_S 7370	Food Microbiology	3
F_S 7375	Food Microbiology Laboratory	2

**Hospitality Management Track Required Courses (pick 4):**

HSP_MGMT 7100	Hospitality Human Resources Management	3
HSP_MGMT 7110	Hospitality Sales and Marketing	3
HSP_MGMT 7180	Strategic Management in the Hospitality Industry	3
HSP_MGMT 7200	Destination Management	3
HSP_MGMT 7400	Hospitality Finance Management	3

**Agricultural Systems Management Track Required Courses (pick 4):**

AG_S_M 7020	Agricultural Safety and Health	3
or AG_S_M 7140	Electricity: Wiring and Equipment	
AG_S_M 7220	Material Handling and Conditioning	3
AG_S_M 7320	Agricultural Equipment and Machinery	3
or AG_S_M 7360	Precision Agriculture Science and Technology	
AG_S_M 7390	Optimization and Management of Food and Agriculture Systems	3
AG_S_M 7420	Surface Water Management	3
or AG_S_M 7460	Irrigation and Drainage	

## Sample Plan of Study

The student and the major advisor, in consultation with the M.S. Program Committee will prepare a plan of study. The plan of study includes a list of the formal courses, readings, problems, research hours and seminars that the students will use to fulfill the requirements for the M.S. degree.

**Minimum Requirements**

F_S 8402	Research Methods in Food Science	2
F_S 8087	Seminar in Food Science (2 semesters)	2
Two 8000-level courses (excluding Readings or Problems courses)		6
Statistics Course		3
F_S 8090	Research in Food Science	6

## Thesis Requirements

A Masters Degree Program Committee must be identified prior to approval of the research topic for the M.S. thesis and no later than the end of the second semester. An acceptable M.S. Program Committee must include at least three graduate faculty members, at least two of whom must be from the Food Science program, including the advisor chair. At least one committee member must be a graduate faculty member from MU, but outside of the Food Science Program.

The defense for the M.S. degree program will include the following components:

1. Exit seminar presented to the M.S. graduate program committee and the public.
2. Oral examination to demonstrate mastery of the course of study.
3. Defense of the research presented in the M.S. thesis.

In addition to the departmental requirements, the MU Office of Graduate Studies is requiring that all graduating students include a public abstract. The public abstract will be used by the MU Office of Graduate Studies to record and track graduate students' research interests.

## Exit Seminar

Immediately before the final examination, the M.S. student must present a seminar on his or her research. The seminar must take place when MU

is officially in session and has to be announced at least two weeks prior to the scheduled date. The exit seminar is open to the general university audience. All members of the M.S. Program Committee will attend.

## Final Examination

After the student's exit seminar has been presented, the M.S. Program Committee will conduct a final oral examination. The candidate should be prepared to defend his/her research and discuss any related areas.

A report of the examination, carrying the signatures of at least three members of the committee, must be sent to the MU Office of Graduate Studies before the deadline preceding the anticipated date of graduation. For the thesis to be considered successfully defended, the student's M.S. Program Committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

All exit seminars are open to the general faculty. The Food Science program will announce exit seminars to appropriate colleagues within and outside the program. The final examination must take place when MU is officially in session and the candidate must be enrolled at MU at the time of the examination.

A final copy of the thesis must be submitted to the MU Office of Graduate Studies electronically. A final bound copy of the thesis and at least one manuscript suitable for publication must be submitted to the department.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Food Science program (<http://gradstudies.missouri.edu/academics/programs/food-science/master-of-science-in-food-science.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Minor in Food Science and Nutrition

Food Science Courses (minimum)	15	
F_S 1030	Food Science and Nutrition	3
One of the following disciplinary courses:	3-4	
F_S 4310	Food Chemistry and Analysis	
F_S 4311	Investigation of Food Properties	
F_S 4315	Food Chemistry and Analysis Laboratory	
F_S 4330	Principles of Food Processing	
F_S 4370	Food Microbiology	
F_S 4380	Sensory Analysis of Food and Beverages	
One of the following capstone courses:	3	
F_S 4970	Food Product Development	
F_S 4980	Food Quality Assurance	
Two other Elective Courses in Food Science	5-6	

9 of the 15 credits need to be fulfilled with 3000-level or higher Food Science courses.

Cross-listed courses can be taken in either the home program or the cross-listed program.

## PhD in Food Science

### Degree Requirements

- Minimum of 72 hours of graduate level coursework beyond the Bachelor's degree.
- 15 hours must be at the 8000-level or above, exclusive of readings, research, problems and independent study hours.
- Maximum of 30 hours of post-baccalaureate graduate credits (exclusive of readings, research, problems and independent study hours) from a regionally accredited university may be transferred in.

While a basic goal of the Ph.D. program is to provide students with highly specialized research skills and knowledge in a particular subdivision of Food Science, the faculty believe that it is important for Ph.D. students to understand the breadth of the discipline as well.

There are three tracks in the Food Science Ph.D. program: **Food Science, Hospitality Management and Agricultural Systems Management**. Courses required for all three tracks and those required for each track, respectively, are listed below.

#### Required Courses for Food Science, Hospitality and Agricultural Systems Management Tracks:

##### Research Methodologies

F_S 9402	Advanced Research Methods in Food and Hospitality Systems	3
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##### Statistics 6-9

STAT 7530	Analysis of Variance	3
or STAT 7110	Statistical Software and Data Analysis	
or STAT 7150	Applied Categorical Data Analysis	
or STAT 7210	Applied Nonparametric Methods	
or STAT 7310	Sampling Techniques	
or STAT 7410	Biostatistics and Clinical Trials	
or STAT 7510	Applied Statistical Models I	
or STAT 7540	Experimental Design	
or STAT 7560	Applied Multivariate Data Analysis	

##### Ethics 1-2

PLNT_S 8010	Professionalism and Ethics	2
or BIO_SC 8060	Ethical Conduct of Research	
or V_PBio 8641	Introduction to Research Ethics	
or MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	
or PSYCH 8910	Responsible Conduct of Research	

##### Career Development 1-3

AG_ED_LD 8530	Grant Proposal Writing	2
or GRAD 9010	Preparing Future Faculty I	
or GRAD 9020	Preparing Future Faculty II	
or GRAD 9050	Building Leadership Potential with Transferable Skills	
or AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	

##### Food Science Track Required Courses : 15-17

##### Chemistry and Analysis 3-4

F_S 7310	Food Chemistry and Analysis	4
or F_S 7311	Investigation of Food Properties	
or F_S 7315	Food Chemistry and Analysis Laboratory	

##### Engineering/Processing 3-4

F_S 7330	Principles of Food Processing	4
or BIOL_EN 7160	Food Process Engineering	

##### Microbiology 3-5

F_S 7370	Food Microbiology	3
F_S 7375	Food Microbiology Laboratory	2

##### Quality Assurance 3

F_S 7360	Food Quality Assurance	3
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##### Commodity Groups 3

F_S 7331	Technology of Dairy Products and Ingredients	3
or F_S 7344	Processing Muscle Foods	
or F_S 7440	Principles of Winemaking and Wine Chemical Analysis	

##### Hospitality Management Track Required Courses: 15

HSP_MGMT 7100	Hospitality Human Resources Management	3
HSP_MGMT 7110	Hospitality Sales and Marketing	3
HSP_MGMT 7180	Strategic Management in the Hospitality Industry	3
HSP_MGMT 7200	Destination Management	3
HSP_MGMT 7400	Hospitality Finance Management	3

##### Agricultural Systems Management Track Required Courses: 15

AG_S_M 7020	Agricultural Safety and Health	3
or AG_S_M 7140	Electricity: Wiring and Equipment	
AG_S_M 7220	Material Handling and Conditioning	3
AG_S_M 7320	Agricultural Equipment and Machinery	3
or AG_S_M 7360	Precision Agriculture Science and Technology	
AG_S_M 7390	Optimization and Management of Food and Agriculture Systems	3
AG_S_M 7420	Surface Water Management	3
or AG_S_M 7460	Irrigation and Drainage	

## Sample Plan of Study

The plan of study, completed under the guidance of a Doctoral Degree Program Committee, consists of a list of formal courses and research or problems hours.

#### Minimum Requirements

Hours beyond the baccalaureate degree	72	
Graduate level courses (excluding Problems, Research or Independent Study)	15	
F_S 9087	Seminar in Food Science (2 cr of F_S 8087 may be transferred in. F_S 9087 repeated for a total of 4 credit hours)	1
F_S 9090	Research in Foods Science	6
or F_S 8090	Research in Food Science	

## Dissertation Requirements

### Doctoral Degree Program Committee

A Doctoral Degree Program Committee must be identified by the end of the student's second semester. This committee must include at least four MU graduate faculty members, three of whom must be from the Food Science Program (according to the chosen track), including the advisor.

The advisor chair and at least one other committee member must also be members of MU Doctoral Faculty. At least one committee member must be a graduate faculty member from MU but outside the chosen track in the Food Science Program.

## Qualifying Exam

To fulfill the Ph.D. Qualifying Exam, a proposal of the Ph.D. dissertation research must be presented to and approved by the student's Doctoral Degree Program Committee by the end of the student's second semester. The D1 form must be submitted to the Office of Graduate Studies by the end of the second semester to indicate the results of this Qualifying Exam. The D2 form must also be submitted by the end of the second semester. The student's Doctoral Degree Program Committee shall determine the course of action for students who do not pass the Qualifying Exam.

## Research

Students are expected to begin their research once their proposal has been approved by the Doctoral Degree Program Committee during their Qualifying Exam. Students are required to conduct periodic committee meetings to update the Doctoral Degree Program Committee on his/her research progress throughout the Ph.D. program. Significant modifications of the research studies following initial approval of the proposed Ph.D. research during the Qualifying Exam must be approved by the student's Doctoral Degree Program Committee. Upon completion of the research, a dissertation based on original research must be reviewed and approved by the student's Doctoral Degree Program Committee. All Ph.D. candidates are required to prepare at least one manuscript, judged acceptable by the major advisor and at least one additional member of the student's Doctoral Degree Program Committee, for submission to a refereed journal, prior to the final dissertation defense.

## Exit Seminar

Immediately before the defense of the dissertation, the student must present a formal seminar on his/her research. The seminar must take place when MU is officially in session, must be announced at least two weeks prior to the scheduled date and is open to the general university audience.

## Final Examination

After the seminar has been presented, a final defense oral examination will be conducted by the Doctoral Degree Program Committee. The candidate should be prepared to defend his/her research and to discuss any related areas.

A report of the examination (D4 form), carrying the signatures of all members of the committee, must be sent to the MU Office of Graduate Studies before the deadline preceding the anticipated date of graduation. For the dissertation to be considered successfully defended, the student's Doctoral Degree Program Committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

All dissertation exit seminars are open to the public. The Food Science Program will announce dissertation exit seminar dates to appropriate colleagues within and outside the Food Science Program. The dissertation defense must take place when MU is officially in session and the candidate must be enrolled at MU at the time.

A final copy of the dissertation must be submitted to the MU Office of Graduate Studies electronically.

## Comprehensive Examination Process

The comprehensive examination must be completed at least seven months prior to the dissertation research defense. Students must be

enrolled in order to take this exam and MU must officially be in session. This examination is designed to measure the student's knowledge of food science and related areas. In addition, students are expected to demonstrate the ability to think clearly and critically and to express themselves adequately in both written and spoken English. After completion of the written exam, the student, in consultation with their major advisor and Doctoral Degree Program Committee should schedule the oral exam. The oral exam is designed to determine whether the student can think clearly on their feet and express themselves well in English. The student will be expected to defend their answers on the written portion of the comprehensive exam as well as any other areas the committee wishes to explore. Both the written and oral sections of the Comprehensive Exam must be completed within one month. For the Comprehensive Exam to be completed successfully, the student's Doctoral Degree Program Committee must vote to pass the student on both the written and oral sections of the exam with no more than one dissenting or abstaining vote. Students who fail the Comprehensive Exam may not retake the exam for at least 12 weeks. Failure to pass two Comprehensive Exam automatically prevents candidacy. Results of the Comprehensive Exam (D3 form) with signatures from all committee members must be submitted to the Office of Graduate Studies.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Food Science program (<http://gradstudies.missouri.edu/academics/programs/food-science/doctorate-in-food-science>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Hospitality Management

Eliza C. Tse, Professor & Chair  
Hospitality Management  
122 Eckles Hall  
(573) 882-4100  
Fax: (573) 882-0596  
HRMDept@missouri.edu  
<http://hospitality.missouri.edu/>

The hospitality industry plays a vital role in U.S. and Missouri economic development and employment. With the growth of the industry, the job prospects are bright and the need for a well-trained workforce is greater than ever. The Hospitality Management Program is established as an effective response to growing demand for managerial talents in the hospitality industries and the promise of hospitality education in knowledge pursuit and human development. Since its inception in the 1970s, student demand for Hospitality Management major has grown steadily over the decades. With an enrollment of over 400 students, the program is one of the largest degree programs in the College of Agriculture, Food and Natural Resources (CAFNR).

The mission of the Hospitality Management program is to develop and nurture forward thinking and innovative new generation of successful, ethical hospitality leaders in today's global community. The curriculum leading to the B.S. in Hospitality Management allows students to be



anchored in theories of business education and develop skills and competencies that are essential to hospitality operations. Students in the major have the option to specialize in one for four emphasis areas: Conference & Event Planning Management (C&E), Food & Beverage Management (F&B), Lodging Management (LM), and Sport Venue Management (SVM). You may also obtain your BS in Hospitality Management online, where students have the flexibility to study anywhere and anytime. (<http://online.missouri.edu/degreeprograms/cafnr/hospitality-management/bachelors/admissions.aspx>).

One of the unique features of the program is the exposure of students to the hospitality industry in the form of hands-on learning. In HSP\_MGMT 4993 Internship in Hospitality Management course, students will have the opportunity to apply management concepts and theories from their coursework to practical work experiences in industry, under the direction of faculty mentors and industry professionals.

The program has a state-of-the-art food-service facility that houses a food production laboratory, a commercial kitchen and a multi-purpose dining establishment that plays host to the student-run Café at Eckles Hall, a catering and fine dining evening experience. The facility provides a practice laboratory for food and consumer based research opportunities as well. In addition, the program leverages the concept of “living laboratories” by partnering with University of Missouri facilities like the University Club (<http://uclub.missouri.edu/home>) and Campus Dining Services (<http://dining.missouri.edu>). Sport and entertainment organizations like Mizzou Athletics and MU Event Production Services also provide students learning experience beyond classroom setting.

Strong support from the hospitality industry to the HM program is evident in the form of scholarship. Each year students received scholarship awards from industry associations such as the American Hotel & Lodging Education Foundation, National Restaurant Association, Hotel and Lodging Association of Greater Kansas City, Missouri Restaurant Association, as well as other endowed scholarships. In addition, CAFNR also awards one of the strongest scholarship programs at MU, with more than \$1.3 million annually. These scholarships are available to incoming freshmen, transfer and continuing students.

## Faculty

**Professor** E. Tse\*\*

**Associate Professor** S. Cho\*\*, D. Kim\*\*

**Associate Teaching Professor** H. L. Marshall

**Assistant Professor** P. Liu

**Assistant Teaching Professor** A. Alexander\*, M. Palmero

**Instructor** B. Langford

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master’s thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Hospitality Management (p. 89)
  - with emphasis in Conference and Event Planning Management (p. 90)
  - with emphasis in Food and Beverage Management (p. 90)
  - with emphasis in Lodging Management (p. 91)

- with emphasis in Sport Venue Management (p. 91)

- Minor in Hospitality Management (p. 91)

## Department Level Requirements

Students earning a Bachelor of Science in Hospitality Management are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), as well as departmental and emphasis area requirements, including the following selected foundational courses, which may fulfill some University general education requirements.

### Foundational Courses

AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	
CHEM 1100	Atoms and Molecules with Lab	3
F_S 1030	Food Science and Nutrition	3
or BIO_SC 1010	General Principles and Concepts of Biology	
AG_EC 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
AG_EC 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
Approved Physical Science, Biological Science, or Math		3

Students transferring into Hospitality Management from other MU degree programs or from other institutions must have both a term and cumulative GPA of 2.25.

A grade of C- or higher is required for all business core, hospitality core, emphasis area, and professional elective courses. Please see the BS in Hospitality Management (p. 89) page for the major program requirements.

## Career Opportunities with a B.S. degree in Hospitality Management

A Bachelor of Science degree in Hospitality Management (HM) will equip students with management skills to succeed in a variety of industry careers as well as transferrable skills to make them a life-long learners. The curriculum is designed to give students a set of applied management skills through a wide variety of courses that provide a theoretical knowledge of human understanding and business principles as applied in the hospitality industry. According to their interest, students also have a choice to select an emphasis area to specialize in, which provides them more in-depth knowledge of leadership application within a hospitality career. In addition, each student completes a 15 hour block of professional electives which allows them to gain additional expertise towards their career objectives.

The four emphasis areas in Hospitality Management are: Conference & Event Planning Management, Food & Beverage Management, Lodging Management, or Sport Venue Management.

In the *Conference & Event Planning Management* emphasis, students develop knowledge and skills in planning and conducting a large variety of events from business meetings, social functions, to festivals and mega events and get the opportunity to practice those skills through hands-on experience. Students with this emphasis find employment in a variety of businesses, hotels, convention and conference centers, associations, private event companies as well as non-profit organizations.

Students choosing the *Food & Beverage Management* emphasis acquire skills and knowledge in managing a variety of commercial and noncommercial food and beverage operations, both front and back of the house. These students find employment in a variety of restaurants, lodging food operations, institutional food service operations, managed-service companies (such as business and industry, college and university), airline, military, casino, cruise ship and catering venues. Many students with entrepreneurial spirit in this area strive to own their own restaurant operations one day.

Students choosing the *Lodging Management* emphasis acquire skills and knowledge in assuming leadership positions in a variety and size of lodging operations from budget to luxury hotels, motels, inns, resort, and bed and breakfast establishments. They find employment in various functional areas, such as front office, food & beverage, event, banquet & catering, sales and marketing, public relations, revenue management, and human resources of the lodging operations.

Students choosing the *Sport Venue Management* emphasis acquire skills and knowledge in managing various types of venues, such as stadiums, arenas, ballparks, clubs, conference and events centers that cater to sports and games, concerts, live entertainment, exhibitions, trade shows and other functions. Students pursue their careers in venue and event marketing, box office operations, guest services and community relations.

## Graduate

### Graduate Study in Hospitality Management

The graduate program, Masters and Ph.D., is jointly offered with the Food Science Program as one of the three tracks: Food Science, Hospitality Management and Agricultural Systems Management. It is established with the objectives for the generation of new knowledge and intellectual curiosity through research. The program provides an understanding of the body of knowledge in the discipline of hospitality and develops abilities to achieve scholarly success. These abilities include competency in research, teaching/communication, problem solving and critical reasoning skills.

After graduation, it is likely that a Masters student will advance their careers in the hospitality industry or continue their Ph.D. study. Ph.D. graduates will likely join the faculty of a college or university that will require research and publication as part of the promotion and tenure process. This goal is accomplished by creating a scholarly research environment, which expose students the learning opportunity and train them for teaching, research, writing, publishing, and consulting. The atmosphere is interdisciplinary and incorporates a number of opportunities for students to engage in a variety of types of information exchange and growth.

For additional information regarding Masters and Ph.D. study, please visit the Food Science Graduate Program (p. 82) Overview and choose Hospitality Management track.

## BS in Hospitality Management

### Degree Program Description

A degree in Hospitality Management (HM) provides students with all the business and managerial skills needed to succeed in a wide variety of hospitality and venue management careers. The curriculum includes core business principles, core hospitality management concepts and advanced skills in one of the emphasis areas: Conference & Events Planning Management, Food & Beverage Management, Lodging

Management, and Sport Venue Management. In Conference & Events Planning Management area, whether planning a wedding, small dinner party, business meeting, festivals or mega-event, and non-profit fundraising functions, students learn the basics of planning and executing an event and get the opportunity to practice those skills through hands-on experience. In Food & Beverage Management area, whether in the back of the house helping to prepare the gourmet meals or in the front of the house entertaining guests, the HM degree provides the business tools and skills to successfully manage a restaurant, an institutional food service establishment, or a full service catering business. In Lodging Management area, graduates manage and operate a hotel, lodge, motel, bed & breakfast or resort that serves a specific audience or the general public. Graduates use their business and entrepreneurial skills to set their establishment apart from the competition by becoming the destination everyone wants to go for those memorable family vacations, romantic weekend getaways or business retreats. In Sport Venue Management area, students will receive specialized instruction and develop competencies in the management and operation of sport venues in addition to the business of live entertainment including sports games, tournaments, concerts and event production. Upon successful completion of the curriculum, students will be prepared to assume leadership positions in the dynamic and ever growing hospitality industry.

## Major Program Requirements

### Degree core requirements

Business		
AG_ED_LD 2250	Introduction to Leadership	3
or AG_ED_LD 2260	Team and Organizational Leadership	
ACCTCY 2036	Accounting I	3
or ACCTCY 2010	Introduction to Accounting	
FINANC 2000	Survey of Business Finance	3
MANGMT 3000	Principles of Management	3
MRKTNG 3000	Principles of Marketing	3
Hospitality Management Core		
HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 2100	Hospitality Law	3
HSP_MGMT 2190	Seminar in Professional Development	1
HSP_MGMT 3100	Service Management	3
HSP_MGMT 4100W	Hospitality Human Resources Management - Writing Intensive	3
HSP_MGMT 4110	Hospitality Sales and Marketing Management	3
HSP_MGMT 4180	Strategic Management in the Hospitality Industry	3
HSP_MGMT 4993	Internship in Hospitality Management	3
Total Credits		37

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
HSP_MGMT 1100	3 CHEM 1100	3
F_S 1030 or BIO_SC 1010	3 AG_EC 1042	3
AG_EC 1041	3 AG_ED_LD 2220 or COMMUN 1200	3

Social Science	3 MATH 1100	3	
Humanities	3 State Law Course	3	
	15	15	
<b>Second Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>	
HSP_MGMT 2100	3 HSP_MGMT 2190	1	
ENGLSH 1000	3 FINANC 2000	3	
AG_ED_LD 2250 or 2260	3 MRKTNG 3000	3	
Humanities	3 Emphasis Area Course	3	
Approved Physical Science, Biological Science, or Math	3 Math Reasoning Proficiency	3	
	Unrestricted Elective	3	
	15	16	
<b>Third Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
HSP_MGMT 3100	3 HSP_MGMT 4110	3 HSP_MGMT 4993	3
ACCTCY 2010 or 2036	3 MANGMT 3000	3	
Professional Elective	3 Emphasis Area Course	3	
Emphasis Area	3 Professional Elective	3	
Unrestricted Elective	3 Professional Elective	3	
	15	15	3
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>	
HSP_MGMT 4180	3 HSP_MGMT 4100W	3	
Emphasis Area Course	3 Professional Elective	3	
Professional Elective	3 Emphasis Area Course	3	
Unrestricted Elective	5 Unrestricted Elective	3	
	14	12	
Total Credits: 120			

## BS in Hospitality Management with Emphasis in Conference and Event Planning Management

### Degree Program Description

The hospitality industry plays a vital role in U.S. economic development and employment, as well as in the global community. While running a business requires strong marketing, finance and communication skills, the hospitality industry requires all this and more. Hospitality managers must create an experience for guests so unique and memorable that it will exceed their expectations and spread positive word-of-mouth to their friends and acquaintances. A B.S. degree in Hospitality Management provides students with all the business and managerial skills needed to succeed in a wide variety of hospitality and sport management careers. The curriculum includes core business skills and core Hospitality Management skills. In the B.S. in Hospitality Management with emphasis in Conference and Event Planning Management, students learn the basics of planning and running an event and get the opportunity to practice those skills through hands-on experience, whether planning a

wedding, small dinner party, business meeting, fund-raising function, community event, festival or mega-event.

### Major Program Requirements

#### Conference & Event Planning Management Emphasis Requirements

Students must complete all University general education (p. 33) requirements and degree requirements (p. 47), in addition to the Conference & Event Planning Management emphasis requirements below:

HSP_MGMT 2200	Fundamentals of Conference and Events Industry	3
HSP_MGMT 3200	Conference and Meeting Management	3
HSP_MGMT 3310	Food Service Budgeting and Controls	3
	or HSP_MGMT 4400 Hospitality Finance Management	
HSP_MGMT 4200	Destination Management	3
HSP_MGMT 4280W	Special Events Management - Writing Intensive	3
Hospitality Professional Electives		15
Total Credits		30

### Semester Plan

Refer to the Semester Plan for the BS in Hospitality Management (p. 89).

## BS in Hospitality Management with Emphasis in Food and Beverage Management

### Degree Program Description

The hospitality industry plays a vital role in U.S. economic development and employment, as well as in the global community. While running a business requires strong marketing, finance and communication skills, the hospitality industry requires all this and more. Hospitality managers must create an experience for guests so unique and memorable that they are satisfied and want to return repeatedly. A B.S. in Hospitality Management provides students with all the business and managerial skills needed to succeed in a wide variety of hospitality and sport management careers. The curriculum includes core business skills and core Hospitality Management skills. In the B.S. in Hospitality Management with emphasis in Food and Beverage Management, whether in the kitchen supervising the production of a variety of food, managing inventory and controlling costs, or in the dining room entertaining guests and delivering quality service, students are provided the business tools to successfully manage a restaurant. Those same tools can also be used to operate a full service catering business and other food service establishments.

### Major Program Requirements

#### Food & Beverage Management Requirements

Students must complete all University general education (p. 33) requirements and degree requirements (p. 47) in addition to the Food & Beverage Management emphasis requirements below:

HSP_MGMT 2300	Fundamentals of the Food and Beverage Industry	3
HSP_MGMT 3300	Food Production Management	3
HSP_MGMT 3310	Food Service Budgeting and Controls	3
HSP_MGMT 3320	Beverage Management	3
HSP_MGMT 4380W	Managing Food Service Businesses - Writing Intensive	3
Hospitality Professional Electives		15
Total Credits		30

## Online Degree Program

Hospitality Management now offers the BS in Hospitality Management with an emphasis in Food and Beverage Management in an online format through Mizzou Online. Please see its website (<http://online.missouri.edu/degreeprograms/hospitality-management>) for more information.

## Semester Plan

Refer to the Semester Plan for the BS in Hospitality Management (p. 89).

## BS in Hospitality Management with Emphasis in Lodging Management

### Degree Program Description

The hospitality industry plays a vital role in U.S. economic development and employment, as well as in the global community. While running a business requires strong marketing, finance and communication skills, the hospitality industry requires all this and more. Hospitality managers must create an experience for guests so unique and memorable that they will want to return repeatedly. A B.S. in Hospitality Management provides students with all the business and managerial skills needed to succeed in a wide variety of hospitality and sport management careers.

The curriculum includes core business skills and core Hospitality Management skills. The B.S. in Hospitality Management with emphasis in Lodging Management, graduates manage and operate a hotel, lodge, motel, resort or bed & breakfast that serves a specific audience or the general public. Graduates use their business and entrepreneurial skills to set their establishment apart from the competition by becoming the destination everyone wants to go for those memorable family vacations, business meetings/retreats or romantic weekend getaways.

### Major Program Requirements

#### Lodging Management Emphasis Requirements

Students must complete all University general education (p. 33) requirements and degree requirements (p. 47), in addition to the Lodging Management emphasis requirements below:

HSP_MGMT 2400	Fundamentals of Lodging Industry	3
HSP_MGMT 3400	Lodging Operations and Management	3
HSP_MGMT 3420	Technology Applications in the Lodging Industry	3
HSP_MGMT 4400	Hospitality Finance Management	3

HSP_MGMT 4480W	Advanced Lodging Management - Writing Intensive	3
Hospitality Professional Electives		15
Total Credits		30

## Semester Plan

Refer to the Semester Plan for the BS in Hospitality Management (p. 89).

## BS in Hospitality Management with Emphasis in Sport Venue Management

### Degree Program Description

The hospitality industry plays a vital role in U.S. economic development and employment, as well as in the global community. While running a business requires strong marketing, finance and communication skills, the hospitality industry requires all this and more. Hospitality managers must create an experience for guests so unique and memorable that they will want to return repeatedly. A B.S. in Hospitality Management provides students with all the business and managerial skills needed to succeed in a wide variety of hospitality and sport management careers.

The curriculum includes core business skills and core Hospitality Management skills. The B.S. in Hospitality Management with emphasis in Sport Venue Management provides specialized instruction in the management and operation of sport venues in addition to the business of live entertainment including sports games, tournaments, concerts and event production. Upon successful completion of the curriculum, students will be prepared to assume leadership positions in the dynamic sport venue and entertainment industries.

### Major Program Requirements

#### Sport Venue Management Requirements

Students must complete all University general education (p. 33) requirements and degree requirements (p. 47), in addition to the Sport Venue Management emphasis requirements below:

HSP_MGMT 2500	Fundamentals of Sport Venue Industry	3
HSP_MGMT 3500	Sport Venue Operation Management	3
HSP_MGMT 4400	Hospitality Finance Management	3
HSP_MGMT 4500	Management and Promotion of Live Entertainment	3
HSP_MGMT 4580W	Sport Venue and Facility Management - Writing Intensive	3
Hospitality Professional Electives		15
Total Credits		30

## Semester Plan

Refer to the Semester Plan for the BS in Hospitality Management (p. 89).

## Minor in Hospitality Management

The minor in Hospitality Management is for students interested in enhancing their understanding of the hospitality industry. A student must complete 18 credits of coursework related to each of the four Hospitality

Management emphasis areas as listed below. The undergraduate chair of the HM program must approve students' plan of study. Please use the CAFNR Minor form (<http://cafnr.missouri.edu/students/minor-form.xls>) to complete the application process for the HM minor.

**Minor Course Requirements:**

HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 2200	Fundamentals of Conference and Events Industry	3
	or HSP_MGMT 2300 Fundamentals of the Food and Beverage Industry	
HSP_MGMT 2400	Fundamentals of Lodging Industry	3
	or HSP_MGMT 2500 Fundamentals of Sport Venue Industry	
HSP_MGMT 3200	Conference and Meeting Management	3
	or HSP_MGMT 3300 Food Production Management	
HSP_MGMT 3400	Lodging Operations and Management	3
	or HSP_MGMT 3500 Sport Venue Operation Management	
A HSP_MGMT elective at 3000 or above		3
Total Credits		18

## Natural Resource Science and Management

Charles Nilon, Degree Program Coordinator

School of Natural Resources

302 Anheuser-Busch Natural Resources Building

Phone: (573) 882-3738

Fax: (573) 882-9526

[nilonc@missouri.edu](mailto:nilonc@missouri.edu)

<https://cafnr.missouri.edu/degrees-and-programs/>

The Natural Resource Science and Management degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems. The degree will allow students to apply biological, physical, social, political and managerial sciences to the conservation of plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource Science and Management work as fisheries biologists, foresters, interpreters, naturalists, and wildlife biologists for state and federal agencies, nature centers and museums, and consulting firms. Four emphasis areas are offered: Fisheries and Wildlife Sciences, Forest Resources, Human Dimensions, and Terrestrial Ecosystems. All students are encouraged to integrate their classroom learning experiences with research and internship experiences, while students in the Forest Resources and Human Dimensions emphasis areas are required to complete an internship.

### Faculty

**Professor** H. S. He\*\*, S. Jose\*\*, D. R. Larsen\*, R. M. Muzika\*\*, M. E. Gompper\*\*, C. H. Nilon\*\*

**Associate Professor** F. X. Aguilar\*\*, M. Morgan\*\*, D. B. Noltie\*, S. Wilhelm-Stanis\*\*, H. E. Stelzer\*\*

**Assistant Professor** A. Argerich\*, M. Byrne\*, B. O. Knapp\*\*, J. Li\*, R. North\*, M. Weegman\*

**Extension Associate Professor** R. A. Pierce II\*

**Teaching Associate Professor** D. Vaught

**Teaching Assistant Professor** T. Strauch

**Research Professor** M. A. Gold\*\*

**Research Assistant Professor** J. Whittier\*

**Curators' Emeritus Professor** J. R. Jones\*\*

**Adjunct Assistant Professor** J. Kabrick\*\*, E. Kurzejeski, M. Kruse, D. Tillitt\*, L. Vangilder, M. Wildhaber\*\*

**Cooperative Associate Professor** D. Dey\*, C. P. Paukert\*\*, S. R. Shifley\*, F. R. Thompson III\*\*, J. Van Sambeek\*\*, E. B. Webb\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BS in Natural Resource Science and Management (p. 92)
  - with emphasis in Fisheries and Wildlife Sciences (p. 94)
  - with emphasis in Forest Resources (p. 93)
  - with emphasis in Human Dimensions (p. 95)
  - with emphasis in Terrestrial Ecosystems (p. 95)

### Graduate

While the College of Agriculture, Food and Natural Resources does not offer a graduate degree specifically in Natural Resource Science and Management, there are many options available for graduate studies in Natural Resources. Please refer to the list of graduate degrees on the Natural Resources (p. 97) section of the catalog for more information.

## BS in Natural Resource Science and Management

The Natural Resource Science and Management degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems, in a sustainable manner, to meet desired societal goals. The degree has elements that belong to the biological, physical, social, political and managerial sciences that are applied to conserving plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people.

Students with degrees in Natural Resource Science and Management work as fisheries biologists, foresters, interpreters, naturalists, and wildlife biologists for state and federal agencies, nature centers and museums, and consulting firms.

### Major Program Requirements

Students must also complete emphasis area requirements. Students must have 120 credits to graduate. The last 45 credit hours must be completed at the University of Missouri.

General Education		34-35
MATH 1100	College Algebra	3
MATH 1400	Calculus for Social and Life Sciences I	3

ATM_SC 1050 or PHYSCS 1210	Introductory Meteorology College Physics I	3-4
CHEM 1320	College Chemistry I	4
HIST 1100 or HIST 1200 or HIST 1400 or POL_SC 1100	Survey of American History to 1865 Survey of American History Since 1865 American History American Government	3
AG_EC 1041 or AG_EC 1042	Applied Microeconomics Applied Macroeconomics	3
Behavioral/Social Science Elective		3
ENGLSH 1000	Exposition and Argumentation	3
Fine Arts/Humanities Electives		9
<b>Major Requirements</b>		44
BIO_SC 1200	General Botany with Laboratory	5
STAT 1300 or STAT 1400	Elementary Statistics Elementary Statistics for Life Sciences	3
NAT_R 1070	Ecology and Renewable Resource Management	3
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
FOREST 2151	Dendrology	4
NAT_R 4325 or GEOG 3040	Introduction to Geographic Information Systems Introduction to Geographic Information Systems GIS	3
NAT_R 3110	Natural Resource Biometrics	3
P_R_TR 3231	Principles of Interpretive Outdoor Recreation	3
F_W 3600	Introduction to Conservation Biology	3
FOREST 4320 or BIO_SC 3650	Forest Ecology General Ecology	5
NAT_R 4353	Natural Resource Policy/Administration	3
F_W 4650	Wildlife Management Planning	4
<b>Elective Credits</b>		42-49
<b>Requirements for thesis, internship or other capstone course</b>		

Capstone is required. Internship is required in some emphasis areas.

## Semester Plan

Refer to the sample semester plans for the emphasis areas.

# BS in Natural Resource Science and Management with Emphasis in Forest Resources

## Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Forest Resources expands the knowledge base in fire ecology, silviculture, and forest stand dynamics in order for graduates to better address the challenges of managing forest resources in the 21st Century. The degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems, in a sustainable manner, to meet desired societal goals. The degree has elements that belong to the biological, physical, social, political and managerial sciences that are applied to conserving plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource

Science and Management with an emphasis in Forest Resources can find employment as community foresters, consulting foresters, ecologists, and resource foresters.

## Emphasis Area Requirements

In addition to completing major program requirements (p. 92), students must complete the following additional requirements (42 credit hours):

FOREST 2542	Forest Measurement and Inventory	1
FOREST 2543	Forest Ecology Field Studies	1
FOREST 2544	Introduction to Silviculture and Management	1
FOREST 3207	Forest Fire Control and Use	2
FOREST 3212	Forest Health and Protection	4
FOREST 4360	Photogrammetry, Inventory and Models	3
FOREST 4330	Practice of Silviculture	3
NAT_R 4365	GIS Applications	3
FOREST 4390	Watershed Management and Water Quality	3
FOREST 4350	Forest Economics	3
FOREST 4375	Forest Stand Dynamics	3
PLNT_S 4400	Plant Anatomy	4
FOREST 4940	Forestry Internship	3
Professional credit electives approved by advisor to complete 120 total credits		8

## Semester Plan

Below is a sample semester plan for the Forest Resources Area. Please consult with your advisor prior to registering for courses.

First Year			
Fall	CR Spring	CR	
BIO_SC 1200	5 CHEM 1320	4	
ENGLSH 1000	3 PHYSCS 1210 or ATM_SC 1050	4	
MATH 1100	3 MO State Government Requirement	3	
NAT_R 1070	3 Humanities Elective #1	3	
	14	14	
Second Year			
Fall	CR Spring	CR Summer	CR
FOREST 2151	4 PLNT_S 2125 or 4400	3 FOREST 2542	1
MATH 1400	3 STAT 1300 or 1400	3 FOREST 2543	1
AG_EC 1041	3 NAT_R 4325	3 FOREST 2544	1
FOREST 3207 <sup>Forest</sup> Fire Ecology in Development	2 SOIL 2100	3 FOREST 4940	3
Humanities Elective #2	3 SOIL 2106	2	
	15	14	6
Third Year			
Fall	CR Spring	CR	
FOREST 4320	5 FOREST 4330	3	
NAT_R 3110	3 FOREST 3300 (Silviculture)	1	
Social Science Elective	3 FOREST 3212	4	

Humanities Elective #3	3 FOREST 4350	3
	FOREST 4360	3
14		14
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
FOREST 4375	3 NAT_R 4353	3
FOREST 4390	3 P_R_TR 3231	3
NAT_R 4365	3 F_W 3600	3
FOREST Professional Elective	3 FOREST Professional Elective	4
undefined	F_W 4650	4
12		17

Total Credits: 120

## BS in Natural Resource Science and Management with Emphasis in Fisheries and Wildlife Sciences

### Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Fisheries and Wildlife Sciences has a strong focus on taxonomy and adds additional required courses on research and management techniques. The degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems, in a sustainable manner, to meet desired societal goals. The degree has elements that belong to the biological, physical, social, political and managerial sciences that are applied to conserving plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource Science and Management with an emphasis in Fisheries and Wildlife work as conservation biologists, ecologists, fisheries biologists, ornithologists, and wildlife biologists.

### Emphasis Area Requirement

In addition to completing major program requirements (p. 92), students must complete the following additional requirements (44 credit hours):

F_W 1100	Introductory Zoology with Laboratory	5
F_W 2500	Introduction to Genetics and Evolution for Conservation	3
or BIO_SC 2200	General Genetics	
F_W 4500	Animal Population Dynamics and Management	3
F_W 2900	Principles of Wildlife Management	4
F_W 4300	Fisheries Management	3
F_W 4400	Techniques for Fisheries Management and Conservation	4
or F_W 4700	Wildlife Research and Management Evaluation Methods	
Choose from group:		10-12
NAT_R 2080	Outdoor Recreation Consortium	2
F_W 3700	Animal Behavior	3
F_W 3400	Water Quality and Natural Resource Management	3
or FOREST 4390	Watershed Management and Water Quality	

F_W 3900	Ecology of Fishes	3
F_W 4100	Limnology	3
F_W 4200	Urban Wildlife Conservation	3
F_W 4220	Human Dimensions of Fish and Wildlife Conservation	3
F_W 4600	Ecosystem Management	4
F_W 4800	Environmental Toxicology	3
F_W 4810	Wildlife Disease Ecology	3
F_W 4880	Waterfowl Ecology and Management	3
Choose three courses from group with no more than 5 credits from BIO_SC:		12-13
F_W 2600	Ornithology	4
F_W 2700	Ichthyology	4
F_W 3660	Mammalogy	4
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity	5
BIO_SC 3260	Invertebrate Zoology	4

### Semester Plan

Below is a sample semester plan for the Fisheries and Wildlife Emphasis Area. Please consult with your advisor prior to registering for courses.

<b>First Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
BIO_SC 1200	5 ATM_SC 1050	3
ENGLSH 1000	3 Humanities Elective #1	3
MATH 1100	3 CHEM 1320	4
NAT_R 1070	3 F_W 1100	5
14		15
<b>Second Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
AG_EC 1041	3 F_W 3000-level Zoology course #1	4
F_W 2900	4 STAT 1400	3
Humanities Elective #2	3 SOIL 2100	3
MATH 1400	3 NAT_R 4325	3
MO State Government Requirement	3 F_W 2500	3
16		16
<b>Third Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
BIO_SC 3650	5 F_W 3600	3
NAT_R 3110	3 P_R_TR 3231	3
F_W 4300	3 F_W 3000-level Zoology course #2	4
FOREST 2151	4 F_W Professional Elective	3
SOIL 2106	2	
17		13
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
F_W 4400 or 4700	4 NAT_R 4353	3
F_W 4500	3 F_W 3000-level Zoology course #3	4
Social Science Elective	3 F_W Professional Elective	3
F_W Professional Elective	4 undefined Humanities Elective #3	3

F_W 4650	4
14	17

Total Credits: 122

## BS in Natural Resource Science and Management with Emphasis in Human Dimensions

### Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Human Dimensions targets students who wish to link a solid background in taxonomy and ecology with social sciences. Students may focus on outdoor interpretation, natural resources economics, and resource policy. The degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems, in a sustainable manner, to meet desired societal goals. The degree has elements that belong to the biological, physical, social, political and managerial sciences that are applied to conserving plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource Science and Management with an emphasis in Human Dimensions can find employment as interpretive naturalists, natural resource educators.

### Emphasis Area Requirements

In addition to completing major program requirements (p. 92), students must complete the following additional requirements (46 credit hours):

AG_EC 2070	Environmental Economics and Policy	3
P_R_TR 3230	Introduction to Parks and Outdoor Recreation Services	3
F_W 3400	Water Quality and Natural Resource Management	3
or FOREST 4390	Watershed Management and Water Quality	
4000-level Environmental Education (NAT_R 4024 still in development)		3
F_W 4220	Human Dimensions of Fish and Wildlife Conservation	3
P_R_TR 4340	Advanced Recreation Land Management	3
F_W 4400	Techniques for Fisheries Management and Conservation	4
or F_W 4700	Wildlife Research and Management Evaluation Methods	
Choose three courses from group with no more than 5 credits from BIO_SC		12-13
F_W 2600	Ornithology	
F_W 2700	Ichthyology	
F_W 3660	Mammalogy	
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity	
BIO_SC 3260	Invertebrate Zoology	
Choose from group:		9-11
NAT_R 2080	Outdoor Recreation Consortium	
SOCIOL 3330	Environmental Justice	
RU_SOC 3310	Society, Agriculture and Natural Resources	
FOREST 4350	Forest Economics	
RU_SOC 4370	Environmental Sociology	

GEOG 4790	Geographic Information Systems for the Social Sciences	
or NAT_R 4365	GIS Applications	
NAT_R 4940	Natural Resources Internship	3

### Semester Plan

Below is a sample semester plan for the Human Dimensions Emphasis Area. Please consult with your advisor prior to registering for courses.

First Year			
Fall	CR Spring	CR	
BIO_SC 1200	5 ATM_SC 1050	3	
ENGLSH 1000	3 CHEM 1320	4	
MATH 1100	3 STAT 1400	3	
NAT_R 1070	3 Humanities Elective #1	3	
	14	13	

Second Year				
Fall	CR Spring	CR Summer		CR
MATH 1400	3 NAT_R 4325	3 NAT_R 4940		3
AG_EC 1041	3 SOIL 2100	3		
FOREST 2151	4 AG_EC 2070	3		
MO State Government Requirement	3 F_W 3000-level Zoology Course #1	4		
Humanities Elective #2	3 NRSM Professional Elective #1	3		
	16	16		3

Third Year			
Fall	CR Spring	CR	
BIO_SC 3650	5 F_W 3400 or FOREST 4390	3	
NAT_R 3110	3 F_W 3600	3	
SOIL 2106	2 P_R_TR 3231	3	
P_R_TR 3230	3 F_W 3000-level Zoology Course #2	4	
Humanities Elective #3	3 NRSM Professional Elective #2	3	
	16	16	

Fourth Year			
Fall	CR Spring	CR	
F_W 4400 or 4700	4 NAT_R 4353	3	
F_W 4220	3 P_R_TR 4340	3	
NAT_R 4001 <sup>Foundations Env Ed</sup>	3 F_W 3000-level Zoology Course #3	4	
Social Science Elective	3 NRSM Professional Elective #3	4	
	undefined		
	F_W 4650	3	
	13	17	

Total Credits: 124

## BS in Natural Resource Science and Management with Emphasis in Terrestrial Ecosystems



## Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Terrestrial Ecosystems combines interests in wildlife management and conservation and forestry focusing on basic and applied concepts important in land management and species conservation. The degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems, in a sustainable manner, to meet desired societal goals. The degree has elements that belong to the biological, physical, social, political and managerial sciences that are applied to conserving plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource Science and Management with an emphasis in Terrestrial Ecosystems can find employment as conservation biologists, ecologists, land stewards, and resource foresters.

## Emphasis Area Requirements

In addition to completing major program requirements (p. 92), students must complete the following additional requirements (48 credit hours):

F_W 1100	Introductory Zoology with Laboratory	5
F_W 2600	Ornithology	4
or F_W 3660	Mammalogy	
FOREST 2542	Forest Measurement and Inventory	1
FOREST 2543	Forest Ecology Field Studies	1
FOREST 2544	Introduction to Silviculture and Management	1
F_W 2900	Principles of Wildlife Management	4
FOREST 3207	Forest Fire Control and Use	2
FOREST 3212	Forest Health and Protection	4
FOREST 4360	Photogrammetry, Inventory and Models	3
FOREST 4330	Practice of Silviculture	3
F_W 4600	Ecosystem Management	4
FOREST 4390	Watershed Management and Water Quality	3
or F_W 3400	Water Quality and Natural Resource Management	
FOREST 4350	Forest Economics	3
FOREST 4375	Forest Stand Dynamics	3
PLNT_S 4400	Plant Anatomy	4
Choose from group:		3
ENV_SC 3250	Pollutant Fate and Transport	
F_W 4220	Human Dimensions of Fish and Wildlife Conservation	
F_W 4810	Wildlife Disease Ecology	

## Semester Plan

Below is a sample semester plan for the Terrestrial Ecosystems Emphasis Area. Please consult with your advisor prior to registering for courses.

First Year		
Fall	CR Spring	CR
BIO_SC 1200	5 F_W 1100	5
ENGLSH 1000	3 CHEM 1320	4
MATH 1100	3 MO State Government Requirement	3

NAT_R 1070	3 Humanities Elective #1	3	
	14	15	
Second Year			
Fall	CR Spring	CR Summer	CR
FOREST 2151	4 ATM_SC 1050	3 FOREST 2542	1
FOREST 3207	2 STAT 1300 or 1400	3 FOREST 2543	1
MATH 1400	3 NAT_R 4325	3 FOREST 2544	1
AG_EC 1041	3 SOIL 2100	3	
Humanities Elective #2	3 SOIL 2106	2	
	Social Science Elective	3	
	15	17	3
Third Year			
Fall	CR Spring	CR	
F_W 2900	4 FOREST 4350	3	
FOREST 4320	5 F_W 2600 or 3660	4	
NAT_R 3110	3 FOREST 3212	4	
PLNT_S 4400	4 FOREST 4330	3	
	FOREST 3300 (Silviculture)	1	
	16	15	
Fourth Year			
Fall	CR Spring	CR	
FOREST 4375	3 NAT_R 4353	3	
F_W 4600	4 FOREST 4360	3	
F_W 3400 or FOREST 4390	3 P_R_TR 3231	3	
F_W Tox/Invasive/ Human course	3 F_W 3600	3	
Humanities Elective #3	3 F_W 4650	4	
	undefined		
	16	16	

Total Credits: 127

## Natural Resources

Shibu Jose, Director

The School of Natural Resources  
103 Anheuser-Busch Natural Resources Building

Keith W. Goyne, Associate Director

The School of Natural Resources  
124 Anheuser-Busch Natural Resources Building

Rose-Marie Muzika, Associate Director

The School of Natural Resources  
203H Anheuser-Busch Natural Resources Building

Business Office: (573) 882-6446

Academic Programs Office: (573) 882-7045

SNR@missouri.edu

## School of Natural Resources

The School of Natural Resources is one of six Divisions in the College of Agriculture, Food and Natural Resources. It is Missouri's and the Midwest's only school with comprehensive academic and research

programs focused on biological, physical, and social aspects of natural resources science and management. The School encompasses the fields of: Environmental Sciences; Natural Resource Science and Management; and Parks, Recreation and Sport. The School applies an integrated, scientific approach to develop sustainable solutions to environmental challenges and to train the next generation of natural resources professionals and leaders. This integrated approach results in creative course offerings, enhanced educational opportunities, stimulation of novel research, advanced understanding of natural systems, and expanded knowledge and management of human interactions with the environment. The School is housed in the Anheuser-Busch Natural Resources Building containing state-of-the-art teaching, research and outreach extension facilities.

## Faculty

Faculty members within the School of Natural Resources have their appointments through the following degree programs; [Environmental Sciences](#); [Natural Resources Science and Management](#); and [Parks, Recreation and Sport](#). Their faculty listing can be found on those degree pages.

## Undergraduate

### Admissions

In addition to requirements listed below, students admitted to the University of Missouri may enter The School of Natural Resources as freshmen or as transfer students.

### Transfer Students

Previous college work is carefully evaluated by The School of Natural Resources. Courses are readily accepted if they are satisfactory substitutes for required University of Missouri courses. Lists of acceptable substitute courses offered at many other institutions are maintained and are available to prospective transfer students on request.

## Major Program Requirements

Students must meet all emphasis, major, degree, department, college and university graduation requirements (p. 32), including the university general education requirements (p. 33). See the appropriate sections of this catalog.

## Academic Assessment

### Credits by Examination

A total of 21 credits in CLEP (College Level Entrance Program) is accepted in the following areas: English, mathematics, social sciences and humanities. The school does not accept natural science CLEP credit.

## Student Services

### Advising

Personalized advisement and counseling is available from the school's faculty members. An open-door policy by advisors is emphasized and the school is noted for excellent student/faculty relations. Undergraduate advisement in The School of Natural Resources (SNR) is undertaken by those faculty and staff who advise with the attitude of fostering academic and professional development and success. The faculty members recognize the importance of establishing a trust relationship with students that will extend through their academic years at MU into their careers.

## Career Placement

Students in The School of Natural Resources are provided various types of employment assistance through the College of Agriculture, Food and Natural Resources Career Services Office (2-64 Agriculture Building). Resource materials on potential employers are available for student use. Instructions regarding federal, state and industrial employment procedures and assistance in the preparation of résumés and applications also are available. Notices of available positions are posted, and interviews are arranged with visiting organizations. Employment assistance also is given to alumni of the school on request.

## Freshman Interest Groups

Freshman Interest Groups (FIGs) are sponsored by the school in the areas of atmospheric sciences ("Storm Chasers"), natural resources and sport management. A learning community is also sponsored, comprised of members of the two FIGs and other students who live on the same dormitory floor. The FIG experience promotes a sense of community among students that increases the quality of all aspects of university life for incoming students.

## Transfer Student Interest Groups

TRIGS, or Transfer Interest Groups, involve activities that are specifically designed to help transfer students make a smooth transition to the MU campus. The School of Natural Resources TRIG is composed of transfer students with common interests and majors. In addition to other activities, members of each TRIG take a 1 credit hour proseminar together during their first semester at MU. You do not need to live on campus to participate in a TRIG program. TRIGs are only open to transfer students who have completed 24 or more hours at their previous institution. There is no additional cost for participating in a TRIG, and they are a great way to get to know campus and meet other students who are also making the same transition. TRIGs are available only for students planning to start at MU in the fall term.

## Graduate

- MS in Natural Resources (p. 98)
  - with emphasis in Agroforestry (p. 98)
  - with emphasis in Fisheries & Wildlife Sciences (p. 99)
  - with emphasis in Forestry (p. 100)
  - with emphasis in Human Dimensions of Natural Resources (p. 100)
  - with emphasis in Parks, Recreation and Tourism (p. 101)
  - with emphasis in Soil, Environmental and Atmospheric Sciences (p. 102)
  - with emphasis in Water Resources (p. 104)
- PhD in Natural Resources (p. 106)
  - with emphasis in Fisheries & Wildlife Sciences (p. 106)
  - with emphasis in Forestry (p. 107)
  - with emphasis in Human Dimensions of Natural Resources (p. 108)
  - with emphasis in Soil, Environmental and Atmospheric Sciences (p. 109)
  - with emphasis in Water Resources (p. 109)

## MS in Natural Resources

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The MS in Natural Resources has emphasis areas in Agroforestry (p. 98), Fisheries & Wildlife Science (p. 99), Forestry (p. 100), Human Dimensions of Natural Resources (p. 100), Parks Recreation and Tourism (p. 101), Soil, Environmental and Atmospheric Sciences (p. 102), and Water Resources (p. 104). Please see the individual emphasis area pages for degree requirements and admissions information.

## MS in Natural Resources with Emphasis in Agroforestry

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Dr. Shibu Jose  
203 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
joses@missouri.edu  
(573) 882-0240

### Emphasis Area Focus

Agroforestry, as a farming system that integrates crops and/or livestock with trees and shrubs, has a long history of interdisciplinary research at the University of Missouri. The interdisciplinary emphasis area capitalizes on existing agroforestry research collaborations across The School of Natural Resources (SNR) departments in building an academic program that could attract and serve quality graduate students from Missouri, the nation and the world. The agroforestry emphasis area offers both a thesis and non-thesis option. The program also offers an online option designed for professionals working in natural resources around the globe who already have an undergraduate degree in a related field. Please visit the online webpage for more information: <http://online.missouri.edu/degreeprograms/agroforestry/index.aspx>

### Admission Requirements

- Bachelor's degree in a relevant discipline from an accredited institution
- Undergraduate GPA: 3.0 on a scale of 4.0
- Graduate Record Exam score (GRE)\*: verbal plus quantitative total of at least 1100 (300 on the new GRE)
- Students whose GPAs and GRE scores do not meet the requirements will be evaluated individually

*\*The GRE requirement may be waived under exceptional circumstances. Applicants will be reviewed on a case-by-case basis.*

### How to Apply

*To the Graduate School:*

- All application materials must be submitted to the Apply Yourself online application system.
- Statement of interest
- Résumé or CV
- GRE scores
- TOEFL scores (if applicable)
- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic ability and experience relevant to graduate study.

- Publications (optional)

### Application Deadlines

Applications must be received by the following dates:

- March 15 for the summer semester
- May 15 for the fall semester
- Oct. 15 for the spring semester

### Thesis option:

Students in the thesis option will complete 30 credit hours of course work with no more than 12 credits for thesis research. Students choosing the M.S. thesis option will prepare a written research proposal and make an oral defense of that proposal within 12 months of their initial enrollment in the program. Students in the thesis option will write a thesis based on their research and participate in a public oral defense of their thesis announced at least two weeks prior to the defense date.

### Non-Thesis option:

Students in the non-thesis option will complete 30 credit hours of course work with no more than 6 credits for a project. Students choosing the non-thesis option will be required to write a project plan and to make an oral defense of that plan within the first year following their initial enrollment in the program. Students choosing the non-thesis option will write a technical report based on their project and participate in a public oral defense of their report to be announced at least two weeks prior to the defense.

### Timeline Requirements:

1. Within six month of initial enrollment in the emphasis area, students must submit a plan of study.
2. Within one year of initial enrollment in the emphasis area, students must present a written proposal of their research or project proposal to be reviewed and approved by members of the students' Masters Committee.
3. Students will submit a written thesis or project report following the guidelines specified by the Graduate School. All students must present a public oral defense of their dissertation or project announced at least two weeks prior to the defense date. Electronic media may be used to facilitate the defense for online/distance education students when appropriate.
4. All students will submit an annual report of their progress as required by the MU Graduate School.

### Agroforestry Emphasis Area Coursework Requirements

Students seeking the agroforestry graduate emphasis will develop their course of study to incorporate 12 hours of a core curriculum of designated courses. This has been designed to include theoretical foundations in both the biophysical and socioeconomic components of agroforestry. The curriculum leads the student through a progression of learning and applying concepts related to (A) Agroforestry Fundamentals; (B) Biophysical Foundation; and (C) Socio-economic Foundation (Table 1).

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

**Table 1. The 12-cr core curriculum for the Agroforestry Emphasis M.S. program**

A. Agroforestry Fundamentals		
FOREST 4385/7385	Agroforestry I: Theory, Practice and Adoption	3
B. Biophysical Foundation		
Choose Two		
FOREST 8385	Ecological Principles of Agroforestry	3
ENV_SC 4396/7396	Agroforestry for Watershed Restoration	3
NAT_R 7325	Introduction to Geographic Information Systems	3
FOREST 4390/7390	Watershed Management and Water Quality	3
SOIL 4313/7313	Soil Fertility and Plant Nutrition	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
FOREST 8401	Topics in Forestry	1-99
C. Socio-economic Foundation		
Choose one		
FOREST 4387	Agroforestry Economics and Policy	3
NAT_R 4353/7353	Natural Resource Policy/Administration	3

**Faculty membership of the graduate Agroforestry Emphasis Area**

Faculty Name	Department
Aguilar, Francisco, Assistant Professor	Forestry
Anderson, Steve, Professor	SEAS
Coggeshall, Mark, Assistant Research Professor	Forestry
Gantzer, Clark, Professor	SEAS
Gold, Michael, Research Professor	Forestry
Goyne, Keith, Assistant Professor	SEAS
Jose, Shibu, Director/Professor	Forestry
Larsen, David, Professor	Forestry
Lin, Chung Ho, Research Assistant Professor	Forestry
Miles, Randy, Professor	SEAS
Motavalli, Peter, Associate Professor	SEAS
Muzika, Rose-Marie, Professor	Forestry
Stelzer, Hank, Associate Professor	Forestry
Udawatta, Ranjith, Associate Research Professor	SEAS

## MS in Natural Resources with Emphasis in Fisheries and Wildlife Sciences

### Application and Admission Information

Admission Contact Information  
 Graduate Secretary  
 302 Anheuser-Busch Natural Resources Building  
 Columbia, MO 65211  
 Janice Faaborg; faaborgje@missouri.edu; (573) 882-9422 or Karen Decker; deckerkf@missouri.edu; (573) 882-3436

### Admission Criteria

Fall deadline: Rolling

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
79	550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1100	
On or After August 1, 2011	1100 equivalent scores	

- Minimum GPA: 3.2 in last 60 hours of undergraduate coursework.
- Experience in research or management of natural resources. Practical skills are strongly considered.

### Required Application Materials

To the Graduate School:

- All application materials must be submitted to the Apply Yourself online application system
- All required Graduate School documents
- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic and conservation field work abilities
- Departmental application
- Written response to 1 of 5 questions listed on the Fisheries and Wildlife Sciences Graduate Program Admissions page
- GRE scores
- TOEFL scores (when applicable)
- Publications (optional)
- Résumé or CV

We require applicants to contact specific faculty to determine the availability of research assistantships prior to applying to the program.

An applicant contemplating graduate work in fisheries, limnology, conservation biology, or wildlife should have a strong background in biological and physical sciences, including biology, botany, zoology, ecology, physiology, and genetics. In addition, such taxonomic courses as plant taxonomy, invertebrate zoology, ichthyology, ornithology, and mammalogy are highly desirable, as is a background in chemistry, mathematics, statistics, and physics.

A background of 25 to 30 hours in biological sciences courses is desirable. Minor deficiencies may be remedied during the graduate program; major deficiencies may require preparatory coursework prior to consideration for admission.

Fisheries and Wildlife Sciences degrees emphasize resource management at organismal, population, or ecosystem scales. An emphasis on resource management helps distinguish our program from basic biology; therefore, course work in fisheries or wildlife management, environmental science, resource policy, or other applied ecology fields is advantageous.

## Degree Completion Requirements

Master's students must complete, with a B average or better, a minimum of 30 hours of course work (15 hours or more at the 8000 course level). Research, problems, special investigations, and special readings courses shall not exceed 12 of the 30 hours.

## Plan of Study

Candidates are expected to design and have approved by their committee a plan of study during their first semester in residence and a thesis proposal by their second semester.

## Thesis & Oral Examination

A thesis acceptable to the student's graduate committee shall be completed and defended in a final oral examination; all candidates must complete the oral examination and a final thesis seminar before the degree is conferred.

## MS in Natural Resources with Emphasis in Forestry

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Graduate research programs leading to the M.S. or Ph.D. in Natural Resources with an emphasis in Forestry are designed to prepare students for careers in academic institutions, consulting firms, industry, and state and federal agencies.

Forestry graduates interested in research or teaching may concentrate much of their course work in one or more of the related sciences with a thesis appropriate to forestry. Dissertation research may be directed toward the solution of problems faced by the practicing forester or may consist of fundamental investigations pertinent to the solution of such problems.

Specialized graduate education is available in agroforestry, biometrics, community and landscape ecology, economics, entomology, fire ecology, hydrology, geographic information systems, physiological ecology, physiology, policy, silviculture, soils, forest management, stand dynamics, water quality, wood quality and tree-ring analysis.

Students often conduct joint research with natural resource specialists at the Northern Research Station (U.S. Forest Service), the Missouri Department of Conservation, the Missouri Department of Natural Resources, the National Park Service, and the U.S. Fish and Wildlife Service.

## Degree Requirements

To attain the master's degree:

- 30 hours of course work must be completed.
- 15 hours or more must be 8000+ level.
- Research, problems, special investigations and special readings courses must not exceed 12 of the 30 hours.
- The GPA of all course work submitted for the degree must be 3.0 or better.

Graduate students typically enroll in courses from across campus. For graduate students of Forestry emphasis area who lack academic or experiential background in forestry, the graduate committee may recommend several courses to compensate for that deficiency. Forestry graduate students commonly enroll in dual undergraduate /

graduate courses at the 7000 level, FOREST 7330, FOREST 7375, FOREST 7320, FOREST 7390.

For a graduate students emphasizing forestry, Forestry Seminar (FOREST 9087) is the only required course in the graduate student's program of study. All Ph.D. students must enroll in Forestry Seminar (FOREST 9410) at least twice during the student's graduate program. All graduate students are expected to attend all forestry seminars regardless of whether the student is enrolled in the seminar course.

## Thesis Requirements

A master's thesis, or a minimum of 5 semester hours of non-thesis research acceptable to the student's committee, shall be completed before the final examination. Research toward a thesis normally shall not exceed 8 hours. Thesis requirements and defense are as defined by the MU Graduate School. A final oral examination is given to all candidates before completion of the degree.

## Admissions

Admission Contact Information

Dr. Stephen G. Pallardy

203 ABNR Bldg.

PallardyS@missouri.edu

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Natural Resources with emphasis in Forestry (<http://gradstudies.missouri.edu/academics/programs/natural-resources/ms-forestry-emphasis.php>) program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Students without a Forestry Undergraduate Degree

Those without a baccalaureate degree in forestry may wish to further their education in forest science or to attain professional competence by completing course work in forestry. Work required of students without a forestry degree who want a professional forestry education includes courses in dendrology, utilization of forest resources, resource measurements, forest inventory, forest fire control and use, forest ecology, silviculture, forest information systems, watershed management, forest management, forest economics, and public resource policy. Some of these courses do not carry graduate credit.

## MS in Natural Resources with Emphasis in Human Dimensions of Natural Resources

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### Application and Admission Information

Dr. Charles Nilon

302 Anheuser-Busch Natural Resources Building

Columbia, MO 65211

nilonc@missouri.edu; (573) 882-3738

## Emphasis Area Focus

The Human Dimensions of Natural Resources Emphasis Area (HDNR) addresses research and management questions including peoples' attitudes, knowledge, values, perceptions, and behaviors associated with natural resources. As an interdisciplinary emphasis area, HDNR considers applicants with backgrounds in social sciences, environmental education, natural resources management and conservation, or related disciplines.

The MS is a research-based degree. The student is expected to work closely with a faculty advisor to develop a research topic and a program of study. Students who complete a thesis are expected to publish their findings in peer-reviewed journals. A non-thesis option is also available that requires additional coursework and a research project.

## Admission Criteria

- Minimum GPA: 3.0 in last 60 hours
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- GRE Required

## Required Application Materials

*To the Graduate School:*

- All application materials must be submitted to the Apply Yourself (<https://applygrad.missouri.edu/apply>) online application system
- Statement of interest
- Résumé or CV
- GRE scores
- TOEFL scores (if applicable)
- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic ability and experience relevant to graduate study
- Publications (optional)

## Coursework Requirements

All students in the HDNR Emphasis Area will be required to take at least one course from each of three categories:

1. Social science research methods
2. Quantitative and/or qualitative data analysis
3. Social science theory

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

## Thesis Option

Students in the thesis option will complete 30 credit hours of coursework with no more than 12 credits for thesis research. Students choosing the thesis option will prepare a written research proposal and make an oral defense of that proposal within 12 months of their initial enrollment in the program. Students in the thesis option will write a thesis based on their research and participate in a public oral defense of their thesis announced at least two weeks prior to the defense date.

## Non-Thesis Option

Students in the non-thesis option will complete 36 credit hours of coursework with no more than 12 credits for project research. Students choosing the non-thesis option will be required to write a project plan and to make an oral defense of that plan within the first year following their initial enrollment in the program. Students choosing the non-thesis option will write a technical report based on their project and participate in a public oral defense of their report to be announced at least two weeks prior to the defense.

## MS in Natural Resources with Emphasis in Parks, Recreation and Tourism

### About the Emphasis

Since virtually everyone participates in some form of leisure, the primary benefit of Parks, Recreation and Tourism (PRT) is to address quality of life issues. The unique interaction of people, places, and activities establish our profession as one of the world's largest industries. Students learn how to manage leisure service delivery systems by combining theory with practice. This degree is designed to prepare students for advanced positions in the parks, recreation, tourism and sport profession or admission into doctoral programs.

### Degree Requirements

The program consists of a minimum of 30 credits for the thesis option and 39 credits for the non-thesis option. For a full explanation of the thesis/non-thesis options, see section below on Thesis/Non-Thesis Requirements (p. 101).

Students are required to take four 8000 level courses in the PRT curriculum: all students must take P\_R\_TR 8400 Constructs of Leisure and P\_R\_TR 8430 Research Methods in Parks, Recreation and Tourism; students then choose two courses from P\_R\_TR 8436 Visitor Behavior and Policy, P\_R\_TR 8450 Administration in Leisure Service Delivery, P\_R\_TR 8460 Financial Operations in Leisure Service Delivery, P\_R\_TR 8080 Foundations of Sport, and P\_R\_TR 8088 Sport and Leisure Economics.

All students must take a graduate level analysis course (i.e., statistics, qualitative analysis, or mixed analysis).

### Sample Plan of Study

Because students in the M.S. program are from a wide variety of circumstances, and pursue the M.S. at all different paces, a sample plan of study is not easily produced. Students work closely with their advisor to select appropriate coursework.

### Thesis/Non-Thesis Requirements

The program offers students two options:

#### 1. Thesis Option

The thesis option is most appropriate for M.S. candidates who aspire to pursue doctoral education in the future, desire distinct research training and experience, and/or desire research or technical writing experience. Students who complete a thesis are encouraged to publish their findings in peer-reviewed journals.

**Credit Hour Requirements:** The thesis option requires a minimum of 30 credit hours, which includes: a minimum of 15 hours at the 8000/9000 level; a minimum of 12 hours of 8000 level theory-based contact courses within the PRT curriculum; a graduate level analysis course; minimum 3 credits thesis research; and up to a maximum of 12 credits of independent study (Thesis Research, Guided Readings, Problems, or Independent Work).

**Thesis Research Boundaries:** The thesis endeavor engages content of a solid academic/theoretical need that adds to or extends the knowledge base. It typically requires the student to display original scholarship or application of an existing theory to solve a specific problem. The rigor of the thesis challenges the student to address and engage the scientific process, which includes an evaluative component of peer and academic review.

**Thesis Committee:** The thesis committee consists of a minimum of three graduate faculty members: two within the PRT department, and one outside the department. Emeritus and/or adjunct faculty members are eligible to serve on student committees, provided they have graduate faculty status.

**Procedures:** The student develops the thesis proposal with primary guidance of the committee chair. The proposal is defended in a scheduled open forum followed by committee approval or disapproval. Following proposal approval by the committee, the student conducts the research and completes the thesis paper. The student then defends the completed study in a scheduled open forum, followed by committee action to pass or fail the thesis defense. Students must submit the M-1 and M-2 forms by the end of their second semester. The M-3 form should be submitted shortly after the thesis defense.

## 2. Non-Thesis (Project) Option

A non-thesis option is also available that requires additional coursework and a research project. The non-thesis option is most appropriate for M.S. candidates who view the Master's Degree as the terminal degree, aspire for practitioner work within the profession, and/or desire additional course work to balance their program of study.

**Credit Hour Requirements:** The non-thesis option requires a minimum of 39 credit hours, which includes: a minimum of 15 hours at the 8000/9000 level; a minimum of 12 hours of 8000 level theory-based contact courses within the PRT curriculum; a graduate level analysis course; 3-6 credits of P\_R\_TR 8090 Thesis Research in Parks, Recreation and Tourism (Research Project); and up to a maximum of 12 credits of independent study (Thesis Research, Guided Readings, Problems, or Independent Work).

**Non-Thesis Boundaries:** The non-thesis option engages content of an academic/professional practice need that addresses issues or problems. It requires the student to display independent scholarship in the definition, review and analysis of a problem or issue under study. The rigor of the project challenges the student to engage content to professional standards, which include the evaluative component of peer and professional review.

**Project Committee:** The project committee consists of a minimum of three graduate faculty members (one may be from outside the PRT department, but not a requirement). Emeritus and/or adjunct faculty members are eligible to serve on student committees, provided they have graduate faculty status.

**Procedures:** The student develops the project proposal with primary guidance of the committee chair. The committee chair approves the

proposal. Following approval, the student completes the project. The student then defends the completed project in a scheduled open forum, followed by committee action to pass or fail the project defense. Students must submit the M-1 form by the end of their second semester. The M-3 form should be submitted shortly after the project defense.

## Admissions

### Admission Contact Information

Dr. Sonja A. Wilhelm Stanis  
Department of Parks, Recreation and Tourism (<http://snr.missouri.edu/prt>)  
105 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
[sonjaws@missouri.edu](mailto:sonjaws@missouri.edu); 573-882-9524

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Natural Resources with emphasis in Parks, Recreation and Tourism (<http://gradstudies.missouri.edu/academics/programs/natural-resources/ms-parks-rec-tourism-emphasis.php>) program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

### Financial Aid from the Program

Funding is available, but assistantships are highly competitive. Prospective students must complete all the necessary application requirements to be considered for departmental funding. Contact the graduate program emphasis coordinator for more details. Applicants should also contact the faculty they want to work with to determine the availability of possible graduate assistantship positions.

## MS in Natural Resources with Emphasis in Soil, Environmental and Atmospheric Sciences

### Degree Requirements

The degree program with emphasis in SEAS must include:

- 30 hours of graduate credit, with at least 15 hours comprised of 8000- or 9000-level courses.
- Not more than 12 hours of the minimum 30 hours are permitted for research, problems, special investigations and special readings.
- A minimum of one credit hour of graduate seminar must be included in each student's graduate program.
- All students enrolled in graduate programs are required to participate in a supervised teaching activity.
- All students are required to attend a workshop on ethics and professionalism.
- Students must maintain a GPA of 3.0 (A=4.0) in all course work presented for the degree.

**For an atmospheric science focus area**, appropriate atmospheric science courses must be selected and approved in consultation with the student's advisor and graduate thesis committee.

**For a soil science focus area**, at least 12 credit hours of soil science courses at the 7000, 8000, and 9000 levels, exclusive of problems and thesis research, must be included in the student's graduate program.

**For an environmental science focus area**, at least six credit hours of environmental science courses at the 7000, 8000, and 9000 levels, exclusive of problems and thesis research, must be included in the student's graduate program. To meet the six credit hour requirement, courses must be selected from the following list of approved environmental science courses:

ATM_SC 7520	Environmental Biophysics	3
ENV_SC 7305	Environmental Soil Physics	3
ENV_SC 7306	Environmental Soil Physics Laboratory	2
ENV_SC 7312	Environmental Soil Microbiology	3
ENV_SC 7318	Environmental Soil Chemistry	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
ENV_SC 8400	Solute Transport in the Vadose Zone	3
ENV_SC 8500	Chemistry of the Vadose Zone	3
FOREST 7390	Watershed Management and Water Quality	3
FOREST 8390	Physical Hydrology	3
SOIL 7308	Soil Conservation	3
SOIL 7313	Soil Fertility and Plant Nutrition	3
SOIL 7314	Soil Fertility and Plant Nutrition Laboratory	2
SOIL 7320	Genesis of Soil Landscape	4
SOIL 9414	Advanced Soil Fertility	3
SOIL 9422	Pedology	3
Total Credits		47

To complete the environmental science focus area, an additional six credit hours must be selected from courses listed above or from the following departments: biochemistry, biological engineering, biological sciences, chemical engineering, chemistry, civil and environmental engineering, fisheries and wildlife sciences, forestry, geography, geological sciences, and natural resources. Selection of these courses will be determined in consultation with faculty members serving on a student's thesis committee.

## Integrated B.S./M.S. Program

Undergraduate students enrolled in the Department of Soil, Environmental and Atmospheric Sciences (SEAS) are eligible to apply for the integrated degree program in soil, environmental and atmospheric sciences that will enable outstanding undergraduates to obtain a B.S. and a M.S. (thesis required) after the successful completion of both degree requirements in five years. The program provides a challenging curriculum that will include opportunities and training in undergraduate and graduate-level research and prepare the student for a successful professional career. Increasingly, employers in competitive technical fields are looking for highly-motivated students with graduate training to meet the demands for their work force and this program will provide talented students with a unique and expedited pathway to develop their educational background and professional skills.

## Overview

Undergraduate students in SEAS interested in the integrated B.S./M.S. program will be encouraged to participate in an undergraduate

research experience during the summer of their sophomore year. They will apply and then be selected to enter the integrated B.S./M.S. program during the second semester of their junior year. Selected students will need to meet admission requirements for the Graduate School. Once selected the students will initiate work on their research during the summer of their junior year. During their senior year they will complete their undergraduate credits and can take up to 12 graduate-level credits (courses with numbering 7000 or higher) under MU's dual enrollment program. After completing the B.S. degree, students will continue their research and take the remaining coursework on their M.S. plan of study necessary to meet the 30 credit hour minimum required by the Graduate School for the M.S. degree. Several scholarships are currently available at the University of Missouri to assist outstanding students for the costs of their undergraduate and graduate education and for conducting undergraduate research, including the Honors College Discovery Fellowships Program and CAFNR and Life Sciences Undergraduate Research Fellowships.

## Thesis/Non-Thesis Requirements

### Thesis

A thesis, which is a research report of original research on a specialized soil, environmental or atmospheric science problem conducted by the student, must be presented to the student's graduate committee and successfully defended.

### Non-Thesis Option

Under special circumstances, a non-thesis program in the soil science, environmental science or atmospheric science focus area may be approved by the student's advisory committee, the SEAS Emphasis Area Coordinator and the Director of Graduate Studies. Not more than 6 hours of the minimum 30 hours are permitted for non-thesis research, problems, special investigations and special readings. At least 15 hours of the minimum 30 hours must be 8000- or 9000-level courses. A minimum of one credit hour of graduate seminar must be included in each student's graduate program. The student is required to participate in a supervised teaching activity and attend a workshop on ethics and professionalism. A student in the non-thesis option must form a graduate advisory committee and have that committee approve of the student taking the non-thesis option, the proposed course plan, and a project for the student to complete to meet the requirements of the non-thesis option. The student will complete a written report for the project which must be approved by the student's advisory committee.

## Admissions

### Admission Contact Information

Dr. Stephen Anderson, emphasis area coordinator  
 (andersons@missouri.edu)  
 Department of Soil, Environmental and Atmospheric Sciences  
 University of Missouri  
 302 Anheuser-Busch Natural Resources Building  
 Columbia, MO 65211 USA  
 (573) 882-6303

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Natural Resources with emphasis in Soil, Environmental and Atmospheric Sciences (<http://gradstudies.missouri.edu/academics/programs/natural-resources/ms-seas-emphasis.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility->



process/minimum-requirements). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Recommended Preparation

Appropriate undergraduate majors in preparation for graduate studies in the soil, environmental and atmospheric sciences emphasis area include: agronomy, atmospheric science, biochemistry, biology, biogeochemistry, botany, chemistry, earth science, civil and environmental engineering, environmental science, forestry, geosciences, hydrology, mathematics, microbiology, physics, soil science, and watershed management. Check with the Emphasis Area Coordinator for specific recommendations for preparation for each graduate focus area.

## Completion of a BS Degree

Undergraduate GPA of 3.0 for the last 60 hours of coursework

- **Atmospheric science focus area applicants:** undergraduate program should include integral calculus and one year of college physics.
- **Environmental science focus area applicants:** undergraduate program should include general and organic chemistry, introductory biology, calculus, geology, physics, and ecology.
- **Soil science focus area applicants:** completed courses in general and organic chemistry, calculus, geology and physics. Inadequacies in courses must be remedied through additional course work immediately after admission.

## Financial Aid from the Program

Check the program website (<http://www.snr.missouri.edu/seas/academics/graduate-program.php>) or contact the program for details on scholarships or graduate assistantships that may be available.

## Admission Procedures for the Integrated BS/MS

Students seeking admission into the program should submit an application to the SEAS Emphasis Area Coordinator at the beginning (i.e., January 30th) of the Spring semester of their junior year. A faculty committee will consider several criteria for admission into the Integrated B.S./M.S. Program including:

1. the student's undergraduate GPA (60 or more credits; minimum GPA of 3.5 at the time of enrollment)
2. a formal statement of interest indicating the intended emphasis area (i.e., soil science, environmental science or atmospheric science)
3. three letters of recommendation with one letter being a formal nomination letter from a SEAS Department faculty member

A student who meets the eligibility requirements will be extended an offer of admission by the middle of the Spring semester. All students must select a faculty mentor/advisor after admission to the program. A faculty advisory committee will be selected for each student and they will meet during the semester to approve a course of study and assist the student in designing and conducting their research program. Students will prepare a research proposal to be reviewed and accepted by their advisory committee. After approval of the research proposal, students will initiate their research during the summer of their junior year. Formal

application of the student into the Graduate School will take place during the final semester of the student's senior year and is contingent on the student's successful completion of B.S. degree requirements and meeting eligibility requirements for the graduate program. Students will be required to maintain a cumulative 3.0 GPA during the program, write an M.S. thesis and meet other M.S. degree requirements.

For more information about the program, contact either of the following people:

Dr. Neil Fox, Undergraduate Advisor Chair  
Department of Soil, Environmental and Atmospheric Sciences  
University of Missouri  
302 ABNR Bldg  
Columbia, MO 65211 USA  
Tel. No. (573) 882-2144  
Fax No. (573) 884-5070  
Email: [foxn@missouri.edu](mailto:foxn@missouri.edu)

or

Dr. Stephen Anderson, Emphasis Area Coordinator  
Department of Soil, Environmental and Atmospheric Sciences  
University of Missouri  
302 ABNR Bldg  
Columbia, MO 65211 USA  
Tel. No. (573) 882-6303  
Fax No. (573) 884-5070  
Email: [andersons@missouri.edu](mailto:andersons@missouri.edu)

## MS in Natural Resources with Emphasis in Water Resources

The Water Resources emphasis area is an interdisciplinary graduate degree program encompassing all fields of natural sciences and, through collaboration, involves expertise from throughout the University of Missouri (MU). The geographic location of MU allows directed research to better understand water movement, biogeochemical cycling, biological and ecohydrological processes of flowing and impounded waters in forested, prairie, agricultural and urban landscapes of the midcontinent.

The Water Resources graduate emphasis area offers an M.S. degree program specializing in the occurrence, circulation, distribution, chemical and physical properties, and environmental interaction of atmospheric, surface and subsurface waters. Specific areas of investigation often include (but are not limited to) precipitation floods and drought regimes, lakes and reservoirs, groundwater, water use, water quality, water contamination, plant water use, environmental measurement methods, hydrologic modeling and International water resources.

Participating faculty in the Water Resources emphasis area are engaged in both scientific understanding of water resources (physical, chemical and biological) and its management, and the decision-making processes used to address competing societal values (social, economic and legal). The program has no geographic boundaries but benefits from a distinct midcontinent climate, and physiography. Multi-use watersheds (e.g. forest, agriculture, urban), streams, lakes, rivers, wetlands and subsurface waters are ideal areas for basic and applied research that is easily transferable to other regions. The program provides Global impact by graduating highly qualified internationally aware water resource professionals.

Water Resources program applicants must meet the program requirements of the University of Missouri Graduate School for MS programs and meet any additional application criteria of the Water Resources graduate emphasis area. Water Resources graduate students are often supported by grant-funded research assistantships, scholarships or fellowships, teaching assistantships, or are self-funded. Other opportunities may be available to eligible students.

Upon successful completion of the School of Natural Resources Water Resources graduate program, students will possess strong technical skills in water resources and related sub-disciplines. Graduates will have developed a holistic understanding of the hydrologic cycle related to ecosystem processes and the interdisciplinary background necessary to understand and address contemporary water resources problems.

## Degree Requirements

- 30 hours of course work must be completed
- 15 hours or more shall be 8000 level.
- Not more than 40 percent of the 30 hour credit requirement can be satisfied by a combination of special investigations, Research, Readings and/or Problems courses.
- The GPA of all course work submitted for the degree must be 3.0 or better.
- M.S. Students are required to publish at least one article in the primary literature stemming from their master's thesis. In most cases, the article should be submitted to a peer reviewed journal prior to graduation.

**Must take at least 6 credit hours from the following:**

### Aquatic Ecosystem Science

F_W 8460	Wetland Ecology	3
F_W 8520	Stream Ecology	3
F_W 7400	Techniques for Fisheries Management and Conservation	3
F_W 7100	Limnology	3-4
F_W 8450	Advanced Limnology	3
F_W 8550	Advanced Waterfowl Ecology	3

### Climate and Climatology

ATM_SC 7400	Micrometeorology	3
ATM_SC 7520	Environmental Biophysics	3
ATM_SC 7590	Radar Meteorology	3
ATM_SC 8400	Atmospheric General Circulation	3
ATM_SC 8600	Advanced Climate Dynamics	3

### Environmental Chemistry

ENV_SC 7318	Environmental Soil Chemistry	3
ENV_SC 8500	Chemistry of the Vadose Zone	3
F_W 7800	Environmental Toxicology	3

### Hydrologic Science and Water Quality

ATM_SC 7520	Environmental Biophysics	3
ATM_SC 7550	Atmospheric Physics	3
FOREST 8390	Physical Hydrology	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
ENV_SC 7305	Environmental Soil Physics	3
ENV_SC 7306	Environmental Soil Physics Laboratory	2
ENV_SC 8400	Solute Transport in the Vadose Zone	3

### Water Management Technology

NAT_R 8290	Hydrologic Measurement and Synthesis	2
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ATM_SC 7510	Remote Sensing for Meteorology and Natural Resources	3
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ATM_SC 7590	Radar Meteorology	3
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### Watershed Science and Management

FOREST 7390	Watershed Management and Water Quality	3
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FOREST 8620	Plant-Water Relations	3
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FOREST 8625	Plant-Water Relations Laboratory	2
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### Elective Courses

AG_EC 7356	Environmental Law and Policy	3
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AG_S_M 7420	Surface Water Management	3
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AG_S_M 7440	Water Quality and Pollution Control	3
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AG_S_M 7460	Irrigation and Drainage	3
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BIOL_EN 8150	Natural Systems for Wastewater Treatment	3
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BIOL_EN 8250	Water Management Theory	3
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CV_ENG 7230	Introduction to Water Quality	3
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CV_ENG 7240	Water Quality Analysis	3
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CV_ENG 7290	Wastewater Treatment and Process Design	3
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CV_ENG 7700	Hydraulics of Open Channels	3
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CV_ENG 7703	Applied Hydrology	3
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CV_ENG 7710	Soil and Water Conservation Engineering	3
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CV_ENG 7720	Watershed Modeling Using GIS	3
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CV_ENG 7792	Analysis of Water-Resource Systems	3
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CV_ENG 8200	Water Quality Modeling	3
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CV_ENG 8210	Groundwater Pollution Evaluation and Modeling	3
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CV_ENG 8215	Environmental Transport Phenomena	3
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CV_ENG 8225	Aquatic Chemistry	3
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CV_ENG 8270	Design of Water and Wastewater Treatment Facilities	3
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CV_ENG 8280	Engineering Aspects of Water Quality	3
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CV_ENG 8740	Hydrodynamics	3
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GEOG 7630	River and Stream Dynamics	3
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GEOG 7100	Groundwater Hydrology	3
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GEOG 7110	Karst Hydrology	3
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GEOG 7130	Groundwater Modeling	3
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GEOG 7210	Marine Geology	3
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GEOG 7300	Introduction to Low-Temperature Geochemistry	3
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GEOG 7318	Environmental Soil Chemistry	3
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GEOG 7400	Geomicrobiology and Microbial Biogeochemistry	3
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GEOG 7500	Organic Geochemistry	3
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GEOG 8210	Advanced Aqueous Geochemistry	3
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GEOG 8230	Groundwater and Subsurface Geomicrobiology	3
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GEOG 8240	Hydrogeologic Processes	3
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GEOG 8400	Ancient Greenhouse Climate	3
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GEOG 8550	Stable Isotope Geochemistry	3
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PLNT_S 7720	Aquatic Entomology	3
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## Thesis Requirements

A thesis shall be completed before the final examination. Research credits toward a thesis normally shall not exceed eight hours. A final oral examination is provided by all candidates before completion of the degree.

Every candidate should review the “Guidelines for Preparing Theses and Dissertations (<http://gradschool.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline>)” from the Graduate School and should consult the Water Resources Director of Graduate Studies for academic program style requirements.

## Thesis defense seminar

All students must present a defense seminar in advance of his/her final examination. The seminar must be publicized and the Director of Graduate Studies needs to be informed of the date as soon as the student arranges it, at least two weeks before the seminar. If the seminar is not appropriately announced, it may be considered invalid.

## Admissions

### Admission Contact Information

School of Natural Resources  
 Water Resources Emphasis Area  
 203-Q Anheuser-Busch Natural Resources Building  
 (573) 884-7732

### Director of Graduate Studies:

Dr. Jason A. Hubbart  
 203-Q ABNR Building  
 (573) 884-7732  
[HubbartJ@missouri.edu](mailto:HubbartJ@missouri.edu)

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Natural Resources with emphasis in Water Resources (<http://gradstudies.missouri.edu/academics/programs/natural-resources/ms-water-resources-emphasis.php>) program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Natural Resources

The PhD in Natural Resources has emphasis areas in Fisheries & Wildlife Sciences (p. 106), Forestry (p. 107), Human Dimensions of Natural Resources (p. 108), Soil, Environmental & Atmospheric Sciences (p. 109), and Water Resources (p. 109). Please see the individual emphasis area pages for degree requirements and admissions information.

## PhD in Natural Resources with Emphasis in Fisheries and Wildlife Sciences

Admission Contact Information  
 Graduate Secretary  
 302 Anheuser-Busch Natural Resources Building; Columbia, MO 65211  
 Janice Faaborg; [faaborgje@missouri.edu](mailto:faaborgje@missouri.edu); (573) 882-9422 or  
 Karen Decker; [deckerkf@missouri.edu](mailto:deckerkf@missouri.edu); (573) 882-3436

## Admission Criteria

Fall deadline: Rolling

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
79	550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1100	
On or After August 1, 2011	1100 equivalent scores	

- Minimum GPA: 3.2 in last 60 hours of undergraduate coursework.
- Experience in research or management of natural resources. Practical skills are strongly considered. Admission Criteria

## Required Application Materials

*To the Graduate School:*

- All application materials must be submitted to the Apply Yourself online application system
- All required Graduate School documents
- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic and conservation field work abilities
- Departmental application
- Written response to 1 of 5 questions listed on the Fisheries and Wildlife Sciences Graduate Program Admissions page
- GRE scores
- TOEFL scores (when applicable)
- Publications (optional)
- Résumé or CV

We require applicants to contact specific faculty to determine the availability of research assistantships prior to applying to the program.

An applicant contemplating graduate work in fisheries, limnology, conservation biology, or wildlife should have a strong background in biological and physical sciences, including biology, botany, zoology, ecology, physiology, and genetics. In addition, such taxonomic courses as plant taxonomy, invertebrate zoology, ichthyology, ornithology, and mammalogy are highly desirable, as is a background in chemistry, mathematics, statistics, and physics.

A background of 25 to 30 hours in biological sciences courses is desirable. Minor deficiencies may be remedied during the graduate program; major deficiencies may require preparatory coursework prior to consideration for admission.

Fisheries and Wildlife Sciences degrees emphasize resource management at organismal, population, or ecosystem scales. An emphasis on resource management helps distinguish our program from basic biology; therefore, course work in fisheries or wildlife management, environmental science, resource policy, or other applied ecology fields is advantageous.

## PhD Degree Completion Requirements

The PhD degree is conferred only upon those students who, after extensive study, have demonstrated a high level of achievement in their particular specialization in fisheries and wildlife and have completed independent research contributing to knowledge in the field.

## Doctoral Committee

A student pursuing a PhD is expected to pass qualifying, comprehensive, and final examinations administered by the student's doctoral committee. The committee shall be composed of a minimum of 4 members of the MU graduate faculty and will include at least 3 members from the student's doctoral degree program and 1 outside member from a different MU program. At least 2 of the committee members must be MU doctoral faculty.

## Qualifying Examination

The qualifying examination includes a general knowledge examination and is designed to evaluate the student's background and determine areas that require further course work.

## Plan of Study

The doctoral plan of study requires a minimum of 72 hours of graduate credit from courses taken at MU, transfer credits, and research hours. This program must include at least 15 hours of 8000- and 9000-level course work exclusive of problems, readings, and research credits. Up to 30 hours from an accredited master's program may be applied to the plan of study, subject to committee approval.

## Residency Requirement

Students enrolled in the PhD program must also satisfy a residency requirement of at least 3 consecutive semesters in which the student is in residence on the MU campus and enrolled for 6 or more credit hours, unless a prior exception is approved by the director of graduate studies.

## PhD in Natural Resources with Emphasis in Forestry

### Admission Contact Information

Dr. Stephen G. Pallardy  
203 ABNR Bldg.  
Columbia, MO 65211  
pallardys@missouri.edu

## Doctorate in Forestry

The PhD degree in forestry is designed to prepare students for academic careers in research and teaching or other advanced scientific or professional careers. Students entering the PhD program will often have a master's degree, but this is not an absolute requirement.

PhD candidates conduct original research under the supervision of a faculty advisor or advisors and with the participation of a doctoral committee. Students are expected to engage in coursework to prepare for careers in research, industry or academia. The Department of Forestry expects students to take part in professional and educational activities by giving presentations at conferences and presenting seminars. Ph.D. candidates complete a dissertation and are expected to publish their research results in peer-reviewed scientific journals.

## Admission Criteria

Fall deadline: May 15  
Spring deadline: October 15  
Summer deadline: March 15

- Minimum GPA: 3.0 in last 60 hours
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1100	
On or After August 1, 2011	300	

\* 50th percentile or higher preferred in each category.

Particular attention is given to the record of the last 2 years of undergraduate study, and/or the type and quality of professional experience since completion of the undergraduate degree. Doctoral candidates must demonstrate a higher level of achievement in each of these criteria.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents
- 3 letters of recommendation from individuals qualified to evaluate scholarly capacity and professional qualities
- Letter of intent

*To the Program:*

- Departmental application (use form)
- GRE scores

## Doctoral Committee in Forestry

The student pursuing the doctoral program is expected to pass qualifying, comprehensive and final examinations administered by the student's doctoral committee. This committee is structured as defined by the MU Graduate School and must have a minimum of 4 members, at least 3 members must be from the student's doctoral degree program and 1 outside member from a different MU program. The Forestry Department strongly recommends a 5-person committee for Ph.D. students. At least 2 of the committee members must be MU doctoral faculty.

## Doctoral Qualifying Examination

The qualifying examination determines whether the student's background is adequate to enter the PhD program. It also is intended to ascertain if there are areas of weakness in which a candidate will be required to gain background through appropriate course work or areas that prohibit entry into the program.

## Doctoral Comprehensive Examination

The objectives of the comprehensive examination are twofold:

1. to determine if a student has acquired sufficient depth and breadth of knowledge in selected areas of concentration

2. to evaluate the candidate's capacity to apply that knowledge in solving applied or theoretical problems.

## Final Examination

The final examination is directed primarily toward exploration of the dissertation research project.

## Foreign Language Requirements

Requirements for foreign language and a collateral field, if any, are determined by the student's doctoral committee. The doctoral committee is expected to make an assessment of the student's needs as they relate to the student's background and educational objectives.

## Dissertation

An independent scholarly dissertation approved by the student's advisor and doctoral committee must be completed.

## Graduation Requirements

The PhD degree is conferred only upon those students who, after extensive study, have demonstrated a high level of achievement in their particular specialization in forestry and have completed significant independent research in their field.

# PhD in Natural Resources with Emphasis in Human Dimensions of Natural Resources

## Application and Admission Information

Dr. Charles Nilon  
302 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
nilonc@missouri.edu; (573) 882-3738

## Emphasis Area Focus

The Human Dimensions of Natural Resources Emphasis Area (HDNR) addresses research and management questions including peoples' attitudes, knowledge, values, perceptions, and behaviors associated with natural resources. As an interdisciplinary emphasis area, HDNR considers applicants with backgrounds in social sciences, environmental education, natural resources management and conservation, or related disciplines.

The Ph.D. degree in HDNR is designed to prepare students for careers in academic research and teaching, or advanced scientific professions. The Ph.D. degree is conferred upon students who have demonstrated a high level of achievement in their particular specialization and have completed independent research contributing to knowledge in their respective field.

## Admission Criteria

- Minimum GPA: 3.0 in last 60 hours
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- GRE Required
- Students are expected to have completed a Master's or equivalent degree at the time they start their doctoral program

## Required Application Materials

To the Graduate School:

- All application materials must be submitted to the Apply Yourself online application system
- Statement of interest
- Résumé or CV
- GRE scores
- TOEFL scores (if applicable)
- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic ability and experience relevant to graduate study
- Publications (optional)

## Coursework Requirements

All students in the HDNR Emphasis Area will be required to take at least one course from each of three categories:

1. Social science research methods
2. Quantitative and/or qualitative data analysis
3. Social science theory

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

## Doctoral Degree Requirements

The HDNR doctoral program of study requires a minimum of 72 hours of graduate credit from courses taken at MU, transfer credit from a Masters or equivalent degree, and research hours. Doctoral students will be expected to follow a timeline toward completion of their degree:

1. Within one year of initial enrollment in the emphasis area, doctoral students must pass a qualifying examination. The qualifying exam will include a presentation by the student of his/her course of study. The course of study shall be approved by the student's graduate committee. The graduate committee may also request a demonstration of the student's research aptitude, competencies in subject matter, and communication skills.
2. Within three years of initial enrollment in the emphasis area, doctoral students must present a written proposal of their research and an oral defense of that proposal to be reviewed and approved by members of the students' doctoral committee.
3. Within three years of initial enrollment in the emphasis area, doctoral students must pass a comprehensive examination. The PhD comprehensive exam will be a written examination with questions from each of the graduate committee members followed by an oral examination. The format of each set of questions will be determined by the graduate committee members. The oral portion of the comprehensive examination may be combined with the research proposal oral defense.
4. Doctoral students will submit a written dissertation following the guidelines specified by the Graduate School. All doctoral students must present a public oral defense of their dissertation announced at least two weeks prior to the defense date.

## PhD in Natural Resources with Emphasis in Soil, Environmental and Atmospheric Sciences

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### Degree Requirements

- The curriculum is developed by a doctoral program committee and requires a minimum of 72 semester hours beyond the baccalaureate degree.
- At least 15 hours of course work in the degree program must be at the 8000 and 9000 levels, exclusive of research, problems and independent study experiences.
- A minimum of two credit hours of graduate seminar must be included in each student's graduate program.
- At least 12 credit hours of soil science courses at the 7000, 8000, and 9000 levels, exclusive of problems and thesis research, must be included in the student's graduate program in the soil science focus area.
- All students are required to attend a workshop on ethics and professionalism.
- All students enrolled in graduate programs are required to participate in a supervised teaching activity.

### Qualifying Process

The student should take the qualifying examination soon after admission into the PhD program and submit an approved plan of study to the Office of Graduate Studies. It is departmental policy that a student is only allowed one opportunity to pass the qualifying exam.

### Comprehensive Examination Process

After successfully completing the required course work with a GPA of 3.0 (A=4.0) or better, students must pass a written and oral comprehensive examination administered by their doctoral program committee.

### Dissertation Requirements

A dissertation, which is a comprehensive report of original research on a specialized soil or atmospheric science problem conducted by the student, must be presented to the student's graduate committee and successfully defended.

### Admissions

#### Admission Contact Information

Dr. Stephen Anderson, Emphasis Area Coordinator  
(andersons@missouri.edu)  
302 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211 USA  
(573) 882-6303

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Natural Resources with emphasis in Soil, Environmental and Atmospheric Sciences (<http://gradstudies.missouri.edu/academics/programs/natural-resources/phd-seas-emphasis.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about

specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

### Financial Aid from the Program

Check the program website (<http://www.snr.missouri.edu/seas/academics/graduate-program.php>) or contact the the program for details on scholarships or graduate assistantships that may be available.

## PhD in Natural Resources with Emphasis in Water Resources

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The Water Resources emphasis area is an interdisciplinary graduate degree program encompassing all fields of natural sciences and, through collaboration, involves expertise from throughout the University of Missouri (MU). The geographic location of MU allows directed research to better understand water movement, biogeochemical cycling, biological and ecohydrological processes of flowing and impounded waters in forested, prairie, agricultural and urban landscapes of the midcontinent.

The Water Resources graduate emphasis area offers a Ph.D. degree program specializing in the occurrence, circulation, distribution, chemical and physical properties, and environmental interaction of atmospheric, surface and subsurface waters. Specific areas of investigation often include (but are not limited to) precipitation floods and drought regimes, lakes and reservoirs, groundwater, water use, water quality, water contamination, plant water use, environmental measurement methods, hydrologic modeling and International water resources.

Participating faculty in the Water Resources emphasis area are engaged in both scientific understanding of water resources (physical, chemical and biological) and its management, and the decision-making processes used to address competing societal values (social, economic and legal). The program has no geographic boundaries but benefits from a distinct midcontinent climate, and physiography. Multi-use watersheds (e.g. forest, agriculture, urban), streams, lakes, rivers, wetlands and subsurface waters are ideal areas for basic and applied research that is easily transferable to other regions. The program provides Global impact by graduating highly qualified internationally aware water resource professionals.

Water Resources program applicants must meet the program requirements of the University of Missouri Graduate School for Ph.D. programs and meet any additional application criteria of the Water Resources graduate emphasis area. Water Resources graduate students are often supported by grant-funded research assistantships, scholarships or fellowships, teaching assistantships, or are self-funded. Other opportunities may be available to eligible students.

Upon successful completion of the School of Natural Resources Water Resources graduate program, students will possess strong technical skills in water resources and related sub-disciplines. Graduates will have developed a holistic understanding of the hydrologic cycle related to ecosystem processes and the interdisciplinary background necessary to understand and address contemporary water resources problems.

### Degree Requirements

- A minimum of 72 hrs beyond the Baccalaureate degree for the Ph.D.

- A maximum of 30 hours of post baccalaureate graduate credit from an accredited university can be transferred toward the Ph.D. degree program.
- The program must include a minimum of 15 hours of 8000 level course work, exclusive of problems, readings and research.
- Ph.D. students are required to publish at least three articles in the primary literature stemming from their dissertation; at least one prior to graduation (requirements may vary by advisor).
- Ph.D. students are required to present their research at two or more professional conferences during matriculation.

**Must take at least 9 credit hours from the following:**

**Aquatic Ecosystem Science**

F_W 8460	Wetland Ecology	3
F_W 8520	Stream Ecology	3
F_W 7400	Techniques for Fisheries Management and Conservation	3
F_W 7100	Limnology	3-4
F_W 8450	Advanced Limnology	3
F_W 8550	Advanced Waterfowl Ecology	3

**Climate and Climatology**

ATM_SC 7400	Micrometeorology	3
ATM_SC 7520	Environmental Biophysics	3
ATM_SC 7590	Radar Meteorology	3
ATM_SC 8400	Atmospheric General Circulation	3
ATM_SC 8600	Advanced Climate Dynamics	3

**Environmental Chemistry**

ENV_SC 7318	Environmental Soil Chemistry	3
ENV_SC 8500	Chemistry of the Vadose Zone	3
F_W 7800	Environmental Toxicology	3

**Hydrologic Science and Water Quality**

ATM_SC 7520	Environmental Biophysics	3
ATM_SC 7550	Atmospheric Physics	3
FOREST 8390	Physical Hydrology	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
ENV_SC 7305	Environmental Soil Physics	3
ENV_SC 7306	Environmental Soil Physics Laboratory	2
ENV_SC 8400	Solute Transport in the Vadose Zone	3

**Water Management Technology**

NAT_R 8290	Hydrologic Measurement and Synthesis	2
ATM_SC 7510	Remote Sensing for Meteorology and Natural Resources	3
ATM_SC 7590	Radar Meteorology	3

**Watershed Science and Management**

FOREST 7390	Watershed Management and Water Quality	3
FOREST 8620	Plant-Water Relations	3
FOREST 8625	Plant-Water Relations Laboratory	2

**Elective Courses**

AG_EC 7356	Environmental Law and Policy	3
AG_S_M 7420	Surface Water Management	3
AG_S_M 7440	Water Quality and Pollution Control	3
AG_S_M 7460	Irrigation and Drainage	3
BIOL_EN 8150	Natural Systems for Wastewater Treatment	3
BIOL_EN 8250	Water Management Theory	3
CV_ENG 7230	Introduction to Water Quality	3
CV_ENG 7240	Water Quality Analysis	3

CV_ENG 7290	Wastewater Treatment and Process Design	3
CV_ENG 7700	Hydraulics of Open Channels	3
CV_ENG 7703	Applied Hydrology	3
CV_ENG 7710	Soil and Water Conservation Engineering	3
CV_ENG 7720	Watershed Modeling Using GIS	3
CV_ENG 7792	Analysis of Water-Resource Systems	3
CV_ENG 8200	Water Quality Modeling	3
CV_ENG 8210	Groundwater Pollution Evaluation and Modeling	3
CV_ENG 8215	Environmental Transport Phenomena	3
CV_ENG 8225	Aquatic Chemistry	3
CV_ENG 8270	Design of Water and Wastewater Treatment Facilities	3
CV_ENG 8280	Engineering Aspects of Water Quality	3
CV_ENG 8740	Hydrodynamics	3
GEOG 7630	River and Stream Dynamics	3
GEOG 7100	Groundwater Hydrology	3
GEOG 7110	Karst Hydrology	3
GEOG 7130	Groundwater Modeling	3
GEOG 7210	Marine Geology	3
GEOG 7300	Introduction to Low-Temperature Geochemistry	3
GEOG 7318	Environmental Soil Chemistry	3
GEOG 7400	Geomicrobiology and Microbial Biogeochemistry	3
GEOG 7500	Organic Geochemistry	3
GEOG 8210	Advanced Aqueous Geochemistry	3
GEOG 8230	Groundwater and Subsurface Geomicrobiology	3
GEOG 8240	Hydrogeologic Processes	3
GEOG 8400	Ancient Greenhouse Climate	3
GEOG 8550	Stable Isotope Geochemistry	3
PLNT_S 7720	Aquatic Entomology	3

## Qualifying Process

The qualifying examination determines whether the student's background is adequate to enter the Ph.D. program, as a candidate. It also is intended to ascertain if there are areas of weakness in which a candidate will be required to gain background through appropriate course work. Therefore, it is advisable that the student work with their advisor to select a committee and complete the qualifying exam within the first 2 semesters of matriculation.

## Comprehensive Examination Process

The comprehensive examination is taken following the completion of most if not all, the course work requirements established by the graduate committee.

The objectives of the comprehensive examination are twofold:

1. To determine if a student has acquired sufficient depth and breadth of knowledge in selected areas of concentration; and
2. to evaluate the candidate's capacity to apply that knowledge in solving applied or theoretical problems.

## Dissertation Requirements

Every candidate should review the Dissertation & Thesis Guidelines (<http://gradschool.missouri.edu/academics/thesis-dissertation/diss-thesis->

guideline) from the Graduate School and should consult the Director of Graduate Studies for academic program style requirements.

### Dissertation Defense Seminar

The DGS must be informed of the dissertation defense seminar at least two weeks in advance of the seminar. It must be well advertised and open to the public.

### Ph.D. Committee Meeting Minimum Requirements

Ph.D. Students must meet with their committee at least three times during their degree seeking program.

- First Meeting: Present a written research proposal, provide a proposal presentation to the committee and present the D1 and D2 for approval and signing.
- Second Meeting: Comprehensive exam committee meeting.
- Third Meeting: Often following public dissertation defense. Defend dissertation, present D3 and D4 for approval and signing.

### Admissions

#### Admission Contact Information

School of Natural Resources  
 Water Resources Emphasis Area  
 203-Q Anheuser-Busch Natural Resources Building  
 (573) 884-7732

#### Director of Graduate Studies:

Dr. Jason A. Hubbart  
 203-Q ABNR Building  
 (573) 884-7732  
 HubbartJ@missouri.edu

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Natural Resources with emphasis in Water Resources (<http://gradstudies.missouri.edu/academics/programs/natural-resources/phd-water-resources-emphasis.php>) program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

### Parks, Recreation and Sport

D. R. Vaught, Degree Program Coordinator  
 School of Natural Resources  
 105 Anheuser-Busch Natural Resources Building  
 Phone: (573) 882-7086  
 Fax: (573) 882-9526  
 vaughtdr@missouri.edu  
<https://cafnr.missouri.edu/degrees-and-programs/parks-rec-sport/>

Parks, Recreation and Sport is among the oldest nationally accredited programs in the United States. Emphasis areas include: Recreation Administration, Natural Resource Recreation Management, Tourism

Development, and Sport Management. The program integrates classroom learning with applied research and internship experiences and is a leader in technology infusion.

All students are required to complete an internship placement, normally taken during the last year of study and after completing all core courses. The semester-long internship is with an on or off-campus agency or organization chosen by the student and faculty. Regional, national and international internship placements are possible. Students may receive direct financial assistance from the agency or organization during the internship. Internships outside the state of Missouri require a 2.5 GPA.

The program offers BS in Parks, Recreation and Sport and MS in Natural Resources.

### Admission

It is possible for students who have a broad, liberal education to transfer into the department without a significant time penalty toward graduation. CLEP credits are accepted and evaluated on an individual basis. Minimum GPA of 2.0 required.

### Faculty

- Associate Professor** S. A. Wilhelm-Stanis\*\*
- Assistant Professor** J. Li\*
- Associate Teaching Professor** D. R. Vaught\*
- Assistant Teaching Professor** J. R. Upah\*, J. Wartella
- Adjunct Professor** D. Eiken\*
- Director of Internships** J. R. Upah\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BS in Parks, Recreation and Sport (p. 112)
  - with emphasis in Natural Resource Recreation Management (p. 113)
  - with emphasis in Recreation Administration (p. 114)
  - with emphasis in Sport Management (p. 114)
  - with emphasis in Tourism Development (p. 115)

### Honors

Students who graduate with the following cumulative GPA values are awarded the baccalaureate degree accordingly:

3.50-3.69	cum laude
3.70-3.89	magna cum laude
3.90 +	summa cum laude

### Graduate

School of Natural Resources  
 105 Anheuser-Busch Natural Resources Building  
 (573) 882-7086



Parks, Recreation and Tourism's graduate program is housed under the MS in Natural Resources with emphasis in Parks, Recreation and Tourism (p. 101). Please visit their page for more information.

**Director of Graduate Studies:** Dr. Sonja Wilhelm Stanis

## About Parks, Recreation & Tourism

Since virtually everyone participates in some form of leisure, the primary benefit of Parks, Recreation and Tourism (PRT) is to address quality of life issues. The unique interaction of people, places, and activities establish our profession as one of the world's largest industries. Students learn how to manage service delivery systems by combining theory with practice.

## Career Preparation

The purpose of graduate study is to promote research and scholarship as the foundation of professional excellence, thus preparing candidates for management-level positions or admission to doctoral programs.

## BS in Parks, Recreation and Sport

### Degree Program Description

The field of parks, recreation and sport is a multi-billion dollar industry, which encompasses important environmental and social issues such as conservation, community building, human development, health and well-being, and the quality of life. The Parks, Recreation and Sport program provides students with opportunities to develop knowledge and skills for designing, managing, and evaluating various leisure services across a variety of user groups. The undergraduate degree program is comprehensive, yet tailored to meet the needs of students based on current job requirements and professional trends including leadership, communication, problem solving, accounting, and economics. All of our areas of emphasis are accredited with eligibility to sit for the Certified Park and Recreation Professional certification. A wide range of careers in Parks, Recreation and Sport include: outdoor education, park management, park ranger, resource manager, back country guide, visitor relations, recreation supervisors, facility managers, health and fitness, golf course management, park planner, cultural arts, aquatics, account executives, customer relations, game-day operations, compliance, fund raising, sales, and marketing.

### Major Program Requirements

Satisfactory completion of 120 credits is required: a minimum of 108 credits in course work and a 12-credit internship with a cumulative GPA of 2.0. Professional preparation includes course work in a professional core, professional option requirements and electives, and an internship. Students must also complete all degree, department, college and university graduation requirements, including university general education (p. 33).

Students transferring into Parks, Recreation and Sport from other MU degree programs or from other institutions must have a 2.0 GPA (past term and cumulative) for all work attempted.

#### Major core requirements (minimum grade of C- in core)

Communications		9
ENGLSH 1000	Exposition and Argumentation	3
COMMUN 1200	Public Speaking	3
or AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	

Communication Elective		3
COMMUN 2100	Media Communication in Society	3
or SOCIOL 2310	Culture and Mass Media	
or THEATR 1400	Acting for Non-Majors	
or ENGLSH 2030	Professional Writing	
or SCI_AG_J 3240	Communicating on the Web	
<b>Humanities and Fine Arts</b>		6
<b>Biological, Physical, and Mathematical Sciences</b>		12-13
MATH 1100	College Algebra	3
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or STAT 2500	Introduction to Probability and Statistics I	
or ESC_PS 4170	Introduction to Applied Statistics	
Biological, Physical, or Mathematical Science with at least 1 Lab		6-7
<b>Business Core</b>		9
ACCTCY 2010	Introduction to Accounting	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
or ACCTCY 2136H	Honors Accounting I	
ECONOM 1014	Principles of Microeconomics	3
or AG_EC 1041	Applied Microeconomics	
or ECONOM 1051H	General Economics - Honors	
MRKTNG 3000	Principles of Marketing	3
or AG_EC 2183	The Agricultural Marketing System	
or AG_EC 3224	New Products Marketing	
<b>Social and Behavioral Science</b>		12-13
HIST 1100	Survey of American History to 1865	3
or HIST 1100H	Survey of American History to 1865 - Honors	
or HIST 1200	Survey of American History Since 1865	
or HIST 1200H	Survey of American History Since 1865 - Honors	
or HIST 2210	Twentieth Century America	
or HIST 2440	History of Missouri	
or HIST 4000	Age of Jefferson	
or HIST 4220	U.S. Society Between the Wars 1918-1945	
or HIST 4230	Our Times: United States Since 1945	
or POL_SC 1100	American Government	
or POL_SC 1100H	American Government - Honors	
or POL_SC 2100	State Government	
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
or RU_SOC 1000	Rural Sociology	
H_D_FS 2400W	Principles of Human Development - Writing Intensive	3-4
or H_D_FS 2400	Principles of Human Development	
or H_D_FS 2400HW	Principles of Human Development - Honors/Writing Intensive	
or H_D_FS 2400H	Principles of Human Development - Honors	
<b>Professional core (required for all options, minimum grade of C- in core)</b>		25
P_R_TR 1010	Introduction to Leisure Studies	3
P_R_TR 1011	Academic Planning and Career Orientation in Parks, Recreation and Tourism	1
P_R_TR 2281	The Business of Sport	3
P_R_TR 2750	Methods in Research and Evaluation	3

P_R_TR 3210W	Personnel Management and Leadership in Leisure Services - Writing Intensive	3
P_R_TR 3215	Program Development in Leisure Services	3
P_R_TR 4208	Administration of Leisure Services	3
Diversity Course		3
Parks, Health and Wellness Course		3
<b>Professional emphasis requirements (minimum grade of C- in emphasis courses)</b>		12
<b>Recreation Management emphasis</b>		
P_R_TR 2111	Introduction to Planning and Evaluating Leisure Environments	3
P_R_TR 2355	Private and Commercial Recreation Principles and Practice	3
P_R_TR 3220	Introduction to Recreation for Individuals with Disabilities	3
P_R_TR 4333	Park Management	3
<b>Natural Resources Recreation Management emphasis</b>		
NAT_R 1070	Ecology and Renewable Resource Management	3
P_R_TR 3230	Introduction to Parks and Outdoor Recreation Services	3
P_R_TR 3231	Principles of Interpretive Outdoor Recreation	3
P_R_TR 4340	Advanced Recreation Land Management	3
<b>Sport Management emphasis</b>		
P_R_TR 1080	Introduction to Sport Management	3
P_R_TR 2080	Global Sport Environments	3
P_R_TR 3282	Governance and Policy in Sport and Leisure	3
P_R_TR 4385	Legal Aspects of Sport	3
<b>Tourism Development emphasis</b>		
HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 4110	Hospitality Sales and Marketing Management	3
P_R_TR 4357	Tourism Planning and Development	3
<b>Internship</b>		
P_R_TR 3189	Pre-Internship Seminar in Parks, Recreation and Tourism	1
P_R_TR 4940	Parks, Recreation and Tourism Internship	12
<b>Professional option electives</b>		15
Advisor-approved courses specific to the student's selected academic option. Can include: Any course from the College of Business, Any AG_EC course, Any HSP_MGMT course, AG_ED_LD 2250 or 2260, 2000+ levels of a foreign language, ROTC courses		
<b>General Electives</b>		5-6

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring		CR
ENGLSH 1000 or MATH 1100	3 MATH 1100 or ENGLSH 1000		3
COMMUN 1200 or AG_ED_LD 2220	3 ECONOM 1014 or AG_EC 1041		3
P_R_TR 1010	3 SOCIOL 1000 or RU_SOC 1000		3
P_R_TR 1011	1 Humanities & Fine Arts		3
Humanities & Fine Arts	3 Missouri State Law Requirement		3

Biological, Physical, or Mathematical Science		3	
		16	15
<b>Second Year</b>			
<b>Fall</b>	<b>CR Spring</b>		<b>CR</b>
PSYCH 1000	3 ACCTCY 2010, 2026, 2036, or 2136H		3
STAT 1200, 1300, 1400, 2500, or ESC_PS 4170	3 MRKTNG 3000, AG_EC 2183, or AG_EC 3224		3
P_R_TR 2281	3 P_R_TR 2750		3
Communication Elective COMMUN 2100, SOCIOL 2310, THEATR 1400, ENGLSH 2030, SCI_AG_J 3240	3 Professional Elective		3
Biological or Physical Science with Lab	4 Emphasis-Area Course		3
		16	15
<b>Third Year</b>			
<b>Fall</b>	<b>CR Spring</b>		<b>CR</b>
H_D_FS 2400 or 2400W	3-4 P_R_TR 3215		3
Professional Elective	3 Emphasis-Area Course		3
Emphasis-Area Course	3 Professional Elective		3
Diversity Course	3 General Elective		3
Parks, Health and Wellness	3 General Elective		3
		15-16	15
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR Spring</b>		<b>CR</b>
P_R_TR 4208	3 P_R_TR 4940		12
P_R_TR 3210W	3		
P_R_TR 3189	1		
Emphasis-Area Course	3		
Professional Elective	3		
Professional Elective	3		
		16	12

Total Credits: 120-121

## BS in Parks, Recreation and Sport with Emphasis in Natural Resource Recreation Management

### Degree Program Description

The public's desire for quality of life, the pursuit of happiness and for well organized leisure activities drives a \$600 billion marketplace supporting parks and recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks Recreation and Sport are individuals who are active, involved in sports and the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with an emphasis in Natural Resource Recreation Management focuses on the combination of natural and social sciences, and the management of people and natural resources in parks, forests, refuges, and reservoirs. Areas of study include outdoor recreation, methods of interpretation, and land management. Professionals in natural resource recreation management hold integral roles in operations, visitor management, protection and administration of our federal,

state, and local outdoor recreation resources. Outdoor and natural resource recreation managers are employed by local, state, and federal agencies such as state and federal park systems. Responsibilities include managing natural and cultural resources, providing information and education, park operations, planning and design, and outdoor programming. Possible careers include ranger, education/outreach, naturalist, outdoor skills specialist, landscape maintenance, program supervisor, and grants/contract administrator.

## Major Program Requirements

Students must complete all university, college, and degree requirements (p. 112), including university general education (p. 33), in addition to the requirements below:

NAT_R 1070	Ecology and Renewable Resource Management	3
P_R_TR 3230	Introduction to Parks and Outdoor Recreation Services	3
P_R_TR 3231	Principles of Interpretive Outdoor Recreation	3
P_R_TR 4340	Advanced Recreation Land Management	3
Professional Electives related to emphasis		15
Total Credits		27

## Semester Plan

Refer to the Semester Plan for the BS in Parks, Recreation and Sport (p. 112).

## BS in Parks, Recreation and Sport with Emphasis in Recreation Administration

### Degree Program Description

The public's desire for quality of life, the pursuit of happiness and for well organized leisure activities drives a \$600 billion marketplace supporting parks and recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks, Recreation and Sport are individuals who are active, involved in sports, the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with emphasis in Recreation Administration focuses on quality of life issues within our local and global communities. Areas of study include personnel management and leadership, recreation for individuals with disabilities, program development, and park management.

Recreation administrators are engaged in a variety of public and private entities including parks and recreation systems, sports complexes, golf courses, resorts, recreation centers, aquatic theme parks and pools, and campus recreation facilities. They are responsible for management and operations, including fiscal responsibility. Careers include aquatics and facility manager, recreation specialists, camp management, adventure recreation, campus recreation, community and recreation complex manager, and golf course superintendent.

## Major Program Requirements

Students must complete all university, college and degree requirements (p. 112), including university general education (p. 33), in addition to the requirements below:

P_R_TR 2111	Introduction to Planning and Evaluating Leisure Environments	3
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P_R_TR 2355	Private and Commercial Recreation Principles and Practice	3
P_R_TR 3220	Introduction to Recreation for Individuals with Disabilities	3
P_R_TR 4333	Park Management	3
Professional Electives related to emphasis		15
Total Credits		27

## Semester Plan

Refer to the Semester Plan for the BS in Parks, Recreation and Sport (p. 112).

## BS in Parks, Recreation and Sport with Emphasis in Sport Management

### Degree Program Description

The public's desire for quality of life, the pursuit of happiness and for well organized leisure activities drives a \$600 billion marketplace supporting parks, recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks Recreation and Sport are individuals who are active, involved in sports, the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with an emphasis in Sport Management specializes in the business aspects of sport and recreation. Areas of study include governance and policy in sport and leisure, sport economics and finance, business of sport, and legal aspects of sport. In Sport Management, economics drive a wide variety of opportunities including professional and collegiate sport, professional management, sporting goods, media, administration and finance. Sport managers are hired by professional sport team's organizations and associations as well as collegiate athletics, sport facilities, in addition to positions in sporting goods, media, administration, and finance. Possible careers include sport brand manager, marketing manager, athletic director, sport agent, media relations director, and ticket sales representative. This emphasis is preparatory for post-baccalaureate and graduate work in law, business, or sport.

## Major Program Requirements

Students must complete all university, college and degree requirements (p. 112), (p. 112) including university general education (p. 33), in addition to the requirements below:

P_R_TR 1080	Introduction to Sport Management	3
P_R_TR 2080	Global Sport Environments	3
P_R_TR 3282	Governance and Policy in Sport and Leisure	3
P_R_TR 4385	Legal Aspects of Sport	3
Total Credits		12

## Semester Plan

Refer to the Semester Plan for the BS in Parks, Recreation and Sport (p. 113).

# BS in Parks, Recreation and Sport with Emphasis in Tourism Development

## Degree Program Description

The public's desire for quality of life, the pursuit of happiness, and for well organized leisure activities drives a \$600 billion marketplace supporting parks and recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks, Recreation and Sport are individuals who are active, involved in sports, the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with emphasis in Tourism Development offers students 12-week hands-on training in the area of interest. Students gain experience through coursework and internships. Tourism development, marketing and event specialists grow in careers associated with tourism venues and enterprises; resorts; local, state and regional economic development agencies; and visitor and convention services. They are responsible for promoting their clients throughout the broadly defined tourism industry. This includes organizing promotional and profitable events for venues and communities, developing public relations materials or establishing relationships with various local interest groups. Sport managers are hired by professional sport team's organizations and associations as well as collegiate athletics, sport facilities, in addition to positions in sporting goods, media, administration, and finance.

## Major Program Requirements

Students must complete all university, college and degree requirements (p. 112), including university general education (p. 33), in addition to the requirements below:

HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 4110	Hospitality Sales and Marketing Management	3
P_R_TR 4357	Tourism Planning and Development	3
Tourism Elective		3
Professional Electives related to emphasis		15
Total Credits		27

## Semester Plan

Refer to the Semester Plan for the BS in Parks, Recreation and Sport (p. 113).

## Plant Sciences

Division of Plant Sciences  
 College of Agriculture, Food and Natural Resources  
 52 Agriculture Laboratory  
 (573) 882-3001  
 Fax: (573) 882-2699

**Division Director:** James English

The Division of Plant Sciences is a consolidation of the disciplines of Agronomy, Entomology, Horticulture, Plant Microbiology and Pathology. Containing both a vibrant and diversified undergraduate and graduate education program, students completing B.S., M.S. or Ph.D. programs are highly competitive for the strong job market in basic or applied careers. In addition to education, the Division of Plant Sciences also

provides leadership for plant, insect and microbe-based research, education and Extension programs in the college.

The division is the sole academic program in the state to address issues related to plant production, plant protection and plant biology from the laboratory to the field. We intend to be at the national and international forefront of disciplinary and interdisciplinary research, Extension and education in applied and basic aspects of plant sciences.

Division faculty contribute to advances in conventional, sustainable and alternative production systems, plant biology, genetics and breeding, plant protection and pest management, plant-insect/pathogen interactions, and plant-soil relationships.

## Faculty

**Professors** B. A. Barrett\*\*, K. W. Bradley\*\*, J. T. English\*\*, F. B. Fritschi\*\*, W. Gassmann\*\*, R. L. Kallenbach\*\*, M. J. Linit\*, B. Meyers\*, J. D. Mihail\*\*, M. G. Mitchum\*\*, T. L. Payne\*, C. Roberts\*\*, C. P. Scharf\*, J. E. Schoelz\*\*, R. E. Sharp\*\*, J. C. Shultz\*\*, R. W. Sites\*\*, R. J. Smeda\*\*, Q. Song\*\*, M. R. Warmund\*\*, W. J. Wiebold\*\*  
**Endowed Professors** P. Chen\*\*, H. T. Nguyen\*\*, G. Stacey\*\*  
**Associate Professors** C. Elsik\*\*, D. Finke\*\*, R. M. Houseman Jr.\*\*\*, A. L. McKendry\*\*, G. L. Miller\*\*, D. H. Trinklein\*, X. Xiong\*\*  
**Assistant Professors** D. Mendoza-Cozatl\*\*, H. Naumann\*  
**Research Professors** K. A. Nelson\*\*, Z. Zhang\*\*  
**Distinguished Research Professor** J. Boyer\*  
**Assistant Research Professors** M. Jones\*, A. Scaboo\*\*, M. Stacey\*, A. Thomas\*  
**Extension Professors** W. E. Stevens\*  
**Associate Extension Professors** J. A. Lory\*, M. Nathan\*  
**Assistant Extension Professors** B. Fresenburg\*, D. Volenberg  
**Assistant Teaching Professor** M. A. Gowdy\*  
**Adjunct Professors** S. H. Anderson\*, P. R. Arelli, P. Beuselinc, C. Fauquet, J. P. Gustafson\*, B. E. Hibbard\*\*, J. C. Hong, L. G. Kovacs\*\*, R. J. Kremer\*, H. B. Krishnan\*, A. H. McIntosh\*, M. D. McMullen\*\*, M. J. Oliver\*\*, W. Qiu\*\*, D. Stanley\*, J. Weirich  
**Adjunct Associate Professors** B. Beernsten\*, K. D. Bilyeu\*\*, D. M. Burner\*, T. A. Coudron\*\*, S. Flint-Garcia\*\*, J. Gillman\*, C. F. Hwang\*\*, N. R. Kitchen\*\*, P. Motavalli\*, R. L. Myers, D. Schachtman, M. A. Schaeffer, O. Yu  
**Adjunct Assistant Professors** I. Baxter, T. Beissinger\*, J. Benne, M. Kwasniewski, J. Pinero\*, H. J. Popham\*, K. S. Shelby\*, P. L. Vincent\*  
**Research Associate Professor Emeritus** J. Bruhn  
**Professor Emeritus** S. C. Anand, D. G. Blevins\*, G. M. Chippendale, E. H. Coe\*, M. Collins\*, L. Darrah, R. D. Hall\*, A. Keaster, G. Neuffer, D. A. Slepser\*, J. A. Wrather\*  
**Associate Professor Emeritus** W. C. Bailey\*\*, B. Puttler  
**Curators' Professor Emeritus** C. J. Nelson\*  
**Endowed Professor Emeritus** J. G. Shannon\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Plant Sciences (p. 116)
  - with emphasis in Breeding, Biology and Biotechnology (p. 117)

- with emphasis in Crop Management (p. 118)
- with emphasis in Horticultural Science and Design (p. 118)
- with emphasis in Turfgrass Science (p. 119)
- Minor in Plant Sciences (p. 121)

Director for Undergraduate Programs

Reid J. Smeda

204 Waters

(573) 882-1329

Fax: (573) 882-1467

smedar@missouri.edu

The Plant Sciences undergraduate major is a joint contribution of the disciplines of Agronomy, Entomology, Horticulture and Plant Microbiology and Pathology. From the manipulation of genes to increasing crop productivity to improving the quality of life by enhancing the landscape, plant science students are engaged in the science and art of working with plants. Educational opportunities in plant science range from basic (genetics, biotechnology and physiology) to applied (crop production and protection, landscape design and turfgrass).

The division offers the BS degree with a major in Plant Sciences. Students in plant science initially receive a broad education in agriculture, the basic sciences and business. Later, they elect to enroll in a specific emphasis area designed to empower them to be competitive in career opportunities in that area. The emphasis areas are a series of interwoven courses in:

- Crop Management
- Horticultural Science and Design
- Breeding, Biology and Biotechnology
- Turfgrass Science

## Graduate

- MS in Plant, Insect and Microbial Sciences (p. 119)
- PhD in Plant, Insect and Microbial Sciences (p. 121)

Division of Plant Sciences

52 Agriculture Laboratory

(573) 882-3001

(573) 882-2699

<http://plantsci.missouri.edu/graduate>

**Director of Graduate Studies:** James Schoelz

The Division of Plant Sciences offers graduate programs leading to master of science and doctor of philosophy degrees in Plant, Insect and Microbial Sciences. A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work.

The Division of Plant Sciences maintains excellent graduate programs with classroom instruction and research supervision provided by leading scientists in the field. A student can select training in one of several Graduate Program Areas. Students can follow a traditional curriculum or take advantage of the cross-disciplinary expertise that exists within the Division.

## Programmatic Interactions

Students also benefit from interaction with closely allied academic units on and off campus. Students work with scientists in two campus-based USDA research units associated with the division: the Plant Genetics Unit

and the Biological Control of Insects Research Laboratory. Additional opportunities exist for interaction with scientists at the Donald Danforth Plant Science Center in St. Louis. Numerous USDA and Danforth Center scientists hold adjunct appointments in the DPS. Students in the DPS are encouraged to interact with interdisciplinary programs on campus such as the Interdisciplinary Plant Group, the Molecular Biology Program, the Genetics Area Program, the Center for Agroforestry and the Missouri Precision Agriculture Center.

## Areas of Study

A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work. Students may complete their graduate degrees through any of the Graduate Program Areas:

- Crop, Soil and Pest Management
- Entomology
- Horticulture
- Plant Breeding, Genetics and Genomics
- Plant Stress Biology

## BS in Plant Sciences

### Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise by choosing among a variety of emphasis areas including: Breeding, Biology & Biotechnology; Crop Management; Horticultural Science and Design; and Turfgrass Science. A few of the plant sciences careers include Crop management specialists, horticulturists, plant geneticists, biotechnologists, plant protection specialists, and turfgrass scientists.

### Major Program Requirements

Students earning a Bachelor of Science in Plant Sciences are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements. Students earning a degree in Plant Sciences must also select one emphasis area.

#### Major Requirements

General		
PLNT_S 1120	Career Development	1
PLNT_S 2125	Plant Structure and Function	3
PLNT_S 3130	Undergraduate Seminar in Plant Science	1
PLNT_S 4500	Biology and Pathogenesis of Plant-Associated Microbes	4
Select one: (see emphasis area for specific requirements)		4-5
PLNT_S 3210	Principles of Weed Science	4
or PLNT_S 3710	Introductory Entomology	
& PLNT_S 3715	and Insect Diversity	
Professional Development (Select One)		3
AG_ED_LD 2250	Introduction to Leadership	3

or AG_ED_LD 2260	Team and Organizational Leadership
or ENGLISH 2030	Professional Writing
or SCI_AG_J 3210	Fundamentals of Communications
or SCI_AG_J 3240	Communicating on the Web

Select two courses from ACCTCY, AG\_EC, ECONOM, FINANC, MANGMT, MRKTNG, or FINPLN

#### Emphasis Requirements

The BS in Plant Sciences consists of four emphasis areas: Breeding, Biology & Biotechnology; Crop Management; Horticultural Science & Design; and Turfgrass Science. Each emphasis area has a list of required classes and electives in addition to Major Requirements.

#### Capstone Experience (select one):

PLNT_S 4940	Internship in Plant Science	3
or PLNT_S 4950	Undergraduate Research in Plant Science	
or PLNT_S 4975	Advanced Landscape Design	

\*PLNT\_S 4975 is for Horticultural Science & Design students only

**Total Credit Hours Required** 120

For additional course options see General Education List at <http://generaleducation.missouri.edu/Courses> eligible must include an "HFA" in appropriate column.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
AG_EC 1041	3 MATH 1100	3
ENGLISH 1000	3 AG_ED_LD 2220	3
BIO_SC 1200	5 HIST 1200	3
PLNT_S 1120	1 AG_ED_LD 2260	3
Humanities Elective	3 Elective	3
	15	15

Second Year		
Fall	CR Spring	CR
CHEM 1100	3 PLNT_S 2100	3
Emphasis Area courses	12 SOIL 2106	2
	PLNT_S 2125	3
	PLNT_S 3130	1
	Emphasis Area courses	6
	15	15

Third Year		
Fall	CR Spring	CR
PLNT_S 3230	3 PLNT_S 3213	3
Pest course	4 Writing Intensive course	3
Elective	3 Professional Development course	3
Emphasis Area courses	6 Emphasis Area courses	6
	16	15

Fourth Year		
Fall	CR Spring	CR
PLNT_S 4500	4 Emphasis Area courses	9
Senior Capstone	3 Electives	6

Emphasis Area courses	7	
	14	15

Total Credits: 120

## BS in Plant Sciences with Emphasis in Breeding, Biology and Biotechnology

### Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Breeding, Biology & Biotechnology emphasis area. Plants are an integral component of the food, fiber, and medicinal components necessary to meet current and future population demands. Manipulation of plants at the cellular level can improve yields, pest resistance, and enhance nutritional value. Students in this emphasis area will gain classroom and real world experience (research opportunities in labs; internships with industry partners) to prepare for challenging careers or advanced education. From commercial plant breeders to lab managers, trained students are in high demand for rewarding opportunities.

### Major Program Requirements

#### Emphasis Area Requirements

Manipulation of plants at the cellular and genetic level can lead to improvements in crop performance and resistance to pests, as well as increase plant users. Job opportunities from the laboratory to the field are widespread in seed and chemical industries around the world.

#### Breeding, Biology and Biotechnology Emphasis Area Requirements

CHEM 1320	College Chemistry I	4
CHEM 2100	Organic Chemistry I	3
PLNT_S 3213	Genetics of Agricultural Plants and Animals	3
PLNT_S 3225	Plant Breeding and Genetics	3
PLNT_S 4315	Crop Physiology	3
PLNT_S 4325	Field Crop Breeding	3
STAT 2530	Statistical Methods in Natural Resources	3

#### Select three:

BIOCHM 3630	General Biochemistry	3
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3210	Plant Systematics	4
PLNT_S 3275	Grain Crops	3
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4320	Molecular Plant Physiology	3
PLNT_S 4400	Plant Anatomy	4
PLNT_S 4550	Plant Biotechnology	4

**Total** 31-34

### Semester Plan

Refer to the Semester Plan for the BS in Plant Sciences (p. 116).

## BS in Plant Sciences with Emphasis in Crop Management

### Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Crop Management emphasis area. Whether from a farm or urban background, developing technology in the husbandry and protection of agronomic or horticultural crops has created this productive career track. Students utilize a combination of classroom and outdoor experiences to prepare for one of many opportunities: crop consultant; agronomist; crop sales representative; pest management specialist; farmer or entrepreneur; and advanced education. Many positions are applied; the participation in crop growth and protection careers will be in demand well into the future. Crop management specialists find employment with universities, the USDA Agricultural Research Service or private companies. They answer agronomic questions specific to their region, study major field and forage crops, and examine the feasibility of growing alternative crops for niche markets.

### Major Program Requirements

#### Emphasis Requirements

The management of food and fiber crops is key to meeting the global demands for food and energy. There are many opportunities to improve plant growth by manipulating production practices and improving control of disease, insect, and weed pests.

#### Crop Management Emphasis Area Requirements

CHEM 1320	College Chemistry I	4
PLNT_S 3210	Principles of Weed Science	4
PLNT_S 3213	Genetics of Agricultural Plants and Animals	3
PLNT_S 3225	Plant Breeding and Genetics	3
PLNT_S 3710	Introductory Entomology	3
PLNT_S 3715	Insect Diversity	2
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4315	Crop Physiology	3
PLNT_S 4730	Insect Pest Management for Plant Protection	3
<b>Select three:</b>		
PLNT_S 3240	Principles of Viticulture I	4
PLNT_S 3270	Forage Crops	3
PLNT_S 3275	Grain Crops	3
PLNT_S 4325	Field Crop Breeding	3
PLNT_S 4340	Principles of Viticulture II	4
PLNT_S 4360	Precision Agriculture Science and Technology	3
<b>Total</b>		<b>37-39</b>

### Semester Plan

Refer to the Semester Plan for the BS in Plant Sciences (p. 116).

## BS in Plant Sciences with Emphasis in Horticultural Science and Design

### Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Horticultural Science and Design emphasis area. The beauty of attractive indoor plant displays or ornamental species in landscapes adds value and satisfaction. Appreciating the plants around us and designing new ways to present them can lead to careers in nursery management, landscape designer, zoo groundskeeper, or botanic gardener. Students in this area learn the basics in the classroom and advance their skills working locally (greenhouses, landscape firms) or abroad (Epcot Center, MO Botanical Gardens). Horticulturists use their knowledge of plant growth to sustainably produce flowers, vegetables and ornamental plants to enhance the environment. Careers include botanical gardens, commercial greenhouses and nurseries, landscape design firms, or life science companies.

### Major Program Requirements

#### Emphasis Area Requirements

Trees, flowers and other ornamental plants add beauty to our landscape, preserve green space, and reduce the negative impacts of climate change. Other plants such as vegetables and fruits enhance human health. Career opportunities exist to design landscapes, improve the value and beauty of homes and businesses, as well as commercially grow horticultural crops in greenhouses and other settings.

#### Horticultural Science & Design Emphasis Area Requirements

AG_EC 2223	Agricultural Sales	3
CHEM 1100	Atoms and Molecules with Lab	3
PLNT_S 2075	Environmental Horticulture	3
PLNT_S 2210	Ornamental Woody Plants	3
PLNT_S 2215	Ornamental Herbaceous Plants	3
PLNT_S 3250	Green Industry Bidding	2
PLNT_S 3252	Arboriculture and Pruning	1
PLNT_S 3355	Introductory Turfgrass Management	3
<b>Select five:</b>		
PLNT_S 2220	Introduction to Floral Design	2
PLNT_S 2221	Everyday Floral Design	3
PLNT_S 2240	Landscape Graphic Communication	2
PLNT_S 2250	Landscape Site Analysis	2
PLNT_S 2254	Landscape Design	3
PLNT_S 3213	Genetics of Agricultural Plants and Animals	3
PLNT_S 3220	Special Occasion Floral Design	3
PLNT_S 3221	Wedding Floral Design	3
PLNT_S 3222	Retail Floral Management	3
PLNT_S 3254	Landscape AutoCAD	3
PLNT_S 3260	Greenhouse Management	4
PLNT_S 4365	Greenhouse Crops Production	4

PLNT_S 4975	Advanced Landscape Design	4
<b>Total</b>		<b>33-38</b>

## Semester Plan

Refer to the Semester Plan for the BS in Plant Sciences (p. 116).

# BS in Plant Sciences with Emphasis in Turfgrass Science

## Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Turfgrass Science emphasis area. From observing sporting events to participation in recreational or professional sports, turf serves as the platform upon which outdoor sports are played. The basics of turfgrass selection, production, and protection offer diverse careers where the outdoors is your office: golf course superintendent, lawn technician, city park management, and sports complex turf manager. For those that enjoy the outdoors and green backgrounds, opportunities abound to work in low profile (parks and recreation) or high profile (Busch Stadium) venues. Turfgrass scientists strive to improve the ability of turfgrass to withstand the demands of drought, weeds, pest invasions and foot traffic. Professional sports teams, golf courses, cities and school systems all offer careers in turfgrass management.

## Major Program Requirements

### Emphasis Area Requirements

Creation and maintenance of high quality turf areas for sporting activities, home lawns, and utility areas are important. Careers are available to protect turf from pests and optimize growth; integrated strategies emphasize conservation of water and other natural resources.

#### Turfgrass Science Emphasis Area Requirements

AG_S_M 2340	Pesticide Application Equipment	3
CHEM 1320	College Chemistry I	4
PLNT_S 3110	Horticultural Drainage and Irrigation Systems	2
PLNT_S 3210	Principles of Weed Science	4
PLNT_S 3213	Genetics of Agricultural Plants and Animals	3
PLNT_S 3355	Introductory Turfgrass Management	3
PLNT_S 3710	Introductory Entomology	3
PLNT_S 3715	Insect Diversity	2
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4355	Advanced Turfgrass Management	3
<b>Select two:</b>		<b>3</b>
PLNT_S 2210	Ornamental Woody Plants	3
PLNT_S 2215	Ornamental Herbaceous Plants	3
PLNT_S 3250	Green Industry Bidding	2
<b>Total</b>		<b>34-36</b>

## Semester Plan

Refer to the Semester Plan for the BS in Plant Sciences (p. 116).

# MS in Plant, Insect and Microbial Sciences

## Degree Requirements

To satisfy the course requirements for a master's degree, a student must complete:

- A minimum of 30 credit hours from courses numbered 7000 - 9000
- 15 credit hours (towards the 30 credit hour requirement) must be from courses numbered at the 8000 or 9000 level
- 12 credit hours (towards the 30 credit hour requirement) can be satisfied by research, readings and problems courses
- For the Horticulture Program Area, at least 6 credits must be from formal courses, excluding Problems and other independent study courses and only 6 credit hours of research (PLNT\_S 8090) can count towards the 30 credit hour requirement, even though additional hours of research can be taken.

The division-wide course requirements for the master's degree are:

PLNT_S 8010	Professionalism and Ethics	2
Participation in the student seminar series		
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (Must enroll twice)	2
PLNT_S 8090	Thesis Research (1 - 10 credits per semester)	1-10

## Teaching Requirement

With the exception of the Entomology Program Area, all students must participate in an approved teaching opportunity or an approved extension program.

## Satisfactory Rate of Progress

A student shall maintain a minimum grade point average of 3.0. All divisional course requirements (and any additional requirements set by the student's examination committee) shall be completed in a timely manner. All advisors will meet annually with each of their graduate advisees. They will discuss the student's performance, any problems that exist and any suggestions for improvement. The advisor will provide the student and the director of graduate studies with a written summary of the meeting as part of the annual program assessment process.

## Sample Plan of Study

There are several areas of study within the MS in Plant, Insect and Microbial Sciences degree. A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work. Note: Areas of Study will not appear on transcripts or diplomas. Each program area emphasizes a customized approach towards the course of study. Each student will work with their advisor and graduate committee to develop a course of study best suited to the student's educational and career goals.

## Crop, Soil and Pest Management

#### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must enroll twice)	2



PLNT_S 8090	Thesis Research	1-10 per semester
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## Entomology

### Core Requirements:

PLNT_S 7710	Systematic Entomology	5
PLNT_S 7820	Principles of Insect Physiology	4
PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must enroll twice)	2
PLNT_S 8090	Thesis Research	1-10 per semester
PLNT_S 9810	Insect Ecology	3

One Elective formal Entomology course

## Horticulture

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must take twice)	2
PLNT_S 8090	Thesis Research	1-9 per semester

## Plant Breeding, Genetics and Genomics

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must take twice)	2
PLNT_S 8090	Thesis Research	1-10 per semester

### Elective Courses

#### Bridging Courses to Expand Your Background in Plant Biology

PLNT_S 7315	Crop Physiology	3
PLNT_S 7320	Molecular Plant Physiology	3
PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes	4

#### Elective Courses to Fulfill the Requirement for 15 Credit Hours at the 8000 or 9000 Level

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 8650	Ecological and Evolutionary Genomics	2
PLNT_S 9415	Advanced Plant Physiology	3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3

## Plant Stress Biology

### Core Requirements:

Choose one course:

PLNT\_S 7315 Crop Physiology

PLNT\_S 7320 Molecular Plant Physiology

Choose one course:

PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes
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PLNT_S 8505	Introduction to Plant Stress Biology
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### Additional Requirements

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 8530	Research with Plant Stress Agents	3
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must enroll twice)	2
PLNT_S 8090	Thesis Research	1-10 per semester

### Participation In One of Two Readings Courses Each Year

PLNT_S 7965	Readings in Plant Stress Biology	1-9
PLNT_S 7970	Readings in Molecular Ecology of Herbivory	1

### Elective Courses to Fulfill the 30 Credit Hour Minimum

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8300	Advanced Plant Genetics	3
BIOCHM 8434	Signaling in Molecular Cell Biology	3
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 9415	Advanced Plant Physiology	1-3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3

### Additional Entry Level Courses

PLNT_S 7550	Plant Biotechnology	4
PLNT_S 7400	Plant Anatomy	4
STAT 7070	Statistical Methods for Research	3

## Thesis Requirements

A thesis is required for the M.S. degree in Plant, Insect and Microbial Sciences. The thesis must demonstrate the student's capacity for research and independent thought. Organization of the thesis is subject to approval of the Master's Committee.

The Thesis Defense will consist of a research seminar and final examination, the latter to demonstrate the student's mastery of the academic focus of the chosen Graduate Program Area. It is the student's responsibility to check the Graduate Studies Office's graduation deadlines when scheduling the exam. The candidate must be enrolled to defend the thesis. The examination cannot be administered when MU is not officially in session.

The seminar will be presented by the student for division faculty, staff, students, committee members, and other interested persons. It must summarize the thesis research conducted by the student during the Master's program. The seminar will be followed by the final, oral examination administered by the Master's Committee. Although the general protocol followed during the oral examination shall be at the discretion of the Major Advisor, a typical oral examination lasts about 2 hours and is divided between defense of the thesis and non-thesis subject matter. The research seminar should be scheduled the same day (preferably) or during the week preceding the remainder of the final examination.

## Admissions

Admission Contact Information  
 Ms. Christa Smith  
 52 Agriculture Lab; Columbia, MO 65211  
 (573) 882-3001

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Plant, Insect, and Microbial Sciences (<http://gradstudies.missouri.edu/academics/programs/plant-insect-microbial-sciences/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Financial Aid from the Program

Financial assistance is available to qualified students at both the MS and PhD levels, as either fellowships or research assistantships. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website (<http://plantsci.missouri.edu/graduate>) or ask the program contact for details.

## Minor in Plant Sciences

A minor in Plant Sciences shall consist of a minimum of 15 hours of formal coursework in Plant Sciences (PS) designated courses. Of the 15 hours selected, a minimum of 12 hours must be numbered 2000 or above, of which at least 9 hours must be numbered 3000 or above.

**Note:** Problems courses, Readings courses, Internship courses and Undergraduate Research courses are not acceptable courses for the Plant Sciences minor, unless approved by the Director for Undergraduate Programs.

## PhD in Plant, Insect and Microbial Sciences

### Degree Requirements

To satisfy the course requirements for a doctoral degree, a student must complete:

- A minimum of 72 credit hours from courses numbered 7000-9000 (this includes dissertation research credit hours - i.e. PLNT\_S 9090).
- 15 credit hours (towards the 72 hour requirement) must be from courses numbered at the 8000 or 9000 level, exclusive of dissertation research, problems or independent study.
- For the Horticulture Program Area, all Doctoral students will have successfully completed the requirements for a master's degree before beginning a doctoral program and no more than 30 hours of dissertation research may be counted towards the 72 hr minimum.
- Two semesters of PLNT\_S 9087.
- Three semesters of PLNT\_S 7087.

## Teaching Requirement

With the exception of the Entomology Program Area, all students must participate in an approved teaching opportunity or an approved extension program.

## Reasonable Rate of Progress

A reasonable rate of progress toward the degree is required. A Ph.D. student must successfully complete the comprehensive exam within 5 years of their first semester of enrollment as a Ph.D. student. In addition, the remaining program for the doctoral degree must be completed within 5 more years after passing the Comprehensive Exam.

## Sample Plan of Study

There are several areas of study within the PhD in Plant, Insect and Microbial Sciences degree. A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work. Note: Areas of Study will not appear on transcripts or diplomas. Each program area emphasizes a customized approach towards the course of study. Each student will work with their advisor and graduate committee to develop a course of study best suited to the student's educational and career goals.

## Crop, Soil and Pest Management

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice)	2
PLNT_S 7087	Seminar (must enroll three times)	3
PLNT_S 9090	Dissertation Research	1-10 per semester

## Entomology

### Core Requirements:

PLNT_S 7710	Systematic Entomology	5
PLNT_S 7820	Principles of Insect Physiology	4
PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice. Only 1 credit will count towards the 15 credit hour at 8000/9000-level requirement.)	2
PLNT_S 7087	Seminar (must enroll three times)	3
PLNT_S 9090	Dissertation Research	1-10 per semester
PLNT_S 9810	Insect Ecology	3

Two elective formal Entomology courses

## Horticulture

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice. Only 1 credit will count towards the 15 credit hour at 8000/9000-level requirement.)	2
PLNT_S 7087	Seminar (must enroll three times)	3
PLNT_S 9090	Dissertation Research	1-10 per semester

## Plant Breeding, Genetics, and Genomics

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
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PLNT_S 9087	Seminar in Plant Science (must enroll twice. Only 1 credit will count towards the 15 credit hour at 8000/9000-level requirement.)	2
PLNT_S 7087	Seminar (must enroll three times)	3
PLNT_S 9090	Dissertation Research	1-10 per semester

#### Electives

##### Bridging Courses to Expand Your Background in Plant Biology

PLNT_S 7315	Crop Physiology	3
PLNT_S 7320	Molecular Plant Physiology	3
PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes	4

##### Elective Courses to Fulfill the Requirement for 15 Credit Hours at 8000 or 9000 Level

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8300	Advanced Plant Genetics	3
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 8650	Ecological and Evolutionary Genomics	2
PLNT_S 9415	Advanced Plant Physiology	3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3

## Plant Stress Biology

#### Core Requirements:

PLNT_S 7315	Crop Physiology	3
or PLNT_S 7320	Molecular Plant Physiology	
PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes	4 or 2
or PLNT_S 8505	Introduction to Plant Stress Biology	
PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 8530	Research with Plant Stress Agents	3
PLNT_S 9087	Seminar in Plant Science (Must enroll twice. Only 1 credit will count towards 15 credit hour 8000/9000-level requirement)	2
PLNT_S 7087	Seminar (must enroll three times)	3
PLNT_S 9090	Dissertation Research	1-10 per semester
PLNT_S 7965	Readings in Plant Stress Biology (must take one of two courses each year.)	1-9
or PLNT_S 7970	Readings in Molecular Ecology of Herbivory	

#### Elective Courses:

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8300	Advanced Plant Genetics	3
BIOCHM 8434	Signaling in Molecular Cell Biology	3
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 9415	Advanced Plant Physiology	1-3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3

PLNT_S 9810	Insect Ecology	3
<b>Additional Entry Level Courses:</b>		
PLNT_S 7550	Plant Biotechnology	4
PLNT_S 7400	Plant Anatomy	4
STAT 7070	Statistical Methods for Research	3

## Comprehensive Examination Process

The Comprehensive Examination is a major milestone in the Ph.D. candidate's progress towards completion of the degree requirements. The candidate is expected to clearly demonstrate his/her knowledge and understanding of the principles and concepts of the chosen Graduate Program Area, related biological sciences, and the scientific method. The Comprehensive Exam should be scheduled when the student has essentially completed the required plan of study. The Comprehensive Exam must be completed at least seven months before the final examination (defense). The Comprehensive Exam Committee is the same as the Doctoral Committee.

The Comprehensive Exam requires both written and oral performance by the student to achieve candidacy. The student's advisor will select either Track I or Track II for the format of the exam. The student arranges the written and oral portion of the Comprehensive Exam with each member of the Committee.

## Dissertation Defense

A dissertation is required of every Ph.D. Candidate in the Division of Plant Sciences. This is to be a substantial scholarly manuscript of original research conducted by the student. The dissertation should reflect the depth of understanding, independent thought, and original work worthy of a Ph.D.

The Dissertation Defense consists of a research seminar and final examination. It is the student's responsibility to check the Graduate School's graduation deadlines when scheduling the exam. The seminar will be presented by the student for division faculty, staff, students, committee members, and other interested persons. The student may choose to present the seminar as part of the Division Seminar Series. It must summarize the dissertation research conducted by the student during the Doctoral program. The seminar will be followed by the final, oral examination administered by the Doctoral Committee. Although the general protocol followed during the oral examination shall be at the discretion of the Major Advisor, a typical oral examination lasts about 2 hours and is divided between discussion of the dissertation and related, dissertation subject matter. The research seminar should be scheduled the same day (preferably) or during the week preceding the remainder of the final examination.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Plant, Insect, and Microbial Sciences (<http://gradstudies.missouri.edu/academics/programs/plant-insect-microbial-sciences/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree

program to which you've applied before official admission to the University of Missouri.

## Financial Aid from the Program

Financial assistance is available to qualified students at both the MS and PhD levels, as either fellowships or research assistantships. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website (<http://plantsci.missouri.edu/graduate>) or ask the program contact for details.

## Rural Sociology

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College of Agriculture, Food and Natural Resources  
David O'Brien, Chair  
109 Gentry Hall  
(573) 882-0392  
[ObrienDJ@missouri.edu](mailto:ObrienDJ@missouri.edu)  
[dass.missouri.edu/ruralsoc/](http://dass.missouri.edu/ruralsoc/)

Carol Swaim, Administrative Assistant  
121 Gentry Hall  
(573) 882-7451  
[swaimc@missouri.edu](mailto:swaimc@missouri.edu)

The Department of Rural Sociology participates in the Bachelor of Science in Agriculture degree offered by the College of Agriculture, Food and Natural Resources and offers a minor in rural sociology. For information about the agriculture degree, see the Agriculture degree page. The Department of Rural Sociology also offers graduate degrees.

## Faculty

**Professor** D. J. O'Brien\*\*, J. S. Rikoon\*\*, J. I. Stallmann\*\*  
**Associate Professor** J. L. Gilles\*\*  
**Assistant Professor** M. Hendrickson\*\*, H. Qin\*\*  
**Teaching Assistant Professor (NTT)** C. Brock\*  
**Extension Assistant Professor** J. Adams\*  
**Associate Extension Professor** S. Jeanetta\*\*, M. S. Leuci\*  
**Research Assistant Professor** C. Fulcher\*  
**Associate Professor Emeritus** K. E. Pigg\*  
**Professor Emeritus** R. R. Campbell\*, M. Grigsby\*\*, M. F. Nolan\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Minor in Rural Sociology (p. 124)

Advisor: Caroline Brock  
[brockcc@missouri.edu](mailto:brockcc@missouri.edu)

Administrative Assistant: Carol Swaim  
[Swaimc@missouri.edu](mailto:Swaimc@missouri.edu)  
(573)882-7451  
<http://dass.missouri.edu/ruralsoc/>

## Graduate

- MS in Rural Sociology (p. 123)
- PhD in Rural Sociology (p. 124)

121 Gentry Hall  
(573) 882-7451  
<http://dass.missouri.edu/ruralsoc/>

**Director of Graduate Studies:** Jere Gilles

The Department of Rural Sociology offers the MS and PhD degrees. The program consists of broad training in sociological theory and methodology with attention to application and policy issues.

Students entering with a bachelor's degree normally are admitted into the master's program even if they are going on to a PhD, exceptional students may be admitted to the Masters/PhD program. Up to 12 hours of makeup work may be required for students who have less than adequate undergraduate preparation in the social sciences.

## Specializations

Areas of specialization in the department are: sustainable development, community facilitation, and analytical processes

## Financial Aid from the Program

Request for financial support is made by the student at the time of application. Most of the financial support is for research assistantships. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## MS in Rural Sociology

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### Degree Requirements

#### Professional Master's Degree

The principal master's degree in rural sociology is the 39-credit-hour professional master's degree. The program is designed to prepare students for positions in the public and private sectors, and it is particularly useful for positions that include applied research, policy analysis or community development. Students who wish to complete a master's degree in rural sociology followed by a doctoral degree in the program also are encouraged to pursue the degree.

The professional master's degree has two options:

1. The community facilitation option for individuals interested in working for government, extension and non-governmental agencies in the field of community development
2. The analytical processes option for students wishing to do policy analysis for government agencies.

Students must have a grade point average of 3.0 or greater and must have completed at least 15 hours of coursework at or above the 8000 level. Both programs require an internship

#### Traditional Master's Degree

A 30-credit-hour traditional master's degree, requiring a thesis, is also offered. The degree primarily is intended for those who intend to pursue doctoral studies or who have a special reason for wanting a thesis degree. Although it requires fewer credit hours, a thesis degree normally

requires one semester longer to complete than the professional master's degree.

## Sample Plan of Study

### Professional Master's Degree

Required Courses		15-18
RU_SOC 7325	American Community Studies	3
RU_SOC 7341	Building Communities from the Grassroots	3
RU_SOC 8450	Research in Rural Sociology (internship)	3-6
RU_SOC 8510	Research Methods and Design	3
PUB_AF 8195	Economic Analysis for Public Policy - Mid Career	3

Core Courses (must take three courses)		9
RU_SOC 7120	Social Statistics	3
RU_SOC 7335	Social Change and Development	3
RU_SOC 7370	Environmental Sociology	3
RU_SOC 7446	Community Social Structure	3
RU_SOC 8287	Seminar on Sustainable Development	3
RU_SOC 8436	Community, Natural Resources and Sustainability	3
RU_SOC 8444	Agriculture, Food and Community	3
RU_SOC 8447	Seminar on Contemporary Issues in Rural Sociology	1-99
RU_SOC 8610	Economic and Sociological Approaches to Collective Action	3

Community Facilitation Option (additional requirements)	
Must take three of the following:	
RU_SOC 7342	Empowering Communities for the Future
RU_SOC 7343	Creating Capacity for Dynamic Communities
RU_SOC 8130	Advanced Social Statistics
PUB_AF 8150	Collaborative Governance
PUB_AF 8310	E-Democracy in Theory and Practice
RU_SOC 8430	Program Development and Evaluation
AG_ED_LD 8430	Evaluation of Educational Programs
SOCIOL/RU_SOC 7120	Social Statistics
RU_SOC/AG_ED_LD 8540	Methods of Qualitative Research

Analytical Process Option (additional requirements)	
Additional Requirements:	
RU_SOC 8130	Advanced Social Statistics
RU_SOC 8430	Program Development and Evaluation
RU_SOC 9480	Community Survey Research
PUB_AF 8320	Spatial Analysis for Public Affairs
AG_ED_LD 8540	Methods of Qualitative Research

Must take two of the following:	
PUB_AF 8150	Collaborative Governance
PUB_AF 8340	Regional and Economic Development Policy
AG_EC 7310	Local Economics Analysis
AG_EC 8060	Mathematical Modeling for Social Scientist
ESC_PS 9650	Application of Multivariate Analysis in Educational Research

### Traditional Master's Degree

Required Courses	
RU_SOC 8130	Advanced Social Statistics (or equivalent)

Entering graduate students should already have a basic statistics course. No credit will be received for:	
RU_SOC 7120	Social Statistics
or STAT 1400	Elementary Statistics for Life Sciences
RU_SOC 8510	Research Methods and Design (or equivalent)
SOCIOL 9187	Seminar in Sociological Theory I
Additional credit hours	18

## Thesis/Non-Thesis Requirements

### Non-Thesis Requirements

The Professional Master of Science degree does not require a thesis. Instead students are required to complete an internship.

### Thesis Requirements

Students pursuing the Traditional Master of Science degree must complete a thesis. The the thesis take approximately 1-3 semesters to complete.

## Admissions

Admission Contact: Carol Swaim  
 Department of Rural Sociology  
 121 Gentry Hall; Columbia, MO 65211  
 573-882-7451

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Rural Sociology program (<http://gradstudies.missouri.edu/academics/programs/rural-sociology/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Minor in Rural Sociology

The rural sociology undergraduate minor requires 15 credits in rural sociology courses. Nine credits must be above the 2000 level. The specific combination of courses must be approved by a department advisor.

## PhD in Rural Sociology

### Degree Requirements

The PhD is a 72 credit hour minimum with no more than 6 hours of readings or problems courses, and a maximum of 12 dissertation research hours toward the 72 hour requirement. Coursework taken toward a master's degree in the social sciences may count toward these requirements. A student must complete thirty hours of coursework beyond the master's degree.

### Areas of Professional Expertise

In addition to the required core, every PhD student will be required to complete an "area" of concentration" comprised of a minimum of 12 credits (in the case of a minor or certificate requiring less than 12 hours, a

student must complete an additional 3 hours of coursework related to this area of concentration.

Students should select from the following options:

1. An existing Graduate Certificate Program
2. An existing Graduate Minor in a substantive Area
3. Development of an individualized "Area of Concentration".

## Sample Plan of Study

<b>Prerequisite courses (or courses taken within first year of study)</b>		
RU_SOC 8130	Advanced Social Statistics	3
RU_SOC 8510	Research Methods and Design	3
SOCIOL 9187	Seminar in Sociological Theory I	3
<b>Core Requirements</b>		<b>27</b>
RU_SOC 7335	Social Change and Development	3
RU_SOC 8287	Seminar on Sustainable Development	3
RU_SOC 8444	Agriculture, Food and Community	3
RU_SOC 8450	Research in Rural Sociology	3
RU_SOC 9437	Synthesis of Theory and Method in Sociology	3
RU_SOC/AG_ED_LD 8540	Methods of Qualitative Research	3
RU_SOC 9480	Community Survey Research	3
SOCIOL 9487	Seminar in Sociological Theory II	3
Advanced Methods course (qualitative or quantitative)		3
<b>Area of Professional Expertise</b>		<b>12</b>
		minimum

## Qualifying Process

To qualify for continuation in the Ph.D. program students must complete two full enrollment semesters at the start of their program in which they take core sequence courses and make a B or above in all courses taken. (The qualifying requirement must be met. In some cases waivers may be given within one year of enrollment in the Ph.D. program.)

## Comprehensive Examination Process

to be an official candidate for a doctoral degree the student must have passed a comprehensive examination for admission to doctoral study. This is the major examination in the doctoral training program, and must be passed BEFORE FORMAL WORK ON THE DISSERTATION IS BEGUN. It is administered by the Doctoral Program Committee.

Successful completion of a comprehensive examination must occur within five years of beginning the doctoral program. A student is ready to take the comprehensive examination when he/she has:

- Completed all of the courses listed in his/her Plan of Study with satisfactory grades.
- If they entered the program with a Masters degree that did not require a thesis, they must have written and submitted a paper for review in a scholarly journal. A copy of the paper as well as information as to where it was submitted must be in a student's file.
- Submitted and received approval from their advisory committee for their dissertation research proposal.
- Submitted an approved copy of the dissertation proposal to be kept in the student's departmental file until the dissertation is actually completed

The comprehensive examination consists of both a written and an oral examination.

- These are designed and administered by the advisory committee of the Ph.D. student.
- The comprehensive examination is designed to evaluate a student's preparedness to proceed with the dissertation.
- Students are normally given two opportunities to pass this examination.
- A copy of the completed comprehensive examination will be filed with the director of graduate studies and kept in the departmental student record.

**Written Comprehensive:** The written portion of the examination will evaluate competency in theory and methods in the student's specialty area, as well as their readiness to conduct their dissertation research. After the advisory committee indicates that a student has passed the written portion of the comprehensive examination, the oral examination will be given.

**Oral Comprehensive:** The oral portion of the examination will address issues raised on the written examination and in the student's dissertation plans. This exam is open to faculty and students; the location and time must be publicly announced a minimum of two weeks before the examination takes place. The public part of the examination will be limited to the presentation of the student's research proposal followed by questions about the proposal. Following the public oral examination the student's advisory committee will complete the examination in private.

## Dissertation Requirements

Successful completion of a dissertation or a research monograph, according to the regulations of the Office of Graduate Studies is required.

- The dissertation must be completed in keeping with the Guidelines for Preparing Thesis and Dissertations (<http://gradstudies.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline>).
- The dissertation must be completed within five years of the completion of the comprehensive examination.
- All members of the committee are expected to take an active part in the preparation of the dissertation.
- The student's committee is to conduct an oral final examination ("defense") of the dissertation/monograph.
- This examination cannot be scheduled until the advisory committee members have received a completed draft copy of the dissertation.
- This examination is to be open to faculty and students and must be publicly announced at least two weeks before the exam. Candidates should provide the Rural Sociology Department Office with an announcement including (a) the title of the dissertation, (b) the date and location of the orals, and (c) the advisor's name.
- Faculty and students may attend orals and question candidates, but cannot be present when the vote on the result of the examination is taken.
- At least four committee members must vote to pass a dissertation in order for the degree to be completed.
- The candidate must be enrolled to defend their dissertation.
- The defense must be scheduled when MU is officially in session.
- The Report of the Dissertation Defense form (D-4) and the Approval Page, which must be signed by all members of the approved committee, should be sent to the Office of Graduate Studies after the

defense has been completed and must include an electronic copy as specified by the Office of Graduate Studies.

## Admissions

Admission Contact: Carol Swaim  
121 Gentry Hall; Columbia, MO 65211  
(573) 882-7451

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Rural Sociology program (<http://gradstudies.missouri.edu/academics/programs/rural-sociology/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Science and Agricultural Journalism

Sharon Wood-Turley, Program Chair  
112 Gentry Hall  
(573) 882-7645  
Fax: (573) 884-4444  
[swt@missouri.edu](mailto:swt@missouri.edu)

The College of Agriculture, Food and Natural Resources, in cooperation with the Missouri School of Journalism, offers a degree program in Science and Agricultural Journalism (<http://dass.missouri.edu/agj>). This curriculum prepares students to communicate about issues related to science and agriculture, including: the food system (including everything from traditional production agriculture to grape and wine production), natural resources, the life sciences, the environment, and medical and agricultural biotechnology.

Graduates are prepared to enter a wide variety of media professions including: public relations, marketing, multimedia/web production, photography, magazine writing, reporting and broadcast.

Students must meet all GPA requirements of the Missouri School of Journalism. Check with your advisor for details. The department offers the Bachelor of Science with a major in Science and Agricultural Journalism.

## Faculty

**Assistant Teaching Professor** W. Allen\*, S. Wood-Turley\*  
**Instructor** L. Sowers, N. Furstenau

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Science and Agricultural Journalism (p. 127)

## Major Program Requirements and Options in Science and Agricultural Journalism

When you major in science and agricultural journalism (<http://dass.missouri.edu/agj>), you gain access to the strengths of two nationally renowned programs: the Missouri School of Journalism and the MU College of Agriculture, Food and Natural Resources. Students combine courses in a subject area related to agriculture and the food system with a specialization in a specific medium/communications focus in the School of Journalism.

**The Science and Agricultural Journalism Program provides you with five subject matter tracks to select from:**

(Note: Tracks do not appear on transcripts or diplomas.)

- Agricultural Marketing
- Agricultural Science
- Conservation and Environmental Sciences
- Food and Wine
- Science

**In addition, you can focus on one of the following media emphasis areas in the Journalism School, or select courses from a combination of:**

- Convergence Journalism (a combination of media skills)
- Magazine Journalism
- Photojournalism
- Print and Digital News
- Radio-Television Journalism
- Strategic Communications (Advertising and Public Relations)

## Agricultural Marketing Track

The Agricultural Marketing Track prepares students for careers in the agribusiness, government and other sectors where the specialized skills of writing, multimedia, marketing and strategic communications are in high demand. This track includes courses within the College of Agriculture, Food and Natural Resources in the Ag Marketing System, Ag Sales, Fundamentals of Entrepreneurship, New Products Marketing, International Food Trade and Policy, Agribusiness Finance and Agribusiness Management Strategy.

## Agricultural Science Track

The Agricultural Science Track prepares students for careers in the news media, agricultural industry, government and other sectors where an in-depth knowledge of plant, animal and food science is in high demand along with specialized skills in writing, multimedia and other forms of communication. This track includes courses within the college of Agriculture, Food and Natural Resources in Plant Growth and Culture; Genetics of Ag Plants and Animals; Animal Science; Global Animal Agriculture; Food Science and Nutrition; Meat Classification, Grading and Judging; Elements of Food Microbiology; and Principles of Meat Science.

## Conservation and Environmental Sciences Track

The Conservation and Environmental Sciences Track prepares students for careers writing about the environment, energy, conservation and nature. From climate change, endangered species and clean water to

wildlife, forestry and outdoor activities - students in this track will gain an understanding of the complex issues on these beats and the complex job of communicating about them. This track includes a specialized course in Field Reporting and can include a trip to the annual national meeting of the Society of Environmental Journalists, a non-advocacy group. Other courses within the College of Agriculture, Food and Natural Resources in this track include Introduction to Environmental Science, Ecology and Renewable Resource Management; Introduction to Meteorology; Climates of the World; Soils and the Environment; Environmental Economics and Policy; and Water Quality and Natural Resources Management.

## Food and Wine Track

Interest in food and wine is growing among consumers and the news media industry. Also, dairy, meat and wine are major industries in Missouri. This track prepares students for journalism and strategic communications careers in this increasingly important sector. The Food and Wine Track includes a specialized course in covering food and wine. Other courses within the College of Agriculture, Food and Natural Resources in this track include Introduction to Food Science, Elements of Food Microbiology, Introduction to Viticulture (grape production) and Enology (wine production), Grapes and Wines of the World, Principles of Wine Production and Principles of Wine Cellar Operation.

## Science Track

The Science Journalism Track prepares students for careers covering news and information on the frontiers of science - from biotechnology and nanotechnology to astronomy, climate, geology and the human brain. Students in this track will gain an understanding of the scientific, social, political and economic forces that shape the world of science and technology today, a world that increasingly affects the way we live and learn. This track includes such courses as Explaining Research; Earth Systems and Global Change; Introduction to Meteorology; Physics for Poets; Mind, Brain and Behavior; Science, Technology and Society; and Readings in Science Journalism. This track will enable excellent preparation for students in both journalism and strategic communications.

## Graduate

While the College of Agriculture, Food and Natural Resources does not offer a graduate degree in science and agricultural journalism, the College does offer graduate degrees and certificates in a number of disciplinary areas. The catalog provides a complete list of these degree options (p. 17) at the University of Missouri, including the School of Journalism (p. 636).

# BS in Science and Agricultural Journalism

## Degree Program Description

Science and Agricultural Journalism involves communicating about agriculture, the life sciences, the environment, food, natural resources, and medical and agricultural biotechnology. This degree prepares students to succeed in a wide variety of careers in science and agricultural journalism, advertising and public relations, by combining the strengths of the MU School of Journalism and the MU College of Agriculture, Food and Natural Resources (CAFNR). The program allows students to pick one of five tracks, Agricultural Marketing, Agricultural Science, Conservation and Environment, Food and Wine, Science. In

addition, students can focus on one of 30 interest areas in the School of Journalism, or pick courses from any combination. Interest areas include: Print and Digital News, Radio and Television Journalism, Magazine Journalism, Strategic Communications (advertising and public relations), Photojournalism, Convergence Journalism (multimedia). Possible careers with a degree in Science and Agricultural Journalism: Online/multimedia editors and reporters use their skills to tell stories using the richness of text, audio, photography, video and animation. Public relations specialists work in agencies, corporate communications, educational institutions, commodity groups and nonprofit agencies. Photojournalists use the power of visual media to communicate about agriculture, technological advances, people, social issues and natural disasters. Social media specialists know how to use new communication tools such as Facebook, Twitter and blogs to communicate directly to individuals. Science/environment writers take the complex topics the world faces today (global warming, food security, sustainable living, energy creation) and use their reporting skills to present unbiased information for the general public in a variety of media outlets.

## Major Program Requirements

Students earning a Bachelor of Science in Science and Agricultural Journalism are required to complete all University general education (p. 33), University undergraduate requirements (p. 32), degree and major requirements including selected foundational courses, which may fulfill some University general education requirements. In addition, all students must complete 42 hours of Journalism coursework, 6 hours of Science and Agricultural Journalism courses, and 18 hours in one of the Science and Agricultural Journalism tracks (Agricultural Marketing, Agricultural Science, Conservation and Environment, Food and Wine, and Science). In addition, internship experience is strongly encouraged. A minimum of 120 credit hours is required for a B.S. in Science and Agricultural Journalism. Students must meet all GPA requirements for Journalism courses.

### Foundational Courses

AG_EC 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
AG_EC 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	

Some courses may require the following courses. Please work with your advisor to be sure you are enrolling the appropriate Biological and Physical Science courses.

CHEM 1100	Atoms and Molecules with Lab	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	

**Major core requirements** 66

### Journalism

JOURN 1100	Principles of American Journalism	3
JOURN 2000	Cross-Cultural Journalism	3
JOURN 2100	News	3
JOURN 2150	Fundamentals of Multimedia Journalism	3
JOURN 4000	Communications Law	3
JOURN 4200	Principles of Strategic Communication	3
JOURN 4400	Introduction to News Editing	2
JOURN 4406	Digital News Editing	3
or JOURN 4408	Magazine Editing	
JOURN 4450	News Reporting	3
Journalism electives		16

### Science and Agricultural Journalism



SCI_AG_J 1160	Introduction to Science and Agricultural Journalism	3
SCI_AG_J 4970	Agriculture and the Media Senior Seminar Capstone	3
or SCI_AG_J 4414	Field Reporting on the Food System and Environment	
or SCI_AG_J 4940	Internships in Science and Agricultural Journalism	
<b>Science and Agricultural Journalism Tracks</b>		<b>18</b>

(Note: Tracks are not listed on transcripts or diplomas.)

## Semester Plan

Below is a sample plan of study, semester by semester. Your actual plan may vary based on course choices where options are available. The plan shown is for a student completing the magazine writing interest area and the conservation/environment track.

First Year			
Fall	CR Spring	CR Summer	CR
SCI_AG_J 1160	3 AG_EC 1042	3 MATH 1100	3
BIO_SC 1010	3 BIO_SC 1020	2	
NAT_R 1070	3 COMMUN 1200	3	
ENGLSH 1000	3 JOURN 1100	3	
AG_EC 1041	3 HIST 1200	3	
	15	14	3

Second Year			
Fall	CR Spring	CR Summer	CR
JOURN 2150	3 AG_EC 2223	3 CHEM 1100	3
JOURN 2000	3 AG_EC 2070	3	
SCI_AG_J 3240	3 JOURN 2100	3	
AG_ED_LD 2220	3 SCI_AG_J 3210	3	
ENV_SC 1100	3 ESC_PS 4170	3	
	15	15	3

Third Year			
Fall	CR Spring	CR Summer	CR
JOURN 4450	3 JOURN 4550	3 JOURN 4940	2
JOURN 4506	3 SCI_AG_J 4415	3	
ATM_SC 3600	3 SCI_AG_J 4480	3	
JOURN 4000	3 ENV_SC 3330	3	
	12	12	2

Fourth Year			
Fall	CR Spring	CR	
AN_SCI 2110	2 SCI_AG_J 4970	3	
JOURN 4408	3 PLNT_S 2110	3	
JOURN 4464	3 JOURN 4984	3	
RU_SOC 1120	3 JOURN 4510	3	
SCI_AG_J 4414	3 RU_SOC 4370	3	
	14	15	

Total Credits: 120

## Additional Minors and Certificates - CAFNR

### Undergraduate Certificates

- Certificate in Precision Agriculture Technology (p. 130)

### Undergraduate Minors

- Minor in Agricultural Leadership (p. 128)
- Minor in Captive Wild Animal Management (p. 128)
- Minor in Forestry (p. 129)
- Minor in International Agriculture, Food & Natural Resources (p. 129)
- Minor in Soil, Environmental and Atmospheric Sciences (p. 129)
- Minor in Sustainable Agriculture (p. 130)
- Minor in Viticulture & Enology (p. 130)

### Graduate Certificates

- Certificate in Agroforestry (p. 131)
- Certificate in Analysis of Institutions and Organizations (p. 131)
- Certificate in Food Safety and Defense (p. 132)

## Minor in Agricultural Leadership

The minor in Agricultural Leadership is for students interested in enhancing their public speaking, analytical reasoning, critical thinking, effective writing and teamwork skills. A student must complete 15 credits of coursework related to leadership and personal development from the list of approved courses. The coordinator of the minor must approve courses not on the list. With appropriate approval, an internship with a focus upon providing the student practical experiences in leadership and supervisory roles can be counted toward the 15 credit requirement.

### Approved Courses

AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
AG_ED_LD 2250	Introduction to Leadership	3
AG_ED_LD 2260	Team and Organizational Leadership	3
AG_ED_LD 2270	Leadership Development in Youth Organizations	3
AG_ED_LD 4340	Designing and Delivering Educational/Leadership Programs	3
AG_EC 2223	Agricultural Sales	3
AG_EC 3241	Ethical Issues in Agriculture	3
AG_EC 3283	Fundamentals of Entrepreneurship	3
P_R_TR 3210	Personnel Management and Leadership in Leisure Services	3
RU_SOC 2010	Leadership in Today's World	3

## Minor in Captive Wild Animal Management

Students majoring in Animal Science can obtain a minor in captive wild animal management by taking courses in Animal Science, Natural Resources, and Fisheries and Wildlife that focus on captive wild animals.

### Core Courses

AN_SCI 1012	Introduction to Captive Wild Animal Management	3
or F_W 1012	Introduction to Captive Wild Animal Management	
F_W 3600	Introduction to Conservation Biology	3
AN_SCI 3242	Principles and Applications of Animal Nutrition	4
AN_SCI 3254	Physiology of Domestic Animals	5

AN_SCI 4940	Internship in Animal Science & Technology	3
or F_W 4940	Fisheries and Wildlife Internship	
AN_SCI 4910	Senior Seminar in Captive Wild Animal Management	1
or F_W 4910	Senior Seminar in Captive Wild Animal Management	

#### Ecology Courses (choose one)

BIO_SC 3400	Evolution and Ecology
BIO_SC 3650	General Ecology

#### Genetics Course (choose one)

AN_SCI 3213	Genetics of Agricultural Plants and Animals
F_W 2500	Introduction to Genetics and Evolution for Conservation

#### Wild Animal Ecology & Natural History Courses (select two)

F_W 2600	Ornithology
F_W 2700	Ichthyology
F_W 3660	Mammalogy
BIO_SC 3260	Invertebrate Zoology
BIO_SC 3710	Introductory Entomology
F_W 3700	Animal Behavior
BIO_SC 4640	Behavioral Biology
PSYCH 4220	Animal Learning and Behavior

#### Advanced Physiology, Nutrition & Disease Courses (Choose two)

AN_SCI 4312	Monogastric Nutrition
AN_SCI 4314	Physiology of Reproduction
AN_SCI 4332	Ruminant Nutrition
AN_SCI 4384	Reproductive Management
AN_SCI 4386	Equine Reproduction
AN_SCI 4387	Equine Breeding Management
AN_SCI 4437	Environmental Physiology
F_W 4810	Wildlife Disease Ecology
AN 323 Zoo Nutrition (Must be taken through Colorado State University)	

## Minor in Forestry

The minor requires a minimum of 15 credit hours of coursework in the Forestry curriculum.

Nine of the required hours must be taken in classes numbered at the 3000 level or above from the following courses:

FOREST 2151	Dendrology (required of all students)	4
FOREST 3207	Forest Fire Control and Use	2
FOREST 3290	Urban Forestry	2
FOREST 4320	Forest Ecology	5
FOREST 4330	Practice of Silviculture	3
FOREST 4360	Photogrammetry, Inventory and Models	3
FOREST 4390	Watershed Management and Water Quality	3
FOREST 4350	Forest Economics	3

## Minor in International Agriculture, Food & Natural Resources

The world is becoming increasingly complex and integrated in nearly every category of human endeavor. An understanding of how global markets, natural resources, food production, and international trade and cooperation are affected by societies, languages, cultures, and

governments is an essential component of a well-rounded 21<sup>st</sup> century education in AFNR. To facilitate these studies, the multidisciplinary International AFNR Minor offers academic recognition for achieving a level of expertise in coursework of international focus.

#### Coursework

- Fifteen credit hours, selected from the course list below, are required for the minor.
- At least 9 of the 15 hours must be approved CAFNR courses at the 3000 or 4000 level.
- There is flexibility in choice of the remaining 6 credit hours.
  - These can be (1) approved CAFNR elective courses, including study abroad, and (2) other MU courses of international focus, including foreign language, as approved by the International Education Committee.
  - Questions should be directed to the Office of Academic Programs (cafnradvising@missouri.edu).
- Students interested in this minor should complete the online CAFNR minor form located at [cafnr.missouri.edu](http://cafnr.missouri.edu).

Although the focus of this minor is not to add foreign language skills, students are strongly encouraged to invest in language to make themselves more competent in the international arena, to gain a competitive advantage for employment, and to advance their careers overall.

#### Choose at least 15 hours from the following:

AG_EC 3271	International Agricultural Development	3
AG_EC 3272	International Food Trade and Policy	3
AG_EC 3150	International Agribusiness	3
AG_EC 3230	Agricultural and Rural Economic Policy	3
AFNR 2190	International Agriculture and Natural Resources	1-15
AFNR 2191	International Agriculture and Natural Resources - Humanities	1-6
AFNR 2192	International Agriculture/Natural Resources-Social Science	1-6
AN_SCI 2110	Global Animal Agriculture	2
ATM_SC 3600	Climates of the World	3
F_S 2195	Grapes and Wines of the World	3
F_S 3190	Study Abroad: International Meat, Dairy and Enology	3
or F_S 3190H	Study Abroad: International Meat, Dairy and Enology - Honors	
F_W 3090	International Studies in Conservation	1-5
FOREST 4385	Agroforestry I: Theory, Practice and Adoption	3
HSP_MGMT 4200	Destination Management	3
P_R_TR 2082	Domestic and International Sports Environment	1
RU_SOC 3235	Global Perspectives and Realities	3
SOIL 4320	Genesis of Soil Landscapes	4

## Minor in Soil, Environmental and Atmospheric Sciences

A minor in soil, environmental and atmospheric sciences is offered at the undergraduate level with three options: atmospheric science, environmental science, and soil science.

The minor in soil, environmental, and atmospheric sciences with an option in atmospheric science prepares the student for jobs in journalism and broadcast meteorology as well as for certification required by government agencies. A minor with an option in atmospheric science requires a minimum of 15 credits including:

ATM_SC 1050	Introductory Meteorology	3
ATM_SC 2720	Weather Briefing	1
ATM_SC 3600	Climates of the World	3
Additional 8 credits in atmospheric science or in a closely related area as recommended by the minor advisor, and may include the following		8
ATM_SC 2150	Natural Hazards	
ATM_SC 2792	Weather Communication	
ATM_SC 4520	Environmental Biophysics	
Total Credits		15

The minor in soil, environmental and atmospheric sciences with an option in environmental science requires a minimum of 15 credit hours in environmental science courses with at least 9 credit hours at the 3000 level or above. This minor provides students an opportunity to enhance their understanding of the environment, interrelationships between various components of the environment, and a firm understanding of environmental issues. Selection of courses should be made in consultation with an advisor in environmental science. The following courses are required:

ENV_SC 1100	Introduction to Environmental Science	3
ENV_SC 3290	Soils and the Environment	3
ENV_SC 3330	Environmental Land Use Management	3
F_W 3400	Water Quality and Natural Resource Management	3
Additional credits in environmental science as recommended by the advisor		3
Total Credits		15

The minor in soil, environmental and atmospheric sciences with an option in soil science requires a minimum of 15 credits in soil science. Selection of courses should be made in consultation with an advisor in soil science. Students with the following majors often choose minors with an option in soil science: forestry, fisheries and wildlife, plant science, and geological sciences. This minor also provides assistance with meeting certification as a waste water specialist. The following courses are required:

SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
SOIL 4320	Genesis of Soil Landscapes	4
Additional credits at the 3000 level or higher in soil science as recommended by the minor advisor		6
Total Credits		15

## Minor in Sustainable Agriculture

The minor in sustainable agriculture is for students interested in exploring agriculture and food systems that promote profit-ability, steward our natural resources, and provide enhanced quality of life for farmers, citizens and communities. A student must complete 15 credits of coursework that introduces concepts of sustainable agriculture, provides practical information on natural resources and food production, and investigates the impact of different philosophical and scientific frameworks on food and agriculture.

### Required coursework includes:

AFNR 2215	Introduction to the Theory and Practice of Sustainable Agriculture	3
AFNR 3215	Community Food Systems	3
AFNR 3315	Advanced Practices in Sustainable Agriculture	3
SOIL 2100	Introduction to Soils	3
AG_EC 3241	Ethical Issues in Agriculture	3
or BIOCHM 2112	Biotechnology in Society	
Total Credits		15

## Minor in Viticulture & Enology

The Viticulture and Enology Minor is for students interested in pursuing the broad career options available in the rapidly growing Midwest grape and wine industry. The curriculum consists of a diverse mixture of foundational and specialized courses from both Plant Sciences and Food Science. Students will learn skills from establishment of grape vines, culturing, and wine making. This integrated minor will benefit students seeking career options as well as the novice pursuing a hobby.

### Curriculum requirements

Requirements of the Minor in V&E consist of seven (7) courses, which are divided into four core courses and three elective courses (from a selection of five courses). Required core and elective courses are described in Table 1. A total of 21-22 credit hours are required to complete the Minor in V&E. For students currently pursuing a B.S. in Food Science or Plant Sciences, six and five credit hours, respectively, over and above current requirements would be necessary. This is achievable within the elective hours in both degree programs.

### Core Courses (15 credits)

PLNT_S 2100	Introduction to Soils
PLNT_S 2110	Plants and their Cultivation
or PLNT_S 2125	Plant Structure and Function
PLNT_S/F_S 3240	Principles of Viticulture I
F_S 4440	Principles of Winemaking and Wine Chemical Analysis

### Electives; select 9 credits

F_S/PLNT_S 2195	Grapes and Wines of the World
F_S/PLNT_S 4340	Principles of Viticulture II
F_S 4441	Cellar Operations and Special Vinifications
PLNT_S 3225	Plant Breeding and Genetics
PLNT_S 4313	Soil Fertility and Plant Nutrition

## Certificate in Precision Agriculture Technology

The Precision Agriculture Technology certificate provides students with the knowledge and skills to address a growing industry need in the technology of precision agriculture. The certificate program will prepare and/or enhance students' knowledge of the industry thru two key areas:

1. Coursework and intensive on-site labs that focus on precision agriculture technologies utilized by professionals in the field of precision agriculture.

2. Beneficial supporting courses including statistical analysis courses, Plant Science courses, Communications courses, and Agricultural Economics courses.

The certificate is composed of 12 required courses listed below:

#### Required Courses

AG_S_M 4360	Precision Agriculture Science and Technology	3
AG_S_M 4365	Machinery Management Using Precision Agriculture Technology	3
AG_S_M 4366	Data Management and Analysis Using Precision Agriculture Technology	3
AG_S_M 4368	Profit Strategies Using Precision Agriculture Technology	3
Total Credits		12

Students are also encouraged to choose from the following suggested courses to further their depth of knowledge and skills in the area. Several of these courses have pre-requisites, so students should plan ahead to complete them in a timely manor.

#### Suggested Support Courses

STAT 1200	Introductory Statistical Reasoning	3
PLNT_S 2100	Introduction to Soils	3
PLNT_S 2110	Plants and their Cultivation	3
AG_ED_LD 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
SCI_AG_J 3210	Fundamentals of Communications	3
AG_EC 3260	General Farm Management	3

## Graduate Certificate in Agroforestry

Agroforestry is intensive land-use management combining trees and/or shrubs with crops and/or livestock. It also is new market opportunities. Sustainable agriculture. Land stewardship. Habitat for wildlife. Improved water quality. Diversified farm income.

This 12-hour online graduate certificate, from the Center for Agroforestry at the University of Missouri, provides students with agroforestry fundamentals as well as theoretical foundations in both the biophysical and socioeconomic components of agroforestry.

Designed for individuals with years of experience in agroforestry but lacking a formal credential, it is a perfect fit for those interested in or involved with the Peace Corps, or possessing a bachelor's degree in a related area but no formal training in agroforestry.

Holders of this certificate generally work as professional and consulting foresters, certified crop or horticulture advisors, extension agents, international development experts, soil and plant scientists, forestry and conservation science teachers and educators, and as forestry or soil and water conservation agents.

This online graduate certificate program is unique and fills a void worldwide. To the best of our knowledge, there are no similar programs in agroforestry elsewhere in the United States or abroad.

#### Required Courses

<b>Agroforestry Fundamentals</b>	3
FOREST 4385/7385 Agroforestry I: Theory, Practice and Adoption	
<b>Biophysical Foundation (choose two)</b>	6

FOREST 8385	Ecological Principles of Agroforestry	
ENV_SC 4396/7396	Agroforestry for Watershed Restoration	
NAT_R 7325	Introduction to Geographic Information Systems	
FOREST 4390/7390	Watershed Management and Water Quality	
SOIL 4313/7313	Soil Fertility and Plant Nutrition	
<b>Socioeconomic Foundation (choose one)</b>		3
FOREST 4387	Agroforestry Economics and Policy	
NAT_R 4353/7353	Natural Resource Policy/Administration	

For information about certificate, contact:

Dr. Shibu Jose,  
 Department of Forestry, School of Natural Resources  
 203 Anheuser-Busch Natural Resources Building  
 University of Missouri  
 Columbia, MO 65211  
 email: musnforestry@missouri.edu  
 (573) 882-7045

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/agroforestry-certificate/agroforestry-ge/Gedt.html>

## Graduate Certificate in Analysis of Institutions and Organizations

The Certificate Program focuses on the structures and processes of Institutions and Organizations in changing environments. Institutions are the "rules of the game" that shape human interaction and consist of both formal rules (e.g. legal-contractual) and informal structures (norms, values and beliefs). Organizations are the concrete, humanly devised entities in which people interact and pursue goals, ranging from families to private and nonprofit firms and public agencies. This certificate emphasizes the common foundations of institutional analysis across academic disciplines including economics, sociology, political science, psychology, anthropology, geography, and law, as well as the ways that multidisciplinary perspectives can inform each other.

Certificate web site: <http://dass.missouri.edu/agecon/grad/dass-certificate-in-institutions-and-organizations.pdf>

### Certificate Requirements

Required Courses		
RU_SOC 7335	Social Change and Development	3
AG_EC 8050	Economics of Institutions and Organizations	3
Take any three of the following:		
RU_SOC 7446	Community Social Structure	3
AG_EC 7972	Agri-Food Business and Cooperative Management	3
AG_EC 8430	International Agricultural Development Policy	3
RU_SOC 8447	Seminar on Contemporary Issues in Rural Sociology	1-99
AG_EC 8520	Economics of Transaction and Contracting	3
AG_EC/RU_SOC 8610	Economic and Sociological Approaches to Collective Action	3
RU_SOC 9480	Community Survey Research	3
AG_EC 9510	Economics of Agribusiness Firm	3
LAW 5591	Food Law and Policy *	1-3
LAW 5335	Agricultural Law *	1-3

\* Students who wish to sign up for LAW courses should contact Denise Boessen at the Law School at BoessenN@missouri.edu or 573-882-8269.

For information, contact:

Dr. David O'Brien  
Certificate Director, Rural Sociology  
obriendj@missouri.edu

Dr. Jere Gilles  
Director of Graduate Studies, Rural Sociology

Dr. Harvey James  
Director of Graduate Studies, Agricultural and Applied Economics

Phone: 573-882-7451

Address: 109 Gentry Hall, Columbia, MO 65211

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/analysis-of-institutions-and-organizations-certificate/analysis-inst-ge/Gedt.html>

## Graduate Certificate in Food Safety and Defense

By providing a distance education Food Safety and Defense Graduate Certificate program, we will serve the needs of industry and agencies that must protect the human food supply from accidental or deliberate contamination with pathogenic microbes and/or toxicants. In an era of terrorism and global food systems, effective control of foodborne hazards requires advanced education. There is a need for online education for food industry personnel who, while working full time, would like to pursue more in-depth specialized training in food safety and defense that is pertinent to their job.

Kansas State University, Iowa State University, University of Nebraska-Lincoln and the University of Missouri, Columbia have developed pertinent food safety and defense distance education courses and have established a multi-state agricultural consortium to develop and deliver high-priority collaborative distance education programs in the food and agricultural sciences.

### Food Safety and Defense Graduate Certificate Learning Outcomes

1. Synthesize a current and multi-faceted picture of key food safety and security issues.
2. Apply in real-world situations the scientific principles of microbial and chemical risk assessment and analysis related to food safety and defense issues.
3. Analyze and apply the concepts of HACCP (Hazard Analysis and Critical Control Point) programs, as well as other safety and defense approaches, in the management of food safety and defense in food systems.
4. Evaluate food safety and defense issues in the food industry using the perspectives of sound science, critical thinking and ethical reasoning.

## Food Safety and Defense Certificate Requirements

The online certificate includes a minimum of 12 credits, 8-9 credits in core courses and at least 3 elective credits, on topics including food microbiology, foodborne toxicants, HACCP, food safety and security overview, food laws, risk assessment, food biotechnology, rapid food microbiological methods, and food fermentations with each participating university offering at least one course on a regular basis, and each university cross-listing all courses.

Students must meet admissions requirements as outlined for this program: <http://online.missouri.edu/degreeprograms/cafnr/food-safety-defense/grad-cert/admissions.aspx#howtoapply> or equivalent degree at their respective universities. A tuition disbursement framework as in operation for the Great Plains Interactive Distance Education Alliance (IDEA) consortium will be used. Certificate enrollments of 20-25 students per year are anticipated, with time to completion of 2-3 years (1-2 courses per semester). See the Great Plains IDEA (<http://www.gpidea.org>) for further information.

### Admission standards and prerequisites for the certificate program.

Successful applicants must be a graduate of an accredited institution and normally must rank in the upper quartile (3.0 grade point average) of their class to gain admission. Undergraduate preparation should include emphasis in chemistry and biology or food science.

### Course Requirements

Courses required for the Food Safety and Defense Graduate Certificate belong to Kansas State University, Iowa State University, University of Nebraska and the University of Missouri. For more information refer to the Food Safety and Defense Graduate Certificate website: <http://foodscience.missouri.edu/graduate/foodsafetycert.php>

### For additional information contact:

- Azlin Mustapha, Ph.D., Professor and Director of Graduate & Certificate Programs
- E-mail: [MustaphaA@missouri.edu](mailto:MustaphaA@missouri.edu)
- Telephone: 573-882-2649
- Address: 246 William Stringer Wing, University of Missouri, Columbia, MO 65211

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/food-safety-and-defense-graduate-certificate/food-safety-ge/Gedt.html>.

## College of Arts and Science

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### Administration

Michael J. O'Brien, Dean  
Theodore A. Tarkow, Associate Dean

Arts and Science Dean's Office  
317 Lowry Hall  
(573) 882-4421

### Contact Information

Arts and Science Advising Support Services  
107 Lowry Hall  
(573) 882-6411  
umcasadvising@missouri.edu

The College of Arts and Science, established in 1841, is the oldest and largest academic division in the university. The majority of MU undergraduates are enrolled in the college, which provides undergraduate and graduate programs in humanities, fine and performing arts, and social, behavioral and natural sciences. It also offers a solid foundation in basic studies for students in professional and specialized programs in other colleges. In addition to offering degrees in a wide range of academic disciplines, the College also allows creative and useful combinations of disciplines in both the Interdisciplinary Studies and General Studies baccalaureate degrees.

A liberal education is the foundation of study in many disciplines. It enables students to serve roles in society or to continue their education with advanced academic study. To these ends, the college encourages excellence in teaching and scholarship among its faculty and provides both traditional and innovative undergraduate curricula. Degree programs allow flexibility in individual courses of study.

Many students who enroll in the college during their first two years at the University have not yet decided upon a major field of study. The structure of the college is such that students generally need not commit themselves to a major until the beginning of the junior year. This allows students time to explore possibilities and to consider their likes and dislikes and their personal and professional objectives. Students are encouraged to work closely with academic advisors while deciding on a program of study.

Students planning to enter the schools of Journalism, Law, Medicine or Veterinary Medicine often spend their first two or four years in the College of Arts and Science in preparation for professional training. Most students, realizing the increased necessity for a broad background in the liberal arts for all professions, earn an undergraduate degree in the college before enrolling in the schools of Law or Medicine. Preprofessional study for veterinary medicine may be completed either in the College of Agriculture, Food and Natural Resources or in the College of Arts and Science.

### Undergraduate

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### College of Arts and Science Requirements

To earn any degree from the College of Arts and Science, in addition to the university requirements a candidate must fulfill each of the following:

- Complete all course work required for the Arts and Science Foundation Requirements.
- Basic Skills, Breadth of Study and Depth of Study requirements
- Sufficient elective credits to bring the total earned credits to 120
- Earn a GPA of 2.0 in the following categories:
  - A minimum 2.0 cumulative MU GPA
  - A minimum 2.0 MU GPA in all courses taken in the major
  - A minimum 2.0 MU GPA in all courses taken in the minor, if student is completing one
- Attain grades of C- or higher in the major and optional minor. Some departments of the college have higher minimum grade requirements in specified courses.
- Earn a minimum of 30 credits in courses numbered 3000 or above, which may include courses in the major. These courses must be regularly accepted for credit in the College of Arts and Science. A few specifically identified math, science, and music courses numbered at the 2000-level may be used to meet this requirement. Additional information is available in appropriate advising offices
- Completion of a course that meets the college's diversity (DI) requirement.

### Credit Restrictions

#### Time Limit on Credits Earned

Credit that is applied toward a degree is considered valid for eight years. After that time, the validity of credit already on the transcript will be reevaluated. Departments of the college have the right to accept or to reject credit earned after eight years have passed.

#### Credit Toward Degree

Some courses are not accepted toward a degree in the College of Arts and Science. They are:

- MIL\_SC 1100, MIL\_SC 1130, MIL\_SC 2210 and MIL\_SC 2230
- Vocational courses, such as radio repair or keyboarding

- Developmental courses, such as MATH\_0110, English Language Support Program courses, spelling and grammar

## Sequence

Credit for a more advanced course within a sequence will not apply toward graduation if a student subsequently completes a less advanced course. (For example: completion of FRENCH 1200 after FRENCH 2100 or completion of MATH 1100 after MATH 1300.)

## Maximum Credit Policies

- With the exception of MATH 1100, MATH 1120 (or equivalent), ENGLISH 1000 (or equivalent), and the elementary sequence in a foreign language, the maximum number of credits from a single department that may apply toward graduation is 40 for the BA and the BGS, 70 for the BFA, and 90 for the BM.
- A maximum of 5 credits for BIO\_SC 2060 (or BIO\_SC 3100) and BIO\_SC 3650 may apply toward graduation.
- A maximum of 5 credits for MATH 1100, MATH 1120, MATH 1140, MATH 1160 and MATH 1180 may apply toward graduation.
- A maximum of 5 credits for MATH 1320, MATH 1400 and MATH 1500 may apply toward graduation.
- A maximum of 10 credits for introductory chemistry, which includes CHEM 1310 (or CHEM 1100), CHEM 1320, CHEM 1330 and CHEM 1500H, may apply toward graduation.
- A maximum of 1 credit for AG\_EC 3285 may apply toward graduation.
- A maximum of 3 credits for any combination of the following may apply toward graduation: LTC\_V 1210; LTC\_V 4550; CMP\_SC 1020.
- For non-music majors, a maximum of 6 credits for music ensemble courses, which include MUS\_ENS 1841, MUS\_ENS 1842, MUS\_ENS 1846, MUS\_ENS 1865 and MUS\_ENS 2843, may apply toward graduation.
- For non-music majors, a maximum of 12 credits for applied music courses, which include MUS\_APMS 1435, MUSIC\_NM 1445, MUSIC\_NM 2445, MUSIC\_NM 2445, MUS\_APMS 3455, MUS\_APMS 3970, MUSIC\_NM 4445 and MUSIC\_NM 4445, may apply toward graduation.
- For non-art majors, a maximum of 12 credits for studio art courses may apply toward graduation. For interdisciplinary studies majors, the maximum is 18 credits, and for general studies majors, the maximum is 21 credits.
- A maximum of 2 credits for physical education activity courses may apply toward graduation.
- A maximum of 6 credits for orientation courses may apply towards graduation. Orientation courses can include topics such as life skills, orientation to college life, and introduction to a particular major. Additional information is available in the appropriate advising offices.

## Departmental Examinations

A student who wishes to take a departmental examination must take it before enrolling in a college class in the same subject. Applications normally are made to the departments indicated; however, during the summer preregistration period, some examinations can be taken at the MU Testing Service Office without formal application to the respective departments. In addition, the examinations administered by Testing Services may be taken any time during the academic year.

Students may not earn credit for introductory foreign language courses in their native language.

- **Chemistry:** Apply to the Department of Chemistry, 125 Chemistry Building, for an examination to earn credits in chemistry.
- **French:** Apply to the Department of Romance Languages, 143 Arts and Science Building, for an examination for 3 credits equivalent to the completion of FRENCH 2100. Upon successful completion of this test, a student will be awarded 10 credits of advanced standing for FRENCH 1100 and FRENCH 1200 in addition to the 3 credits indicated.
- **Italian:** Apply to the Department of Romance Languages, 143 Arts and Science Building.
- **Latin:** Apply to the Department of Classical Studies, 405 Strickland Hall.
- **Mathematics:** To earn 3 credits in College Algebra, students may take the proctored ALEKS Exam through the Office of Testing Services. ([mathplacement.missouri.edu](http://mathplacement.missouri.edu))
- **Political Science:** Contact the group testing program in the Testing Services Office for information on the 3-credit group test.
- **Spanish:** Apply to the Department of Romance Languages, 143 Arts and Science Building, for an examination to earn 3 credits equivalent to the completion of SPAN 2100. Upon successful completion of this test, a student will be awarded 10 credits of advanced standing for SPAN 1100 and SPAN 1200 in addition to the 3 credits indicated.
- **Statistics:** Apply to the Department of Statistics, 146 Middlebush Hall, for an examination to earn 3 credits for STAT 1300 Elementary Statistics.

## Maximum Credits Enrolled

With the consent of the dean, students with superior scholastic records may be allowed to register for more than 18 credits during a fall or spring semester. During the summer sessions, a student may not ordinarily be enrolled for more than 9 credits during the two four-week sessions combined and/or the eight-week session.

## Enrolling at Other Institutions

Students within the College of Arts & Science are allowed to enroll in another institution, while being simultaneously enrolled at MU. Students are strongly encouraged to speak with an advisor to verify course transfer credit, degree applicability and other academic ramifications. Students, however, bear the ultimate responsibility for checking course equivalencies and requesting official transcripts be sent to the MU Office of Admissions (230 Jesse Hall). Similarly, A&S students who are likely to qualify for Latin honors are advised not to risk their eligibility for this distinction because of simultaneous enrollment at another institution (see information on Latin honors). Students who receive financial aid are advised to check with a financial aid officer to learn the implications, if any, of simultaneous enrollment in a non-MU course.

## Graduation with Latin Honors

Regulations of the college regarding the awarding of Latin honors require that 54 of the final 60 credits are completed in MU course work for a letter grade (A-F). Awarding of Latin Honors is based on the cumulative GPA. The local chapter of Phi Beta Kappa requires completion of a minimum of 60 credits of course work on the MU campus, usually during the last two years of study. Exceptions to this latter expectation may be made

for students who study abroad in an approved program during their final semesters of study.

## Probation and Dismissal

### Academic (Scholastic) Standing

In addition to University requirements defined in the Academic Standing (p. 760) section of this catalog and in the *Faculty Handbook* (<http://faculty council.missouri.edu/handbook/article-8.html>), academic status of Arts and Science students is determined in accordance with the following faculty guidelines. The word “term” in these regulations applies to semester, summer session or intersession. Course work completed by correspondence or through extension also has a bearing on academic status.

- Students on scholastic probation have two terms, (as long as each term GPA is no lower than 1.0), in which to attain good academic standing (2.0 minimum term and cumulative GPA) or be subject to dismissal. A student will not be eligible for removal from probation if he or she does not complete in residence (MU course work) during these two terms at least 12 graded credits acceptable by the student’s advisor and in accordance with college policy for credit in the College of Arts and Science. To complete a course, the student must earn a grade in the A, B, C or D range.
- A student on probation may not be allowed to participate in a study abroad program or internship opportunities.
- In the application of these rules, the dean will determine how an incomplete grade in a course will be considered in determining a student’s academic standing.
- The dean may, in extenuating circumstances, waive any of the foregoing regulations governing eligibility to re-enroll for an individual student.

## Degree Requirements

### Arts and Science Foundation Requirements

The purpose of the Arts and Science Foundation Requirements is to assure that students fulfill the common educational objectives of the College of Arts and Science. Courses satisfying these requirements impart specialized knowledge and help students fulfill the broader objectives of a liberal education. Thus, these courses help students develop the following abilities:

- To communicate clearly and effectively in both writing and speech
- To generate and test hypotheses
- To locate and develop information needed to solve problems
- To think critically and use analytic skills effectively
- To examine their lives critically and objectively
- To enrich their lives through appreciation of present and past cultural achievements

Foundation requirements include three categories:

- **Basic Skills** requirements ensure competency in composition and communication, mathematics and analytic reasoning, awareness of American history and government, and where applicable, foreign language.
- **Breadth of Study** requirements are met by completing course work from a wide array of disciplines to ensure that graduates are broadly educated.

- **Depth of Study** requirements are met by completing advanced course work that allows for fuller understanding of a discipline than can be gained in introductory course work alone.

All students must complete all Arts and Science Foundation Requirements in order to earn a degree, regardless of prior baccalaureate degrees earned. Course work will be evaluated on a course-by-course basis. For students who earn an Associates of Arts degree from a Regionally accredited Missouri institution all Breadth of Education requirements will be considered to be met. Students will be required to complete at least one Depth of Education class with MU course work. In all cases, completion of the basic English and Mathematics requirements will be evaluated on a course-by-course basis.

### Basic Skills

MATH 1100, MATH 1160, MATH 1120 or transferable equivalent with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.

ENGLSH 1000 or transferable equivalent with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.

One Math Reasoning Proficiency course with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.
- May also apply toward other degree program requirements.
- Must be chosen from the list of MRP courses designated each semester in the online Schedule of Courses.

One course in American government or history

- Required for BA, BFA, BGS, BM and BS degrees.
- May also apply as a social science toward the behavioral and social science requirement.
- Should be chosen from the list of MU courses approved to meet Arts and Science Foundation Requirements.

Foreign language

- Each student is required to attain the degree of proficiency equivalent to the completion of at least 12 hours of college-level work in a single foreign language. All MU foreign language departments require a grade in the C range or higher in level I or a language and level II of a language as prerequisites for level II and III, respectively.
- Alternative for selected BS degrees: 12 credits numbered 2000 or above in an area approved by the major department substituted with the concurrence of the dean’s office. Courses used for a minor cannot be used to meet this requirement.
- The foreign language requirements can be waived if a student has completed four units of a single foreign language in high school. If a student chooses to meet the requirement by using high school units, any college credit for that same introductory language will not count towards graduation hours (i.e., a student who has completed 4 units of high school Spanish and has credit for SPAN 1100 will not have the SPAN 1100 count towards graduation hours). If a student wants to have the introductory college credit count towards graduation, the student must complete the language sequence.
- International students whose native language is other than English are exempt from the foreign language requirements but may not receive credit for basic skills courses in their native languages. Others with native competence in one or more foreign language offered by MU may have a foreign language requirement waived



by passing an exam given by a faculty member who is fluent in the language. The faculty member need not be a member of the MU faculty, but must be approved by the dean's office. The exam tests the student's ability to read, write, and speak the language at the level broadly described as "intermediate." Results of the examination are forwarded to the dean's office for evaluation. Students in this situation do not receive advanced-standing credit for their foreign language knowledge.

## Breadth of Study

Breadth of Study requirements include course work distributed among the following categories: biological, physical and mathematical sciences; behavioral and social sciences; humanities and fine arts.

### 1. Biological, physical and mathematical sciences

9 credits required for BA, BFA, BGS, BM and BS degrees.

- Must include course work from at least two of three areas.
- Must include at least one biological or physical science laboratory course.

### 2. Behavioral and social sciences

9 credits required for BFA, BGS, BM and BS degrees (except for the BS degree with majors in Biological Sciences and Psychology).

- Must include course work from both the behavioral and social sciences.  
14-15 credits required for all BA degrees and the BS degree with majors in Biological Sciences and Psychology.
- Must include 5-6 credits of behavioral science.
- Must include 9 credits of social science, including course work from at least two different areas.

### 3. Humanities and fine arts

9 credits required for the BFA, BGS, BM and BS degrees (except for the BS degree with majors in Biological Sciences and Psychology).

- Must include course work from at least two different areas.  
12 credits required for the BA degree, and the BS degree with majors in Biological Sciences and Psychology.
- Must include course work from at least three different areas.

### 4. Additional breadth requirement for the BGS degree

3 credits from course work chosen from any of the following four categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

## Parameters for meeting Breadth of Study requirements:

- Courses from the major department may not be used for breadth requirements in the BA, BFA and BS.
- Courses from the major department may be used for breadth requirements in the BM.
- Students earning degrees in special degree programs (where the courses in the major represent multiple departments) may use courses from their major departments to meet breadth requirements, but not the specific courses used in the major.
- Courses from outside the major department but required for the major may not be used to meet breadth requirements in the BFA or BA with a major in Art.
- Only one non-Arts and Science course may be used in each of the four categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

- Courses must be chosen from the Distribution of Content List on the web site of the General Education Program. (<http://generaleducation.missouri.edu>.)
- Courses used to meet breadth requirements may also be used to meet depth requirements (see below).
- Problems, research, readings, and internship courses may not be used for breadth requirements.

## Depth of Study

Depth of Study requirements include at least 6 hours of course work numbered 2000 or above, distributed as follows:

### BFA in Art

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following four breadth categories: biological, physical, mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

### BGS in General Studies, all BA degrees, and BS with majors in Biological Sciences and Psychology

- 9 credits required (minimum of 3 courses).
- Must include course work from at least two of the following four breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

### BS with majors in Chemistry, Geological Science, Mathematics, Physics and Statistics

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following three breadth categories: behavioral sciences; social sciences; humanities and fine arts.

### BS with a major in Economics

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following four breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

### BS with a major in Philosophy

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following three breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences.

### BM with a major in Music

- 6 credits required (minimum of 2 courses).
- Must include course work from at least one of the following three breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences.
- 3 credit hours in Music (see below).

## Parameters for Meeting Depth of Study Requirements

- All courses must be numbered 2000 or above.
- At least 3 credits must be completed with MU course work.

- A student who elects 1-credit topics courses must complete a minimum of three courses in that breadth category as partial fulfillment of the depth of study requirement.
- Courses from the major department may not be used, except for the BM with a major in Music.
- Students earning degrees in special degree programs (where the courses in the major represent multiple departments) may use courses from their major departments to meet depth requirements, but not the specific courses used in the major.
- Courses from outside the major department, but required for the major, may not be used to meet depth requirements in the BFA or BA with a major in Art, the BA or BS with a major in Biology, or the BA with a major in Chemistry, Geological Science, Mathematics, Physics, or Statistics.
- Three hours (one course) of non-Arts and Science coursework may be used towards partial fulfillment of the depth of study requirement.
- Courses must be chosen from the Distribution of Content List (<http://generaleducation.missouri.edu/requirements/distribution.php>) on the website of the General Education Program.
- Courses used to meet depth requirements may also be used to meet breadth requirements.
- Problems, research, readings, and internship courses may not be used.

## Major Program Requirements

A major consists of at least 21 credits, including at least 15 credits in courses numbered 2000 or above, 12 of which must be taken in MU course work. See detailed departmental information for additional requirements for specific majors.

All Arts and Science majors require an MU Writing Intensive course numbered 3000 or above and an MU capstone course with grades of C- or higher. In addition, some majors require course work outside the major department.

Each student must declare and receive official approval for a major by submitting a graduation plan no later than the semester after completion of 60 credits. The purpose of the graduation plan is to acquaint students with all requirements that must be met prior to graduation and to plan for the timely completion of these requirements. Departments and programs approve the graduation plan only when the student has met the following criteria:

- Completion of ENGLISH 1000 and MATH 1100 or MATH 1120 (or their equivalents) with grades of C- or higher
- Completion of any additional departmental requirements

## Requirements for an Optional Minor

A minor consists of at least 15 credits, including at least 6 credits numbered 2000 or above, within a department or program that offers a minor; 9 of the required credits must be taken in MU course work. See detailed departmental information for additional requirements for specific minors. Courses outside the major department but required for the major may be used towards a minor. In addition, courses required in the minor may be used to meet Foundation requirements.

The College of Arts and Science awards minors only to undergraduate students who are simultaneous recipients of bachelor's degrees. Students may not earn a major and a minor in the same field.

## Requirements for an Optional Certificate

A certificate consists of at least 12 credits which must be taken in MU course work. See detailed information for additional requirements for specific certificates. Courses required for the certificate may be used to meet major, optional minor or Foundation requirements.

The College of Arts and Science awards certificates only to undergraduate students who are simultaneous recipients of bachelor's degrees. Student may not earn a certificate and a minor in the same field.

## Internships

In order to participate in an internship, a student must be in good academic standing (not on probation) and have completed at least one semester of college coursework after graduation from high school.

## Dual Degrees

In order to receive two bachelor's degrees, a student must complete a minimum of 132 credits and complete all of the specific requirements for both degrees. Normally, a minimum of one additional semester is required to earn both degrees. Each candidate for a dual degree is assigned advisors as appropriate.

The College of Arts and Science maintains dual-degree programs with the schools of Law, Medicine and Veterinary Medicine. To enroll in these programs, the student must have completed all of the specific course requirements for the bachelor's degree prior to admission to the professional school and also must have completed the junior year in residence in the College of Arts and Science. Under certain circumstances, Arts and Science undergraduates may be assured admission to MU's schools of Law or Medicine.

## Second Degrees

The faculty of the college has approved the following guidelines for students wishing to obtain a second undergraduate degree after completion of a bachelor's degree, in addition to any university requirements that may apply:

- Unless both degrees are earned at MU in successive semesters, a student pursuing a second undergraduate degree will ordinarily be required to complete a minimum of 30 credits in residence (MU course work) in the College of Arts and Science after completion of the first undergraduate degree.
- A student must complete any college, general education or department requirements that are unique to the new degree program. Requirements that are in effect at the time a student begins work toward the second degree are applicable.
- Students applying for second-degree status will be considered only if they have completed (with grades C- or higher) ENGLISH 1000 and MATH 1100 or MATH 1120 (or equivalents) and have final term and cumulative GPAs no less than 2.0.
- The student must submit a graduation plan in consultation with an advisor in an appropriate department or program before the dean's office will approve a request from the student to enroll as a candidate for a second degree.
- With the exception of Interdisciplinary Studies majors with an emphasis in Black Studies, Peace Studies, or Women's and Gender Studies, the college does not approve applications for a second undergraduate degree in General Studies or Interdisciplinary Studies.

- Once enrolled for a second degree, a student is committed to enrolling in course work required for completion of that degree. A student will not be allowed to continue as a candidate for a second undergraduate degree if not enrolled in courses required for the second bachelor's degree.

## Double Majors

A number of Arts and Science students choose to complete multiple majors while earning one degree. The requirements of each major, along with requirements for the degree, must be completed. Often, this does not result in the addition of hours to the degree program.

## Graduate Dual Enrollment

A final-semester senior may dually enroll in the College of Arts and Science and the Office of Graduate Studies with permission of the deans of both divisions. This enables the student to complete some graduate course work prior to receiving the bachelor's degree.

The student must be within 15 credits of completion of the bachelor's degree and must rank in the upper half of the class.

Application forms for dual enrollment in these two schools may be obtained from the Office of Graduate Studies in 210 Jesse Hall.

## Advising

Students who have declared a major are assigned an advisor in that department. Students who have not yet decided on a major are assigned to a professional advisor in the Student Success Center.

## Career Placement

Employment opportunities in the various disciplines of the liberal arts vary greatly. Most departments in the college have printed information available describing employment opportunities. The MU Career Center in the Student Success Center offers students a variety of career planning services.

## Air Force Reserve Officer Training Corps (AFROTC)

The AFROTC provides the opportunity to become a United States Air Force officer while completing a college degree. The program combines traditional undergraduate education with military instruction in preparation for Air Force leadership challenges. Each semester academic AFROTC classes will build a foundation for application to a two-hour Leadership Lab. Scholarships are available. Visit [www.afrotc.com](http://www.afrotc.com) (<http://www.afrotc.com>) for the most current information.

After graduating from college and successfully completing all AFROTC requirements, cadets receive a commission as a second lieutenant with an obligation of four years of service in the active duty Air Force.

Pilots incur a ten-year commitment from the date of graduation from pilot training. A few additional career fields require a six or eight year commitment.

MU also offers a Minor in Aerospace Studies (p. 312).

For additional information contact:

Department of Aerospace Studies  
217 Crowder Hall  
(573) 882-7621  
[airforce.missouri.edu](http://airforce.missouri.edu)

## Army Reserve Officer Training Corps (AROTC)

Army ROTC is a college elective program that teaches the skills needed to succeed in the Army or the corporate world. Students combine classroom time with hands-on experience and learn leadership and management skills. The experience of Army ROTC provides the confidence needed to excel in college and beyond. The Army ROTC program can be completed through a two- to four-year program designed to develop young men and women into junior commissioned officers in the Active Army, Army Reserve, or Army National Guard. In addition to traditional combat roles, Army officers serve in such professional fields as aviation, medical service, finance, personnel management, communications and engineering. MU also offers a Minor in Military Science (p. 318).

For additional information contact:

Department of Military Science and Leadership  
202 Crowder Hall  
(573)-882-7721  
<http://armyrotc.missouri.edu/>

## Graduate

College of Arts & Science  
107 Lowry Hall  
(573) 882-6411  
<http://coas.missouri.edu/>

The College of Arts and Science is home to a broad spectrum of disciplines that prepare graduate students for challenging and rewarding careers. Our faculty mentors are known for both research and teaching excellence and many have received national acclaim for discoveries, disciplinary leadership, creative works and music or theater performance.

The School of Music (p. 232), housed within the College, offers masters degrees, a doctoral degrees and a graduate certificate in jazz studies. Music education degrees are offered in conjunction with the College of Education, Department of Learning, Teaching and Curriculum.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the Office of Graduate Studies. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

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## Anthropology

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**Lisa Sattenspiel, Chair**  
Department of Anthropology  
College of Arts & Science

**Mailing Address:**  
112 Swallow Hall  
Columbia, MO 65211  
(573) 882-4731  
[muasanthropology@missouri.edu](mailto:muasanthropology@missouri.edu)  
<http://anthropology.missouri.edu>

**Welcome** to the Department of Anthropology at the University of Missouri! Our University is the oldest public land grant institution west of the Mississippi, a member of the AAU and the highest category of research universities. We are a small department with an emphasis on scientific approaches to the study of human biology, behavior, culture, and evolution. MU students study the whole of humanity: its history, variability, artifacts, customs, beliefs and value systems which produces sophisticated problem solvers for today's complex and conflict-prone world.

## Faculty

**Professor:** M. V. Flinn (<https://anthropology.missouri.edu/?q=people/flinn>\*\*), L. Sattenspiel (<https://anthropology.missouri.edu/?q=people/sattenspiel>)\*\*

**Associate Professor:** G. E. Blomquist (<https://anthropology.missouri.edu/?q=people/blomquist>)\*\*, L. W. Cowgill (<https://anthropology.missouri.edu/people/cowgill>)\*\*, C. S. VanPool (<https://anthropology.missouri.edu/?q=people/vanpool-c>)\*\*, T. L. VanPool (<https://anthropology.missouri.edu/?q=people/vanpool-t>)\*\*, R. S. Walker (<https://anthropology.missouri.edu/?q=people/walker>)\*\*

**Assistant Professor:** K. Panchanathan (<https://anthropology.missouri.edu/?q=people/panchanathan>)\*\*

**Research Professor:** N. A. Chagnon\*\* (<https://anthropology.missouri.edu/?q=people/chagnon>)

**Post Doctoral Research Fellow:** M. J. Hamilton (<https://anthropology.missouri.edu/people/hamilton>)

Note: All permanent regular faculty members in the department serve as undergraduate mentors for anthropology majors.

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Anthropology (p. 141)
- Minor in Anthropology (p. 142)

### Advising Contact

Jen Schaffer  
Academic Advisor  
M110 Student Success Center  
[schafferjm@missouri.edu](mailto:schafferjm@missouri.edu)  
(573) 884-9700

**Director of Undergraduate Studies:** Dr. Greg Blomquist (<https://anthropology.missouri.edu/people/blomquist>) - [blomquistg@missouri.edu](mailto:blomquistg@missouri.edu)

The University of Missouri Department of Anthropology offers a BA in Anthropology. Students may also earn Departmental Honors, as outlined in the next section.

Within this program, a student may select a subfield of focus (Note: Subfields will not show on transcripts or diplomas):

- Archaeology (<https://anthropology.missouri.edu/?q=research/archaeology>)
- Biological anthropology (<https://anthropology.missouri.edu/?q=research/biological>)

- Cultural anthropology (<https://anthropology.missouri.edu/?q=research/cultural-anthropology>)
- Some combination of the above, or
- An interdisciplinary focus combining anthropology with some other area(s).

An undergraduate major in anthropology provides a broad educational base that can be the core of a liberal arts education or the background for specific vocational or professional goals of a student. Anthropology is of particular value to students planning professional careers in a world of cultural and ethnic diversity. Anthropology majors are required to take core courses in all three focal areas of the discipline, but may emphasize one or more of them in their remaining courses. Students may also develop an interdisciplinary program in cooperation with other departments or schools. In addition, the department offers an anthropology minor to students who are majoring in other departments and who will profit by more formal training in the discipline.

The Anthropology Department provides many opportunities for students to become involved in research and encourages all students to do so. Such experiences help a student develop creativity, critical thinking skills, and skills in problem solving and writing. Students who are interested in doing anthropological research have several options, including working in close conjunction with a faculty member or working on an independent project under faculty supervision. An independent research experience may lead to an honors degree for eligible students.

Undergraduate training in anthropology prepares students for work in government agencies (both in the United States and overseas), museum positions, field positions in, for example, archaeology, ethnography, or human paleontology, and for graduate study leading toward college or university teaching of anthropology. An anthropology degree also provides good background for careers in business, journalism, health care, law, and many other fields.

The Department of Anthropology has a number of special facilities that are available for use in classes, for individual research opportunities, and in some cases, for the general public to visit. The list is included below. Students interested in additional information are encouraged to consult the following web site: <https://anthropology.missouri.edu/links>. (<http://web.coas.missouri.edu/~anthro/?q=node/107>)

These special facilities include:

- The Museum of Anthropology (<https://anthromuseum.missouri.edu>) & Museum Support Center
- The Archaeology Laboratory
- The Skeletal Laboratory
- The Fossil Cast Collection
- MURR (<http://www.murr.missouri.edu>) (University of Missouri Research Reactor)

## Departmental Honors

The Honors Program is organized under the Honors College (<http://honors.missouri.edu>) of the College of Arts and Science within the University of Missouri. To be accepted in the Honors Program, the student must achieve and maintain a minimum cumulative Grade Point Average (GPA) of 3.3 in all course work. In addition, to be accepted, and remain eligible for the honors program in the Department of Anthropology, the student must maintain a GPA of 3.5 in all anthropology courses.

The University of Missouri grants three types of Honors degrees to students in the College of Arts and Science:

1. General Honors, which is administered by the Honors College and which is obtained by completion of a suitable number of honors courses (see the Honors College for details),
2. Latin Honors (e.g., cum laude), which are conferred on students whose GPAs meet specified minimum requirements, and
3. Departmental Honors, which is administered by the Department of Anthropology.

The departmental program leading to the BA degree with Honors in Anthropology is designed for students who desire a more intensive experience in anthropology and who wish to work closely with a particular faculty member in the anthropology department on an independent research or scholarly project. A student wishing to graduate with departmental honors must fulfill the basic course requirements for the BA in Anthropology. In addition, the student, with the assistance of his/her honors advisor, is expected to develop, plan, and conduct research on an independent project. It is recommended that students in the honors program enroll in ANTHRO 4950H Honors Research in Anthropology, although projects initiated in other courses or through independent, noncredit research experiences may also be honors eligible. To complete the Honors degree, a student must submit the results of the research project as a formal honors thesis that the student defends during an oral examination conducted by an examining committee. The committee consists of three faculty members: the advisor, another faculty member, and the departmental Honors Director. *The examination is scheduled no later than the thirteenth week of the term during which the student expects to graduate.* Each member of the committee is furnished with a copy of the student's thesis or evidence of scholarly activity at least ten days before the examination. After the oral defense the student furnishes the department with one final copy of the thesis or evidence of scholarly achievement (e.g., photographs) suitable for preservation by the Department. Upon completion of the program, the examining committee recommends to the Dean of the College of Arts and Science that the student be awarded a BA with Honors in Anthropology.

## Goals of the Anthropology Curriculum

Students completing an anthropology degree are awarded a BA degree with a major in Anthropology or a BA degree with Honors in Anthropology. The undergraduate program is designed to help students develop an appreciation of other cultures and other world views and to gain an understanding of how and why the diversity in human culture and biology came about. Several goals help faculty teach undergraduates about the nature of the discipline and how to think critically about what it is, what it means and how it is useful in today's society. These goals include:

- To recognize the broad, cross-cultural generalizations that characterize anthropology
- To recognize the value of a cross-cultural, comparative perspective
- To acquire an understanding of the basic concepts in the subfields of anthropology
- To acquire advanced knowledge in one or more of the subfields
- To acquire an awareness of the interrelationship of the subfields
- To think critically about the nature and content of anthropological questions
- To assess the structure of an argument and evaluate it and its supporting information

- To communicate effectively in writing or through oral presentation
- To strive for innovative and creative thinking
- To think independently both within and outside anthropology

Students are also encouraged to acquire experience in research design and methods (e.g., using the library and internet effectively to gather information on a problem, or understanding and using the methods of one or more subfields). To this end, the department provides abundant opportunities for students to work with faculty members on independent research projects.

## GPA Requirements

The College of Arts and Science requires that students attain a minimum GPA of 2.0 in all courses in their major department and in courses that comprise the related field. In addition, all core courses in anthropology (ANTHRO 2020 or ANTHRO 2021/ANTHRO 2022, ANTHRO 2030, ANTHRO 2050 or ANTHRO 2051/ANTHRO 2052, ANTHRO 4990) must be completed with a grade of C- or higher and students may receive a grade below C- in no more than one other course used to satisfy the major.

## Graduate

- MA in Anthropology (p. 143)
- PhD in Anthropology (p. 143)

### Department of Anthropology

**Dr. Robert Walker** (<https://anthropology.missouri.edu/?q=people/walker>), **Director of Graduate Studies**

**walkerro@missouri.edu**

**Main Office: (573) 882-4731**

**Fax: (573) 884-5450**

**<http://anthropology.missouri.edu>**

**[muasanthropology@missouri.edu](mailto:muasanthropology@missouri.edu)**

The Department of Anthropology offers graduate work leading to the degrees of Master of Arts (MA) and Doctor of Philosophy (PhD) with a current enrollment of about 60 graduate students. Our department has a broad scientific approach to understanding human biology and behavior, both past and present, that is grounded in ecological and evolutionary theory. The graduate program provides rigorous coursework with a rich combination of hands-on field and laboratory research experiences. Students work closely with a faculty advisor who helps them pursue fellowships/grants and to develop collaborative research projects.

Active areas of research by our regular professors include:

- Archaeology (<https://anthropology.missouri.edu/?q=research/archaeology>): archaeological theory, evolutionary archaeology, zooarchaeology, lithic artifact analysis, ceramic analysis, and material sourcing studies with regional foci in the American Southwest
- Biological anthropology (<https://anthropology.missouri.edu/?q=research/biological>): skeletal biology, functional anatomy, human osteology, Neanderthals, demography, epidemiology, life history, and primate genetics
- Cultural anthropology (<https://anthropology.missouri.edu/?q=research/cultural-anthropology>): human behavioral ecology, cultural evolution, medical anthropology, and biocultural anthropology with regional foci in Amazonia, Canada, and the Caribbean

Incoming graduate students are admitted into one of three tracks:

## Track 1: MA students

Students admitted to Track 1 will be classified as MA seeking students with the office of Graduate Studies (<http://gradstudies.missouri.edu>). These students will complete all requirements for the MA degree as currently outlined in our Graduate Students Handbook ([https://anthropology.missouri.edu/sites/default/files/gradfiles/graduate\\_student\\_handbook\\_0.pdf](https://anthropology.missouri.edu/sites/default/files/gradfiles/graduate_student_handbook_0.pdf)), including the MA exam and completing a thesis (not a proposal or publication as for Track 2, see below, although eventual publication of the thesis is encouraged). Upon completion, the student can, if eligible, apply to the Anthropology program for acceptance as a PhD seeking student.

## Track 2: PhD students required to complete MA requirements

Students admitted to this track will be classified as PhD seeking students with the office of Graduate Studies (<http://gradstudies.missouri.edu>). These students will complete all course requirements for the MA, including the MA exam. With the consent of the student's committee, a Track 2 student will complete either a thesis **OR** a proposal formatted for a major granting agency that will serve as the student's PhD dissertation proposal, **OR** a primary-authored paper submitted for publication. In each of these cases, the student will orally defend the work. Upon successful completion of these requirements, the student will be awarded an MA, and will then be eligible to continue work towards a PhD without the need to reapply to the program or change student status.

## Track 3: PhD students with MA in hand

Students admitted to this track will be classified as PhD seeking students with the office of Graduate Studies (<http://gradstudies.missouri.edu>). They will not be required to complete the MA requirements and will not earn an MA during their graduate work at MU. Upon completion of the requirements currently listed for the PhD program, including coursework, qualifying examination, comprehensive examination, teaching, and dissertation, the student will be awarded a PhD.

## Facilities and Collections

Departmental research facilities/collections include a ceramic analysis laboratory, a stone artifact analysis laboratory, a comparative faunal collection, and a skeletal biology laboratory. The Museum of Anthropology (<https://anthromuseum.missouri.edu>) houses extensive holdings of New World (especially Missouri) archaeological and skeletal materials and ethnographic specimens from many parts of the world, and provides opportunities for museum-oriented studies (see also the Museum Studies Graduate Minor (p. 323)). The Museum Support Center, an archaeological research and curation facility is located on the edge of campus. The University of Missouri Research Reactor provides opportunities for students interested in archaeometry. Resources in other departments or research units available by arrangement include the Archaeometrics Laboratory of the Research Reactor, the Electron Microscopy Facility, and the Stable Isotope Laboratory of the Department of Geological Sciences.

## Research by Location

Regular faculty members of the department conduct research in the following geographical areas, beyond Missouri: the Northwest (archaeology), Canada (biological anthropology), Dominica and Amazonia (biological & cultural anthropology), and the North American Southwest (archaeology). Refer to the faculty list for interests of faculty

(<https://anthropology.missouri.edu/people/faculty>) and emeritus faculty (<https://anthropology.missouri.edu/?q=people/emeritus>).

## Financial Assistance

Financial assistance packages are usually granted on a competitive basis for students who enter the program in the Fall semester. This assistance comes in the form of tuition waivers and stipends provided by Life Science Fellowships, Graduate Studies Fellowships, teaching assistantships, or graduate instructorships. Applications for teaching assistantships and graduate instructorships for both presently enrolled and prospective graduate students must be received by March 1<sup>st</sup> of the academic year preceding the academic year for which assistance is sought. Applications will be emailed to existing and incoming student prior to the deadline.

## BA in Anthropology

### Degree Program Description

Anthropology is the study of humans and human experience, past and present. Anthropology at MU emphasizes scientific approaches to the study of human biology, behavior, culture, and evolution. Anthropology majors are required to take core courses in all three focal areas of the discipline (archaeology, biological anthropology, and cultural anthropology) but may concentrate in one or more of these fields. Students have opportunities to become involved in research, helping them develop creativity, enhance critical thinking skills, solve problems and improve their writing. Undergraduate training in anthropology also prepares students for work in government (both in the United States and abroad), museum positions, and field positions in archaeology, ethnography, human paleontology, or forensics. It may also provide students with the opportunity to enter graduate school leading towards an academic career teaching and conducting anthropological research at a college or university. A degree in anthropology also provides students with the background to pursue careers in business, journalism, health care, law, and many other fields.

### Major Program Requirements

In addition to college foundation requirements and University graduation requirements, such as general education (p. 33), all anthropology students are required to complete the following core courses (15 credits):

ANTHRO 2020	Fundamentals of Archaeology with Laboratory	4
or ANTHRO 2021 & ANTHRO 2022	Fundamentals of Archaeology and Fundamentals of Archaeology Lab	
ANTHRO 2030	Cultural Anthropology	3
ANTHRO 2050	Introduction to Biological Anthropology with Laboratory	5
or ANTHRO 2051 & ANTHRO 2052	Introduction to Biological Anthropology and Biological Anthropology Laboratory	
ANTHRO 4990	Capstone Seminar in Anthropology	3
Total Credits		15

ANTHRO 4990 Capstone Seminar in Anthropology must be completed even if a student completes an additional major in another department. Some departments waive this requirement for students completing a double major. Students with second majors should check with the other department to see if they are required to complete both capstone courses.

## Electives

A minimum of 15 additional Anthropology credits (usually 5 courses) are required for the major. These courses must be distributed as follows:

Topical/theoretical	1 course
Area	1 course
Methods	1 course
Additional courses of student's choice to bring total to 15 credit hours or more.	1-2 courses

Explanation about the distribution of departmental courses among these three categories is available at [https://anthropology.missouri.edu/sites/default/files/undergrad-files/undergrad\\_brochure\\_2015.pdf](https://anthropology.missouri.edu/sites/default/files/undergrad-files/undergrad_brochure_2015.pdf)

The choice of area, topical-theoretical and methods courses is guided by the student's individual interests and goals, and is selected in consultation with their departmental mentor. With the consent of the student's mentor and the director of undergraduate studies, the methods/techniques or area requirements may be fulfilled by suitable courses outside anthropology. If this requirement is satisfied by a course outside anthropology, an additional anthropology course is selected to complete the 30 credits required in anthropology.

Students may also complete the methods requirement by gaining hands-on experience doing anthropological research. This experience will normally begin with ANTHRO 2950 Research Skills in Anthropology, an introduction to the methods used by one or more faculty members. This course will satisfy the methods requirement if a student enrolls in it for at least 3 credits. A student may independently choose a faculty mentor and arrange for course credit or can work with the department's undergraduate research coordinator, who will match the student's interests with those of one or more faculty members.

Students wishing to continue doing research of an independent nature may register for ANTHRO 4950 Undergraduate Research in Anthropology. Prior approval by the director of undergraduate studies is required to use these courses to satisfy the departmental methods requirement. Honors Research ANTHRO 4950H Honors Research in Anthropology may be used to satisfy the requirements for an Honors BA with a major in Anthropology, but the course is not required for that degree. Specific requirements for the Honors BA are described below.

## Related Courses

Because of the interdisciplinary nature of anthropology, the Department of Anthropology strongly recommends that all students complete a cluster of at least two or three courses that complement chosen courses within the major.

These courses may be offered by a single department or may be a related set of courses from several departments (e.g., courses in ancient history from both the Art History and Archaeology and the History departments). The courses should be chosen with their mentor and are intended to provide background in the content of other disciplines related to the student's anthropological focus. Fulfillment of a formal minor (15 credits in another department as approved by that department) or a second major (at least 30 credits in another department as approved by that department) can also be an effective way to gain expertise in related areas.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ANTHRO 2030 <sup>^</sup>	3 ANTHRO 2020 <sup>^</sup>	4
ENGLISH 1000 <sup>*</sup>	3 MATH 1100 (*)	3
HIST 1100 or POL_SC 1100 <sup>*</sup>	3 Behavioral science course <sup>*</sup>	3
Foreign language 1 <sup>*</sup>	5 Foreign language 2 <sup>*</sup>	5
	14	15

Second Year		
Fall	CR Spring	CR
Anthropology topics course <sup>^</sup>	3 ANTHRO 2050 (Satisfies lab science) <sup>^*</sup>	5
Foreign language 3 <sup>*</sup>	3 Science course <sup>*</sup>	3
Science course <sup>*</sup>	3 Behavioral science (upper level) <sup>*</sup>	3
Social science course <sup>*</sup>	3 Humanities course <sup>*</sup>	3
Humanities course <sup>*</sup>	3 Elective	3
	15	17

Third Year		
Fall	CR Spring	CR
Anthropology elective <sup>^</sup>	3 Anthropology methods course <sup>^</sup>	3-5
Anthropology area course <sup>^</sup>	3 WI course <sup>*</sup>	3
Science course (if needed) <sup>*</sup>	3 Humanities (upper level) <sup>*</sup>	3
Social science (upper level) <sup>*</sup>	3 Related field course (recommended) <sup>^</sup>	3
Humanities course <sup>*</sup>	3 Elective	3
	15	15-17

Fourth Year		
Fall	CR Spring	CR
Anthropology elective <sup>^</sup>	3 Capstone Seminar in Anthropology <sup>^*</sup>	3
Related field course (recommended) <sup>^</sup>	3 Related field course (recommended) <sup>^</sup>	3
Electives	9 Electives	9-11
	15	15-17

Total Credits: 121-125

\* Course meets University general education and/or campus graduation requirements.

<sup>^</sup> Course meets degree program requirements.

## Minor in Anthropology

A student wishing to minor in anthropology should contact the Anthropology advisor for an appointment. The requirements for a minor in anthropology are:

1. A total of 15 hours of course credits in anthropology approved by the Director of Undergraduate Studies. At least 9 hours must be completed at MU.
2. No more than 6 hours of the 15 hours required for the minor may be drawn from courses numbered below 2000. In addition, a minimum of 3 hours must be in courses numbered 3000 or above.

3. Readings, research, or problems courses shall constitute no more than 6 of the required 15 hours.
4. Anthropology Minor Form ([https://anthropology.missouri.edu/sites/default/files/undergrad-files/minor\\_form.pdf](https://anthropology.missouri.edu/sites/default/files/undergrad-files/minor_form.pdf)) filled out and signed

These procedures and requirements were approved March 17, 2004. This Program is effective for all students who file initial anthropology graduation plans after this date.

## MA in Anthropology

### Admission Criteria (Track One, MA Applicants)

Students admitted to this track will be classified as MA seeking students with the graduate school. These students will complete all requirements for the MA degree as currently outlined in the Anthropology Graduate Handbook ([https://anthropology.missouri.edu/sites/default/files/gradfiles/graduate\\_student\\_handbook\\_0.pdf](https://anthropology.missouri.edu/sites/default/files/gradfiles/graduate_student_handbook_0.pdf)), including the MA exam and completing a thesis. Upon completion, the student can, if eligible, apply to the Anthropology program for acceptance as a PhD seeking student.

Fall deadline: January 10

Spring deadline: October 15 (no departmental financial support available this term)

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	50
Prior to July 1, 2015 must have score of (61)	Prior to July 1, 2015 must have score of (500)

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.0
On or After August 1, 2011	300	3.0

Minimum GPA: 3.25 in last 60 hours and in all anthropology courses  
Acceptance into the graduate program in anthropology is not limited to students with undergraduate degrees in anthropology.

### Required Application Materials

To Graduate Studies (<https://applygrad.missouri.edu/apply>):

- All required Graduate Studies documents
- 3 letters of recommendation (through online application)
- GRE scores
- Statement of purpose
- Unofficial transcripts
- Writing Sample

### Graduation Requirements

Students are expected to gain advanced knowledge in the three subfields represented in our program (archaeology, biological anthropology, cultural anthropology). Anthropology faculty members work closely with graduate students to conduct collaborative research as an integral component of the graduate program. Opportunities for specialization are

provided through research courses leading to a thesis. A program tailored to each student's educational objectives is planned by the student and the advisory committee of at least three members, one of whom is a non-anthropology faculty member.

### Credit Hours Required for Master's Degree

MA graduate students must complete a minimum of 30 credit hours beyond the Bachelor of Arts degree. At least 9 of the required hours must be 8000-level anthropology courses and seminars, and must include at least one content course (i.e., not a readings or research course). In addition to the 8000-level requirement, all students must take (ANTHRO 8010). Students must also take one (1) course of their choosing in archaeology and one (1) course of their choosing in biological anthropology. Students lacking a basic course in statistics are required to take at least one course, preferably during the first year of graduate work. A maximum of 12 hours may be in non-thesis research (ANTHRO 7990/ANTHRO 8990) or reading courses (ANTHRO 7960).

### MA Thesis

Students enrolled in Track 1 must complete the MA thesis requirement. Successful completion of the thesis will be determined by the student's advisory committee. The advisory committee for the thesis consists of at least 3 faculty members, including the advisor, another member of the anthropology department, and one member of the graduate faculty from another MU department and who generally holds a doctorate degree in another subject.

## PhD in Anthropology

### Admission Criteria - Track Two (ONLY): PhD Students Required to Complete MA Requirements

Track 2 students will be classified as PhD seeking students with Graduate Studies. These students will complete **all course requirements for the MA, including the MA exam**. With the consent of the student's committee, a Track 2 student will complete either a thesis **OR** a proposal formatted for a major granting agency that will serve as the student's PhD dissertation proposal, **OR** a primary-authored paper submitted for publication. In each of these cases, the student will orally defend the work. Upon successful completion of these requirements, the student will be awarded an MA, and will then be eligible to continue work towards a PhD without the need to reapply to the program or change student status.

#### Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
Prior to July 1, 2015 must have a score of 61	Prior to July 1, 2015 must have a score of 500

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.0
On or After August 1, 2011	300	3.0



- Minimum GPA: 3.25 in last 60 hours and in all anthropology courses

## Required Application Materials For Track Two Applicants:

To Graduate Studies (<https://applygrad.missouri.edu/apply>):

- All required Graduate Admissions documents except transcripts
- 3 letters of recommendation (through online application)
- GRE scores
- Statement of purpose
- Unofficial transcripts
- Writing Sample

## Credit Hours Required for Master’s Degree (Track Two Applicants Only)

All MA students must complete a minimum of 30 credit hours beyond the Bachelor of Arts degree. At least 9 of the required hours must be 8000-level anthropology courses and seminars, and must include at least one content course (i.e., not a readings or research course). In addition to the 8000-level requirement, all students must take (ANTHRO 8010). Students must also take one (1) course of their choosing in archaeology and one (1) course of their choosing in biological anthropology. Students lacking a basic course in statistics are required to take at least one course, preferably during the first year of graduate work. A maximum of 12 hours may be in non-thesis research (ANTHRO 7990/ANTHRO 8990) or reading courses (ANTHRO 7960).

## Admission Criteria - Track Three: PhD Students with MA in Hand

Students admitted to this track will be classified as PhD seeking students with Graduate Studies. They will not be required to complete the MA requirements and will not earn an MA during their graduate work at MU. Upon completion of the requirements currently listed for the PhD program, including coursework, qualifying examination, comprehensive examination, teaching, and dissertation, the student will be awarded a PhD.

Fall deadline: January 10

Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
Prior to July 1, 2015 must have a score of (61)	Prior to July 1, 2015 must have a score of (500)

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.0
On or After August 1, 2011	300	3.0

- Minimum GPA: 3.5 in previous graduate work
- Master's degree

**Note:** A faculty member who is on the doctoral faculty must agree, as a condition of admission, to accept the student as a PhD advisee. These qualifications apply to all applicants, including those with an MA degree from this department. Applicants whose MA is in a field other than

anthropology will be considered under the policies for individuals holding the baccalaureate degree except that the quality of graduate work will be taken into consideration.

## Required Application Materials for Track Three Applicants

To Graduate Studies (<https://applygrad.missouri.edu/apply>):

- All required Graduate Admissions documents except transcripts
- 3 letters of recommendation (through online application)
- GRE scores
- Statement of purpose
- Unofficial transcripts
- Writing Sample

## Art

Jo Stealey, Chair  
 College of Arts and Science  
 A126 Fine Arts Building  
 (573) 882-3638  
<http://art.missouri.edu>  
[umcart@missouri.edu](mailto:umcart@missouri.edu)

The Department of Art is housed principally within the Fine Arts Building. Founded in 1877, the Art Department faculty consists of 18 full-time faculty, 11 adjunct instructors, and 25 graduate teaching assistants. Our faculty members, many of whom are nationally and internationally renowned, are well-established professional artists and designers with numerous exhibitions, commissions, and awards to their credit.

Our studio/laboratory spaces for each media area have impressive features that include a fully-equipped printmaking studio, photography labs for digital and traditional processes, a papermaking/fiber facility, an anagama kiln, a bronze casting facility, and three state-of-the-art digital labs housing over 65 up-to-date Macintosh computers with large 27-inch monitors, three 44" large-format Epson printers, and a variety of video equipment. The Department of Art also operates the George Caleb Bingham Gallery (<https://art.missouri.edu/ingham-gallery-exhibitions.html>) in the Fine Arts Building, which showcases art exhibitions from students, faculty, and visiting artists year-round. A popular Visiting Artists Lecture Series is presented on late Wednesday afternoons during the Fall and Spring semesters and is open to the public. A popular summer experience sponsored by the Department in partnership with the International Center is the Summer Study Abroad Program (<http://art.missouri.edu/undergraduate/study-abroad.html>) that takes place in summers in Italy on odd-numbered years and in the Netherlands and Belgium in even-numbered years. In both countries, students will have the opportunity to study firsthand many of the most important masterpieces in Western art history.

Faculty and students have access to many other resources on the University campus, including the Museum of Art and Archaeology (<http://maa.missouri.edu>), the State Historical Society of Missouri (<http://shs.umsystem.edu>), the Craft Studio Gallery (<https://craftstudio.missouri.edu>), extensive collections of Ellis Library (<http://library.missouri.edu/libraries>), and the image database on ArtStor (<http://www.artstor.org>).

You should not be surprised to find the works of MU art faculty and alumni in major museums, galleries, exhibitions, and collections around

the world, from New York to Barcelona, and from Africa to China. The work of our faculty and alumni exemplifies the caliber of teaching and creativity that students experience in the MU Art Department. We are dedicated to providing our students with the best quality education possible and helping them to develop and nurture their artistic pursuits.

## Faculty

**Professor** J. M. Brueggenjohann\*, R. B. Clarke\*, L. Leong\*, J. Stealey\*

**Curators Teaching Professor** D. L. Huelsbergen\*

**Associate Professor** N. Boyer\*, J. H. Calvin\*, J. B. Grill\*, W. A. Hawk\*, J. Johnson\*, C. Sampson\*, R. A. Wilson\*

**Assistant Professor** C. Daniggelis\*, D. Farnum\*, J. Pintz\*, A. Thompson\*, J. Thornton\*

**Associate Teaching Professor** M. Ballou\*

**Assistant Teaching Professor** A. Callender\*, M. G. Langeneckert\*, T. Shaffer\*

**Professor Emeritus** J. D. Berneche, R. F. Bussabarger, B. B. Cameron\*, L. Kantner, L. Rugolo, O. A. Schuchard, F. H. Stack

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Art (p. 146)
- BFA in Art (p. 147)
- Minor in Art (p. 148)

**Director of Undergraduate Studies:** Deborah Huelsbergen

The Department of Art in the College of Arts & Science offers a BA and a BFA. A minor in Art is also available. Students have the option to take studio courses in drawing, painting, printmaking, ceramics, sculpture, fibers, photography, digital/experimental media, and graphic design.

The BA degree is intended for the student desiring a liberal education with a concentration in art, while the BFA provides more professional training in the studio area. The BFA is the required undergraduate degree for admission to most Master of Fine Arts programs.

Starting Fall 2015, all students wishing to pursue a BA or BFA degree in art will need to pass the Art Department BA/BFA Portfolio Review. A student will need to have completed six (6) courses in art before submitting a portfolio for either the BA or BFA. Those courses are ART\_GNRL 1030, ART\_GNRL 1040, ART\_DRAW 1050; then three of the following courses: ART\_CERM 2100, ART\_DRAW 2200, ART\_FIBR 2300, ART\_GRDN 2410, ART\_PNT 2500, ART\_PNT 2510, ART\_PHOT 2600, ART\_PRNT 2700, ART\_SCUL 2800. For more detailed information on the portfolio, please refer to the Art Department website (<http://art.missouri.edu>).

Undergraduate students enrolled in a BA Bachelor of Arts in Fine Arts or BFA Bachelor of Fine Arts degree program who wish to earn a masters with certification to teach K-12 Art can complete Professional Education Certification courses in the College of Education along with three Art Education Professional Education course requirements at the graduate level beginning the summer before senior year in your BA/BFA degree program.

## Graduate

- MFA in Art (p. 148)

Department of Art  
A126 Fine Arts Building  
Columbia, MO 65211-6090  
(573) 882-3255

<http://art.missouri.edu/mfa-program.html>

**Director of Graduate Studies:** J. Brett Grill

Admission Contact:

Brenda J. Warren, Graduate Student Coordinator  
[warrenb@missouri.edu](mailto:warrenb@missouri.edu)

The Department of Art offers a Master of Fine Arts (MFA) program that focuses on the creative goals of the individual. Our aim is to guide each student to finding and developing a particular direction and language as demonstrated by a coherent and conceptually unified body of artwork. Through an intense studio-based practice, our graduates develop into professional artists and college level educators who will successfully contribute to the culture on a local, national and global scale through different fields in the visual arts.

The University of Missouri has been a leader in the visual arts since 1877 when the renowned painter George Caleb Bingham began teaching the first studio courses in the newly formed School of Art. Current faculty members follow in that tradition through their creative work that is nationally and internationally recognized. Their artwork encompasses: abstract and figurative painting and drawing, ceramics, sculpture, ceramics sculpture, as well as bronze cast sculpture, traditional and digital photography, all media of printmaking, surface design, illustration, papermaking and book arts, mixed-media, video, installation and performance art plus intermedia and intradmedia approaches. They are all eager to mentor young artists who share the passion for creativity, critical thinking and the arts.

Laboratory facilities are available in all media areas that are continually updated to coincide with technological advancements. The Department of Art is home to the George Caleb Bingham Gallery with monthly exhibitions highlight artwork by students, local, regional and national artists. Our yearly Florence Summer Study Abroad Program places students in Italy where students have a month to study firsthand many of the most important masterpieces in Western art history. More about the MFA program. (<http://art.missouri.edu/mfa-program.html>)

## Study Areas

Applicants typically study within a particular art medium. Applicants declare a media emphasis of their choice at the time of application to the program. Media areas for selection include ceramics, drawing, fibers, graphic design, painting, photography, printmaking, and sculpture. Aspects of new media (2D and 3D computer imaging and animation, video production, web publishing and other digital media) are also integrated into the curriculum of many of the listed traditional media.

## Financial Aid

Fellowships, scholarships, and tuition waivers, along with graduate teaching assistantships and graduate research assistantships with stipends are available to qualified graduate students. Assistantships include stipends. Some aid is awarded upon acceptance into the program, while others may be awarded later as the student develops within the program. Applications for graduate teaching assistantships

should be submitted along with the application portfolio to the director of graduate studies. Application instructions follow later in this document. For a list of scholarships within the Department of Art, please visit the departmental website at: <http://art.missouri.edu/mfa-program/scholarships.html>

Some campus-wide opportunities are available, too. Most prominent would be the Mizzou Graduate Fellowship that is available for applicants for the fall semester (submitting deadline on January 1st each year) only.

## Advising

Upon admission to the program, a candidate is assigned a graduate thesis committee chair/major advisor. This person will mentor the student throughout the student's tenure and help the student to establish the three-member graduate thesis committee. By the second semester the student will select another committee member from the Graduate Faculty to serve as the student's second advisor. The chair/major advisor will also help the graduate student to select an outside member who is from the graduate faculty of another department. In addition, students have access to all the art department faculty members for consultation throughout the duration of their studies.

## BA in Art

### Degree Program Description

The Department of Art offers opportunities for creative development, provides instruction in visual literacy, and trains students in the necessary technical and conceptual skills needed to pursue a lifetime of creative activity. Through a variety of studio art courses, students learn critical thinking skills, creative problem solving, and become life-long learners. The Department of Art offers courses in ceramics, drawing, fibers, graphic design, painting, photography, printmaking, and sculpture. The BA degree is a liberal arts degree in which students complete 30 - 40 hours of studio art courses and 9 hours of courses in Art History. Starting Fall 2015, all students wishing to pursue a BA degree in art must pass the Art Department BA/BFA Portfolio Review. Students that earn a degree in art pursue a variety of careers, including artists; art educators; commercial and studio designers; and graphic, web, print and packaging designers.

### Major Program Requirements

Art majors earning a BA degree complete art foundations courses, art core requirements, and art studio electives. No more than 40 credits in studio art may be included in the BA curriculum. Students enrolled in the BA degree program may not include art or art history courses with a grade of D.

All art majors must complete a minimum of 12 credit hours of MU art coursework numbered 2000 or above. In addition, 9 hours of Art History and Archaeology courses, including two 3-hour classes numbered 2000 or above, are required.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 32), including University general education (p. 33).

Starting Fall 2015, all students wishing to pursue a BA or BFA degree in art will need to pass the Art Department BA/BFA Portfolio Review. A student will need to have completed six (6) courses in art before submitting a portfolio for either the BA or BFA. Those courses are ART\_GNRL 1030, ART\_GNRL 1040, ART\_DRAW 1050; then three

of the following courses: ART\_CERM 2100, ART\_DRAW 2200, ART\_FIBR 2300, ART\_GRDN 2410, ART\_PNT 2500, ART\_PNT 2510, ART\_PHOT 2600, ART\_PRNT 2700, ART\_SCUL 2800. For more detailed information on the portfolio, please refer to the Art Department website (<http://art.missouri.edu>).

### Major core requirements

Art foundations		
ART_GNRL 1030	Basic 2-D Design	3
ART_GNRL 1040	Basic 3-D Design	3
ART_DRAW 1050	Drawing I	3
Art core requirements		
ART_PNT 2500	Beginning Painting	3
or ART_PNT 2510	Beginning Watercolor Painting	
ART_SCUL 2800	Beginning Sculpture	3
ART_CERM 2100	Beginning Ceramics	3
or ART_FIBR 2300	Beginning Fibers	
ART_GNRL 4975	Senior Seminar in Art	3
or ART_GNRL 4976	Design - Senior Seminar	
ART studio electives (may include 15 credits in one media area)		up to 18
AR H A courses (Art History)		9

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. (Students focusing on graphic design will take ART\_GNRL 4976 Fall of their fourth year instead of an Art Studio Elective which they will move to the Spring of their fourth year and take instead of ART\_GNRL 4975)

First Year		
Fall	CR Spring	CR
Art Foundations Course	3 Art Foundations Course	3
MATH 1100 or ENGLISH 1000	3 Foreign Language	5
Humanities Course	3 MATH 1100 or ENGLISH 1000	3
American History or Government Course	3 Behavioral Science	3
	12	14

Second Year		
Fall	CR Spring	CR
Art Foundations Course	3 Foreign Language	3
Foreign Language	5 Art Core Requirement	3
AR_H_A 1110	3 Biological/Physical/Math Science Course (lab)	3
Social Science Course	3 Behavioral Science Course (2000+)	3
Humanities Course	3 Humanities Course	3
	17	15

Third Year		
Fall	CR Spring	CR
Art Core Requirement	3 Art Core Requirement	3
Art Studio Elective	3 Art Studio Elective	3
AR H A Course (2000+)	3 Biological/Physical/Math Science Course	3
Biological/Physical/Math Science Course (MRP)	3 Social Science Course (2000+)	3
Humanities Course	3 General Elective	3
	15	15

Fourth Year		
Fall	CR Spring	CR
Art Studio Elective	3 Art Studio Elective	3
Art Studio Elective	3 General Elective	3
AR H A Course (2000+, WI)	3 General (or Art) Elective	3
General Elective	3 General Elective	3
General Elective	3 ART_GNRL 4975	3
Humanities Course (2000+)	3	
		18

Total Credits: 121

For additional major and career exploration resources, visit Major & Career Exploration (p. 31) in the catalog.

## BFA in Art

### Degree Program Description

The Department of Art offers opportunities for creative development, provides instruction in visual literacy, and trains students in the necessary technical and conceptual skills needed to pursue a lifetime of creative activity. Through a variety of studio art courses, students learn critical thinking skills, creative problem solving, and become life-long learners. The Department of Art offers courses in ceramics, drawing, fibers, graphic design, painting, photography, printmaking, and sculpture. The BFA is considered a professional degree intended to provide a solid foundation for a career in visual art. Students in the BFA program must complete 60-70 hours of studio art and 12 hours of Art History. Starting Fall 2015, all students wishing to pursue a BA or BFA degree in art must pass the Art Department BA/BFA Portfolio Review. Students that earn a degree in art pursue a variety of careers, including artists; art educators; commercial and studio designers; and graphic, web, print and packaging designers.

### Major Program Requirements

Art majors earning a BFA degree complete art foundations courses, art core requirements, and art studio electives with 15 credits in one specific media area. Students enrolled in the BFA degree program may not include art or art history courses with a grade of D.

All art students are assigned a departmental faculty advisor. Students are encouraged to meet with the advisor to plan a program of study with a focus in one particular media area.

BFA students complete 60 to 70 credits in studio art, including a minimum of 15 credits in one specific media area, and 12 credits of art history, including at least two 3-hour Art History & Archaeology courses numbered 2000 or above. A minimum of 35 credit hours of studio art coursework must be taken at MU.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 32), including University general education. (p. 33)

Starting Fall 2015, all students wishing to pursue a BA or BFA degree in art will need to pass the Art Department BA/BFA Portfolio Review. A student will need to have completed six (6) courses in art before submitting a portfolio for either the BA or BFA. Those courses are ART\_GNRL 1030, ART\_GNRL 1040, ART\_DRAW 1050; then three of the following courses: ART\_CERM 2100, ART\_DRAW 2200, ART\_FIBR 2300, ART\_GRDN 2410, ART\_PNT 2500, ART\_PNT 2510, ART\_PHOT 2600, ART\_PRNT 2700, ART\_SCUL 2800. For more

detailed information on the portfolio, please refer to the Art Department website (<http://art.missouri.edu>).

#### Major core requirements:

Art foundations		
ART_GNRL 1030	Basic 2-D Design	3
ART_GNRL 1040	Basic 3-D Design	3
ART_DRAW 1050	Drawing I	3
Art core requirements		
Drawing		3
ART_PNT 2500	Beginning Painting	3
or ART_PNT 2510	Beginning Watercolor Painting	
ART_SCUL 2800	Beginning Sculpture	3
(students need a total of 6 hours from ceramics and/or fibers)		
ART_CERM 2100	Beginning Ceramics	3
ART_FIBR 2300	Beginning Fibers	3
(students need a total of 6 hours from photography and/or printmaking)		
ART_PHOT 2600	Beginning Photography	3
ART_PRNT 2700	Beginning Printmaking	3
ART_GNRL 4975	Senior Seminar in Art	3
or ART_GNRL 4976	Design - Senior Seminar	
ART media area electives		15
		minimum
ART studio electives		up to 19
AR H A courses (Art History and Archaeology)		12

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. (Students focusing on graphic design will take ART\_GNRL 4976 Fall of their fourth year instead of an Art Studio Elective which they will move to the Spring of their fourth year and take instead of ART\_GNRL 4975)

First Year		
Fall	CR Spring	CR
Art Foundations Course	3 Art Foundations Course	3
Art Foundations Course	3 Art Core Requirement	3
MATH 1100 or ENGLISH 1000	3 MATH 1100 or ENGLISH 1000	3
American History or Government Course	3 Behavioral Science Course	3
	Humanities Course	3
		12
15		
Second Year		
Fall	CR Spring	CR
Art Media Area Course	3 Art Media Course	3
Art Core Requirement Course	3 Art Core Requirement Course	3
AR_H_A 1110	3 Biological/Physical/Math Science Course (MRP)	3
Biological/Physical/Math Science Course (Lab)	3 Behavioral or Social Science Course	3
Humanities Course	3 AR_H_A 1120	3
		15
15		
Third Year		
Fall	CR Spring	CR
Art Media Area Course	3 Art Media Course	3

Art Core Requirement Course	3 Art Core Requirement Course	3
Art Core Requirement Course	3 Art Core Requirement Course	3
Biological/Physical/Math Science Course	3 General Elective Course	3
AR H A Course (2000+)	3 AR H A Course (2000+, WI)	3
	15	15

Fourth Year		
Fall	CR Spring	CR
Art Media Area Course	3 Art Studio Elective	3
Art Core Requirement Course	3 Art Studio Elective	3
Art Studio Elective Course	3 General Elective Course	3
General Elective Course	3 ART_GNRL 4975	3
General Elective Course	3 General Elective Course	3
Humanities Course (2000+)	3	
	18	15

Total Credits: 120

## Minor in Art

The minor in art requires a total of 18 credits, including 15 credits in studio art and 3 credits from the Department of Art History & Archaeology. Six credits must be studio art courses numbered 2000 or above. At least 9 of these hours must be taken while in residence at the University of Missouri. An Art Minor may not include art or art history courses with a grade of D.

## MFA in Art

Admission Contact:

Brenda J. Warren, Graduate Student Coordinator  
warrenb@missouri.edu

Department of Art  
A126 Fine Arts Building  
University of Missouri  
Columbia, MO 65211-6090, USA  
573-882-4037

## Admission Criteria

Fall semester deadline (priority for campus scholarships):

- January 1 if seeking nomination for Mizzou Graduate Fellowship

Spring semester deadline:

- September 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GPA: 3.0

The preferred undergraduate degree for admission to the graduate program in visual art is the Bachelor of Fine Arts degree (BFA). However, applicants holding the BA, BS or other bachelor's degrees are eligible to apply if they have a minimum of 40 hours of undergraduate studio credits or an equivalent commensurate professional experience. Applicants for the Graphic Design Area are required to have a minimum of 2 years professional experience before applying.

Application materials are evaluated to determine if the applicant has the preparation and ability to pursue an advanced degree. Admission is based on the recommendations from the art department graduate faculty members representing each of the media areas. Some applicants, may be placed on a waiting list as alternates, then accepted if others decline their admission offers.

## Required Application Materials

Submit to the Graduate School:

- All required Graduate School documents
- Cover Letter of Intent (stating the goals for pursuing the MFA degree)
- A Digital Assets Sheet (defining the image and video files).
- Current Résumé (exhibition, award, publications, artistic experience, etc.)
- An artist's statement
- Three (3) letters of recommendation
- Official transcripts from each college attended
- Application for G.T.A. (optional but necessary for tuition waiver)

Application Materials Submit to the Art Department

- The application process requires a digital portfolio documenting 20 separate pieces of the applicant's artwork. Applicants can document these works using twenty (20) to forty (40) digital still images and/or moving image files. Please limit submissions to a maximum of 2 images for any one piece of artwork. The artwork in the portfolio should represent your most recent and most accomplished body of work. The work should indicate your major artistic interests and creative direction. The work should demonstrate your creative ability and media competence. If you are requesting consideration for a teaching assistantship, a few of the images could be works that demonstrate your foundational mastery of a specific media area. Portfolios must be submitted in digital form on CD only. Please follow closely the instructions for the submission of images available on the department website:

## MFA Degree Completion Requirements

The MFA program consists of 60-70 credit hours.

The degree includes:

- 30 hours in the major area
- 9 hours in a minor area
- 3 hours of Graduate Studio Seminar
- A minimum of 1 hour of MFA Research Hours
- 11 hours of electives
- 6 hours of Art History

## Graduate-Level Course work

Graduate level courses are at the 7000/8000/9000 level. A minimum of 15 of the 30 hours must be selected from courses numbered at 8000 and/or 9000 levels; no more than 40 percent of the 30 hours credit requirement can be satisfied by Research, Readings and Problems courses. No credit is given for courses at the 4000 or below levels.

## Residency Requirement

A minimum residency of two years is required for the degree. However, mere completion of the prescribed number of credit hours and the residency requirement is insufficient, rather the degree will be granted

upon the student's high level of creative achievement as determined by the student's graduate thesis committee.

## Regular Student Evaluation

The full graduate faculty of the art department reviews every MFA candidate once each year to determine the rate of progress. If the candidate fails to receive a passing evaluation during the review, the student is placed on probation for one semester and is required to be reviewed the following semester. If two consecutive unsatisfactory reviews occur, the student is dismissed from the MFA program.

## Clearance

During the semester prior to graduation, the graduate thesis committee will approve the student to proceed with the final steps toward graduation, composing the written thesis and mounting the thesis exhibition.

## Thesis Acceptance

The graduate thesis committee approves the thesis exhibition and written thesis. The final semester, the MFA candidate installs a thesis exhibition to display visual, artistic and professional achievement. The candidate thereafter presents a final draft of the written thesis that defends the conceptual and philosophical ideas of the final body of artwork. Photographic record of the pieces discussed must be included in the written thesis.

Each degree candidate must pass a two-hour oral final examination conducted by the graduate thesis committee. The presentation must focus on the aspects of the academic study related to the written thesis and visual work. Following final approval of the thesis exhibition and the written thesis, the graduate will officially submit documentation of the theses to the graduate school. The thesis is submitted as a PDF file on a CD-ROM to the Graduate School by the established deadline.

## Time Limit and Extensions

The time limit for completion of the MFA degree is 5 years. Time spent in military service is excluded. For an extension for other reasons the student must petition the Graduate School through his/her chair/major advisor. The five-year period will extend from the beginning of the first semester of enrollment in which the student is accepted to the MFA degree program to the date of his/her clearance to graduate.

## Art History and Archaeology

Michael Yonan, Chair  
College of Arts and Science  
102 Swallow Hall  
(573) 882-6711  
aha@missouri.edu  
<http://aha.missouri.edu>

The development of European and American art in its historic and cultural context is the subject of study in the Department of Art History and Archaeology.

The department offers BA, MA and PhD degrees with a major in Art History and Archaeology.

## Faculty

**Professor** S. H. Langdon\*\*, M. L. Rautman\*\*

**Associate Professor** K. A. Schwain\*\*, A. R. Stanton\*\*, J. A. van Dyke\*\*, M. E. Yonan\*\*

**Assistant Professor** M. Mogetta\*

**Assistant Teaching Professor** E. J. Hornbeck

**Professor Emeritus:** W. R. Biers, N. E. Land Jr., H. W. Marshall

**Professor Emerita:** P. D. Crown, K. W. Slane\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Art History and Archaeology (p. 150)
- Minor in Art History and Archaeology (p. 152)

**Director of Undergraduate Studies:** James van Dyke

## Double Majors and Dual Degrees

Students may combine a major in art history and archaeology with a major in another department in the College of Arts and Science such as Art or Classical Studies (a double major), or with a major in another college such as Business or Journalism (a dual major). Students who graduate with dual majors will be awarded two degrees; their program of study will include an additional 12 credits. Students who plan to pursue double or dual majors should complete graduation plans in both departments.

## Departmental Honors

Departmental Honors recognizes students who have demonstrated a commitment to future professional study in art history and archaeology, wish for more substantial research experience, and have built a record of excellence in departmental coursework.

Requirements:

- 3.3 Cumulative GPA
- 3.6 Departmental GPA
- Successful completion of one 4000-level AR\_H\_A course as a prerequisite
- Completion of a senior honors essay, AR\_H\_A 4999

Students apply for departmental honors the semester prior to taking AR\_H\_A 4999 by writing a proposal on the subject of their essay. The proposal is submitted in duplicate to the faculty member whom the student would like to have serve as the project's supervisor and to the Director of Undergraduate Studies, but shall be considered and must be approved by the faculty as a whole. The essay's topic should reflect both the student's interests and the expertise of the faculty supervisor. The honors essay should be of substantial length, incorporate significant individual research, and engage with theoretical, historiographical, and methodological perspectives appropriate to the topic at hand. Completing these requirements to the faculty's satisfaction will earn the student departmental honors.

## Graduate

- MA in Art History and Archaeology (p. 152)
- PhD in Art History and Archaeology (p. 153)

Art History & Archaeology Graduate Programs  
College of Arts and Sciences

102 Swallow Hall  
Columbia, MO 65211  
(573) 882-6711  
<https://aha.missouri.edu/grad/graduate-home>

**Director of Graduate Studies: Anne Rudloff Stanton**

## About Art History and Archaeology

The University of Missouri has played a prominent role in the teaching of the visual arts in North America since Walter Miller and John Pickard first began lecturing on campus in the 1890s. Our faculty and staff reflect the widening scope of our discipline with particular strengths in the areas of classical Mediterranean archaeology, medieval and Renaissance art, and the art and architecture of modern Europe and the Americas. Current faculty research interests range from early Greece and Rome to modern architecture and contemporary painting. Resources available to faculty and students include the department's Visual Resources Center and the Museum of Art and Archaeology, as well as the extensive collections of Ellis Library.

## Degrees Offered

The Department of Art History and Archaeology offers the MA and the PhD degrees in Art History and Archaeology. The department participates in interdisciplinary graduate minors in Ancient Studies, Medieval and Renaissance Studies, Museum Studies, and Women's and Gender Studies.

## Funding: Internal and External

The Department of Art History and Archaeology offers two forms of graduate support: teaching assistantships in introductory and upper-level courses; and research assistantships in the Visual Resources Center, which provides students with the opportunity to learn a variety of skills vital to the field in the digital age. In addition, the Museum of Art and Archaeology provides research assistantships that allow students to work closely with curators in various departments of the Museum.

Generally, the department and the museum offer .25 FTE (full time equivalent) assistantships that require approximately ten hours of work per week. These provide a nine-month stipend; a tuition waiver that covers resident educational and non-resident fees; and a 50% medical insurance subsidy if you enroll in "Student Accident and Sickness Insurance" program. In special circumstances, the Department and the Museum will offer a .5 FTE to advanced students.

Incoming students are considered for funding when they apply to the program. Returning students submit applications for continued funding in the spring semester. The Department follows the rules set by the Graduate School regarding tuition waiver limits.

In addition to teaching and research assistantships, the department may award departmental fellowships to advanced students: the Herbert Schooling Fellowship; the John Pickard Fellowship; and the Charles D. Folse Fellowship for students in classical archaeology. Holders of these fellowships may, with proper consent, hold additional grants not to exceed \$1000 or may hold teaching assistantships.

Finally, the department offers a number of fellowships and travel awards:

- The Edzard Baumann Traveling Fellowship in European Art
- The Irina Hans Fellowship in Art History
- The Osmund Overby Fund for research in American art, architecture, and historic preservation

- The Saul and Gladys Weinberg Traveling Fellowship for advanced students in classical archaeology

Students interested in these awards should contact the director of graduate studies and their advisors for application instructions.

In addition, the University of Missouri Graduate School sponsors two major fellowship programs: a spring competition and a Supplemental Graduate Fellowship Program. Applicants in both art history and archaeology are eligible for these fellowships, which are awarded to entering students through a campus-wide competition. Nominations for both are completed by the director of graduate studies in consultation with the entire faculty. Students in the Department of Art History and Archaeology have held a number of these awards, including the G. Ellsworth Huggins Scholarship, the Gus T. Ridgel Fellowship, and the Robert E. Waterston Award.

Students enrolled in MA and PhD programs are also eligible for awards from The Graduate Professional Council (GPC), which are designed to assist students who are traveling to present research papers, posters or creative works at conferences or symposia. The Graduate Student Association (GSA) also awards travel grants to students who are presenting a paper or poster, or chairing a plenary session or roundtable discussion, at an academic conference.

Finally, the department encourages graduate students to apply for internships, study abroad programs, grants, and fellowships that support their programs of study. An excellent place to initiate this search is Resources in Art History for Graduate Students: A Newsletter of Fellowships and other Opportunities for Art History Graduate Students (<http://www.efn.org/~acd/resources.html>).

## BA in Art History and Archaeology

### Degree Program Description

Art historians and archaeologists seek to understand different cultures by studying their artistic monuments and other material remains. By looking closely at objects within their historical, social, and technological contexts, students develop skills of visual perception and analysis as ways of exploring how images can express identity, share information, and shape everyday life. This integrative approach to cultural traditions draws readily on other disciplines like art, anthropology, classics, film studies, gender studies, history, languages, literature, music, philosophy, and religion. While the BA is not a vocational or professional degree, undergraduate majors gain a broad foundation in the liberal arts that is readily adapted to future goals. Recent graduates of the program have gone on to careers in art galleries, civic arts organizations, cultural heritage offices, historical archives and museums, journalism, library and information sciences, secondary education, and fine arts conservation. Students wishing to pursue specialized research and college-level teaching continue their studies at the masters and doctoral levels.

### Major Program Requirements

Students may elect a broad program in Art History or a more narrowly focused one in Classical Archaeology. Those who are planning to focus in either program should begin foreign language study as early as possible.

In addition to University general education (p. 33) requirements and other college and University graduation requirements (p. 32), students must meet the following requirements:

<b>Course requirements</b>	30
Students must take 1110 and 1120:	6
AR_H_A 1110 Ancient and Medieval Art & AR_H_A 1120 and Renaissance through Modern Art	
OR	
The General Honors Humanities Sequence (GN_HON 2111H, GN_HON 2112H, GN_HON 2113H, GN_HON 2114H)	
<b>AND</b>	
At least six AR H A courses at the 3000 level or above, including at least one course in each of the following three distribution areas and at least two courses at the 4000 level:	18
Art History option: Ancient, Medieval-Baroque, and Modern	
Archaeology option: Greek, Roman, and Post-Classical	
<b>PLUS</b>	
Two elective AR HA courses at any level, including internship, fieldwork, and study abroad.	6

## Language Requirement

The Art History option requires study through the reading level (i.e., 12 or 13 credits) in one modern language, such as French, German, Italian, or Spanish. The Archaeology option requires study through the reading level (i.e., 13 credits) in Greek or Latin. Students who plan to attend graduate school are strongly urged to begin study of one or more additional languages.

## Courses Recommended for a Well-Rounded Degree

Art History students should take additional courses in the Humanities, including anthropology, classical humanities, film studies, history, literature, religious studies, and philosophy, and at least one course in studio art or environmental design. Students pursuing the Archaeology option should take related courses in anthropology, classical humanities, geology, history, religious studies, and philosophy.

## Semester Plan: Art History Track

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>			
Fall	CR	Spring	CR
ENGLSH 1000	3	MATH 1100	3
American History OR Government Course	3	AR_H_A 1120	3
AR_H_A 1110	4	3 Biological/Physical Science Course w/Lab	4
Behavioral Science Course	3	3 Behavioral Science Course	3
Humanities/Fine Arts Course	3	3 Humanities/Fine Arts Course	3
	15		16
<b>Second Year</b>			
Fall	CR	Spring	CR
AR_H_A Medieval-Baroque Area 3000+	3	3 AR_H_A Modern Area 3000+	3
Foreign Language	5	5 AR_H_A Ancient Area 3000+	3

Math Reasoning Proficiency Course	3	Foreign Language	5
Humanities Course 2000+	3	Biological/Physical Science Course w/Lab	5
	14		16

<b>Third Year</b>			
Fall	CR	Spring	CR
AR_H_A Elective 3000+	3	AR_H_A Elective 1000+	3
Foreign Language	3	AR_H_A Elective 1000+	3
Social Science Course	3	Elective	3
Humanities Course 2000+	3	Social Science Course 2000+	3
Elective	3	Elective	3
	15		15
<b>Fourth Year</b>			
Fall	CR	Spring	CR
AR_H_A 4000 Level Elective	3	Elective	3
Elective 3000+	3	AR_H_A 4000 Level Capstone	3
Elective 3000+	3	Elective 3000+	3
Elective	3	Elective 3000+	3
Elective	2	Elective	2
	15		14

Total Credits: 120

## Semester Plan: Classical Archaeology Track

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>			
Fall	CR	Spring	CR
ENGLSH 1000	3	MATH 1100	3
American History or Government Course	3	AR_H_A 1120	3
AR_H_A 1110	4	3 Biological/Physical Science Course w/Lab	4
Behavioral Sciences Course	3	3 Behavioral Science Course	3
Humanities/Fine Arts Course	3	3 Humanities/Fine Arts Course	3
	15		16
<b>Second Year</b>			
Fall	CR	Spring	CR
AR_H_A 3310	3	AR_H_A 3410	3
Greek or Latin 1100	5	AR_H_A 3510 or 3520	3
Math Reasoning Proficiency Course	5	Greek or Latin 1200	5
Humanities Course 2000+	5	3 Biological/Physical Science Course w/Lab	5
	14		16
<b>Third Year</b>			
Fall	CR	Spring	CR
AR_H_A Elective 3000+	3	AR_H_A Elective 1000+	3
Greek or Latin 2000	3	AR_H_A Elective 1000+	3
Social Science Course	3	Elective	3
Humanities Course 2000+	3	Social Science Course 2000+	3
Elective	3	Elective	3
	15		15



Fourth Year		
Fall	CR Spring	CR
AR_H_A 4000 Level Elective	3 Elective	3
Elective 3000+	3 AR_H_A 4000 Level Capstone	3
Elective 3000+	3 Elective 3000+	3
Elective	3 Elective 3000+	3
Elective	3 Elective	2
15		14

Total Credits: 120

## Minor in Art History and Archaeology

A minor in Art History and Archaeology requires 15 credits within the department. Nine of the 15 credits must be at the 3000-level or above.

## MA in Art History and Archaeology

### Admission Contact Information

Michael Yonan (YonanM@missouri.edu)  
 365 McReynolds Hall  
 Columbia, MO 65211  
 (573) 882-6711

### About the Master's

The MA program in the Department of Art History and Archaeology has two primary goals: to provide graduate students with a strong background in the history of art, from antiquity to the present; and to introduce them to the methods and theories of material and visual analysis, as well as the practices of critical writing and reading. Students who pursue the thesis option have the opportunity to specialize at that stage.

### Admission Criteria

Admission to the department on the graduate level is granted yearly to a small number of candidates who hold recognized BA or MA degrees in art history, classical archaeology, classics, or related fields of the humanities and social sciences. In addition to the 3.0 GPA required by the Graduate School, the department requires: a GPA of 3.3 in the major field; minimum GRE score (below) and at least three semesters of a single appropriate foreign language (normally German, French or Italian).

Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	4.5
On or After August 1, 2011	300	4.5

### Required Application Materials

All application materials must be submitted directly to the Graduate School through its Apply Yourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=umc-grad)) online application system. Applications will not be considered complete until we receive the following:

- Official transcripts or mark sheets from each university or college you have attended
- GRE scores
- Three letters of recommendation concerning academic qualifications to undertake graduate work
- A short statement of the applicant's professional goals and reasons for applying to do graduate work in art history or archaeology
- A copy of a recent term paper as a sample of the applicant's scholarship and writing
- Curriculum vitae

### Financial Aid from the Program

Incoming students are considered for funding when they apply to the program. Returning students submit applications for continued funding in the spring semester.

### Graduation Requirements

#### Course Requirements

The successful completion of the MA requires at least thirty hours of coursework that must include: AR\_H\_A 8110 Introduction to Graduate Study; AR\_H\_A 8120 Theories and Methodologies in Art History and Archaeology; four distribution requirements that cover four broad periods of study: Ancient, Medieval and Renaissance, 1500-1850, and 1850-Present; and AR\_H\_A 8070 Master's Tutorial. If students are invited to pursue the thesis option, they must enroll in AR\_H\_A 8080 Readings for MA Thesis in Art History and Archaeology and AR\_H\_A 8090 Master's Thesis Research and Thesis in place of AR\_H\_A 8070. Courses for an interdisciplinary minor field will be in addition to these minimums.

#### Language Requirements

All students must demonstrate reading knowledge of one foreign language, usually German or a Romance language. Departmental language exams are offered in the fall semester of each year, although students can request an examination in the spring semester. Language requirements may be satisfied also by achieving a grade of B or better in a course approved by the Director of Graduate Studies. The department expects that the modern language requirement will be met by the end of the third semester for use in advanced coursework as well as thesis research and writing. In addition to the modern language, students in Classical Archaeology also must have reading knowledge of either Greek or Latin. Students who pursue the thesis option must have reading knowledge of two modern languages: German and a Romance language.

#### Master's Essay

To complete the degree, students must complete a scholarly essay under the guidance of a faculty advisor. It will most likely be a revision of a research paper from a graduate course taken in the Department of Art History and Archaeology.

#### Master's Essay Oral Examination

In consultation with the faculty advisor, students will select two additional members of the department faculty to read the essay. Students will discuss their essays in a meeting chaired by their advisor.

#### Master's Thesis Option

Graduate students who intend to pursue doctoral work should complete the thesis option. This decision is made during the student's second or

third semester in residence in consultation with the Director of Graduate Studies and three faculty members in the student's area of interest.

## Master's Thesis Committee

The master's thesis committee consists of at least three people: the student's thesis advisor, a second member from within the department, and a third member from outside the department. The student should invite the latter two in consultation with his or her thesis advisor.

The committee must approve the thesis topic in the semester before the student plans to defend the thesis; often, this is accomplished during an interview for candidacy.

## Master's Thesis

The master's thesis enables graduate students to engage in independent and thorough research in a specific area of study. While the thesis need not be an original contribution, neither can it be an uncritical compilation of published facts. A successful thesis will demonstrate the student's ability to use bibliography in the field; effectively utilize research tools and techniques; synthesize a variety of types of sources; and sustain an argument.

## Master's Thesis Defense

The defense of the master's thesis is an oral examination, chaired by the student's advisor, which focuses specifically on the MA thesis. The student should submit a complete draft of the thesis to the advisor at least two months before the intended defense date and a final draft, approved by the advisor, to the entire committee 30 days before the defense. Any changes recommended by the committee during the defense must be made before the finished thesis can be submitted to the Graduate School.

## More Information

Further guidelines are included in the department's graduate programs brochure or on the website.

## PhD in Art History and Archaeology

### Admission Contact Information

Michael Yonan (YonanM@missouri.edu)  
365 McReynolds Hall  
Columbia, MO 65211  
(573) 882-6711

### About the PhD

In the Doctoral Program, students deepen their exploration of art history or classical archaeology and demonstrate their ability to carry out original scholarship.

The department advises doctoral students in the following areas of study:

- Greek Art and Archaeology
- Roman and Late Antique Art and Archaeology
- Early Medieval Art and Archaeology
- Late Medieval Art
- Renaissance and Baroque Art
- 18 th Century Art

- 19 th Century Art
- 20-21 st Century Art
- American Art
- Architectural History

## Admission Criteria

The department accepts as candidates for the PhD students who have earned an MA or its equivalent in art history or classical archaeology, either from the University of Missouri or from an institution recognized by the university. An MA thesis is a prerequisite for the PhD in both art history and classical archaeology. The Doctoral Program Committee (see below) determines the acceptability of work completed elsewhere.

Students completing an M.A. degree in the Department of Art History and Archaeology at the University of Missouri-Columbia who want to continue for the Ph.D. must be accepted for advising by a faculty member who is a member of the doctoral faculty. Such students should submit a statement of purpose and a current CV to the department by the January 18 deadline. After they are accepted for advising, they need to submit a "Change of Program, Degree, Emphasis or Advisor Form" to the Graduate School.

## Required Application Materials

All application materials must be submitted directly to the Graduate School through its Apply Yourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=umc-grad)) online application system. Applications will not be considered complete until we receive the following:

- Official transcripts or mark sheets from each university or college you have attended
- GRE scores
- Three letters of recommendation concerning academic qualifications to undertake graduate work
- A short statement of the applicant's professional goals and reasons for applying to do graduate work in art history or archaeology
- A copy of a recent term paper as a sample of the applicant's scholarship and writing, and
- Curriculum vitae

## Financial Aid from the Program

Incoming students are considered for funding when they apply to the program. Returning students submit applications for continued funding in the spring semester.

## Graduation Requirements

### Coursework

The Graduate School requires a minimum of 72 hours for the PhD. At least 42 of those hours must be completed after the receipt of MA. Up to 30 hours from a previous institution can count toward the total of 72 hours. Most students will take more than the minimum number of courses and requirements

The 42 hours must include:

- At least one course from the following four areas—Ancient, Medieval and Renaissance, 1500-1850, and 1850-Present—unless students have taken an equivalent at the MA level.

- 27 hours of courses in the major areas. At least 12 of the 27 hours must be seminars at the 8000 level.
- 15 hours of coursework in the minor areas. At least 6 of the 15 hours must be taken at the 8000-level

The student's program of study is determined in consultation with the Doctoral Program Committee. The Doctoral Program Committee is constituted in October during the first year of study. It consists of at least four people: the student's advisor; two additional scholars from within the department; and an outside committee member. The committee:

1. Reviews the student's MA thesis and determines its equivalency;
2. Accepts any transfer of credit from previous institutions;
3. Approves the plan of study;
4. Determines the major and minor areas as well as the scheduling of the comprehensive exams;
5. Approves the subject of the student's dissertation;
6. Examines the student's dissertation.

## Languages

All students must demonstrate reading knowledge of two foreign languages, usually German and a Romance language relevant to their area. Departmental language exams are offered in the fall semester of each year, although students can request an examination in the spring semester. Language requirements may be satisfied also by achieving a grade of B or better in a course approved by the Director of Graduate Studies.

In addition to the modern languages, students in classical archaeology must demonstrate reading knowledge of both Greek and Latin. This requirement may be satisfied by passing with a grade of B or better in a course numbered 7500 or higher in both Greek and Latin and by taking a second course at this level (7500 or higher) in the language more closely related to the major field of study. Equivalent courses taken at other institutions must be approved by the Director of Graduate Studies.

## Comprehensive Examination

The comprehensive examination in the major and minor areas of art history and archaeology, determined by the student and the doctoral program committee, consists of both written and oral examinations.

## Dissertation

The dissertation is expected to be an original, scholarly contribution to the discipline. The topic must be approved by the advisor and the Doctoral Program Committee. A dissertation proposal should be filed with members of the committee within two months of passing the comprehensive exams. A proposal for a dissertation fellowship will satisfy this requirement.

Individual chapters are generally submitted to the advisor as they are written. Other members of the Doctoral Program Committee may also criticize them in draft form. A complete, revised draft of the dissertation must be approved by the advisor at least two months before the defense. Students should distribute the final draft to each member of the committee at least one month before the defense.

Students maintain continuous enrollment by registering for 9080 or 9090 and by submitting a progress report to the Graduate Student Progress System and their advisor each term. Dissertation advising is not normally available during the summer unless previous arrangements have been made.

Further guidelines, including available areas of doctoral study, are included in the department's website.

## Dissertation Defense

The final examination will be in the form of an oral defense of the dissertation. It must take place on or before the penultimate Friday of classes. Any changes recommended by the committee during the defense must be made and approved before the finished thesis can be submitted to the Graduate School. Students are responsible for ensuring they meet the deadlines and guidelines established by the Graduate School for dissertation submission and graduation.

## Biological Sciences

J. Walker, Director  
College of Arts and Science  
105 Tucker Hall  
(573) 882-6659

The Division of Biological Sciences offers both a Bachelor of Arts and a Bachelor of Science with a major in Biological Sciences, in addition to a minor in biological sciences for students majoring in other departments. The department also offers MA and PhD degrees in Biological Sciences.

## Faculty

**Curators Professor** J. A. Birchler\*\*, J. C. Walker\*\*

**Professor** A. Chandrasekhar\*\*, R. B. Cocroft\*\*, P. Friedrichsen\*\*, C. Galen\*\*, M. D. Kirk\*\*, E. Liscum III\*\*, A. D. McClellan\*\*, K. J. Newton\*\*, T. E. Phillips\*\*, J. C. Pires\*\*, T. Sadler\*\*, J. Schul\*\*, D. R. Setzer\*, B. Zhang\*\*

**Associate Professor** D. Braun\*\*, D. Cornelison\*\*, J. D. David\*, L. Eggert\*\*, M. Garcia\*\*, M. Leal\*\*, P. McSteen\*\*, D. Schulz\*\*, P. Shiu\*\*, G. F. Summers\*, C. Tan\*\*, T. D. Zars\*\*

**Assistant Professor** R. Angelovici\*\*, P. Brown\*\*, C. Y. Chabu, E. King\*\*, L. Milescu\*\*, M. Milescu\*\*

**Research Assistant Professor** R. Bhandari, J. Taylor

**Teaching Professor** S. L. Bush\*, B. Stone\*

**Teaching Associate Professor** A. Durbak, T. Gibson, R. D. Hurst

**Curators Professor Emeritus** H. C. Gerhardt\*\*, G. P. Smith\*\*, F. S. Vom Saal\*\*

**Distinguished Teaching-Professor Emeritus** J. E. Carrel\*\*

**Professor Emeritus** S. Alexander\*\*, B. G. Cumbie, A. Eisenstark, J. R. Faaborg\*\*, P. H. S. Jen, D. Mertz, C. D. Miles

**Associate Professor Emeritus** L. Chapman, M. Golomb\*\*, T. Holtsford, J. Maruniak\*, D. L. Worcester

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Department Level Requirements (p. 156)
- BA in Biological Sciences (p. 156)
- BS in Biological Sciences (p. 157)
- Minor in Biological Sciences (p. 158)

**Undergraduate Advising Center**

3 Tucker Hall  
(573) 882-4068  
bioadvising@missouri.edu

Carol Martin  
martinc@missouri.edu

Jordan Parshall  
parshallj@missouri.edu

Brittany Corneillier  
CorneillierB@missouri.edu

## Departmental Honors

The department strongly encourages participation in departmental honors. The heart of the honors program is a year-long experience in laboratory, field, or theoretical work in any area of biology. Students work directly with outstanding faculty mentors from the Division of Biological Sciences or other life science units on campus.

Students may earn degrees with honors by completing BIO\_SC 4950H and BIO\_SC 4952H (6 credits) and preparing a manuscript suitable for publication in a journal or the abstract of an oral or poster presentation at an on-campus symposium or at a regional or national meeting of a professional society. Students must meet with the honors program director to arrange their research experience. The honors program requires sophomore standing (or higher) in biological sciences and a GPA of 3.3. Students with a GPA between 3.0 and 3.29 may petition the director of the honors program for admission. Students must however graduate with a GPA of 3.3 to receive departmental honors. The honors program director is Professor David Schulz, 220 Lefevre, 882-4067, schulzd@missouri.edu (setzerd@missouri.edu).

## Graduate

- MA in Biological Sciences (p. 159)
- PhD in Biological Sciences (p. 159)

Division of Biological Sciences  
218 Tucker Hall  
1-800-553-5698  
(573) 882-1847  
<http://biology.missouri.edu>

**Director of Graduate Studies:** Lori Eggert

## About Biological Sciences

The Division of Biological Sciences offers a unique integration of world-class research, award-winning graduate and undergraduate training, and outstanding community outreach. Our research mission includes the acquisition of new knowledge through basic research and coordinated translational research to improve human health, our food supply, and our environment. Graduate training programs emphasize the excitement of discovery and the development of individual creativity and critical reasoning skills, with graduate mentors who are experts at the frontiers of their field. Because science exposure in the pre-college years is critical to the development of both scientists and informed citizens, we also offer special outreach programs for secondary school science teachers, students and citizens in Missouri.

The Division of Biological Sciences actively recruits outstanding graduate students from both national and international pools. Selected candidates are interviewed. The best are admitted to the division for graduate study. Even more important than the quantitative Grade Point Average and GRE

scores, we are interested in evidence of critical qualitative characteristics including: undergraduate research experiences and presentation of research results; ability to face and overcome obstacles; exceptional motivation, work ethic, intellectual vitality, initiative, creativity, critical thinking ability and leadership ability.

## Areas of Study

The division offers primarily PhD degrees. General areas of research emphasis within the division include evolutionary biology, ecology and behavior; genetic, cellular, molecular and developmental biology; neurobiology and behavior; and plant sciences. Within these general areas, students may devise more specific graduate programs in, for example, plant genetics, invertebrate chemical communication or neurophysiology.

## Interdisciplinary Research

Several students are currently involved in interdepartmental programs in neurosciences, genetics, plant biochemistry and physiology, cellular and molecular biology, the Conservation Biology Program, microbiology, and physiology. In addition, the presence on this campus of a School of Medicine, College of Agriculture, Food and Natural Resources and College of Veterinary Medicine provides opportunities for direct interaction with a variety of established research scientists. Faculty in the division also participate in the Genetics Area Program, the Pathobiology Area Program, the Molecular Biology Program, the Interdisciplinary Program in Plant Biochemistry and Physiology, the Interdisciplinary Neuroscience Program and the Conservation Biology Program.

All entering graduate students should have a broad background in biology and should have completed courses in mathematics through integral calculus, chemistry through organic chemistry and a year of physics. Exceptions may be made for individual students. Outstanding students with undergraduate degrees in areas other than biology (such as biochemistry, chemistry, physics, engineering, mathematics or psychology) are encouraged to apply with the understanding that subject matter in biology will be addressed in the first year of graduate study.

## Research Facilities and Resources

Divisional faculty have ready access to the campus computing network and microcomputers in their laboratories. Beyond the specialized equipment in each faculty research laboratory, departmental and campus equipment and facilities available to graduate students include:

- molecular and cellular biology core facilities, including DNA (with Next Generation Sequencing), Electron Microscopy, Cell and Immunobiology, Informatics, Nuclear Magnetic Resonance, Molecular Cytology, Proteomics, Structural Biology, and Transgenic Animal;
- a 15,000-square-foot greenhouse complex;
- animal-care facilities suitable for mice, bats, rats, rabbits and amphibians;
- a 14-acre botany preserve on the campus and a 146-acre prairie research station;
- 24 walk-in plant growth chambers with regulated light, temperature and humidity controls;
- cell and tissue culture facilities;
- growth chambers;
- scanning spectrophotometers and kinetic fluorimeters;
- ultracentrifuges and scintillation counters;
- HPLC facilities;

- sound isolation acoustic chambers;
- neurophysiological recorders, oscilloscopes and amplifiers; and,
- microneurosurgery facilities and equipment.

## Funding

Financial support is available through research training grants, fellowships, scholarships, graduate research assistantships, and graduate teaching assistantships.

## Department Level Requirements - Biological Sciences

### Requirements - Biological Sciences

Requirements for the BA and BS degrees with a major in Biological Sciences include course work in biology and ancillary science departments (chemistry, physics and math). The BS degree program requires more extensive course work, with additional studies in biology and the ancillary sciences. The BA degree program is more flexible and has fewer required courses to accommodate students with dual degrees or minors in other departments. Both degree programs can be used to prepare for graduate study or professional school. Students must also complete college and university graduation requirements, including university general education requirements.

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. (Satisfactory/Unsatisfactory grading is not acceptable for courses in the major.) At least 12 hours of biology coursework must be taken in residence at MU.

### Foreign Language Alternative for students pursuing a BS degree in biological sciences

Students who are pursuing a BS degree with a major in biological sciences may opt to satisfy the foreign language requirement through alternative coursework consisting of at least 12 credits in courses numbered 2000 or above. These courses may not be used to satisfy other degree requirements and may not be used to fulfill a minor in another department. Students should confer with the Biology Advising Office to insure that alternative courses meet departmental requirements and all alternatives must be approved by the Director of Undergraduate Studies.

#### Major Core Requirements Biology

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
Evolutionary Biology (select from):		3
BIO_SC 3400	Evolution and Ecology	
BIO_SC 4600	Evolution	
Biological Diversity (select from):		3-5
BIO_SC 2600	Ornithology	
BIO_SC 2700	Ichthyology	
MICROB 3200	Medical Microbiology and Immunology	
BIO_SC 3210	Plant Systematics	
BIO_SC 3260	Invertebrate Zoology	
BIO_SC 3360	Herpetology	
BIO_SC 3510	Biology of Fungi	

BIO_SC 3660	Mammalogy	
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity	
BIO_SC 3750	General Microbiology	
<b>Capstone course (select one) (complete in last 45 hours):</b>		3-5
BIO_SC 4950 & BIO_SC 4952	Undergraduate Research in Biology and Undergraduate Research in Biology	
BIO_SC 4950H & BIO_SC 4952H	Honors Research in Biology and Honors Research in Biology	
BIO_SC 4972	Developmental Biology	
BIO_SC 4976	Molecular Biology	
BIO_SC 4978	Cancer Biology	
BIO_SC 4982	Human Inherited Diseases	
BIO_SC 4983	Molecular Ecology	
BIO_SC 4986	Neurology of Motor Systems	
BIO_SC 4988	Nerve Cells and Behavior	
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	
BIO_SC 4994	Senior Seminar	

### Electives

All biology majors must take additional biology courses to total at least 29 credits for the BA degree or 33 credits for the BS degree.

Elective credits must be in formal courses numbered above 2000 and must include at least one 3000- or 4000-level laboratory course, one 4000-level course, and one WI course at the 3000 or 4000 level in a natural science.

BIO\_SC 2010, BIO\_SC 2015, BIO\_SC 2030, BIO\_SC 2060, BIO\_SC 2100, BIO\_SC 2150, and BIO\_SC 2950 may not be used to satisfy this requirement. MICROB 3200 may not be used to satisfy the laboratory course requirement.,

Independent readings, internships, problems and seminar courses do not apply (i.e., BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, and BIO\_SC 4960).

Students completing research courses BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952, or BIO\_SC 4952H for 6 credits may apply 3 credits toward fulfillment of biology elective hours for the BA or BS degree.

Students may repeat research courses for a total of 12 hours. Any credits remaining after 3 hours are used as a capstone or an elective in biology will be applied toward total hours to graduate. A maximum of 12 credit hours from the following courses (BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952 and BIO\_SC 4952H) can be counted toward graduation.

BIOCHM 4270 and BIOCHM 4272 may apply toward fulfillment of biology elective hours for the BA or BS degree.

## BA in Biological Sciences

### Degree Program Description

Biology is a broad field centered on the study of living organisms and processes. While the degree program requires general education courses in behavioral sciences, social sciences, and the humanities, students can specialize their curriculum through their course selections. The main difference between the BS degree and the BA degree is that the BS degree requires more credit hours in biology, chemistry, physics, and math than the BA degree. Some of the knowledge that students

acquire includes basic sciences necessary for upper-level biological science coursework (i.e., mathematics, statistics, physics, general and organic chemistry), how biologists use mathematical modeling and simulation to describe living systems, and arguments employed by scientists and others in key ethical controversies in biological science and research (for example, stem cell research). This degree is designed to prepare students for graduate study, professional schools, or direct entry into the workplace. Undergraduates majoring in biological sciences go on to careers in a wide range of fields, including medicine and other health professions, biotechnology, industry, government service, conservation and ecology, and secondary and higher education.

## Major Program Requirements

Department Level Requirements (p. 156) must be completed in addition to all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100 & CHEM 2110	Organic Chemistry I and Organic Chemistry II	3-6
or CHEM 2030	Survey of Organic Chemistry	
One course in Physics, Geology or Astronomy		4-5
Select one of the following:		3-5
MATH 1400	Calculus for Social and Life Sciences I	
MATH 1500	Analytic Geometry and Calculus I	
STAT 1200	Introductory Statistical Reasoning	
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
INFOTC 1040	Introduction to Problem Solving and Programming	
Total Credits		18-24

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. At least 12 hours of biology coursework must be taken in residence at MU.

## Semester Plan

NOTE: These plans are intended only as general guides. Courses outside Biology, Chemistry, MATH 1100, and ENGLISH 1000 are provided only for illustrative purposes. Advanced credit or exemption from the Foreign Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point. Students who are pursuing the BA will not need to complete CHEM 2130.

### Plan 1

#### A student that is exempt from MATH 1100

First Year		
Fall	CR Spring	CR
CHEM 1320	4 CHEM 1330	4
ENGLISH 1000	3 BIO_SC 1500	5
Behavioral Science Course	3 Humanities Course	3
Social Science Course (MO State Law)	3 Social Science Course	3

Elective	1-2	
		14-15
15		
Second Year		
Fall	CR Spring	CR
BIO_SC 2200	4 CHEM 2110	3
CHEM 2100	3 CHEM 2130	2
STAT 1400	3 BIO_SC 2300	4
Humanities Course (2000-level)	3 MATH 1400*	3
Elective	1-2 Behavioral Sciences Course (2000-level)	3
		14-15
		15

Total Credits: 58-60

\* See Grad Plan for Mathematical Science Options

### Plan 2

#### A student that needs MATH 1100

First Year		
Fall	CR Spring	CR
BIO_SC 1500	5 CHEM 1320	4
MATH 1100	3 ENGLISH 1000	3
Behavioral Sciences Course	3 Humanities Course	3
Social Science Course (MO State Law)	3 Social Science Course	3
Elective	1 Elective	1-2
		15
		14-15
Second Year		
Fall	CR Spring	CR
CHEM 1330	4 CHEM 2100	3
BIO_SC 2200	4 BIO_SC 2300	4
Humanities Course (2000-level, WI)	3 Humanities Course	3
Social Science Course (2000-level)	3 Behavioral Sciences Course (2000-level)	3
	Humanities Course (2000-level)	3
		14
		16

Total Credits: 59-60

## BS in Biological Sciences

### Degree Program Description

Biology is a broad field centered on the study of living organisms and processes. While the degree program requires general education courses in behavioral sciences, social sciences, and the humanities, students can specialize their curriculum through their course selections. The main difference between the BS degree and the BA degree is that the BS degree requires more credit hours in biology, chemistry, physics, and math than the BA degree. The curriculum for the BS degree currently has the option of completing a foreign language sequence or substituting one of three tracks for the foreign language requirement. Some of the knowledge that students acquire includes basic sciences necessary for upper-level biological science coursework (i.e., mathematics, statistics, physics, general and organic chemistry), how biologists use mathematical modeling and simulation to describe living systems, and arguments employed by scientists and others in key ethical controversies in biological science and research (for example,

stem cell research). This degree is designed to prepare students for graduate study, professional schools, or direct entry into the workplace. Undergraduates majoring in biological sciences go on to careers in a wide range of fields, including medicine and other health professions, biotechnology, industry, government service, conservation and ecology, and secondary and higher education.

## Major Program Requirements

Department Level Requirements (p. 156) must be completed in addition to all university requirements, including general education (p. 33), and the degree requirements below.

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
One Year of General Physics with Laboratory		8-10
One semester of calculus and one semester of statistics, selected from the following:		5-6
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
Total Credits		35-40

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. At least 12 hours of biology coursework must be taken in residence at MU.

## Semester Plan

NOTE: These plans are intended only as general guides. Courses outside Biology and Chemistry are provided only for illustrative purposes. Advanced credit or exemption from the Foreign Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point.

### Plan 1

#### A student that is exempt from MATH 1100

First Year		
Fall	CR Spring	CR
CHEM 1320	4 CHEM 1330	4
ENGLISH 1000	3 BIO_SC 1500	5
Behavioral Sciences Course	3 Humanities Course	3
Social Sciences Course (MO State Law)	3 Social Science Course	3
Elective	1-2	
		14-15
Second Year		
Fall	CR Spring	CR
CHEM 2100	3 CHEM 2110	3
BIO_SC 2200	4 CHEM 2130	2
STAT 1400	3 BIO_SC 2300	4

Humanities Course (2000-level)	3 MATH 1400*See Grad Plan for Mathematical Sciences Option	3
Elective	1-2 Behavioral Sciences Course (2000-level)	3
		14-15

Total Credits: 58-60

### Plan 2

#### A student that needs MATH 1100

First Year		
Fall	CR Spring	CR
BIO_SC 1500	5 CHEM 1320	4
MATH 1100	3 ENGLISH 1000	3
Behavioral Sciences Course	3 Humanities Course	3
Social Sciences Course (MO State Law)	3 Social Sciences Course	3
Elective	1 Elective	1-2
		15
		14-15

Second Year		
Fall	CR Spring	CR
CHEM 1330	4 CHEM 2100	3
BIO_SC 2200	4 BIO_SC 2300	4
Humanities Course (2000-level, WI)	3 Humanities Course	3
Social Sciences Course	3 Behavioral Sciences Course	3
	Humanities Course (2000-level)	3
		14
		16

Total Credits: 59-60

## Minor in Biological Sciences

### Minor Core Requirements

BIO_SC 1200	General Botany with Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	

### Additional Biological Sciences

Select 10 additional credits in courses numbered 2000 or higher (see exceptions below), including at least one course from two of the following areas:

#### Genetics

BIO_SC 2200	General Genetics
-------------	------------------

#### Cell Biology

BIO_SC 2300	Introduction to Cell Biology
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#### Evolutionary Biology

BIO_SC 3400	Evolution and Ecology
BIO_SC 4600	Evolution

#### Biological Diversity

BIO_SC 2600	Ornithology
BIO_SC 2700	Ichthyology
BIO_SC 3210	Plant Systematics
BIO_SC 3260	Invertebrate Zoology
BIO_SC 3360	Herpetology
BIO_SC 3510	Biology of Fungi
BIO_SC 3660	Mammalogy
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity
BIO_SC 3750	General Microbiology

MICROB 3200	Medical Microbiology and Immunology	15
Total Credits		

At least one of the additional courses must include a laboratory. Courses designed for non-biology majors, problems, internships, readings and research (i.e., BIO\_SC 2010, BIO\_SC 2015, BIO\_SC 2030, BIO\_SC 2060, BIO\_SC 2100, BIO\_SC 2150, BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952, BIO\_SC 4952H, and BIO\_SC 4960) may not be used to fulfill requirements for the minor. MICROB 3200 may not be used to satisfy the laboratory course requirement.

All courses in the minor must have a grade of C- or higher with a cumulative GPA of 2.0 or higher in the minor. (Satisfactory/Unsatisfactory grading is not acceptable for courses in the minor.) At least nine of the 15 credits in the minor must be taken in residence at MU.

## MA in Biological Sciences

### Areas of Study

The division offers primarily the PhD degree (p. 159).

## PhD in Biological Sciences

### Admission Contact Information

College of Arts and Science  
218 Tucker Hall  
Columbia, MO 65211  
1-800-553-5698  
(573) 882-1847

The Division of Biological Sciences actively recruits outstanding graduate students from both national and international pools. Selected candidates are interviewed. The best are admitted to the division for graduate study. Even more important than the quantitative Grade Point Average and GRE scores, we are interested in evidence of critical qualitative characteristics including: undergraduate research experiences and presentation of research results; ability to face and overcome obstacles; exceptional motivation, work ethic, intellectual vitality, initiative, creativity, critical thinking ability and leadership ability.

### Eligibility

All entering graduate students should have a broad background in biology and should have completed courses in mathematics through integral calculus, chemistry through organic chemistry and a year of physics. Exceptions may be made for individual students. Outstanding students with undergraduate degrees in areas other than biology (such as biochemistry, chemistry, physics, engineering, mathematics or psychology) are encouraged to apply with the understanding that subject matter in biology will be addressed in the first year of graduate study.

### Admission Criteria

- Fall deadline: December 15
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
250	608

- Minimum IELTS score: 7

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	1200
On or after August 1, 2011	308

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Admissions documents

To the Biological Sciences Program:

- Division of Biological Sciences application form
- GRE test scores
- Official Transcripts
- 3 Reference letters
- Personal Statement
- Statement of previous research or scholarly experience
- Résumé

## Chemistry

T. Glass, Chair  
College of Arts and Science  
125 Chemistry Building  
(573) 882-8374  
chemistry@missouri.edu

The Department of Chemistry offers four undergraduate degree tracks, three leading to a Bachelor of Science and one leading to a Bachelor of Arts. A minor in chemistry and a Bachelor of Science degree with departmental honors also are offered.

At the graduate level, the department offers MS and PhD degrees in Chemistry.

## Faculty

**Curators Professor** J. L. Atwood\*\*

**Rabjohn Professor** M. Harmata\*\*

**Schlundt Professor** K. S. Gates\*\*

**Professor** R. E. Glaser\*\*, T. E. Glass\*\*, S. S. Jurisson\*\*, J. D. Robertson\*\*, T. D. Sewell\*\*, D. L. Thompson\*\*

**Associate Professor** L. J. Beamer\*\*, C. M. Greenlief\*\*, T. J. Hoffman\*\*, R. D. JiJi\*\*, S. W. Keller\*, S. Z. Lever\*\*, J. R. Walensky\*\*

**Assistant Professor** G. A. Baker\*\*, S. N. Baker\*\*, M. Lee\*\*

**Assistant Teaching Professor** B. C. Ganley

**Instructor** L. P. Silverman

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Department Level Requirements (p. 160)
- BA in Chemistry (p. 161)
- BS in Chemistry (p. 161)



- Minor in Chemistry (p. 163)

## Graduate

- MS in Chemistry (p. 163)
- PhD in Chemistry (p. 163)

College of Arts and Science  
125 Chemistry Building  
(573) 882-8374  
<http://chemistry.missouri.edu/>

**Director of Graduate Studies:** Kent Gates

The Department of Chemistry offers graduate degrees in all areas of modern chemistry, including analytical, biological, computational, inorganic, organic, physical and radiochemistry.

## Resources and Facilities

The department has well-equipped laboratories that contain state-of-the-art instrumentation and computing facilities for research. Major instrumentation includes NMR, X-ray diffraction and mass spectrometry centers, as well as a nuclear/radiochemistry lab. Other campus facilities widely used by the department include a central instrument shop, electronics shop, campus computing center and a 10-megawatt nuclear reactor. The latter provides a high neutron flux for radioisotope production, neutron activation analysis and neutron diffraction studies.

## Internal Funding

Fellowships and teaching and research assistantships are available for highly qualified applicants. Application forms are available on the department's website and should be submitted by February 1.

## Graduate Degree Requirements

Students are strongly encouraged to visit the Department of Chemistry site (<http://chemistry.missouri.edu/>) for the most up-to-date information.

## Entrance Criteria

An applicant for graduate work in chemistry should have either a Bachelor of Arts or Bachelor of Science degree in chemistry, essentially equivalent to those awarded at MU, with at least a B average or a score at the 70th percentile on the GRE general test.

## Examinations

All new graduate students in chemistry are required to take Departmental placement/qualifying examinations in all core areas (analytical, inorganic, organic and physical) prior to registration. Students must qualify in two areas. A student who performs well on an exam, as determined by the department's Graduate Program Committee, will be considered to have qualified in that area. Students who do not qualify in particular areas, via the placement examinations, must pass appropriate advanced-level courses in those areas to qualify. An A or B grade is required in these courses for qualification.

## Research, Advising, and the Committee

Affiliation with research advisor must be made by the end of the first semester through a formal process that is part of CHEM 7087. Student progress in the degree program is evaluated annually in May, using the Graduate Student Progress System through the Graduate School. In addition, the student's Graduate Program Committee meets with the student and their research advisor after their first summer of research to

review degree progress. At this time the student will have submitted a formal Research Progress Report to their committee for consideration. All students are expected to attend Departmental Colloquium and Organic/DyNAMITE seminars.

## Department Level Requirements - Chemistry

### Requirements - BA or BS students

Students should consult with a chemistry advisor to schedule science and mathematics requirements in the appropriate order. Note that for a number of chemistry courses there is a prerequisite of a grade of C or better in a previous course. Please see the Associate Chair for Undergraduate Studies for assignment of an advisor.

Students also must complete all applicable College of Arts and Sciences and University graduation requirements (p. 133), including University general education (p. 33). Note that students pursuing a BS degree with a major in Chemistry may opt to satisfy the foreign language requirement through alternative course work consisting of no fewer than 12 credits numbered 2000 or above.

#### Major Core Requirements

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 2140	Organic Laboratory II	2
CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
Total Credits		38

## Degree Tracks

Beyond the major core requirements, each student must select a degree track. There is one track for students pursuing a BA degree and three for those pursuing a BS. The BA degree is designed to meet the needs of students who wish to gain a strong chemistry background but who may have goals other than employment as a chemist or graduate work in chemistry. The American Chemical Society certification track is recommended for BS students who desire professional employment as chemists or who plan to pursue graduate education in chemistry. A medicinal chemistry track is available to BS students who plan careers in the health professions or in pharmaceutical, clinical or medicinal chemistry. The third BS track, leading to simultaneous completion of a BS in Chemistry and a BS in Education, is appropriate for those students who wish to teach chemistry in secondary schools. More information about this third degree track is available from the Chemistry Associate Chair for Undergraduate Studies.

Note: "Track" designations do not appear on transcripts or diplomas.

## Double Majors

No specific programs (other than the dual degree program with the College of Education noted above) are offered, although it is possible to combine a chemistry major (BS or BA) with a variety of other majors, including biological sciences, mathematics and physics.

## Departmental Honors

A BS with Honors in Chemistry is available to honors-eligible BS students who complete CHEM 4990H and CHEM 4991H as well as all of the requirements for the ACS Certification Track. (These courses replace CHEM 4950) Please see the Chemistry Honors Coordinator, for more specific details about the Honors in Chemistry program.

## BA in Chemistry

### Degree Program Description

Chemistry is the study of matter and substances in order to understand, explain and predict how substances change. The BA degree is designed for those students who desire a more general education than that provided by the BS degree, but nonetheless are seeking a degree in chemistry. Most chemistry majors continue their education in graduate school or professional school. Many of our graduates are now physicians or have teaching and research careers at universities and colleges. Other graduates are managers in industry and specialists in their fields. This degree also may be appropriate for students in pre-professional programs (pre-medicine, pre-dentistry, pre-pharmacy, and pre-law).

### Major Program Requirements

Department Level Requirements (p. 160) must be completed in addition to all university requirements, including general education (p. 33), and the degree requirements below.

CHEM 3310	Physical Chemistry I	3
PHYSICS 1210	College Physics I	4
or PHYSICS 2750	University Physics I	
PHYSICS 1220	College Physics II	4
or PHYSICS 2760	University Physics II	
Collateral Courses		12
Additional course work at the 2000-level or higher outside of chemistry. For example: biological sciences, mathematics, biochemistry or business		
Total Credits		23

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
CHEM 1320*	4 CHEM 1330*	4
MATH 1500*	5 MATH 1700	5
American History/Government*	3 English Composition*	3
General Education/Elective*	3-5 General Education/Elective*	3-5
	15-17	15-17

Second Year		
Fall	CR Spring	CR
CHEM 2100	3 CHEM 2110	3
PHYSICS 1210	4 CHEM 2130	2
General Education/Elective*	3 PHYSICS 1220	4
General Education/Elective*	3 General Education/Elective*	3
	13	12

Third Year		
Fall	CR Spring	CR
CHEM 3200	4 CHEM 2140	2
CHEM 2400	3 CHEM 3700W	3
Collateral Area Course	3 Collateral Area Course	3
Foreign Language	5 Foreign Language	5
General Education/Elective*	3 General Education/Elective*	3
	General Education/Elective*	3
	18	19

Fourth Year		
Fall	CR Spring	CR
CHEM 3310	3 Collateral Area Course	3
Collateral Area Course	3 General Education/Elective*	3
Foreign Language	3 General Education/Elective*	3
General Education/Elective*	3 General Education/Elective*	3
General Education/Elective*	3 General Education/Elective*	3
	15	15

Total Credits: 122-126

\* Courses satisfy certain University general education (p. 33) requirements.

## BS in Chemistry

### Degree Program Description

Chemistry is the study of matter and substances in order to understand, explain and predict how substances change. The BS degree is designed for those students who desire a more focused education in Chemistry and related Sciences than that provided by the BA degree, which is more general. There are three degree tracks for those who are pursuing a BS. The American Chemical Society certification track is recommended for BS students who desire professional employment as chemists or who plan to pursue graduate education in chemistry. A medicinal chemistry track is available to BS students who plan careers in the health professions or in pharmaceutical, clinical or medicinal chemistry. The third BS track, leading to simultaneous completion of a BS in Chemistry and a BS in Education, is appropriate for those students who wish to teach chemistry in secondary schools. Most chemistry majors continue their education in the best graduate schools or professional schools in the country. Many of our graduates are now physicians or have teaching and research careers at universities and colleges. Other graduates are managers in industry and specialists in their fields.

### Major Program Requirements

Department Level Requirements (p. 160) must be completed in addition to all university requirements, including general education (p. 33), and the degree requirements below.

## Chemistry Major with BS Degree American Chemical Society Certification Track

CHEM 3310	Physical Chemistry I	3
CHEM 3330	Physical Chemistry II	3
CHEM 3340	Physical Chemistry Laboratory	3
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
CHEM 4200	Instrumental Methods of Analysis with Lab	3
CHEM 4400	Inorganic Chemistry	3
CHEM 4950	Senior Research	3
BIOCHM 4270	Biochemistry	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
MATH 2300	Calculus III	3
Total Credits		37

## Medicinal Chemistry Track

CHEM 3310	Physical Chemistry I	3
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
CHEM 4170	Medicinal Chemistry	3
CHEM 4600	Introduction to Radiochemistry with Lab	3
or BIO_SC 4328	Introductory Radiation Biology	
PHYSICS 1210	College Physics I	4
or PHYSICS 2750	University Physics I	
PHYSICS 1220	College Physics II	4
or PHYSICS 2760	University Physics II	
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIOCHM 4270	Biochemistry	3
BIOCHM 4272	Biochemistry	3
Total Credits		39

## Dual Degree in Chemistry and Education

CHEM 4800	Chemistry Teaching Practicum	3
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## Semester Plans

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### Sample Eight-Semester Program - Bachelor of Science with a Major in Chemistry (ACS Certification Track)

First Year		
Fall	CR Spring	CR
CHEM 1320*	4 CHEM 1330*	4
MATH 1500*	5 MATH 1700	5
American History/Government*	3 ENGLISH 1000	3
General Education/Elective*	3 General Education/Elective*	3
15		15

Second Year		
Fall	CR Spring	CR
CHEM 2100	3 CHEM 2110	3
MATH 2300	3 CHEM 2130	2
PHYSICS 2750	5 PHYSICS 2760	5
General Education/Elective	3 General Education/Elective*	3
General Education/Elective		3
14		16

Third Year		
Fall	CR Spring	CR
CHEM 2400	3 CHEM 2140	2
CHEM 3200	4 CHEM 3330	3
CHEM 3310	3 CHEM 3340	3
Foreign Language (or substitute)	3 Foreign Language (or substitute)	5
General Education/Elective	3 General Education/Elective*	3
16		16

Fourth Year		
Fall	CR Spring	CR
CHEM 4200	3 CHEM 3700W	3
BIOCHM 4270	3 CHEM 4400	3
Foreign Language (or substitute)	3 CHEM 4950	3
General Education/Elective*	3 General Education/Elective*	3
General Education/Elective*	3 General Education/Elective*	3
15		15

Total Credits: 122

\* Courses satisfy certain University general education requirements.

### Sample Eight-Semester Program - Bachelor of Science with a Major in Chemistry (Medicinal Chemistry Track)

Check the Undergraduate Catalog for Prerequisites.

First Year		
Fall	CR Spring	CR
CHEM 1320*	4 CHEM 1330*	4
MATH 1500*	5 MATH 1700	5
PSYCH 1000	3 ENGLISH 1000*	3
American History/Government*	3 General Education/Elective	3
15		15

Second Year		
Fall	CR Spring	CR
CHEM 2100	3 CHEM 2110	3
BIO_SC 1500	5 CHEM 2130	2
PHYSICS 1210	4 BIO_SC 2200	4
General Education/Elective	3 PHYSICS 1220	4
General Education/Elective		3
15		16

Third Year		
Fall	CR Spring	CR
CHEM 2400	3 CHEM 2140	2
CHEM 3200	4 BIOCHM 4270	3
BIO_SC 2300	4 Foreign Language (or substitute)	3
Foreign Language (or substitute)	3 General Education/Elective*	3
General Education/Elective		3
14		14

Fourth Year		
Fall	CR Spring	CR
CHEM 3310	3 CHEM 4170	3
BIOCHM 4272	3 Chemistry Elective (e.g. CHEM 4600)	3-4
Foreign Language (or substitute)	3 General Education/Elective*	3
General Education/Elective*	3 General Education/Elective*	3
General Education/Elective*	3 General Education/Elective	3
15		15-16

Total Credits: 119-120

\* Courses satisfy certain University general education requirements.

## Minor in Chemistry

A minor in chemistry is awarded for the completion of:

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 3200	Quantitative Methods of Analysis with Lab	4
Total Credits		20

If a student's major already requires all of these courses, then an additional elective course not included in that major must be included in the chemistry minor. At least 9 hours of this course work must be taken at MU.

On-line application form for the Minor in Chemistry (<http://backup.coas.missouri.edu/UGForms/minor.html>)

## MS in Chemistry

At this time, the Department of Chemistry is not accepting students into the Master of Science program. Please see admission information on our PhD Program (p. 163).

## PhD in Chemistry

### Admission Contact Information

Jerry Brightwell ([gradchem@missouri.edu](mailto:gradchem@missouri.edu))  
 125 Chemistry  
 Columbia, MO 65211  
 (573) 884-6832

### Admission Criteria

Fall deadline: February 1  
 Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	450	600	3.0-4.0
On or After August 1, 2011	150	150	3.0-4.0

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the Chemistry Program (<https://chemistry.missouri.edu>):

- Departmental Application (PDF)
- GRE scores
- 3 letters of recommendation
- Transcripts from each college and university you have attended
- Statement of Purpose, which should include a summary of why you are interested in pursuing an advanced chemistry degree, a brief description of your previous research experiences, the specific area of chemistry you are interested in pursuing, and your future career goals and plans in the chemistry field.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Doctoral Degree Requirements

The following is a brief synopsis of the general degree requirements; please see the Department of Chemistry website for complete details:

1. Students must take at least 5 8000-level courses outside their own research concentration.
2. Students must pass 5 written cumulative exams within a specific time frame.
3. Students must present at least one departmental seminar.
4. Students are required to complete a comprehensive exam, which includes written and oral elements, within a specific time frame.
5. Students must submit and defend a dissertation describing the results of successful and original research in one of the branches of chemistry.

## Classics

D. Schenker, Chair  
 College of Arts and Science  
 408 Strickland Hall  
 (573) 882-0679

The Classical Studies Department offers courses in the life, languages, cultures, and thought of the ancient Greeks and Romans.

The department offers a BA degree with a major in Classics and emphasis areas in Classical Humanities, Greek, Latin, and Classical Languages; MA degrees in Classical Languages and PhD degrees in Classical Studies. Minors are also available.

## Faculty

**Professor** T. A. Tarkow\*\*, D. Trout\*\*

**Associate Professor** R. F. Foley\*, S. Gurd \*\*, R. D. Marks\*\*, A. Mori\*\*,  
D. J. Schenker\*\*, B. P. Wallach\*

**Assistant Professor** M. Farmer\*, S. Yona

**Associate Teaching Professor** M. H. Barnes\*

**Professor Emeritus** D. M. Hooley\*\*, C. Saylor\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Classics (p. 164)
  - with emphasis in Classical Humanities (p. 165)
  - with emphasis in Classical Languages (p. 165)
  - with emphasis in Greek (p. 166)
  - with emphasis in Latin (p. 166)
- Minor in Classics with emphasis in Classical Humanities or Greek or Latin (p. 166)

## Major with Honors

The undergraduate program can also include 3-6 credits in an honors thesis course (CL\_HUM 4970H or CLASS 4970H). These credits, in addition to major requirements and a 3.5 GPA in all classical studies courses (as well as a 3.3 overall GPA), lead to a BA degree with a major in Classics with Honors.

## Double Majors

A double major is a good way of integrating two related areas of interest, such as Classics and Archaeology or English and Philosophy. Students looking forward to a career in medicine or the sciences may use a double major (Classics and Biology or Chemistry, for instance) to ensure a thorough background in the humanities to balance their scientific studies. Usually minor or related field requirements for each major are satisfied by major courses in the other department. Consult with departmental advisors about specifics.

## Graduate

- MA in Classical Languages (p. 167)
- PhD in Classical Studies (p. 167)

Graduate Studies  
405 Strickland Hall  
(573) 882-0679  
<http://classics.missouri.edu/>

**Director of Graduate Studies:** Raymond Marks

The Department of Classical Studies offers graduate work leading to the degrees of Master of Arts and Doctor of Philosophy. The graduate faculty encourages applications from talented and committed students, whose undergraduate careers have given them an appreciation of the rich, many-faceted nature of classical studies and an interest in discovering a place of their own in it. Solid experience in Latin and Greek is of course desirable, but Missouri's MA program is specifically designed for students

whose study in one or both of the languages may have come late and who need help getting up to speed rapidly.

## Career Preparation

Graduate programs in classical studies are designed to prepare students for professional careers as teachers and scholars of classical literature and ancient civilization. Besides acquiring expertise in the traditional classical disciplines, students are encouraged to become familiar with other areas, such as later literatures and cultures, on which the classical tradition has exercised a decided effect.

## Facilities and Resources

Because MU is a contributing member of the American Academy in Rome and the American School of Classical Studies in Athens, the facilities of those organizations are available to graduate students from Missouri. Study in Athens or Rome is often feasible after the completion of a master's degree. On campus, students have at their disposal the resources of Ellis Library, which are excellent in the major fields of Greek and Latin languages and literatures, and in ancillary fields. This collection is supplemented by the department's Walter Miller Collection. The Museum of Art and Archaeology contains many items of interest to classicists.

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## BA in Classics

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### Degree Program Description

The Classics major is a broad study of literature, covering a deep knowledge of the elements of language, grammar, and syntax, writing and reading skills, vocabulary building and experience with the foundational texts of the Western literary tradition that have influenced most all of subsequent literary and philosophical thought. The degree has four emphasis areas for students interested in the mythology, literature, history, and culture of ancient Greece and Rome. Three of these emphasis areas — Latin, Greek, and Classical Languages — focus on learning the ancient languages and introduce students to advanced readings in ancient Greek and Latin texts. A fourth emphasis area, Classical Humanities, is available to those students who would like to study the Greek and Latin Classics in translation. In the course of their degree, all classics majors achieve an integrated knowledge of the primary political, social, and military events and developments in the ancient Greek and Roman world. Students completing these majors will be well prepared for a variety of careers and for further study in graduate or other professional schools.

### Major Program Requirements

BA major requirements are specified in the four major emphasis areas: Latin, Greek, Classical Languages, and Classical Humanities. These must be met in addition to college and university requirements (p. 133), including University general education (p. 33).

### Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## BA in Classics with Emphasis in Classical Humanities

### Degree Program Description

The Classics major is a broad study of literature, covering a deep knowledge of the elements of language, grammar, and syntax, writing and reading skills, vocabulary building and experience with the foundational texts. The emphasis in Classical Humanities consists of a structured sequence of classes, all using texts in English translation, that guides students through a broad introduction to Classical literature and culture (e.g., Classical Mythology, Greek Culture, and Roman Culture) into more specialized study of some of the most important literary works and cultural traditions of the western world. The Classical Humanities emphasis area offers a thorough course of study to any student broadly interested in ancient culture as well as a sound pre-professional education. Students completing the major will be well prepared for a variety of careers and for further study in graduate or other professional schools.

### Major Program Requirements

Below are the degree requirements. These must be met in addition to college and university requirements (p. 133), including University general education (p. 33).

CL HUM Courses at the 1000-2000 levels	6-9
CL HUM Courses at the 3000-level or above	15-18

(Latin or Greek language courses numbered 4300 or above can be used to replace up to two required Classical Humanities courses.)

### Semester Plan

Please note that this is only one of many possible routes to a major and that one may concentrate in Latin, or Greek, Classical Languages, or Classical Humanities. For guidance on how to approach other major concentrations, please see the Director for Undergraduate Studies in the Classics Department.

First Year		
Fall	CR Spring	CR
MATH 1100	3 ENGLISH 1000	3
Social Science Course (MO State Law)	3 CL HUM 1000-2999	3
CL HUM 1000-2999	3 Biological/Physical/Math Science Course with lab	5
LATIN 1100 or GREEK 1100	5 LATIN 1200 or GREEK 1200	5
	14	16
Second Year		
Fall	CR Spring	CR
LATIN 2000 or GREEK 2000	3 LATIN 4300 or GREEK 4300 (OR CL HUM 4000+)	3
Behavioral Science Course	3 Minor	3
Humanities Course	3 Humanities Course (2000-level)	3
Social Science Course (2000-level)	3 Math Reasoning Proficiency Elective Course	3
Minor	3 Behavioral Science Course	3
	15	15

Third Year		
Fall	CR Spring	CR
Humanities Course (WI)	3 Humanities Course (2000-level)	3
Biological/Physical/Math Science Course	4 Minor	3
LATIN/GREEK 4300+ OR CL HUM 3000+	3 CL HUM 3000+ (WI)	3
CL HUM 3000+	3 Elective Course	3
Elective Course	3 Elective Course	3
	16	15

Fourth Year		
Fall	CR Spring	CR
Minor	3 Social Science Course	3
CL HUM Capstone Course	3 CL HUM 3000+	3
CL HUM 3000+	3 CL HUM Minor Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
	15	15

Total Credits: 121

## BA in Classics with Emphasis in Classical Languages

### Degree Program Description

The Classics major is a broad study of literature, covering a deep knowledge of the elements of language, grammar, and syntax, writing and reading skills, vocabulary building and experience with the foundational texts. Students pursuing Classics with an emphasis in Classical Languages will have a combination of Latin and Greek courses. Students master the grammar, syntax, and vocabulary of the Greek and/or Latin languages, for reading and writing; the distinguishing characteristics of the various styles of the poets and prose writers active during various literary periods; and the fundamental structural elements common to all languages. In addition, students learn to read and translate central Greek and Latin texts, and to identify the resources that will help them read other texts. Students completing the major will be well prepared for a variety of careers and for further study in graduate or other professional schools.

### Major Program Requirements

Below are the degree requirements. These must be met in addition to college and university requirements (p. 133), including University general education (p. 33).

GREEK 1100 & GREEK 1200 & GREEK 2000	Elementary Ancient Greek I and Elementary Ancient Greek II and Greek Reading	13
or GREEK 1100H & GREEK 1200H & GREEK 2000H	Elementary Ancient Greek I - Honors and Elementary Ancient Greek II - Honors and Greek Reading - Honors	
or LATIN 1100 & LATIN 1200 & LATIN 2000	Elementary Latin I and Elementary Latin II and Latin Reading	
or LATIN 1100H & LATIN 1200H & LATIN 2000H	Honors Elementary Latin and Honors Elementary Latin II and Latin Reading - Honors	

(may be used to help satisfy the foreign language requirement in the College of Arts and Science)

GREEK 4300	Intermediate Readings	3
LATIN 4300	Latin Poetry	3
or LATIN 4350	Latin Prose	3
4000-level course in Greek or Latin		3
CL HUM courses at the 2000-level or higher		9

## Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## BA in Classics with Emphasis in Greek

### Degree Program Description

The Classics major is a broad study of literature, covering a deep knowledge of the elements of language, grammar, and syntax, writing and reading skills, vocabulary building and experience with the foundational texts. Students pursuing Classics with an emphasis in Greek will have coursework that is Greek centered. Students master the grammar, syntax, and vocabulary of the Greek and/or Latin languages, for reading and writing; the distinguishing characteristics of the various styles of the poets and prose writers active during various literary periods; and the fundamental structural elements common to all languages. In addition, students learn to read and translate central Greek and Latin texts, and to identify the resources that will help them read other texts.

Students completing the major will be well prepared for a variety of careers and for further study in graduate or other professional schools.

### Major Program Requirements

Below are the degree requirements. These must be met in addition to college and university requirements (p. 133), including University general education (p. 33).

GREEK 1100 & GREEK 1200 & GREEK 2000	Elementary Ancient Greek I and Elementary Ancient Greek II and Greek Reading	13
(may be used to help satisfy the foreign language requirement in the College of Arts and Science)		
GREEK 4300	Intermediate Readings	3
GREEK 4350-level or above		9
CL HUM courses at the 2000-level or above		9

## Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## BA in Classics with Emphasis in Latin

### Degree Program Description

The Classics major is a broad study of literature, covering a deep knowledge of the elements of language, grammar, and syntax, writing and reading skills, vocabulary building and experience with the foundational texts. Students pursuing Classics with an emphasis in

Latin will have coursework that is Latin centered. Students master the grammar, syntax, and vocabulary of the Greek and/or Latin languages, for reading and writing; the distinguishing characteristics of the various styles of the poets and prose writers active during various literary periods; and the fundamental structural elements common to all languages. In addition students learn to read and translate central Greek and Latin texts, and to identify the resources that will help them read other texts. Students completing the major will be well prepared for a variety of careers and for further study in graduate or other professional schools.

### Major Program Requirements

Below are the degree requirements. These must be met in addition to college and university requirements (p. 133), including University general education (p. 33).

LATIN 1100 & LATIN 1200 & LATIN 2000	Elementary Latin I and Elementary Latin II and Latin Reading	13
or LATIN 1100H & LATIN 1200H & LATIN 2000H	Honors Elementary Latin and Honors Elementary Latin II and Latin Reading - Honors	
(may be used to help satisfy the foreign language requirement in the College of Arts and Science)		
LATIN 4300	Latin Poetry	3
LATIN 4350-level or above		9
CL HUM courses at the 2000-level or above		9

## Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## Minor in Classics

### Minor in Classics with Emphasis in Classical Humanities

Minor requires 15 credit hours

1000 through 2000-level	3-6
3000 through 4000-level	9-12
(3 credits in Greek or Latin language at the 4300-level or above may substitute for equivalent credits)	
<b>Total Credits</b>	<b>15</b>

### Minor in Classics with Emphasis in Greek

Minor requires 15 credit hours.

GREEK 4300	Intermediate Readings	3
One 4350-level or higher Greek course		3
CL_HUM courses at the 2000-level or higher		9
<b>Total Credits</b>		<b>15</b>

### Minor in Classics with Emphasis in Latin

Minor requires 15 credit hours.

LATIN 4300	Latin Poetry	3
One 4350-level or higher Latin course		3

CL_HUM courses at the 2000-level or higher	9
Total Credits	15

## MA in Classical Studies

### Admission Contact Information

Sean Gurd (gurds@missouri.edu)  
 405 Strickland Hall, Columbia, MO 65211  
 (573) 882-0679

### Admission Criteria

Fall deadline: April 1

**NOTE:** Deadline for teaching assistantship applicants: January 15

Spring deadline: November 1

- Minimum GPA: 3.0 during last 2 years
- Bachelor of arts degree from an accredited college or university
- Reading knowledge of Greek and/or Latin
- GPA of at least 3.0 in Greek and/or Latin courses
- Minimum GRE score: no minimum
- Minimum TOEFL scores

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

### Required Application Materials

To the Office of Graduate Studies

- 3 letters of recommendation
- Statement of interest
- 10-20 pp. writing sample
- Transcripts
- GRE scores

Application materials that cannot be submitted directly to the Office of Graduate Studies may be sent to the Classical Studies program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Plan of Study

The minimum course of study is 30 semester hours. Of these, at least 12 hours in Greek, Latin, classics and related fields must be at the 8000/9000 level or above, and at least six hours must be in courses in other departments. At least 21 of the 30 hours must be completed in Greek, Latin or classics in the department. CLASS 7000 is required of all students during their first year of graduate study. Students who wish to have a minor may take 10-12 hours in another department or complete an ancient studies minor.

### Languages

Some command of German and French (or Italian) is helpful from the outset, and MA candidates are required to have demonstrated proficiency in one of the languages by the time that they begin their second year of

graduate study. Degree candidates take MA language tests (Latin and/or Greek) in the 2nd or 3rd year of graduate studies.

### Written Works and Oral Examination

A final oral examination is given by a faculty committee selected by the student in consultation with the advisor. This examination will include defense of either the thesis or a compiled portfolio of seminar papers. If the former option is elected, the thesis will account for six credit hours.

## PhD in Classical Studies

### Admission Contact Information

Sean Gurd (gurds@missouri.edu)  
 405 Strickland Hall, Columbia, MO 65211  
 (573) 882-0679

### Admission Criteria

Fall deadline: April 1, Deadline for teaching assistantship applicants: January 15

Spring deadline: November 1

- MA with a major in Greek, Latin or classics, or the equivalent of a minimum of 21 hours of graduate work in the language(s). Reading knowledge of Greek and Latin and a reading knowledge of German and French (or Italian)
- Minimum GRE score: no minimum
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500

### Required Application Materials

To the Office of Graduate Studies

- 3 letters of recommendation
- Statement of interest
- 10-20 pp. writing sample
- Transcripts
- GRE scores

Application materials that cannot be submitted directly to the Office of Graduate Studies may be sent to the Classical Studies program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Language Requirements

Proficiency in one of the modern foreign languages (i.e., French, German, or Italian) must be demonstrated by the time of registration for the second year of graduate study; proficiency in the second language must be demonstrated by the time of registration for the third year.

### Plan of Study

A minimum of 72 hours of graduate credit is required for the PhD degree. A maximum of 30 hours of this total may consist of hours transferred



from the MA degree. At least 21 additional hours must be taken in the department at the graduate level. A minimum of eight hours of dissertation credit is required. At least two courses in related ancient fields, one of which must be in ancient history or classical archaeology, must be taken at the graduate level. Proficiency in Greek and Latin composition must be demonstrated at some point by course work or examination.

## Minors and Areas of Concentration

All candidates must include in their plan of study a minor or area of concentration consisting of at least 12 hours at the graduate level outside the department. Suggested areas include ancient history, classical archaeology, the classical tradition, late antiquity, the oral tradition, rhetoric, or romance languages. A structured minor in ancient studies also is available.

## Examinations

All candidates are required to complete two four-hour qualifying examinations, one in Greek and one in Latin.

## Comprehensive: Written

After completing residency, language, and course requirements, PhD candidates must pass the comprehensive examination consisting of four written examinations in the following fields: Greek literature, Latin literature, special author or topic, and area of concentration or minor field. With the approval of the advisor and the candidate's committee, extra course work beyond the required 12 hours may be substituted for the written examination in the area of concentration or minor field. Ancient Studies minors are automatically excused from the examination in the minor field.

## Comprehensive: Oral

The oral comprehensive examination is taken only after the candidate successfully passes the written examinations.

## Dissertation

Within one month of completion of both written and oral comprehensive exams, or at the beginning of the Fall term if the exams are taken in May, the candidate must meet with the doctoral program committee to obtain formal approval of the dissertation topic. Continuous enrollment must be maintained while the candidate completes the dissertation. At least eight hours of dissertation credit are required. A final oral defense of the dissertation is held upon completion of the dissertation.

## Communication

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Mitchell McKinney, Chair  
College of Arts and Science  
108 Switzler Hall  
(573) 882-4431  
<http://communication.missouri.edu>

The Department of Communication offers courses in creating and critically evaluating messages. These messages persuade, inform and entertain in contexts such as one-to-one interactions, communication in organizations, and media. Students prepare for careers in broadcasting, sales, public relations, law, politics, marketing and new media.

The department offers BA, MA and PhD degrees with majors in Communication.

## Faculty

**Associate Professor** D. S. Dougherty\*\*, M. S. McKinney\*\*, R. Meisenbach\*\*

**Assistant Professor** L. Behm-Morawitz\*\*, M. Click\*\*, C. Colaner\*\*, K. Harris, J. B. Houston\*\*, B. Warner\*

**Assistant Teaching Professor** A. Villamil\*

**Associate Professor Emeritus** M. J. Porter, M. J. Smythe

**Adjunct Professor** D. Dunkin, M. W. Dunn\*, R. Karwoski

**Professor Emeritus** L. Reid

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Communication (p. 169)

## Admission

Because of student interest in communication programs, admission is restricted. Students must apply for admission no earlier than the first semester of their sophomore year, or during the semester in which they will complete 45 credits. A copy of the admission procedures and policies is available in the department office or at <http://communication.missouri.edu>.

The student's grade point average from the MU system as adjusted by the MU grade repeat policy and the grade point averages in completed communication courses at MU are the primary criteria used to determine admission to the program.

## Transfer Student Admission

Transfer students are not eligible for admission until they have completed at least one semester in residence (12 credits) and a communication course in residence. Students who are not admitted may reapply for consideration in subsequent terms.

## Departmental Honors

To receive departmental honors, a student must earn a minimum overall MU GPA of 3.3 and a minimum GPA of 3.5 in courses in communication completed at the University of Missouri. Students must a research project for a minimum of 3 credits with a faculty member, or a creative project completed for a minimum of 3 credits with a faculty member.

## Graduate

- MA in Communication (p. 170)
- PhD in Communication (p. 171)

Communication Graduate Programs  
College of Arts and Science  
108 Switzler Hall  
(573) 882-4431  
[http://communication.missouri.edu/](http://communication.missouri.edu)

**Director of Graduate Studies:** Mitchell McKinney

## About the Program

The program takes a theoretical, critical, and experimental approach to the study of communication. The MA program is designed to further enhance the understanding of the communication process by allowing students to study various aspects of communication in greater depth. Graduates are employed in corporate communication, educational and instructional media, sales, research and consulting. The doctoral program is designed for those interested in an academic career of college or university teaching and research. Doctoral students graduate with a strong theoretical background in interpersonal, mass media, organizational, or political communication.

## Funding

Graduate students are eligible to apply for fellowships and graduate teaching assistantships. Funding is normally limited to doctoral students.

## BA in Communication

### Degree Program Description

Communication students navigate rich environments using communication theories and models, critically evaluate messages and arguments, and effectively advocate their values, beliefs, and opinions using communication principles. Graduates are able to create persuasive messages for a variety of contexts using verbal and nonverbal, written, and mediated communication. The curriculum for the degree covers four main areas: interpersonal, mass media, organizational, and political communication. Students are asked to specialize in one area but are required to explore two additional areas. Interpersonal and family communication focuses on communication processes in family and personal relationships. The mass media area studies theory and research related to media content and use, media effects, and audience reception. Students in this area have the opportunity to gain valuable hands-on experience in digital production. Organizational communication focuses on the various ways in which we produce, enact, and generally conduct our lives in various organizational contexts. Political communication studies the communicative activity of citizens, political figures and campaigns, government institutions, and social movements. Professional internships and two undergraduate organizations are offered and student participation is strongly encouraged. A degree in Communication is not intended to provide specific vocational training, but to prepare students for professional opportunities requiring active communication skills. Recent graduates have found careers in sales, public relations, marketing, advertising, promotions, political consulting, corporate communications, event planning, social media, media production, law, education, and public policy.

### Major Program Requirements

The major in communication includes a minimum of 30 hours and a maximum of 40 hours in communication courses. Each course is 3 credits unless otherwise noted. Students must also complete College of Arts and Sciences and University requirements (p. 133), including University general education requirements (p. 33).

Major core requirements

COMMUN 1200	Public Speaking	3
COMMUN 3050	Survey of Communication Studies	3
Total Credits		6

## Areas of Focus

In addition to required courses, a student must select one of four areas of focus. Students must complete 12-18 hours in one area of focus including one of the core courses in that area (\*). The student must take one course in two of the three other areas of focus. A course may only count once toward meeting these requirements. Students must have at least one 4000+ level course in the major. (Areas of Focus will not appear on transcripts or diplomas.)

### Interpersonal Focus:

COMMUN 3422	Communication Research Methods	3
COMMUN 3441	Nonverbal Communication *	3
COMMUN 3470	Culture as Communication	3
COMMUN 3525	Conflict and Communication	3
COMMUN 3561	Relational Communication *	3
COMMUN 3571	Group Decision Making Processes	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4415	Language and Discourse	3
COMMUN 4440	Ethical Issues in Communication	3
COMMUN 4520	Family Communication	3
COMMUN 4530	Health Communication	3
COMMUN 4474	Theory and Research in Persuasion	3

### Organizational Communication Focus:

COMMUN 3422	Communication Research Methods	3
COMMUN 3460	Organizational Advocacy *	3
COMMUN 3470	Culture as Communication	3
COMMUN 3525	Conflict and Communication	3
COMMUN 3571	Group Decision Making Processes	3
COMMUN 3575	Business and Professional Communication	3
COMMUN 3580	Crisis Communication	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4440	Ethical Issues in Communication	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4476	Organizational Communication *	3

### Mass Media Focus

COMMUN 2100	Media Communication in Society *	3
COMMUN 3310	Message Design and Writing for the Media	3
COMMUN 3390	Digital Production I	3
COMMUN 3395	Digital Production II	3
COMMUN 3422	Communication Research Methods	3
COMMUN 3490	Mass Media Theory	3
COMMUN 3636	Contemporary Issues in Mass Communication	3
COMMUN 4473	Political Communication *	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4618	Television Program Analysis and Criticism	3
COMMUN 4628	Children, Adolescents and the Media	3
COMMUN 4638	New Technologies and Communication	3

### Political Communication

COMMUN 3422	Communication Research Methods	3
COMMUN 3470	Culture as Communication	3
COMMUN 3572	Argument and Advocacy	3
COMMUN 3575	Business and Professional Communication	3
COMMUN 3580	Crisis Communication	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4440	Ethical Issues in Communication	3

COMMUN 4473	Political Communication *	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4481	Principles of Rhetoric	3
<b>Electives (beyond 30 hours)</b>		
COMMUN 3570	Performance of Literature	3
COMMUN 4940	Internship	1-99
<b>Potential options for each area of focus depending on specific topic:</b>		
COMMUN 2701 & COMMUN 2703 & COMMUN 2705	Topics in Communication - General and Topics in Communication - Behavioral Science and Topics in Communication - Humanities/ Fine Arts	9
COMMUN 3701 & COMMUN 3703 & COMMUN 3705	Topics in Communication-General and Topics in Communication-Behavioral Sciences and Topics in Communication-Humanities	5-9
COMMUN 4701 & COMMUN 4703 & COMMUN 4705	Topics in Communication-General and Topics in Communication-Behavioral Science and Topics in Communication-Humanities	3-9
COMMUN 4996H & COMMUN 4997H	Honors in Communication and Honors in Communication	2
COMMUN 4960	Directed Reading	1-3

\* Students must complete 12-18 hours in one area of focus including one of the core courses in that area.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ENGLSH 1000 or MATH 1100	3 Biological/Physical/Mathematical Science with Lab*	3-5
Humanities Course *	3 Humanities Course *	3
Behavioral Science Course *	3 Elective or Minor Course	3
American Government Requirement (Social Science Course)	3 ENGLSH 1000 or MATH 1100	3
Elective Course	3 COMMUN 1200	3
	15	15-17
Second Year		
Fall	CR Spring	CR
Foreign Language or Elective	3-5 COMMUN 3050	3
Behavioral Science Course (1000+)	3 Foreign Language or Elective	3-5
COMMUN 2100 (or Communication Course)	3 Social Science Course *	3
Biological/Physical/Mathematical Science Course (Math Reasoning Proficiency) *	3 Humanities Course (1000+)	3
Humanities Course (Writing Intensive)	3 Biological/Physical/Mathematical Science Course	3
	15-17	15-17
Third Year		
Fall	CR Spring	CR
Elective or Minor Course	3 Communication Course **	3

Foreign Language or Elective	3 Elective Course	3
Social Science Course (1000+)	3 Elective Course	3
Communication Course **	3 Elective or Minor Course	3
Communication Course **	3 Communication Course **	3
	15	15

### Fourth Year

Fall	CR Spring	CR
Communication Course **	3 Communication Course (4000+)	3
Elective or Minor Course	3 Elective or Minor Course	3
Communication Course **	3 Elective or Minor Course	3
COMMUN 4940 ***	3 Elective Course	3
Elective Course	3 Additional Elective Hours to Reach 120 credits (If Necessary)	3
	15	15

Total Credits: 120-126

\* From A&S list available from A&S Advising (<http://coas.missouri.edu/advising/index.shtml>) or academic Exploration Web (<http://aeas.missouri.edu>) Page.

\*\* One Communication course must be COMMUN 3050, writing intensive.

\*\*\* May not exceed 40 hours in the major.

## MA in Communication

### Admission Contact Information

Martha Crump (crumpm@missouri.edu)  
108 Switzler Hall; Columbia, MO 65211  
(573) 882-4432

### Admission Criteria

Fall deadline: January 15

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
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61 Effective July 1, 2015 must have a score of 80

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	500	500	4.0
On or After August 1, 2011	153	144	4.0

Students who do not have an undergraduate degree in communication may be required to take course work beyond the required 30 hours to provide necessary background.

### Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Admissions documents

To the Communication Program (<http://communication.missouri.edu?q=grad/admissions>)

- Departmental application
- 3 letters of recommendation
- Example of scholarly writing (no more than 25 pages)
- Transcripts
- Statement of purpose (no more than 500 words) explaining the student's intended field of study, professional goals and other reasons for wishing to enter the graduate program
- GRE scores
- Résumé

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Plan of Study

Not more than 6 semester hours of the required 30 hours of credit may be transferred from another university or campus of the University of Missouri System. There is no language requirement. For the assignment of advisors, students should see the director of graduate studies.

## Thesis and Non-thesis Options

The master of arts degree may be completed under either a thesis option, approved by an advisory committee, or a non-thesis option (with a comprehensive examination and project). Both plans require a minimum of 30 hours of graduate credit, including at least 15 hours of course work at the 8000/9000 level. MA candidates may take up to 6 hours of credit for their MA project for the non-thesis option. MA candidates take a minimum of 6 hours in 9090 Thesis Research for the thesis option.

## Credit Hours for Production

No more than 9 hours of course work or independent study in television production or scriptwriting will be accepted for the MA degree. Students may opt to take more production hours but they may not be included in the candidate's plan of study.

## Length of Study

The MA must be completed in 8 years.

## PhD in Communication

### Admission Contact Information

Martha Crump (crumpm@missouri.edu)  
 108 Switzler Hall; Columbia, MO 65211  
 (573) 882-4432

### Admission Criteria

Fall deadline: January 15  
 Minimum GPA: 3.0 preferred  
 Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	600

Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	500	500	4.0
On or After August 1, 2011	153	144	4.0

Admission procedures for students who have completed the MA degree elsewhere and wish to become PhD candidates are identical to the departmental requirements outlined for MA candidates. Only those applicants who show evidence of a clear likelihood of successful doctoral work are admitted.

## Required Application Materials

To the Graduate School  
 All required Graduate School documents

## To the Communication Program

- GRE scores
- Departmental Application
- 3 letters of recommendation
- Example of scholarly writing (no more than 25 pages)
- Transcripts
- Statement of Interest
- Résumé

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Plan of Study

Before registering for courses, the student must confer with their temporary advisor until a permanent advisor is assigned.

## Committee and Qualifying Requirements

A doctoral program committee approves the student's course of study and determines if the student has passed the qualifying requirements during the spring semester of the first year. Only after passing the qualifying requirements will the student be admitted to candidacy for the PhD degree in communication.

For a student whose MA program was done at MU, the six-hour comprehensive examination or the MA thesis defense constitutes the qualifying process. The student may proceed beyond the MA degree only upon the recommendation of the MA examining committee.

## Courses

The PhD candidate must take at least 48 hours of course work beyond the MA. Students with an MA degree in another discipline may be required by their doctoral program committee to complete additional course work. Course work will include 36 hours within the department. The following courses are required:

COMMUN 8110	Introduction to Graduate Study in Communication	3
COMMUN 8120	Seminar in Quantitative Methods in Communication	3

COMMUN 9170	Research Practicum	3
COMMUN 9050	Research	3
One of the following:		3
COMMUN 8130	Topics in Qualitative Research Methods	
COMMUN 8160	Rhetorical Criticism	
COMMUN 8150	Seminar in Media Criticism	
COMMUN 8140	Content Analysis	
Including the courses listed above, students must complete a total of 15 hours of research methods classes. Nine of these hours may be taken outside the department.		15
Students must also complete a 6-hour collateral field block outside the department representing a coherent unit of study and relates to an area of major research interest.		6
<b>Total Credits</b>		<b>36</b>

## Comprehensive Examination

The comprehensive examination, including a 30-page literature review, a 15-hour written exam and an oral defense, will cover all areas of studies in the field. During the semester students take comprehensive exams they enroll in.

## Dissertation

The doctoral dissertation is written under the direction of the candidate's advisor. The dissertation and the final oral examination on the dissertation complete the requirements for the PhD in communication. Students take a minimum of six hours of.

## Length of Study

Course work and comprehensive exams for the PhD must be completed in five years. The dissertation must be completed within five years of completing comprehensive examinations. Satisfactory rate of progress means making adequate progress to meet these time requirements. Students working at a typical pace should be able to complete the doctorate in 4 years beyond their master's.

## Digital Storytelling

Combining the ancient practices of narrative with new and emerging tools of multimedia environments, Digital Storytelling emphasizes skills in writing, visual communication and design, and production. Like other forms of storytelling, digital storytelling reaches audiences for artistic, educational, and commercial purposes, translating human knowledge and experience into multimedia spaces. In an age of big data and rapidly changing communication environments, translational skills to connect audiences with interdisciplinary knowledge and expressive arts—from public health to climate science to campaigns to video games—are in high demand across business, government, nonprofit and research sectors. Training in the field requires literacy in narrative, multimedia and networked communication, as well as all elements of digital production, including writing, audio and visual production, and design.

## Faculty

Faculty for Digital Storytelling teach across multiple disciplines. A complete listing of faculty can be found here (p. 2335).

## Undergraduate

- BA in Digital Storytelling (p. 172)

## Graduate

There currently is not a degree in Digital Storytelling offered at the graduate level.

## BA in Digital Storytelling

### Degree Program Description

Combining the ancient practices of narrative with new and emerging tools of multimedia environments, Digital Storytelling emphasizes skills in writing, digital media production, and design. Like other forms of storytelling, digital storytelling reaches audiences for artistic, educational, and commercial purposes, translating human knowledge and experience into multimedia spaces. Training in the field requires literacy in narrative, new media, and networked communication, as well as all elements of digital production (including audio, video and animation). A degree in Digital Storytelling prepares graduates to create multimedia narratives using a wide range of computer-based images, text, and audio and video technologies. Coursework in the major is interdisciplinary and draws on the disciplines of Art, Communication, English, Film Studies, Journalism, and many more. Coursework will provide ample opportunities for students to develop the collaborative skills they will need in professional settings, and will also offer experiential learning opportunities both on campus and through internships in the marketplace. A degree in Digital Storytelling prepares students for careers in business, marketing, public relations, film, multimedia art, and web development.

### Major Program Requirements

<b>General Education requirements</b>	<b>54</b>
ENGLISH 1000	Exposition and Argumentation (or equivalent)
MATH 1100	College Algebra (or equivalent)
Foreign Language (12 credit hours)	
Behavioral & Social Science courses (15 credit hours)	
Humanities & Fine Arts courses (12 credit hours)	
Biological, Physical and Mathematical Sciences courses (9 credit hours)	
<b>Major Requirements</b>	<b>33</b>
DST 1880	Introduction to Digital Storytelling
DST 2880	Digital Storytelling Production I
DST 3001	Topics in Digital Storytelling (Writing & theory for Digital Media)
DST 4001	Topics in Digital Storytelling (Digital Storytelling Capstone)
<b>Writing (3 credit hours)</b>	
COMMUN 3310	Message Design and Writing for the Media
ENGLISH 2510	Creative Writing: Intermediate Fiction
ENGLISH 2520	Creative Writing: Intermediate Nonfiction Prose
ENGLISH 3010	Advanced Composition
ENGLISH 4510	Creative Writing: Advanced Fiction
ENGLISH 4520	Creative Writing: Advanced Nonfiction Prose
THEATR 3920/ ENGLISH 3560	Intermediate Playwriting
THEATR 4920/ ENGLISH 4560	Advanced Playwriting: Problems
FILM_S 3930	Screenwriting for Television and Film
GERMAN/RUSS/ FRENCH 4820	Blogging the World: The Web in Cultural Context

**Theories of Narrative, Visual Culture and New Media (6 credit hours)**

COMMUN 3490	Mass Media Theory
COMMUN 4618	Television Program Analysis and Criticism
COMMUN 4638	New Technologies and Communication
ENGLISH 4700/ ANTHRO 4150	Special Themes in Folklore
ENGLISH 4710/ ANTHRO 4160/ BL_STU 4710	Themes in African Diaspora Folklore
ENGLISH/WGST 4780	Women's Folklore and Feminist Theory
FILM_S/ENGLISH 1800	Introduction to Film Studies
FILM_S/ENGLISH 3855	Documentary Film
FILM_S/ENGLISH 4810	Film Theory
FILM_S/ENGLISH 4840	Culture and Media
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society
or JOURN 1100	Principles of American Journalism
or COMMUN 2100	Media Communication in Society
JOURN 4301	Topics in Journalism (Journalism & Chaos: How to Understand and Cover 21st Century Business Models)
JOURN 4950	Understanding Audiences

**Visual Communication & Design (3 credit hours)**

ARCHST 2210	Understanding Visualization for Animated Films
ARCHST 4550	Visual Presentation for Design
AR_H_A 2150	The Art of the Book
AR_H_A 2850	Introduction to Visual Culture
AR_H_A 3750	Modern Art in Europe and America
AR_H_A 3760	Contemporary Art
AR_H_A 3850	American Art and Culture, 1913-Present
JOURN 4510	Visual Communication

**Production (3 credit hours)**

ART_GRDN 1400	Beginning Digital Imaging
ART_GRDN 2400	Advanced Digital Imaging
COMMUN 2315	Basic Audio Production and Performance
COMMUN 3390	Digital Production I
COMMUN 3395	Digital Production II
FILM_S 2540	Introduction to Film Management
FILM_S 3005	Topics in Film Studies - Humanities (Film Editing and Post-Production)
INFOTC 1610	Introduction to Entertainment Media
INFOTC 2610	Audio/Video I
INFOTC 3610	Audio/Video II
INFOTC 3640	Digital Effects
INFOTC 4640	Digital Effects II
IS_LT 4360	Introduction to Web Development
IS_LT 4361	Introduction to Digital Media
IS_LT 4364	Flash Authoring
IS_LT 4370	Intermediate Web Development

<b>Electives</b>	<b>33</b>
Total Credits	120

## Semester Plan

A semester plan has not been created for this degree.

## Economics

Shawn Ni, Chair  
College of Arts and Science  
118 Professional Building  
(573) 882-4574

Director of Undergraduate Studies  
Jeff Milyo  
118 Professional Building  
(573) 882-0063

Undergraduate Academic Advisor  
Kati Abbott  
132 Professional Building  
(573) 882-6094  
abbottkm@missouri.edu

Graduate Contact  
Lynne Riddell  
118 Professional Building  
(573) 884-7989  
Riddell@missouri.edu

The Department of Economics takes a global view of economics, with an emphasis on applied problems. An economics major prepares students for careers in business and government and for graduate work in areas such as economics, business and law. A basic understanding of economics develops insight into the many issues facing contemporary society, such as corporate downsizing, environmental pollution, urban decay, poverty, international trade, health care, educational reform, politics and sports deals.

In addition to the BA and the BS degree in the College of Arts and Science, the Department of Economics offers an emphasis area within the Bachelor of Science in Business Administration (BSBA) degree in the Trulaske College of Business. The department also offers MA and PhD degrees in Economics as well as a minor.

## Faculty

**Cook Chair** C. Otrok\*\*

**Foster Professor** R. Harstad\*\*

**Lay Chair** J. H. Haslag\*\*

**Research Professor** W. A. Brock

**Professor** D. M. Mandy\*\*, J. Milyo\*\*, P. Mueser\*\*, S. Ni\*\*, M. J. Podgursky\*\*, X. Wang\*\*

**Associate Professor** S. P. Aura\*\*, C. Gu\*\*, C. Koedel\*\*, O. Loginova\*\*, J. I. Miller\*\*, V. Trindade\*

**Assistant Professor** A. Hedlund\*, D. Kaplan\*\*

**Associate Teaching Professor** G. Chikhladze, M. Lee

**Associate Research Professor** M. Ehlert

**Assistant Research Professor** B. Kisida, E. Parsons\*

**Assistant Adjunct Professor** K. Choe

**Adjunct Professor** E. M. Basker, R. Ratti, L. Thomas

**Postdoctoral Fellow** D. Kim

**Professor Emeritus** J. Kuhlman, C. F. Menezes, R. Wallace

**Associate Professor Emeritus** C. Geiss, D. Schilling

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Economics (p. 175)
- BS in Economics (p. 176)
- Minor in Economics (p. 177)

Before a graduation plan in economics will be approved, students in the College of Arts and Science must have a cumulative GPA of 2.5 after at least 12 credits at MU and an overall GPA in economics of 2.67 after at least 8 credits in economics course work at MU.

## Departmental Honors

Candidates for Economics departmental honors must be Economics majors with a GPA of 3.30 overall and a GPA of 3.50 or higher in Economics courses taken at the University of Missouri-Columbia. Candidates must complete ECONOM 4371 Introductory Econometrics, ECONOM 4995 Honors Thesis, and ECONOM 4971 Supplemental Senior Seminar in Economics, during the junior or senior year and must receive a grade of B or higher in order to be awarded Department Honors.

## Double Majors, Dual Degrees and Five-Year Program

For double majors and dual degrees, students must satisfy all requirements of both degree programs. Some courses may be allowed to count toward both degrees. Carefully chosen elective courses in addition to required courses can facilitate double majors and dual degrees.

Common double majors in the College of Arts and Science are:

- BA with majors in Economics and Political Science, Psychology, History, English or Communication
- BS with majors in Economics and Statistics or Mathematics

Common dual degrees with other schools and colleges are:

- BA with majors in Economics and Journalism, Accountancy, Finance, Marketing or Education
- BS with majors in Economics and Engineering

By planning their courses carefully, Economics majors can earn a bachelor's and a master's degree in economics in five years. Students who are in the BA or BS programs are good candidates for this program. Students must be accepted to this program by the beginning of their senior year.

Students interested in pursuing any of these options should contact the Undergraduate Advising Contact in economics for further advising.

## Economics Emphasis Area in Business Administration Major

See the Trulaske College of Business for requirements for the Bachelor of Science with a major in Business Administration (BS BA) with an emphasis in Economics (p. 338).

## Graduate

- MA in Economics (p. 177)
  - Econometrics and Quantitative Economics (p. 178)
- PhD in Economics (p. 178)
  - Econometrics and Quantitative Economics (p. 180)

College of Arts and Science  
118 Professional Building  
(573) 884-7989  
(573) 882-2697 (fax)  
<http://economics.missouri.edu/>

**Director of Graduate Studies:** Xinghe Wang

## About the Program

The Department of Economics offers graduate work leading to the master of arts and the doctor of philosophy degrees. The program prepares students for careers in government and private enterprises, colleges, universities and research institutions through training in the techniques and applications of economic analysis, interpretation of data and the formulation and appraisal of public policy. Admission may be granted at any time to qualified students.

## Degrees Offered

- MA and PhD in Economics
- Cooperative Dual Degrees: MS in Applied Mathematics and MA in Economics, MA in Economics and MA in Statistics, MA in Economics and JD in law

## Specializations

The department offers fields of specialization in monetary economics, international economics, econometrics, public economics, industrial organization, labor economics, and quantitative microeconomic policy analysis.

## Dual Degrees

The Departments of Mathematics and Economics offer selected students the option of obtaining dual degrees: an MS degree in Applied Mathematics and an MA degree in Economics. The Departments of Economics and Statistics offer selected students the option of obtaining dual degrees: an MA degree in Statistics and an MA degree in Economics within an integrated program. Whereas obtaining separate master's degrees would nominally require a minimum of 60 credit hours of course work, students enrolled in the dual master's degree program may obtain degrees based on 48 credit hours of course work. Students may be able to complete degree requirements within 2½ years.

## Financial Support

Student financial support is available to graduate students as teaching and research assistantships, allocated based on promise and performance in the program. In addition, direct fellowship support may

also be available to selected candidates. Tuition is waived for students who receive assistantship or fellowship support. February 1 is the deadline for applications for assistantships for the school year beginning in August, but earlier submissions are desirable. Late applications will be accepted subject to the availability of openings and funds.

## BA in Economics

### Degree Program Description

Economics is a broad discipline that explores the factors that determine production, distribution, and consumption of resources. An Economics degree provides a good foundation on how the economy and the world works and an understanding of the effects of policy issues. The BA degree is designed for students who plan to continue their education in non-economics fields and for students who plan to seek employment after graduation. Post-graduate educational alternatives include law school or programs in the business school, political science and journalism. Graduates in Economics enter a diverse field of jobs in government, banking, insurance or other financial sectors, private sector businesses or even open their own businesses. Frequently, students in humanities or fine arts complete a BA in Economics as a second major in order to increase their employment potential.

### Major Program Requirements

In addition to the major core requirements, students must complete college and University graduation requirements (p. 32) including University general education requirements (p. 33).

### Options

Students majoring in economics may earn either a BS or a BA degree. The last 21 credit hours in Economics must be completed in residence. Depending upon which degree is sought; students must choose one of the options below:

### BA with a major in Economics

The BA degree is designed for students who plan to continue their education in non-economics fields and for students who plan to seek employment after graduation. Post-graduate educational alternatives include law school or programs in the business school, political science and journalism. Post-graduate employment opportunities include positions in state government, banking, insurance or other financial sectors, and private sector businesses. Frequently, students in humanities or fine arts complete a BA in Economics as a second major in order to increase their employment potential.

### Major Core Requirements for BA Economics

(must earn a grade of C or above; grades of C- or below will not be accepted)

#### General Principles

ECONOM 1014 & ECONOM 1015	Principles of Microeconomics and Principles of Macroeconomics	5-6
or ECONOM 1000	General Economics	
or ECONOM 1051H	General Economics - Honors	

**ECONOM 1000 is only acceptable for dual majors with Journalism. Students completing ECONOM 1000 are required to complete an additional 4000-level Economics elective.**

ECONOM 4351	Intermediate Microeconomics	3
ECONOM 4353	Intermediate Macroeconomics	3

ECONOM 4371	Introductory Econometrics	3
ECONOM 4971	Supplemental Senior Seminar in Economics (Capstone Course)	1

#### Mathematics and Statistics (C- grades will be accepted)

MATH 1300 & MATH 1400	Finite Mathematics and Calculus for Social and Life Sciences I	5-6
or MATH 1500	Analytic Geometry and Calculus I	
STAT 2500	Introduction to Probability and Statistics I	3

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ECONOM 1014	3 ECONOM 1015	3
MATH 1100	3 MATH 1400	3
Foreign Language I	5-6 ENGLISH 1000	3
Humanities	3 Foreign Language II	5-6
Elective	2 Elective	1
		16-17
		15-16

Second Year		
Fall	CR Spring	CR
ECONOM 3000+ level elective	3 ECONOM 4351	3
MATH 1300	3 STAT 2500	3
Foreign Language III	3 American Government or History	3
Social Science	3 Behavioral Science	3
Lab Science	4 Humanities	3
		16
		15

Third Year		
Fall	CR Spring	CR
ECONOM 4353	3 ECONOM 4371	3
Behavioral Science	3 ECONOM 4000+ level elective	3
Social Science	3 Humanities	3
Humanities	3 Elective	3
WI Elective	3 Elective	3
		15
		15

Fourth Year		
Fall	CR Spring	CR
ECONOM WI Elective	3 ECONOM 4971	1
ECONOM 4000+ level elective	3 ECONOM 4000+ level elective	3
Elective	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
		15
		13

Total Credits: 120-122

### Electives

At least four (for the BA) or three (for the BS) of the following, with not more than one at the 3000 level, selected with the advisor and completed with a grade of C or above; grades of C- or below will not be accepted:

ECONOM 3224	Introduction to International Economics	3
ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 4311	Labor Economics	3
ECONOM 4315	Public Economics	3



ECONOM 4320	History of Economic Thought	3
ECONOM 4325	The International Monetary System	3
ECONOM 4326	Economics of International Trade	3
ECONOM 4329	The Banking System and the Money Market	3
ECONOM 4340	Introduction to Game Theory	3
ECONOM 4345	Economics of Education	3
ECONOM 4355	Industrial Organization and Competitive Strategy	3
ECONOM 4357	Health Economics	3
ECONOM 4360	Economic Development	3
ECONOM 4367	Law and Economics	3
ECONOM 4370	Quantitative Economics (Elective for BA, Required for BS)	3
ECONOM 4385	Problems in Economics	1-3
ECONOM 4775	Dynamic Optimization and its Applications to the Natural Sciences and Economics	1-3
ECONOM 4965	Independent Study in Economics	1-3

**NOTE:**

Any two of ECONOM 3224, ECONOM 4325 and ECONOM 4326 may be taken for credit. But if all three are taken, ECONOM 3224 will not count towards an economics degree.

No more than 3 total credit hours of ECONOM 4385 and ECONOM 4965 will count as elective credits toward an economics degree, unless approved by the Director of Undergraduate Studies.

ECONOM 3004 and ECONOM 4004 may be approved by the Director of Undergraduate Studies to count as elective credits toward an economics degree or minor.

## BS in Economics

### Degree Program Description

Economics is a broad discipline that explores the factors that determine production, distribution, and consumption of resources. An Economics degree provides a good foundation on how the economy and the world works and an understanding of the effects of policy issues. The BS degree in Economics is a challenging degree program specifically designed for students who plan to attend graduate school in Economics, Finance, or related fields. The curriculum includes more quantitative coursework than the BA degree, but still allows students to take electives that focus on various aspects of economics, such as labor, law, and education. Graduates in Economics enter a diverse field of jobs in government, banking, insurance or other financial sectors, private sector businesses or even open their own businesses. Often students pursuing a BS degree double major with Mathematics or Statistics and look at employment positions in actuarial science or more analytical fields.

### Major Program Requirements

In addition to the major core requirements, students must complete college and University graduation requirements (p. 32) including University general education requirements (p. 33).

### BS with a Major in Economics

The BS degree is for students who plan to attend graduate school in economics or finance.

## Major Core Requirements for BS Economics

**(must earn a grade of C or above; grades of C- or below will not be accepted)**

### General Principles

ECONOM 1014 & ECONOM 1015	Principles of Microeconomics and Principles of Macroeconomics	5-6
or ECONOM 1000	General Economics	
or ECONOM 1051H	General Economics - Honors	

**ECONOM 1000 is only acceptable for dual majors with Journalism. Students completing ECONOM 1000 are required to complete an additional 4000-level Economics elective.**

ECONOM 4351	Intermediate Microeconomics	3
ECONOM 4353	Intermediate Macroeconomics	3
ECONOM 4370	Quantitative Economics	3
ECONOM 4371	Introductory Econometrics	3
ECONOM 4971	Supplemental Senior Seminar in Economics (Capstone Course)	1

### Mathematics and Statistics (C- grades will be accepted)

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4140	Matrix Theory	3
STAT 4750 & STAT 4760	Introduction to Probability Theory and Statistical Inference	6
or STAT 4710 & STAT 4510	Introduction to Mathematical Statistics and Applied Statistical Models I	
MATH 3000	Introduction to Advanced Mathematics	3
or MATH 4100	Differential Equations	
or STAT 4000+	(course approved by Dept. of Economics)	

## Foreign Language Alternative (for BS degree)

The student may elect to fulfill a special option area instead of taking a foreign language. This area consists of at least 12 credits numbered 2000 or above that are not from the parent department, are not normally required of all departmental majors and do not appear elsewhere in the area of concentration. The foreign language alternative is planned by the student with the Economics Academic Advisor and must be approved by the Director of Undergraduate Studies.

## Electives

At least four (for the BA) or three (for the BS) of the following, with not more than one at the 3000 level, selected with the advisor and completed with a grade of C or above; grades of C- or below will not be accepted:

ECONOM 3224	Introduction to International Economics	3
ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 4311	Labor Economics	3
ECONOM 4315	Public Economics	3
ECONOM 4320	History of Economic Thought	3
ECONOM 4325	The International Monetary System	3
ECONOM 4326	Economics of International Trade	3
ECONOM 4329	The Banking System and the Money Market	3
ECONOM 4340	Introduction to Game Theory	3
ECONOM 4345	Economics of Education	3
ECONOM 4355	Industrial Organization and Competitive Strategy	3
ECONOM 4357	Health Economics	3

ECONOM 4360	Economic Development	3
ECONOM 4367	Law and Economics	3
ECONOM 4370	Quantitative Economics (Elective for BA, Required for BS)	3
ECONOM 4385	Problems in Economics	1-3
ECONOM 4775	Dynamic Optimization and its Applications to the Natural Sciences and Economics	1-3
ECONOM 4965	Independent Study in Economics	1-3

**NOTE:**

Any two of ECONOM 3224, ECONOM 4325 and ECONOM 4326 may be taken for credit. But if all three are taken, ECONOM 3224 will not count towards an economics degree.

No more than 3 total credit hours of ECONOM 4385 and ECONOM 4965 will count as elective credits toward an economics degree, unless approved by the Director of Undergraduate Studies.

ECONOM 3004 and ECONOM 4004 may be approved by the Director of Undergraduate Studies to count as elective credits toward an economics degree or minor.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ECONOM 1014	3 ECONOM 1015	3
MATH 1160	5 MATH 1500	5
American Government or History	3 ENGLISH 1000	3
Lab Science	4 Behavioral Science	3
	Elective	2
	15	16
Second Year		
Fall	CR Spring	CR
ECONOM 4351	3 ECONOM 4353	3
ECONOM 3000+ level elective	3 MATH 2300	3
MATH 1700	5 Foreign Language II (or alternative)	3-6
Foreign Language I (or alternative)	3-6 Behavioral or Social Science	3
	Humanities	3
	14-17	15-18
Third Year		
Fall	CR Spring	CR
ECONOM WI elective	3 ECONOM 4371	3
MATH 4140	3 STAT 4710 or 4750	3
Foreign Language III (or alternative)	3 Foreign Language Alternative IV or Elective	3
Humanities	3 Humanities	3
Elective	3 Elective	3
	15	15
Fourth Year		
Fall	CR Spring	CR
ECONOM 4370	3 ECONOM 4971	1
ECONOM 4000+ level elective	3 ECONOM 4000+ level elective	3

STAT 4510 or 4760	3 Approved Math/Statistics Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	Elective	2
	15	15

Total Credits: 120-126

## Minor in Economics

Students wishing to minor in economics must take a minimum of 18 credits in economics and the last 12 credit hours in residence. Courses must include ECONOM 1014 and ECONOM 1015 (or ECONOM 1000 or ECONOM 1051H instead of the previous two courses\*) and ECONOM 3251 or ECONOM 4351 plus three economics electives, including at least one at the 4000 level. All required courses must be completed with a grade of C or above; grades of C- or below will not be accepted. Students who take both ECONOM 3251 and ECONOM 4351 will receive credit for only one of these courses.

Students pursuing the Bachelor of Science in Business Administration with an emphasis in Economics are not eligible to earn the Economics minor.

\* A minor may be earned with 17 credits in economics by students who take ECONOM 1051H rather than ECONOM 1014 (ECONOM 1024) and ECONOM 1015; students who complete ECONOM 1000 must complete at least 18 hours in economics to earn the minor.

## MA in Economics

### Degree Requirements

To fulfill requirements for the MA degree, a candidate must complete a 30-hour approved program of study. This includes 21 credit hours of core courses:

ECONOM 7370	Quantitative Economics	3
ECONOM 7371	Introductory Econometrics	3
ECONOM 8451	Microeconomic Theory <sup>1</sup>	3
ECONOM 8453	Macroeconomic Theory <sup>1</sup>	3
ECONOM 8473	Applied Econometrics <sup>1</sup>	3
ECONOM 8413	Research Workshop I	3

<sup>1</sup> ECONOM 9451 may be substituted for ECONOM 8451, ECONOM 9453 may be substituted for ECONOM 8453, ECONOM 9473 may be substituted for ECONOM 8473, and enrollment in 9000-level courses may require consent of the department and/or the instructor.

### PhD Track

Students can also earn an MA while working toward a PhD by passing the comprehensive examination.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in the Economics program (<http://gradstudies.missouri.edu/academics/programs/economics/master-of-arts-in-economics.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility->

process/minimum-requirements.php). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## Admission Contact Information

Lynne Riddell riddell@missouri.edu  
 118 Professional Bldg.  
 Columbia, MO 65211  
 (573) 884-7989

## Admission Criteria

Fall deadline: Open  
 Spring deadline: Open

## Bachelor's degree in any field

Minimum GRE scores: Quantitative = 155

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum Academic IELTS scores:

Item	Score
Overall score	6.5

Students with a bachelor's degree in any field may apply for admission into the master's program. Applicants are admitted on the basis of an undergraduate record, with particular emphasis on performance in economics, mathematics, and statistics courses, performance on the GRE, and letters of recommendation. Although the graduate program assumes mathematical background through calculus, as well as undergraduate economics training, applicants with more limited backgrounds may be accepted into the program. Such individuals will be assigned supporting course work, some or all of which may be counted toward fulfilling requirements.

## Required Application Materials

To be uploaded to the MU Online Graduate Application for Admission:

- Your transcript from every college or university you have attended
- Your résumé
- Your personal statement
- Two letters of recommendation
- A copy of your official TOEFL or IELTS score. Your official TOEFL or IELTS scores (sent directly from the Educational Testing Service) must be submitted directly to the Graduate Admission Office (210 Jesse Hall, Columbia, MO 65211) \* International Applicants only.

To the Economics Program:

- Your official GRE scores (sent directly from the Educational Testing Service)

## MA in Economics with Emphasis in Econometrics and Quantitative Economics

All MA students in Economics with good academic standing may apply to add the emphasis in Econometrics and Quantitative Economics to their program. The emphasis area requires 9 credit hours. Students may satisfy the requirements for the MA and the emphasis area at the same time.

**Required Courses: (must have 3.0 GPA average)**

ECONOM 7370	Quantitative Economics	3
ECONOM 7371	Introductory Econometrics	3
ECONOM 8473	Applied Econometrics	3
Total Credits		9

## PhD in Economics

### Degree Requirements

The PhD program is designed to encompass training in economic theory and quantitative methods, as well as flexibility for students in choosing course work to suit their interests and intended careers.

For those entering the program with a bachelor's degree, the following courses are required:

ECONOM 8370	Mathematics for Economics	3
ECONOM 9451 & ECONOM 9452	Advanced Microeconomic Theory I and Advanced Microeconomic Theory II	6
ECONOM 9453 & ECONOM 9454	Advanced Macroeconomic Theory I and Advanced Macroeconomic Theory II	6
ECONOM 9473 & ECONOM 9474	Econometric Theory II and Advanced Topics in Econometrics I	6
ECONOM 9413	Research Workshop II (PhD research workshop, taken in 2 consecutive semesters)	6
Two 9000-level economics courses in one area of specialization		6
Four other 9000-level economics courses (excluding ECONOM 9090 and ECONOM 9480)		12
15 credit hours of ECONOM 9085, ECONOM 9480 or other electives		15
Dissertation research		12
Total Credits		72

Courses taken to satisfy these requirements (except dissertation research) may be taken while earning an MA at MU, or, as with students entering the program with prior graduate coursework, at other accredited colleges and universities as recommended by the Graduate Studies Committee.

### Qualifying Process

Students pursuing the PhD degree must pass a qualifying examination. Upon completion of relevant required courses in the first year, students take the qualifying examination, which covers microeconomics, macroeconomics and econometrics. The exam is 6 hours in length; it is administered in parts with two-hours devoted to each of the three core subjects. The first offering of the exam is in late May. Students who fail to pass all three parts of the exam the first time may retake the failed part(s) the following July/August. Students who fail the exam may continue in the MA program.

## Comprehensive Examination Process

Students pursuing the PhD degree must pass a comprehensive examination. The comprehensive exam has a written section and an oral section, both administered by the student's dissertation committee. The oral section of the comprehensive exam is part of the dissertation proposal defense.

## Dissertation Requirements

The dissertation must make a substantial contribution to knowledge. Upon completion of the dissertation, students pursuing the Ph.D. degree must pass a final oral examination. This exam can include an evaluation of the dissertation, the student's defense of the dissertation, and the student's general comprehension of economics, and is open to the academic community.

## Admissions

### Admission Contact Information

Lynne Riddell riddell@missouri.edu  
 118 Professional Bldg.  
 Columbia, MO 65211  
 (573) 884-7989

### Admission Criteria

Fall deadline: February 1

The minimum requirements for admission into the PhD program are

Undergraduate GPA 3.0

Minimum GRE scores: Quantitative = 155

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum Academic IELTS scores:

Item	Score
Overall Score	6.5

Ordinarily, to be accepted for advisement in the PhD program, a student must have a master's degree in economics, or, alternatively, the student must meet the requirements for admission to the MA program, together with the requirement of an adequate background in economics, mathematics and statistics.

## Required Application Materials

The following items are required to be uploaded to the MU online Graduate Application for Admission:

- Your transcript from every college or university you have attended
- Your résumé
- Your personal statement
- Three letters of recommendation
- A copy of your official TOEFL or IELTS score. Your official TOEFL or IELTS scores (sent directly from the Educational Testing Service) must be submitted directly to the Graduate Admission Office (210 Jesse Hall, Columbia, MO 65211) \* International applicants only

To the Economics Program (<https://economics.missouri.edu>):

- Your official GRE scores (sent directly from the Educational Testing Service)

## Specialization

### Fields

Students are required to complete one area of specialization consisting of two courses and a field paper. It is expected that this area will be related to the objectives of the student's dissertation. The instructors of the field courses will provide written guidance about field papers and oversee the content of the research paper, and the instructor of the PhD research workshop (ECONOM 9413) oversees the mechanics of the paper. Field requirement is satisfied after both courses have been passed and the instructor(s) of both field courses as well as ECONOM 9413 approve the field paper. The areas of specialization from which the student can choose are listed below. The department commits itself to offering a second course in any field to all students who have completed an initial course in the field, within two semesters of the student completing the initial course (not counting the summer semester). This course may consist of a readings course with one of the faculty members in the field in lieu of a regular course. If a readings course is provided, then the faculty member is required to provide the department with the reading list for the course.

## List of Fields and Courses

### Econometrics

ECONOM 9476	Advanced Topics in Econometrics II	3
ECONOM 9477	Advanced Topics in Econometrics III	3

### Industrial Organization

ECONOM 9455	Monopoly and Competition	3
ECONOM 9471	Advanced Game Theory	3

### International Economics

Select any two of:		
ECONOM 9426	International Trade	3
ECONOM 9427	Topics in International Trade	3
ECONOM 9460	Development Economics	3

### Labor Economics

ECONOM 9411	Advanced Labor Economics I	3
ECONOM 9412	Advanced Labor Economics II	3

### Monetary Economics

ECONOM 9430	Advanced Money and Banking	3
ECONOM 9431	Central Banking Policies	3

### Public Economics

ECONOM 9415	Advanced Public Economics I	3
ECONOM 9416	Advanced Public Economics II	3

### Public Policy - Public/International

Select any two of:		
ECONOM 9415	Advanced Public Economics I	3
ECONOM 9416	Advanced Public Economics II	3
ECONOM 9426	International Trade	3
ECONOM 9427	Topics in International Trade	3
ECONOM 9460	Development Economics	3

### Quantitative Microeconomic Policy Analysis

ECONOM 9446	Advanced Empirical Methods	3
ECONOM 9447	Topics in Microeconomic Policy Analysis	3

Statement on Satisfactory Progress

1. Taking and completing required course work on schedule and maintaining a GPA of at least 3.0.
2. Enrollment in a full-time program of study, i.e., completion of at least 9 credit hours per semester.
3. Taking and passing qualifying and comprehensive examinations on schedule.
4. Completing the field requirement on schedule.

## PhD in Economics with Emphasis in Econometrics and Quantitative Economics

All PhD students in Economics with good academic standing may apply to add the emphasis in Econometrics and Quantitative Economics to their program. The emphasis area requires 12 credit hours. Students may satisfy the requirements for the PhD and the emphasis area at the same time.

### Required Courses: (must have 3.0 GPA average)

ECONOM 8370	Mathematics for Economics	3
ECONOM 9472	Econometric Theory I	3
ECONOM 9473	Econometric Theory II	3
ECONOM 9474	Advanced Topics in Econometrics I	3
Total Credits		12

## English

Alexandra Socarides, Chair  
 Steve Karian, Associate Chair  
 College of Arts and Science  
 114 Tate Hall  
 (573) 882-6421

The English Department provides a major that not only grants a broad introduction to a range of literary and cultural study and creative activities, but also allows students to work more intensely in particular subfields of the discipline, including literary history, critical theory, film and cultural studies, linguistics, and creative writing. A major in English develops skills in reading, critical thinking, and writing. A degree in English is not intended to provide specific vocational training but rather to give a broad education that can lead to many different careers, especially those requiring excellent communication skills and analytical thinking.

Recent graduates have gone on to careers in teaching, publishing, television, film, advertising, public relations, insurance, and government. In addition, English is excellent preparation for graduate or professional schools such as law and business.

The department offers BA, MA, and PhD degrees with majors in English. Two minors are also available, the English minor and the English writing minor.

## Faculty

**Professor** A. Barnstone\*\*, S. Cairns\*\*, C. Eady\*, M.J. Gordon\*\*, N. I. Heringman\*\*, A. P. Hoberek\*\*, C. Hudson-Weems\*\*, T. L. Lewis\*\*, R. S. Morgan\*\*, P. Okker\*\*, K. L. Piper\*\*, A. Prahla\*\*, D. T. Read\*\*, C. Strathausen\*\*, N. M. West\*\*  
**Associate Professor** E. Chang\*\*, S. Cohen\*\*, F. Dickey\*\*, J. O. Evelev\*\*, E. F. Glick\*\*, S. M. Harrison\*\*, J. Hearne\*\*, S. Karian\*\*, W. J.

Kerwin\*\*, M. A. Konkle\*\*, J. Kramer\*\*, A. C. E. Langley\*\*, E. E. Lipton\*\*, M. Marlo\*\*, A. Myers\*\*, C. Okonkwo\*\*, A. Socarides\*\*, D. Strickland\*\*  
**Assistant Professor** R. Grollemund, L. Manion \*\*, J. Sukys\*\*  
**Professor Emeritus** R. M. Bender, T. D. Cooke, A. J. Devlin\*, H. Fulweiler\*, C. H. Hinnant\*, R. A. Hocks\*, W. V. Holtz, T. Materer\*, L. McMahon\*, C. Parke\*, M. G. Porter, T. V. Quirk\*\*, E. Ragland\*\*, J. R. Roberts, S. Santos\*, R. B. Schwartz\*, M. A. Swick\*, M. Townsend\*, C. G. Youmans  
**Associate Professor Emeritus** H. Hinkel\*, D. G. Hunt\*, M. Patton\*, G. Swan  
**Curators' Professor Emeritus** E. Lawless\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in English (p. 181)
- Minor in English (p. 182)
- Minor in English Writing (p. 182)

**Director of Undergraduate Studies:** Samuel Cohen

## Departmental Honors

To graduate with honors in English, students must have a cumulative GPA of 3.3 and a GPA of 3.5 in English courses and successfully complete ENGLISH 4996 and ENGLISH 4995. Students wishing to enroll in these courses must complete an application process in January of their junior year. More information is available from the Director of Undergraduate Studies or the department's Academic Advisor.

## Graduate

- MA in English (p. 182)
- PhD in English (p. 183)

College of Arts and Science  
 114 Tate Hall  
 (573) 882-6421  
<http://english.missouri.edu>

**Director of Graduate Studies for Advising and Admissions:** Emma Lipton

## About the Program

With more than one hundred M.A. and Ph.D students and about 500 undergraduates, we are one of the largest and most diverse departments on the Columbia campus. We offer a wide range of courses in British and American Literature and Creative Writing, as well as special emphases in African Diaspora Studies, Critical Theory, English Language and Linguistics, and Rhetoric and Composition.

## Subject Areas

Lecture courses, seminars and directed research are available in British and American language and literature, creative writing, critical theory, rhetoric and composition, language and linguistics, and African diaspora studies.

## Funding

Students admitted to the graduate program usually receive a fellowship or teaching assistantship. Outstanding applicants will also be eligible to compete for a variety of college and university fellowships. The deadline for applications to both the MA and PhD programs is January 1. Announcements of awards are made by early April.

## Publications Experience

Students will also have the opportunity to assist faculty in editing *The Missouri Review*, a nationally recognized journal of fiction, poetry and essays, and *Oral Tradition*, the only journal involved in the comparative study of oral traditions.

## BA in English

### Degree Program Description

English majors are asked to think in terms of both the breadth and depth of their knowledge, studying a wide variety of topics, periods and methods; developing skills in reading, critical thinking, and writing; and delving deeply into a particular area of interest. Students study literature from around the world and from all historical periods, learn about the theory and practice of writing through the study of rhetoric and composition, and acquire skills as writers of fiction, poetry, and nonfiction. The BA in English requires the following types of courses: period studies and surveys, author studies, genre/thematic studies, and theory/method studies. Students must also take several courses in an area of specialization such as Medieval Literature; Renaissance/Early Modern Literature; 18th and 19th Century Literature; 20th and 21st Century Literature; African Diaspora Studies; Post-Colonial Literature; Literary, Critical or Rhetorical Theory; Creative Writing; Composition; English Language and Linguistics; Folklore Studies; Film and Digital Studies; or Gender and Sexuality Studies. A degree in English is intended to provide a broad, open-ended education that can lead to many different careers, especially those requiring excellent communication skills and analytical thinking. Recent graduates have gone on to careers in teaching, publishing, television, film, advertising, public relations, insurance, government, public service, management, and law.

### Major Program Requirements

English majors must complete a minimum of 30 credit hours in English. At least 24 credit hours in the major must be at the 3000-level or above. At least 9 credit hours must be at the 4000-level. A minor in a different discipline is recommended.

No more than 40 credit hours in English may be counted toward graduation. The required English composition credits are excluded from this maximum and are recommended to be taken before the student enrolls in any English courses numbered above 2009.

**Honors:** Students may take an additional 3 hours (33 total) to complete ENGLSH 4995 Senior Honors Thesis. Note that ENGLSH 4996 Honors Seminar in English, will count towards the 9-hour requirement for 4000-level classes, ENGLSH 4995 Senior Honors Thesis, will not.

**Internships and Independent Research:** Students making satisfactory progress towards completion of degree requirements are encouraged to explore possibilities for gaining professional experience through internal or external internships. They are also encouraged to follow up on opportunities to pursue independent research sponsored by the

department, the College of Arts and Science, and other divisions of the University. Note that only 3 credit hours of internship or independent study (ENGLSH 4940, ENGLSH 4950, ENGLSH 4955, or ENGLSH 4960) will count towards the major's 4000-level requirement or towards the 24 hours at the 3000-level or above.

## Major Core Requirements

### Introduction

ENGLSH 2100 Writing About Literature

### Body of Major

- At least 30 credit hours in English (including 3 hours of ENGLSH 2100) satisfying requirements listed below.
- Courses may count for 1, 2, or 3 of the three requirements for Breadth of Study, Historical Coverage and Depth of Study.
- At least one course must meet the Diversity Requirement.
- At least 24 hours must be at the 3000-level or above. At least 9 hours must be at the 4000-level.

### Breadth of Study

Students take at least 1 course from each of the following areas (3000-level and above).

#### a. Period Studies and Surveys

Courses in this area examine texts in their historical context, and consider how historical events and developments shape culture and texts.

#### b. Author Studies

Courses in this area focus on an individual or several authors or artists.

#### c. Genre Studies; Thematic Studies

Genre Studies introduces students to a textual kind (e.g. the novel, poetry, drama, the essay, etc.), its conventions, and its history.

Thematic Studies explores a shared theme among works that may or may not belong to the same period.

#### d. Theory and Methods

Courses in this category give primary attention to the frame of inquiry and/or the method by which knowledge-making takes place.

### Historical Coverage

Students take 3 courses that focus on literature written prior to 1890. One of these must focus on literature written prior to 1603.

### Depth of Study

Students must take 3 courses in a single area of specialization listed below.

#### a. Medieval Literature

#### b. Renaissance/Early Modern Literature

#### c. 18th and 19th Century Literature

#### d. 20th and 21st Century Literature

- e. African Diaspora Studies
- f. Postcolonial & Global Literatures
- g. Literary, Critical, or Rhetorical Theory
- h. Creative Writing
- i. Composition & Studies in Writing
- j. English Language and Linguistics
- k. Folklore Studies
- l. Film & Digital Studies
- m. Gender and Sexuality Studies
- n. Other (subject to English Department Advisor approval)

## Diversity Requirement

English majors must take one 3-hour course that focuses on issues such as race, ethnicity, gender, or sexuality. Each semester a list of approved courses will be made available to students.

## Culmination

ENGLISH 4970 Capstone Experience (or ENGLISH 4996 Honors Seminar in English if choosing the honors sequence)

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year			
Fall	CR Spring		CR
ENGLISH 1000*	3 MATH 1100*		3
Foreign Language**	5 Foreign Language**		5
Behavioral Science Course*	3 Social Science Course*		3
American History OR Government Course	3 Humanities/Fine Arts Course*		3
IS_LT 1111	1 Elective Course		1
	15		15
Second Year			
Fall	CR Spring		CR
ENGLISH 2100^	3 Biological/Physical/Mathematical Science Course w/lab		3
Biological/Physical Science Course w/lab	4 ENGLISH 3100		3
Foreign Language**	3 Behavioral Science Course 2000+		3
Humanities/Fine Arts Course*	3 Social Science Course*		3
ENGLISH 1060	3 Elective or Course for Minor		3
	16		15
Third Year			
Fall	CR Spring		CR
Humanities Course 2000+**	3 ENGLISH 4166^		3
ENGLISH 3210^	3 ENGLISH 4600^		3
ENGLISH 4310^	3 Elective or Course for Minor 3000+		3
Biological/Physical/Mathematical Science Course*	3 Elective or Course for Minor		3

Humanities/Fine Arts Course	3 ENGLISH 4950	3
	15	15
Fourth Year		
Fall	CR Spring	CR
ENGLISH 4240^	3 ENGLISH 4970^	3
ENGLISH 4610	3 Elective or Course for Minor 3000+	3
Elective or Course for minor 2000+	3 Elective or Course for Minor	3
Second Depth Area Course 2000+^	3 ENGLISH 4100	3
Humanities/Depth Area Course 2000+^	3 Second/Third Depth Areas Course 2000+	3
	15	15

Total Credits: 121

\* Course concurrently meets University General Education, Arts and Science Foundation and/or campus graduation requirements.

^ Course meets degree requirements or major requirements.

Depth Areas are courses that are 2000 level or above chosen from four areas: the sciences, social sciences, behavioral sciences, or humanities and fine arts. Arts and Science students are required to complete 9 hours in at least 2 of the four areas.

## Minor in English

The English minor consists of 15 credit hours of coursework beyond ENGLISH 1000 (or its equivalent). It must include at least 6 credit hours in courses numbered 3000 or above and must include at least 3 credit hours at the 4000 level. It may include no more than 3 credit hours from amongst ENGLISH 4940, ENGLISH 4950, ENGLISH 4955, and ENGLISH 4960. A grade of C- or above must be earned in all minor course work and a minimum GPA of 2.0 achieved in the minor. A minimum of 9 credit hours must be completed in MU coursework.

## Minor in English Writing

The English Writing minor consists of 15 credit hours of coursework beyond ENGLISH 1000 (or its equivalent), and is designed to help students in all majors and colleges improve their writing and critical thinking skills. Students must take at least 3 credit hours of a composition course (ENGLISH 2010, ENGLISH 2030, ENGLISH 3010); at least 6 credit hours of a nonfiction creative writing course (ENGLISH 1520, ENGLISH 2520, ENGLISH 4520) or ENGLISH 4040; and at least 3 credit hours of any English Writing Intensive course beyond those WI courses required for graduation. The remaining 3 credit hours can be taken in any of the above 3 categories (composition, nonfiction creative writing or ENGLISH 4040, and English WI) and can include any creative writing course. A grade of C- or above must be earned in all minor course work and a minimum GPA of 2.0 achieved in the minor. A minimum of 9 credit hours must be completed in MU coursework.

## MA in English

### Admission Contact Information

Victoria Thorp [thorpv@missouri.edu](mailto:thorpv@missouri.edu)  
114A Tate Hall, Department of English  
Columbia, MO 65211

(573) 882-4676

## Admission Criteria

Fall deadline: January 1

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE score: not set
- Minimum GPA: 3.0 overall, higher in courses in major
- Majored in English as an undergraduate, with at least 18 hours in upper division courses in literature or linguistics. Students with other undergraduate majors may be admitted provided their background in English studies is suitable and provided they complete an appropriate course of preliminary study. Promising students who do not meet one or more of these criteria may at the discretion of the director of graduate studies be encouraged to enroll as non-degree graduate students.

## Required Application Materials

To the Office of Graduate Studies:

- All required documents

To the English Program (<https://english.missouri.edu/grad/admissions>):

- English Department application form
- GRE scores; The general test is required. Students are also welcome to submit subject test scores, and strongly encouraged to do so if their previous work is in a field other than English.
- 3 letters of recommendation (use departmental form)
- Official transcripts
- Statement of purpose
- 2 10-20 page critical/scholarly papers (1 for creative writing applicants)
- Creative writing applicants: also submit a sample of your fiction (30 pages) and/or poetry (20 pages) or a one-act play
- Supplementary information sheet (for MA/PhD and PhD track applicants only)

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Plan of Study

The MA is a 4-semester (2-year) program with 30 hours of course work (at least 15 hours at the 8000-level) in English.

- MA students may take up to 6 hours (7000-level or above) outside the English department.
- In addition to literary study, students may also select from among the 6 emphasis areas to accompany the program in British and American Literature: African Diaspora Studies, Creative Writing, Critical Theory, Folklore and Oral Tradition, Language and Linguistics, and Rhetoric and Composition.
- A foreign language is not required for the master's degree.

## Final Assessment Options

A student may elect to write an MA thesis (while taking 6 hours of ENGLISH 8090), to present a portfolio and take an oral exam, or to take a written comprehensive exam based on a reading list.

### Thesis

Students who choose the MA thesis (50-75 pages) should, at the outset of master's work, discuss possible thesis topics with the faculty member or members who seem most likely to constitute the student's MA Thesis Committee (two English department members and one outside member). Students present and defend their theses to this committee in an oral examination.

### Portfolio/Oral Exam

Students electing this option will choose two faculty members to work with in revising two essays previously written during their M.A. work. The Director of Graduate Studies, in consultation with the student, will choose a third faculty member to serve on the student's portfolio committee. Students will defend the two revised essays, as well as those not chosen for revision, in a two-hour oral exam. The committee may pass or fail the examinee on any part(s) of the portfolio. In the case of partial or total failure, the student will retake the oral portions that were failed and may need to revise further one or both of the revised essays.

### Written Exam Based on Reading List

The exam consists of three questions answered over a four-hour time period. Students in Literature and in Literature with a Creative Writing Emphasis are assigned to a three-member M.A. Comprehensive Exam Committee and write on three literature-based questions. Students with emphases in African Diaspora, Critical Theory, English Language & Linguistics, Folklore & Oral Tradition, or Rhetoric & Composition are assigned to a committee that includes two members from literature and one member from the emphasis area. They write two literature-based questions and one emphasis-area-based question.

## Satisfactory Progress

The Department of English expects all candidates to make satisfactory progress toward completing their graduate degrees. The MA should be completed within three calendar years after matriculation. No grades of C will be counted toward the completion of the required number of hours for the MA.

## MA/PhD Track

The department also offers an MA in an MA/PhD program intended for especially well-prepared students who have BA degrees and know they wish to pursue the PhD. It offers enhanced financial aid and an accelerated time to degree. Students complete MA requirements and begin taking PhD course work in their second year in the program. Academic requirements for the two degrees are identical with the academic requirements for the separate MA and PhD degrees.

## PhD in English

## Admission Contact Information

Victoria Thorp [thorpv@missouri.edu](mailto:thorpv@missouri.edu)  
Department of English  
114A Tate Hall, Columbia, MO 65211



(573) 882-4676

## Admission Criteria

Fall deadline: January 1

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE score: not set
- MA in English or its equivalent

## Required Application Materials

To the Office of Graduate Studies

- All required Graduate Admissions documents

To the English Program (<https://english.missouri.edu/grad/admissions>):

- English department application form
- GRE scores; The general test is required. Students are also welcome to submit subject test scores, and strongly encouraged to do so if their previous work is in a field other than English.
- 3 letters of recommendation (use departmental form)
- Official transcripts
- Statement of purpose
- 2 10-20 page critical/scholarly papers (1 for creative writing applicants)
- Creative writing applicants: also submit a sample of your fiction (30 pages) and/or poetry (20 pages) or a one-act play
- Supplementary information sheet

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Plan of Study

The PhD is a 5-year program with 30 hours of course work beyond the MA. At least 18 hours in English must be taken at the 8000-level (ENGLSH 8095 and ENGLSH 9090 do not count toward the 18-hour requirement). Candidates with insufficient background in English may be required to take additional hours upon the recommendation of the advisory committee.

A student may elect one English 8000 problems course (a maximum of three hours of credit), with the prior consent of the director of graduate studies. A minimum of 18 hours of course work beyond the MA (excluding research hours) must be taken in residence at the Columbia campus in order for the candidate to be eligible for a PhD from the University.

## Language Requirement

All PhD students must fulfill a foreign language requirement to ensure that all students have familiarity with a language and a literature other than English. All of our students, regardless of specialty, gain substantially by situating their work globally. A student may satisfy the foreign language requirement for the PhD in English by demonstrating

either 1) advanced proficiency in one foreign language or 2) basic proficiency in two foreign languages.

PhD students should determine how they will fulfill the departmental language requirement in consultation with their faculty advisor and other committee members, since different projects and different areas of study will require different levels of language proficiency. A student's committee can always recommend that the student pursue language study above and beyond the level required by the departmental language requirement for the purpose of their chosen dissertation project.

To obtain advanced proficiency, the student has several options. One is to pass with a grade of B or better two upper-class undergraduate courses (3000- or 4000-level, or the equivalent elsewhere, taken within the seven years prior to the candidate's enrollment in the Ph.D program at the University of Missouri) in the literature of the language chosen. A second is to pass with a grade of B or better one graduate class (7000- or 8000-level, or the equivalent elsewhere, taken within the same time period as above) in the literature of the language chosen. These courses may not be in translation, and any graduate course in a modern language must be taught in that language. A third option is to demonstrate advanced proficiency in a manner approved by the student's advisor and the director of graduate studies; the mechanism for doing so will be proposed by the student and advisor, and is subject to the approval of the director of graduate studies. One example of that third option is to take the Sixteen-Point Exam from the NYU School of Professional Studies, and achieve a score of at least fourteen. Advanced proficiency does not require fluency; it requires advanced reading knowledge of and extended engagement with another culture's language and literature.

To demonstrate basic proficiency the student must pass with a grade of B or better a) the intensive introduction to a language or b) the three-semester introductory sequence or c) one course at or beyond the third semester level in the language chosen, or the equivalent of these courses elsewhere. The courses must have been completed or the examinations taken not more than seven years prior to the candidate's enrollment in the PhD program. Because not all languages are taught using this format at the University of Missouri, students have the option to demonstrate basic proficiency in one of their two chosen languages by taking an introductory course in any language that is relevant to their research. The Director of Graduate Studies will work with students to try to arrange for testing for students with proficiency but without coursework in any language (for instance, those who have lived in another country for an extended period of time). In these cases, one option is to take the Twelve-Point Exam from the NYU School of Professional Studies, and achieve a score of at least ten.

Overall, the department recommends students pursue advanced proficiency in one language, a language that will enrich their work. All of our students, regardless of specialty, will gain by making meaningful and extended connections between their own work and a non-English speaking culture.

## Doctoral Committee

By the end of the first year, doctoral students must meet with their advisors to organize a doctoral committee. Students meet with this committee to plan course work and define their primary and secondary fields of study. This meeting satisfies the graduate school requirement for a PhD qualifying examination.

## Comprehensive Examination

After the coursework and foreign language requirement have been completed, the student takes the PhD comprehensive examination. This exam consists of a written section (the Preparatory Essay) and a two-and-a-half hour oral exam. Guidelines for the PhD comprehensive examination are as follows:

### 1. Committee and Reading List

Students will choose a faculty committee consisting of a chair, two additional department members, and an external member from another department.

In consultation with her or his committee, the student will specify reading lists made up of one major field, one minor field, and one field in criticism and theory.

**The major field** list should reflect the student's area of professional specialization (poetry, 16th-century British literature, 20th-century American fiction, rhetoric and composition, folklore) and should take account of both the student's interests and job market categories. If a candidate chooses a major field that is a single genre (or has an otherwise delimited focus), then the candidate's committee may mandate that the area should extend over at least three centuries.

**The minor field** list might be a related field (for instance, a student with a major list in African American literature might have a minor list in twentieth-century American fiction, or one studying Romanticism might have a minor list in transatlantic colonial literature), a secondary field (film or linguistics if the student is studying a literary field; a literary field if the student is studying rhetoric or folklore), a genre or sub-genre (creative non-fiction, the sonnet, etc.), or an area of thematic focus (Transcendentalism, nature poetry, etc.).

**The criticism and theory list** will vary depending on the topics of the major and minor lists. In cases where the major and minor lists consist primarily of literary works, the criticism and theory list must include sections covering the major works of criticism and/or theory in those fields. The remainder of the criticism and theory list, up to its entirety in cases where both the major and minor list include substantial secondary reading, can be organized around a major subfield of criticism or theory (poetics, psychoanalysis, the history of the novel) or a particular theme (Theories of the Middle Class; The Role of Religion in Contemporary Fiction; Medieval Conceptions of Gender).

All three lists together should comprise approximately 100-120 book length works or the equivalent in scholarly articles or works in other media (as decided in consultation with the committee), with the major list roughly equivalent in size to the combined minor and criticism/theory lists. Where linguistics constitutes one of the fields, the relevant committee member or members will assign, in addition to reading materials, other materials intended to ensure competence in carrying out analyses in phonology, phonetics, syntax, and other areas appropriate to the student's background and interests.

During the semester in which the student begins drafting her or his reading lists (ideally the second semester of PhD study), the faculty chair will convene a meeting with the entire committee, during which the student will present and defend her or his program of study and draft reading lists. This meeting is known as the Qualifying Examination. During this meeting the committee members will sign the D-1 form; after the meeting the student will prepare the D-2 form for program of study and have it signed by the committee members.

### 2. Preparatory Essay/Written Comprehensive Exam

During the time a student is preparing for her or his exam, he or she will write a Preparatory Essay of at least twenty-five pages. These essays must not be more than fifty pages. This Preparatory Essay constitutes the written portion of the comprehensive exam, and is designed to give the student the opportunity to demonstrate broad knowledge of her or his fields, deep interest in specific topics relevant to those fields, and initial plans for the dissertation (or, in the case of creative writers, the critical introduction).

This is a highly individualized process, designed to encourage students to shape this process to serve their research needs.

Students will write and submit two different drafts. They will submit a preliminary draft of the essay to committee members for feedback; this must be done the semester before submitting the final draft and taking the exam. When the student submits the final version to the committee, committee members will evaluate it for range and depth of coverage, specificity of references to the works discussed, theoretical grasp of the material and clarity of organization and style. A student should consider the Preparatory Essay an opportunity to address what he or she has learned in the preparation process, and to indicate what questions most interest him or her about the works on her or his lists. The Preparatory Essay is designed to be flexible, but each essay should include the following, in a form agreed upon by the student and the committee:

- Brief overviews of each of the fields represented by the lists, discussing major issues raised by the three lists, and, where relevant, connections among them; these overviews may preface the body of the essay or be folded into it
- Answers to three or four substantive questions about the fields (or, where relevant, problems in linguistic analysis) that were developed in consultation with the committee, and that are meant to serve as talking points for the oral exams
- A preliminary description of the dissertation or, for creative writers, the critical introduction that demonstrates how it will be informed by the student's reading

In order to pass the written portion of the exam the student must receive no more than one dissenting or abstaining vote on the Preparatory Essay. To submit the final version of the preparatory essay, a student should send the essay to the Graduate Secretary who will distribute the exam to the student's committee. **Within a week of receiving a copy of the exam, committee members will submit evaluations discussing strengths and weaknesses of the Preparatory Essay to the Graduate Studies Secretary**, who will forward them to the student and also place copies in the student's file.

If the student does not pass, the committee will offer advice on rewriting and resubmitting the Preparatory Essay. If the student does pass, the chair of the exam committee, in conjunction with other members of the committee, will **schedule the student's oral examination for no earlier than one week, and no later than one month, following committee members' reports on the Preparatory Essay**. The Graduate Secretary should be informed of the time and place of the oral examination. Students must be enrolled during the term in which they take their oral exam (to be administered only when MU is officially in session). The oral exam must be completed at least seven months before the final defense of the dissertation.

### 3. Oral Exam

While discussion will be guided by the writing students have done in the Preparatory Essay, the examinee should be prepared for questions on any item on their list, in order to demonstrate a breadth of training beyond that displayed in the essays. Exams are commonly structured in two parts, with discussion of the essay in the first hour and discussion of the lists more broadly in the second.

The oral exam will be scheduled for two and half hours and will consist of:

- Two hours of questions, with format and time allotted to committee members arranged beforehand by the chair of the student's committee
- Fifteen minutes during which the committee deliberates about the exam
- Fifteen minutes during which the committee informs the student whether he or she has passed or failed, and discusses the exam with the student

During the fifteen-minute faculty deliberation period **the chair of the committee is responsible for taking notes, which will form the basis of a 1-2 page document discussing the exam**—things the student did well on, and things he or she might improve. The chair should give a copy of this document to the Graduate Secretary, who will forward it to the student and also place a copy in the student's file.

In order to pass the student must receive no more than one dissenting or abstaining vote on the oral exam. Students who fail the oral examination will be allowed to retake it, but cannot do so sooner than 12 weeks after, or later than the end of the semester following, the initial examination. If the student passes the oral examination, all members of the committee must sign the D-3 form. The chair of the committee is responsible for submitting the D-3 form to the graduate studies office, and the form must be filed with the graduate school within two weeks after the final completion of the exams. Per graduate school rules, failure to pass two comprehensive examinations automatically prevents candidacy.

## Dissertation

As soon as possible after passing the comprehensive examination, a candidate should explore a dissertation topic under the guidance of the student's advisor. The doctoral dissertation is written under the direction of a member of the doctoral faculty at MU.

## Creative Dissertation Option

The PhD candidate may choose to write a creative dissertation, which may take the form of a novel, a novella, a book-length collection of short fiction or a collection of poetry. To exercise this option, the candidate must have taken 9 to 12 hours of creative writing seminars as part of the PhD course work.

In addition to the "creative" part of the dissertation, the candidate will compose a prose introduction (2,500- word minimum), to be written after completion of the creative project, to demonstrate the correspondence between the candidate's academic studies and the creative project. The overall length required would be comparable with that of other dissertations approved by the department.

## Satisfactory Progress

The Department of English expects all candidates to make satisfactory progress toward completing their graduate degrees. The comprehensive exam should be completed within five calendar years after matriculation, and the PhD should be completed within five calendar years after passing

the comprehensive exam. No grades of C will be counted toward the completion of the required number of hours for the PhD.

## Film Studies

Roger Cook, Program Director  
Interdepartmental Program in the College of Arts and Science  
451 Strickland  
(573) 882-9452  
cookrf@missouri.edu  
filmstud@missouri.edu

The Film Studies Program offers a major that focuses on film analysis and covers the history of cinema, national and global cinemas, film theory and genres, documentary film, and contemporary visual culture. As a classic liberal arts discipline, film studies teaches the fundamental skills that make a college degree essential in career-oriented jobs: research, information management, critical analysis, cogent development of ideas, developing and testing of hypotheses, and writing and communication. It combines an emphasis on critical thinking, research, problem-solving, written expression, and cultural literacy with the discipline's unique attention to visual analysis. Students emerge with a greater degree of visual literacy at a time when our culture is becoming increasingly dependent upon visual communication. As a complement to the main focus on the critical study of film, the program also offers some production courses and occasional opportunities to participate in filmmaking projects. For those who want to pursue a career in the TV/ motion picture or the fast-growing digital media industry the major provides a strong foundation that can be combined with the learning of specific industry skills.

The program offers a BA degree in film studies as well as an undergraduate minor.

## Faculty

**Professor** G. Barabtarlo\*, R. F. Cook\*, R. N. Johnson\*, J. M. Miller, A. Prahlad\*, C. Strathausen\*, N. M. West\*

**Associate Professor** M. H. Carver, R. Dingo\*, J. Draper\*, J. Hearne\*, S. Ireton\*, V. M. Kaussen\*, W. Kerwin\*, K. Kopp\*, B. Prager\*, R. Tabanelli\*

**Associate Teaching Professor** M. H. Barnes\*, N. Monnier\*,

**Assistant Teaching Professor** E. Hornbeck, B. Maurer, E. Naveh-Benjamin, L. Roth, M. Volz

**Instructor** L. Dickinson, C. Gubera, R. Wise

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Film Studies (p. 187)
  - with emphasis in Film Production (p. 188)
- Minor in Film Studies (p. 188)

## Double and Dual Majors

A film studies major can be paired with a major in another department. Students must meet the requirements of both departments. The program

for each major must be approved by the advisor in the degree-granting department.

## Departmental Honors

To receive departmental honors, a student must earn a minimum overall MU GPA of 3.3 and a minimum GPA of 3.5 in courses in film studies completed at the University of Missouri. In addition, with the assistance of an honors thesis advisor, the student must develop, plan and conduct research on an independent project, normally while enrolled in FILM\_S 4995 .

## Graduate

While MU does not offer graduate degrees specifically in film studies, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Arts and Science, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## BA in Film Studies

### Degree Program Description

From academic study to production principles, the Film Studies program provides guidance to our students from accomplished research faculty, real world experience through hands-on internship practicums, and opportunities for success beyond the program for our graduates. The Film Studies Program offers a major that focuses on film analysis and covers the history of cinema, national and global cinemas, film theory and genres, documentary film, and contemporary visual culture. It combines an emphasis on critical thinking, research, problem-solving, written expression, and cultural literacy with the discipline's unique attention to visual analysis. Students emerge with a greater degree of visual literacy at a time when our culture is becoming increasingly dependent upon visual communication. Graduates have pursued careers in film, art education, journalism, and writing.

### Major Program Requirements

Film Studies majors must complete 30 credits in film studies, with a grade of C- or above in every course. A minor is recommended. At least 15 hours in the major must be in courses at the 3000 level or above. Students must also complete College of Arts and Sciences and University requirements, including University general education (p. 33) requirements. No more than 40 credits in Film Studies may be counted toward graduation.

The 30 hours of Film Studies courses for the major must meet the following requirements:

#### Major core requirements

UNIT I:		
FILM_S 1800	Introduction to Film Studies	3
UNIT II:		
FILM_S 2820	Trends in World Cinema	3
Select one of the following:		3
FILM_S 2830	American Film History I, 1895-1950	
FILM_S 2840	American Film History II, 1950-Present	
UNIT III:		
Electives		18

At least six of the elective hours must come from one of the following national cinema courses:

FILM_S 2850	Italian Cinema
FILM_S 2865	The Art of Soviet and Russian Cinema
FILM_S 3830	History of German Film
FILM_S 3840	German Film After 1945
FILM_S 3845	Modern Israeli Film
FILM_S 3870	Russian Women and Film
FILM_S 3875	Brazilian Cinema
FILM_S 3880	Contemporary Chinese Film
FILM_S 3890	Russian and Soviet Film
FILM_S 3895	Korean Society Through Cinema

At least six of the elective hours must come from one of the following courses on theory and method:

FILM_S 2860	Film Themes and Genres
FILM_S 2870	Film and Literature
FILM_S 3775	The Ancient World on Film
FILM_S 3780	Architecture in Film
FILM_S 3785	Art and Artists on Film
FILM_S 3820	Major Directors
FILM_S 3850	Studies in Film History
FILM_S 3855	Documentary Film
FILM_S 3861	Film Themes and Genres
FILM_S 4810	Film Theory
FILM_S 4820	Studies in Film Genre
FILM_S 4840	Culture and Media
FILM_S 4860	Film Themes and Genres
FILM_S 4935	Adaptation of Literature for Film

#### UNIT IV:

Select one of the following:	3
FILM_S 4880	Capstone Experience
One 4000-level FILM S course of at least 3 credits	

Total Credits 30

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year			
Fall	CR	Spring	CR
FILM_S 1800	3	FILM_S 2840	3
ENGLSH 1000	3	Foreign Language	5
Social Science (MO State Law)	3	MATH 1100	3
Foreign Language	5	General Elective	3
		14	14
Second Year			
Fall	CR	Spring	CR
FILM_S 2820	3	FILM_S 2000+ (National Cinema Course)	3
Science with a Lab	5	Minor Course	3
Foreign Language	3	Humanities/Fine Arts (Writing Intensive)	3
Behavioral Science	3	Behavioral Science	3
Social Science	3	Science Course	3
		17	15

Third Year		
Fall	CR Spring	CR
FILM_S 2000+ (Theory and Methods Course)	3 FILM_S 3000+ (Elective)	3
FILM_S 3000+ (National Cinema Course)	3 Minor Course	3
Minor Course	3 Humanities/Fine Arts	3
Humanities/Fine Arts	3 Social Science Course	3
Science Course (Math Reasoning Proficiency)	3 General Elective Course	3
15		15

Fourth Year		
Fall	CR Spring	CR
FILM_S 3000+ (Theory and Methods Course)	3 FILM_S 4000 Level (Capstone)	3
FILM_S 3000+ (Elective)	3 Minor Course	3
Minor Course	3 Humanities/Fine Arts	3
Writing Intensive Course 3000+	3 General Elective Course	3
General Elective Course	3 General Elective Course	3
15		15

Total Credits: 120

## BA in Film Studies with Emphasis in Film Production

### Degree Program Description

From academic study to production principles, the Film Studies program provides guidance to our students from accomplished research faculty, real world experience through hands-on internship practicums, and opportunities for success beyond the program for our graduates. The Film Studies Program offers a major that focuses on film analysis and covers the history of cinema, national and global cinemas, film theory and genres, documentary film, and contemporary visual culture. It combines an emphasis on critical thinking, research, problem-solving, written expression, and cultural literacy with the discipline's unique attention to visual analysis. Students emerge with a greater degree of visual literacy at a time when our culture is becoming increasingly dependent upon visual communication. Graduates have pursued careers in film, art education, journalism, and writing.

### Major Program Requirements

<b>Unit I: Core Critical Analysis</b>		6
FILM_S 1800	Introduction to Film Studies	3
Select one of the following:		
FILM_S 2820	Trends in World Cinema	
FILM_S 2830	American Film History I, 1895-1950	
FILM_S 2840	American Film History II, 1950-Present	
<b>Unit II: Advanced Critical Analysis</b>		6
Students must take 6 total hours in critical analysis courses at the 3000-level or above.		
<b>Unit III: Production Core</b>		6
FILM_S 3540	Principles of Cinematography	3
FILM_S 3550	Introduction to Field Production	3
<b>Unit IV: Production Core II</b>		15
FILM_S 2820	Trends in World Cinema	3
FILM_S 3530	Crafting Character and Story for Screen	3

FILM_S 4130	Advanced Character Voice and Dialogue	3
FILM_S 4540	Advanced Cinematography	4
FILM_S 4550	Introduction to Post Production	3
<b>Unit IV: Production Electives</b>		3
FILM_S 4580	Production Practicum	3
FILM_S 4880	Capstone Experience	3

### Semester Plan

There is currently not a semester plan available for this emphasis area.

## Minor in Film Studies

To earn a minor in Film Studies, students must earn 15 credits in film studies. Required courses include FILM\_S 1800, and either FILM\_S 2830 or FILM\_S 2840. At least two courses must be at the 3000 level or above. The minor is a flexible and varied program that can be tailored to individual students' needs. Students wishing to minor in film studies should consult the film studies advisor.

## General Studies

Office of Multidisciplinary Degrees  
College of Arts and Science  
114 Switzler Hall

(573) 882-6060

omd.missouri.edu

### Faculty

**Faculty members are housed in departments and schools throughout the University of Missouri.**

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BGS in General Studies (p. 189)

The Bachelor of General Studies (BGS) is designed for students who want a multidisciplinary major to meet educational and career objectives. Students who pursue the BGS need a high degree of motivation and independence. The BGS degree is intended for students pursuing a first bachelor's degree and will not be approved as a second bachelor's degree.

The BGS degree requires a minimum of 120 credit hours with a minimum of 30 credit hours numbered 3000 or above. Students meet with the academic advisor to create a graduation plan after completing 60 credit hours, MATH 1100 or an equivalent with a C- grade or higher, ENGLSH 1000 with a C- grade or higher and maintaining a 2.0 cumulative GPA.

BGS students are required to complete 24 credit hours as declared BGS majors and this may include credit for the semester in which the student declares the BGS major. In exceptional circumstances (and in most cases, only following an absence from MU of 4 or more years), students who need fewer than 24 credit hours to complete all their BGS, A&S and

MU requirements must take a minimum 3 credit hour BGS approved upper-level course.

omd.missouri.edu

## Graduate

While the College of Arts & Science does not offer a graduate degree in general studies, the College does offer graduate degrees, certificates and minors in a number of multidisciplinary areas. The catalog provides a complete list of these degree options (p. 17) for all Schools and Colleges at the University of Missouri.

## BGS in General Studies

### Degree Program Description

The Bachelor of General Studies (BGS) is designed for students who want a multidisciplinary major to meet educational and career objectives. Students who pursue the BGS need a high degree of motivation and independence. Students design their curriculum across three main components. Components may be made up of courses from a single department or from a single theme. These degree requirements allow students to build an individualized major that reflects their personal academic interests. Careers options are as varied as the combination of curricula.

### Major Program Requirements

Students must complete the Department Requirements (p. 188) as well as those required for the degree listed below:

The BGS major requires 45 credit hours, including a capstone. These 45 credit hours are evenly distributed among three areas of study called components. A component may be made up of courses from a single department or may be made up of courses from multiple departments that relate thematically. Component courses may be selected from any department or program at MU (if the department permits), but at least 18 credit hours must be made of courses from an A&S department. Of the 15 credit hours required for each component, 6 credit hours in each of the components must be numbered 3000 or higher. Students must maintain a GPA of 2.0 in each component area and grades of D are not acceptable. A student may include one component made entirely of transfer coursework if the other two components each contain 9 credit hours of coursework numbered 3000 or above. BGS students are required to include a minimum of 12 credit hours of MU coursework numbered 3000 level or above in their three components.

- 30 of the last 36 hours a student completes must be taken at MU.
- In order to graduate, students must have the following GPAs:
  - 2.0 cumulative GPA (the GPA for all coursework taken at MU)
  - 2.0 major GPA (the GPA for all courses taken to fulfill requirements in the major)
  - 2.0 minor GPA (the GPA for all courses taken to fulfill requirements for a minor)
  - 2.0 GPA in the final 60 hours
  - 2.0 GPA in the final 30 hours
- A maximum of 6 hours of Internship may apply to graduation
- A maximum of 12 hours of Internship, Readings and/or Special Problems may apply to graduation

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ENGLISH 1000	3 MATH 1100	3
Behavioral Science 1000+	3 Science 1000+	3
Social Science (MO STATE LAW) 1000+	3 Behavioral & Social Sciences 1000+	3
Humanities or Fine Arts 1000+	3 Humanities & Fine Arts 1000+	3
BGS Component #1 1000+	3 BGS Component #2 1000+	3
		15
Second Year		
Fall	CR Spring	CR
Science with a lab 1000+	3-5 Math Reasoning Proficiency	3
Writing Intensive I 1000+	3 Behavioral & Social Sciences 2000+	3
Humanities & Fine Arts 2000+	3 BGS Component #1 2000+	3
BGS Component #3 1000+	3 BGS Component #2 2000+	3
		3
		12-14
Third Year		
Fall	CR Spring	CR
Any Arts & Science 2000+	3 BGS Component #1 3000+	3
BGS Component #1 3000+	3 BGS Component #2 3000+	3
BGS Component #2 3000+	3 BGS Component #3 3000+	3
BGS Component #3 3000+	3 Writing Intensive II 3000+	3
General Elective or Minor 1000+	3 General Elective or Minor 2000+	3
		15
Fourth Year		
Fall	CR Spring	CR
BGS Component #1 4000+	3 General Elective or Minor 1000+	3
CAPSTONE		
BGS Component #2 3000+	3 General Elective or Minor 1000+	3
BGS Component #3 3000+	3 General Elective or Minor 1000+	3
General Elective or Minor 1000+	3 General Elective or Minor 1000+	3
General Elective or Minor 1000+	3 General Elective or Minor 1000+	3
General Elective or Minor 1000+	2-3	
		17-18

Total Credits: 119-122

## Geography

Michael Urban, Chair  
 College of Arts and Science  
 303 Stewart Hall  
 (573) 882-8370  
 geog@missouri.edu

## Faculty

**Professor** J. J. Hobbs\*  
**Associate Professor** M. W. Foulkes\*, S. C. Larsen\*, T. Matisziw\*, M. Palmer, M. A. Urban\*  
**Assistant Professor** G. Elliott\*

**Assistant Teaching Professor** C. Blodgett, D. Hurt\*

**Instructor** T. L. Haithcoat\*, J. D. Harlan, T. Vought

**Professor Emeritus** C. L. Salter\*

**Associate Professor Emeritus** G. S. Ludwig\*, W. A. Noble, W. A. Schroeder\*

**Adjunct Professor** C. H. Davis, W. R. Elliot, R. B. Jacobson\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Geography (p. 191)
  - with emphasis in General Geography (p. 192)
  - with emphasis in Geographic Information Sciences (p. 192)
  - with emphasis in Physical/Environmental (p. 192)
  - with emphasis in Regional/Cultural (p. 193)
- Minor in Geography (p. 193)
- Certificate in Geographical Information Science - Interdisciplinary (p. 193)

The Department of Geography has established the following goals for the Bachelor of Arts with a major in Geography:

- Teach students to think spatially and develop problem solving skills
- Provide an intellectual focus for students seeking a broadly based liberal arts education
- Acquaint students with past and present patterns of landscape development and instill concern for intelligent management of earth's biophysical resources
- Expose students to contemporary issues of geopolitical and international significance and their role in such problems
- Provide the skills and expertise necessary to master the application of geographic information technologies and analysis of spatial data
- Prepare motivated students for career development and graduate study

Four different emphasis areas allow students to further focus the undergraduate degree program on their own personal interests in geography.

1. Human-Regional-cultural geography helps students develop a fuller sense of geographic analysis and better understanding of the human and physical characteristics of major regions and settlement patterns of the world.
2. Physical-environmental systems emphasize the complex interactions between biophysical systems and human behavior in the areas of geomorphology and biogeography, as well as our role in managing applied environmental problems.
3. Geographic information sciences addresses the variety of technologies revolutionizing geographic analysis such as GIS, GPS, remote sensing, computer assisted cartography and spatial statistics.
4. General geography is designed for the student with broad interests in geography that overlap with other emphasis areas.

For students planning to end their formal education with the bachelor's degree, a geography major provides marketable skills and the broad

perspectives on environment, society and international affairs that enable graduates to move beyond entry-level positions. Geography also provides a sound foundation for students who plan to enter graduate work in a variety of fields, from geography to business, land use planning, law and medicine. Although positions are not often designated with the title of geographer, geography graduates' employment has grown substantially in private enterprise and in all levels of government in recent years.

The Department offers BA and MA degrees with majors in geography as well as undergraduate and graduate certificates in Geographic Information Science and Geospatial Intelligence. Two minors are also available.

## Departmental Honors

The geography honors program requires independent research during the senior year, usually under GEOG 4996H or GEOG 4997H. Consult the geography honors director for further information.

## Graduate

- MA in Geography (p. 193)
- Graduate Certificate in Geographical Information Science - Interdisciplinary (p. 194)

College of Arts and Sciences

303 Stewart Hall

(573) 882-8370

<http://www.geog.missouri.edu/>

**Director of Graduate Studies:** Matthew Foulkes

## About Geography

The Department of Geography offers a Master of Arts degree that prepares students for a variety of professions, including careers in academics, research, public service, and the private sector. The MA program has a high success rate of preparing students for doctoral study in top-tier geography departments across the United States.

A primary strength of the department is the blending of major research facilities and opportunities with individual student-faculty interaction to build a strong sense of community. Students interested in questions of human geography, the physical environment, or geographic information sciences will find that the department has facilities and faculty expertise to build a successful plan of study.

Core areas of study in the department include human geography, nature/society relationships, physical-environmental systems, and application of geographic information sciences. The faculty has an active program of research and field work in North America, Middle America, the Middle East and Southeast Asia. They pride themselves on a creative instructional and interdisciplinary pattern of activity. The department emphasizes close contact between faculty and graduate students.

Individualized graduate programs allow latitude in areas of specialization such as regional, cultural, and physical geography, as well as geographic information sciences, remote sensing, environmental studies and geographic education. Strong collateral course work in such fields as anthropology, soil and atmospheric science, economics, geology, political science, forestry, computer science and history meets the special interests of many graduate students.

## Facilities and Resources

An exceptional departmental collection of reference materials, including maps, journals and books, is available to graduate students in the department's Wheeler Library and Seminar Room. The holdings of Ellis Library in geography and related fields are extensive and MU's computer facilities are readily available. In addition, the department is home to the Geographic Resources Center (GRC), the Missouri Spatial Data Information Service and the Spatial Analysis and Modeling teaching laboratory. These facilities serve as an interdisciplinary center for GIS, remote sensing, cartography, computer graphics and digital spatial databases of enormous variety.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details. In Geography, a total of approximately 6 graduate teaching and research assistantships are awarded on a competitive basis annually. Applicants desiring consideration for one of these positions should indicate this in their application to the department.

## BA in Geography

**Director of Undergraduate Studies:** Douglas Hurt

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. All majors must select one of the four emphasis areas: General Geography, Geographic Information Sciences, Physical/Environmental, Regional/Cultural, or Urban/Population. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education.

### Major Program Requirements

Students majoring in geography are required to take a total of 33 credits in geography and 3 in statistics. The geography major consists of 21 core credits and at least 15 credits in one of the four geography emphasis areas. In addition, students must complete all degree, College of Arts and Sciences and University requirements (p. 32) including University general education (p. 33).

### Major core requirements

GEOG 1100 or GEOG 1200	Regions and Nations of the World I Regions and Nations of the World II	3
GEOG 1550	Introduction to the Humanized Earth	3
GEOG 1800	Digital Earth: Introduction to the Geospatial Technologies	3
GEOG 2610	Climate, Landforms and Vegetation: Introduction to Physical Geography	3
GEOG 3840 or GEOG 3040	Cartography Introduction to Geographic Information Systems GIS	3
GEOG 4990	Senior Seminar in Geography	3
Statistics: Select one of the following		3

STAT 1200	Introductory Statistical Reasoning	
STAT 1300	Elementary Statistics	
Or Higher		
Total Credits		21

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year		
Fall	CR Spring	CR
ENGLSH 1000*	3 MATH 1100*	3
GEOG 1100*	4 GEOG 2610 <sup>^</sup>	3
GEOG 1100 <sup>^</sup>	3 Foreign Language*	5-6
Foreign Language*	5-6 Elective/minor course	3
		15-16
		14-15
Second Year		
Fall	CR Spring	CR
Foreign Language*	3 Behavioral Science Course*	3
Social Science Course (MO State Law)*	3 Behavioral Science Course*	3
Elective/Minor Course	3 Writing Intensive Course*	3
GEOG 1800	3 GEOG 1550	3
3000+ level Geog emphasis course	3 GEOG 3840 or 3040 <sup>^</sup>	3
		15
		15
Third Year		
Fall	CR Spring	CR
Biological/Physical Science Course*	3 Humanities/Fine Arts Course*	3
Social Science Course (2000+)	3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course	3 Social Science Course (2000+)*	3
3000+ level Geog emphasis course	3 Humanities/Fine Arts Course (2000+)*	3
Social Science Course*	3 Biological/Physical Science Course with Lab	3-5
		Elective/Minor Course (3000+)
		15
		15-17
Fourth Year		
Fall	CR Spring	CR
Humanities/Fine Arts Course*	3 GEOG 4990 <sup>^</sup>	3
STAT 1200 or 1300	3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course	3 Elective/Minor Course	3
Elective/Minor Course (3000+)	3 Humanities/Fine Arts Course (2000+)*	3
Elective/Minor Course	3 Elective/Minor Course (3000+)	3
		15
		15

Total Credits: 119-123

\* Denotes General Education and A&S Foundation Requirements

<sup>^</sup> Denotes Degree Program Requirements

~ Denotes Emphasis Area Requirements



## BA in Geography with Emphasis in General Geography

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Students who select the general geography track plan their own upper-division coursework in order to receive a very broadly-structured education, typically selecting courses from all three of the GIS, physical geography, and human geography emphasis areas. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

### Major Program Requirements

This area is designed for students with a broad interest in geographical studies. Due to the general nature of this emphasis area, students must develop in consultation with their advisor a personal plan of study outlining specific goals and course requirements. Four geography courses are required.

### Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## BA in Geography with Emphasis in Geographic Information Sciences

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. The study of Geographic Information Systems trains students to address the variety of technologies revolutionizing geographic analysis such as GIS, Global Positioning Systems, remote sensing, computer assisted cartography and spatial statistics. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in

an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

### Major Program Requirements

The study of GIS prepares students to address the variety of technologies revolutionizing geographic analysis such as GIS, Global Positioning Systems, remote sensing, computer assisted cartography and spatial statistics. Students must take three of the following courses:

GEOG 3040	Introduction to Geographic Information Systems GIS	3
GEOG 3830	Remote Sensing	3
GEOG 4130	The Geospatial Sciences in National Security	3
GEOG 4710	Spatial Analysis in Geography	3
GEOG 4740	Location Analysis and Site Selection	3
GEOG 4790	Geographic Information Systems for the Social Sciences	3
GEOG 4810	Landscape Ecology and GIS Analysis I	3
GEOG 4860	Advanced Remote Sensing	3
GEOG 4940	Advanced Geographic Information Systems (GIS II)	3

### Semester Plan

Refer to the Semester Plan for the BA in Geography (p. 191).

## BA in Geography with Emphasis in Physical/ Environmental

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Physical and environmental geography emphasizes the complex interactions between the natural world and human behavior. Students learn to identify, delineate and manage a range of environmental problems facing society from climate and vegetation change to river management. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

## Major Program Requirements

Physical and environmental geography emphasizes the complex interactions between the natural world and human behavior. Students learn to identify, delineate, and manage a range of environmental problems facing society from climate and vegetation change to river management. Students must take three of the following courses:

GEOG 3600	Climates of the World	3
GEOG 3610	Physical Geography of the United States	3
GEOG 3630	Earth Surface Systems	3
GEOG 4620	Biogeography: Global Patterns of Life	3
GEOG 4630	River and Stream Dynamics	3
GEOG 4810	Landscape Ecology and GIS Analysis I	3

## Semester Plan

Refer to the Semester Plan for the BA in Geography (p. 191).

## BA in Geography with Emphasis in Regional/ Cultural

## Degree Program Descriptions

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Students studying human geography are trained to understand and analyze the social and cultural elements which generate regional differences. Assessing population patterns, political activity, urban planning, and linguistic distributions are included in this area. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

## Major Program Requirements

Students studying human geography are trained to understand and analyze the social and cultural elements which generate regional differences. Assessing population patterns, political activity, urban planning, and linguistic distributions are included in this area. Students must take three of the following courses:

GEOG 3140	Mexico, Central America, and the Caribbean	3
GEOG 3270	Geography of the Middle East	3
GEOG 3290	Geography of Russia and the Newly Independent States of Eurasia	3
GEOG 3450	Geography of Africa	3
GEOG 3510	Historical Geography of North America	3
GEOG 3560	Native American Geographies	3
GEOG 3760	Geography of the World's Religions	3

GEOG 3780	World Political Geography: Patterns and Processes	3
GEOG 4560	Resources and Indigenous Peoples	3
GEOG 4770	Migration and Immigration	3
GEOG 4850	Transportation Geography	3

## Semester Plan

Refer to the Semester Plan for the BA in Geography (p. 191).

## Minor in Geography

## Minor Program Requirements

Fifteen credits are required for a minor in geography, nine of them numbered 2000 and above.

## Certificate in Geographical Information Science - Interdisciplinary

Certificate description: Students from a wide range of disciplines will benefit from students with the theoretical, practical and technical skills that are essential for the analysis of spatial data. Learners become proficient in the use and application of GIS technologies through a flexible set of courses and hands-on experiences. The program offers the training and experience necessary to prepare for the rapidly expanding professional opportunities available in the diverse set of fields that depend on geographic information.

## MA in Geography

## Application and Admission Information

Admission Contact Information

Dr. Soren Larsen

Geography admission page: <https://geography.missouri.edu/grad/graduate-studies>

## Admission Criteria

Fall deadline: January 15

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	1000
On or After August 1, 2011	297

Preparation for graduate work in geography should include undergraduate courses in geography. Upon consultation with their advisor, students with insufficient background work in geography may be required to take additional undergraduate courses.

## Required Application Materials

All elements of the application including those required by the department are submitted through the Graduate School online application. For complete instructions, see <https://geography.missouri.edu/grad/graduate-studies>.

To the Office of Graduate Studies:

- All required Graduate Admissions documents
- 3 letters of recommendation (submitted through the online application) GRE scores
- Supplemental department application (with Statement of Purpose)

## Plan of Study MA in Geography

The Master of Arts degree requires completion of 32 semester hours of course work. Two research options are available: a thesis and a non-thesis option. The non-thesis option requires the completion of a research paper. 15 or more of the 32 hours must be in courses at the 8000 level. Non-thesis candidates may take no more than 6 hours of special problems, special readings, special investigations, or research.

Every student must take GEOG 8750 and GEOG 8760, 6 additional hours of seminar-structured course work and 6 hours of course work in geographic methods.

A student's specific program of courses is selected jointly by the student and the graduate advisor, designated during the first semester in residence. All students of either option must pass a comprehensive oral examination at the end of their graduate work.

## Graduate Certificate in Geographical Information Science - Interdisciplinary

Certificate description: Students from a wide range of disciplines will benefit from students with the theoretical, practical and technical skills that are essential for the analysis of spatial data. Learners become proficient in the use and application of GIS technologies through a flexible set of courses and hands-on experiences. The program offers the training and experience necessary to prepare for the rapidly expanding professional opportunities available in the diverse set of fields that depend on geographic information.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/geographical-information-science-certificate/GIS-ge/Gedt.html>

## Geological Sciences

Alan G. Whittington, Chair  
101 Geological Sciences Building  
(573) 884-7625  
[whittingtona@missouri.edu](mailto:whittingtona@missouri.edu)

Tammy L. Bedford, Administrative Assistant  
101 Geological Sciences Building  
(573) 882-6785  
[bedfordt@missouri.edu](mailto:bedfordt@missouri.edu)

## Faculty

**Professor** C. A. Kelley\*\*, M. Liu\*\*, K. G. MacLeod\*\*, P. I. Nabelek\*\*, E. A. Sandvol\*\*, K. L. Shelton\*\*, A. G. Whittington\*\*

**Associate Professor** M. Appold\*\*, F. G. Gomez\*\*

**Assistant Professor** N.M. Bartlow\*, J. W. Huntley\*\*, J. Schiffbauer\*\*

**Director, Geology Field Program** M. Barquero-Molina\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Geological Sciences (p. 195)
- BS in Geological Sciences (p. 196)
- Minor in Geological Sciences (p. 197)

The Department of Geological Sciences offers two undergraduate degree programs, a Bachelor of Arts with a major in Environmental Geology and a Bachelor of Science with major in Geological Sciences. The BA is geared to those students interested in environmental concerns, while the BS is geared toward the traditional fields of geology. Both degrees provide a rigorous background in earth sciences. In addition, students majoring in other departments can minor in geological sciences.

## Departmental Honors

Departmental honors can be achieved by students who maintain a cumulative GPA of 3.0, departmental GPA of 3.2, and who complete a senior thesis.

## Dual Degrees

The Department of Geological Sciences offers dual degree programs with the Department of Soil, Environmental and Atmospheric Science in their emphasis area of Environmental Soil Science and with the Department of Civil and Environmental Engineering and with the College of Education in the Bachelor of Science in Education, emphasis in Earth Science Education. For more information, contact an advisor in the department.

## Graduate

- MS in Geology (p. 197)
- PhD in Geology (p. 197)

Department of Geological Sciences  
101 Geological Sciences Building  
(573) 882-6785  
<https://geology.missouri.edu/grad/graduate-program>

**Director of Graduate Studies:** Francisco Gomez

## About the Geological Sciences Program

The areas of research covered by faculty are broad and diverse, with strong research expertise in the general areas of geochemistry, petrology, paleontology, and geophysics-tectonics. These strengths allow us to focus on problems identified by the National Research Council to be socially relevant and to be fundamental to an understanding of earth processes. Dynamic faculty, along with their students, are making significant contributions to numerous areas of basic and applied

research. This research is supported by excellent, state-of-the-art analytical facilities in the department and on campus. Our graduate program prepares students for a wide range of professions within the geological sciences; students have been placed in private, federal, state, and academic institutions. Prospective students are encouraged to contact any faculty member directly for additional information.

## Areas of Specialization

The areas of specialization are aqueous geochemistry, biogeochemistry, invertebrate paleontology, isotope geochemistry, geophysics, hydrogeology, igneous petrology, metamorphic petrology, paleontology, ore deposits, paleoclimatology, paleoecology, sedimentation, stratigraphy, structural geology, tectonics, and volcanology.

## Facilities and Resources

The Geological Sciences Building houses many different research laboratories, as well as classrooms and an excellent geology library. Equipment is available for supervised student use in many fields. The Geology Field Camp is in the Wind River Mountains near Lander, Wyoming. See the Department website at <https://geology.missouri.edu/grad/graduate-program>.

## About the Degrees

The master's degree program includes a thesis and a non-thesis option, both of which require 30 credit hours beyond the bachelor's degree. The thesis option is accomplished by taking 18 to 21 graduate course credits and preparing a written thesis involving 9-12 credits of research or problems credits. Students have until the middle of their second semester in residence at the university to choose a supervisor and a thesis topic. The non-thesis track requires 27 hours of graduate course credits plus 3 hours of research credit leading to completion of a smaller-scope research project.

The doctoral degree requires 72 hours beyond a bachelor's degree, and may include as many as 24 hours credit from a prior master's degree. Doctoral candidates must pass a qualifying exam during their first year in residence to assess their general background so that a meaningful program of study can be constructed. The usual doctoral program involves courses within and outside the department, and researching the dissertation topic prior to taking the comprehensive examination by the end of the second year. The results of the dissertation research are presented to the faculty and graduate students when the student has completed the project.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in Geological Sciences

### Degree Program Description

The Bachelor of Arts in Geological Sciences is a liberal arts degree for students interested in earth science. The curriculum provides an overview of several subdisciplines within Geology, including paleontology and hydrogeology. The degree is designed for students interested in careers in science journalism, environmental law, and urban design and

planning. The degree can easily be combined with other BA degrees in the College of Arts and Science.

## Major Program Requirements

The B.A. Curriculum is designed as a degree through which the student wishes to eventually pursue a career in teaching, journalism, law, etc. In addition to the major core requirements, students must complete all university graduation requirements including university general education (p. 33), as well as all degree and college or school requirements.

### Geology core requirements

GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	
or GEOL 1050	Planet Earth	
GEOL 1250	The World's Oceans	3
or GEOL 2300	Earth Systems and Global Change	
or GEOL 2500	Regional Geology Field Trip	
GEOL 2150	The Age of the Dinosaurs	3
or GEOL 2350	Historical Geology	
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4
or GEOL 2450	Global Water Cycle	
GEOL 3250	Mineralogy	5
Geology course at 3000 level or above		3
Geology course at 4000 level or above (including GEOL 4950 Senior Thesis)		3

### Total Credit Hours in Geology (23-25)

### Collateral Math/Science requirements

MATH 1140	Trigonometry	2
or MATH 1160	Precalculus Mathematics	
INFOTC 1040	Introduction to Problem Solving and Programming	3
CHEM 1000	Introductory Chemistry	2
ASTRON 1010	Introduction to Astronomy	4
or ATM_SC 1050	Introductory Meteorology	
or CHEM 1320	College Chemistry I	
or PHYSCS 1050	Concepts in Cosmology	
or PHYSCS 1150	Concepts in Physics	
or PHYSCS 1210	College Physics I	
BIO_SC 1010	General Principles and Concepts of Biology	3
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1060	Basic Environmental Studies	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or NAT_R 1060	Ecology and Conservation of Natural Resources	

### Total Credit Hours in Collateral Math and Science (13-19)

Total Credits	39
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## Semester Plan

First Year		CR
Fall	CR Spring	
GEOL 1100	4 GEOL 2500	3
MATH 1100	3 CHEM 1320	4
CHEM 1000	2 Foreign Language	5
ENGLISH 1000	3 American History or Political Science	3

Foreign Language	5		
	17		15
<b>Second Year</b>			
<b>Fall</b>		<b>CR Spring</b>	<b>CR</b>
GEOL 2400	4	GEOL 2150	3
MATH 1400	3	Humanities or Fine Arts	3
BIO_SC 1010	3	Social Science	3
Foreign Language	3	Behavioral Science	3
General Elective	3	General Elective	3
	16		15
<b>Third Year</b>			
<b>Fall</b>		<b>CR Spring</b>	<b>CR</b>
GEOL 3250	5	GEOL 3800	4
Humanities or Fine Arts	3	General Elective	3-5
Behavioral Sciences	3	Humanities or Fine Arts	3
Social Sciences	3	2000 Level Behavioral Sciences	3
General Elective	3	General Elective	3
	17		16-18
<b>Fourth Year</b>			
<b>Fall</b>		<b>CR Spring</b>	<b>CR</b>
GEOL 4650	3	General Elective	3
General Elective	3	General Elective	3
2000 Level Humanities or Fine Arts	3	General Elective	3
2000 Level Social Sciences	3	General Elective	3
General Elective	3	General Elective	3
	15		15

Total Credits: 126-128

## BS in Geological Sciences

### Degree Program Description

A Bachelor of Science degree in Geological Sciences provides students with the quantitative and conceptual skills they need to succeed in graduate work and a career as a professional geologist in industry, government or academia. The curriculum provides flexibility for students who seek to focus on a specific subdiscipline in the geosciences. Students interested in geophysics, for example, should use their electives to expand their background in math and to develop a broad knowledge of geology and geophysics. Other subdisciplines include geochemistry, paleobiology and hydrogeology. The capstone class is an award-winning 6-week summer Field Camp based in Lander, Wyoming. Many students participate in research projects with faculty members, usually involving fieldwork, and leading to a senior thesis. Their results are typically presented at a national meeting and in an oral defense in the department. Study abroad classes are typically offered every two to three years - recently to China, Chile, and Spain. Some BS graduates pursue careers in environmental consulting. Many others go into the oil and gas industry, which typically requires an MS degree.

### Major Program Requirements

Majoring in geological sciences and earning a Bachelor of Science degree prepares the student for graduate work and a career as a professional geologist in industry, research or academia. The curriculum provides flexibility for students who seek to focus on a specific subdiscipline in the geosciences. Students interested in geophysics,

for example, should use their electives to expand their background in math and to develop a broad knowledge of geology and geophysics. In addition, students must meet all degree, college, and university graduation requirements (p. 32) including university general education (p. 33).

<b>Major core requirements</b>		53-54
GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	
GEOL 2350	Historical Geology	3
GEOL 2360	Historical Geology Laboratory	1
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4-5
or GEOL 2110	Introduction to Soil Science with Laboratory	
GEOL 3250	Mineralogy	5
GEOL 3300	Introduction to Geochemistry	3
GEOL 3650	Structural Geology	4
GEOL 3800	Sedimentology and Stratigraphy with Lab	4
GEOL 4650	Plate Tectonics	3
GEOL 4900	Igneous and Metamorphic Petrology with Laboratory	4
GEOL 4992	Geology Field Camp	6
Additional geological sciences course at or above 2000 level (not GEOL 3200)		3
Three additional geological sciences courses at 3000 level, cannot be fulfilled by problems		9
<b>Related courses</b>		24-29
<b>Track I</b>		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
<b>Track II</b>		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
PHYSICS 1210	College Physics I	4
PHYSICS 1220	College Physics II	4
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
GEOL 1100 or 1200	4 GEOL 2350	3
CHEM 1320	4 GEOL 2360	1
MATH 1160	5 CHEM 1330	4
ENGLISH 1000	3 MATH 1500	5
	American History	3
	OR Political Science Course	
	16	16

Second Year		
Fall	CR Spring	CR
GEOL 2110 or 2400	4-5 GEOL 3800	4
GEOL 3250	5 PHYSCS 2750	5
MATH 1700	5 Social/Behavioral Science Course	3
Humanities/Fine Arts Course	3 Humanities/Fine Arts Course	3
17-18		15

Third Year			
Fall	CR Spring	CR Summer	CR
GEOL 3300	3 GEOL 2000+ Elective	3 GEOL 4992 (Or Year 4 - Summer)	6
GEOL 3650	4 GEOL 3000+ Elective	3	
PHYSCS 2760	5 Foreign Language OR Alternative	3-5	
Foreign Language OR Alternative	3 Humanities/Fine Arts Course	3	
15		12-14	6

Fourth Year		
Fall	CR Spring	CR
GEOL 4650	3 GEOL 4900	4
GEOL 3000+ Elective Course	3 GEOL 3000+ Elective Course	3
2000-Level Humanities/Fine Arts Course	3 Elective Course	3
Social/Behavioral Science Course	3 2000-level Social/Behavioral Course	3
Foreign Language OR Alternative	3-5	
15-17		13

Total Credits: 125-130

## Minor in Geological Sciences

A minor in geological sciences consists of 15 credits in the geological sciences with 9 or more at the 2000-level or above. All courses must be taken for a letter grade, and a grade of C- or better must be earned in each course. The courses must be selected in consultation with an advisor in the department.

## MS in Geology

Contact: Dr. Francisco Gomez  
 101 Geological Sciences Building  
 (573) 882-9744  
<https://geology.missouri.edu/grad/graduate-program>

The master's degree program includes a thesis and a non-thesis option, both of which require 30 credit hours beyond the bachelor's degree. The thesis option is accomplished by taking 18 to 21 graduate course credits and preparing a written thesis involving 9-12 credits of research or problems credits. Students have until the middle of their second semester in residence at the university to choose a supervisor and a thesis topic. The non-thesis track requires 27 hours of graduate course credits plus 3 hours of research credit leading to completion of a smaller-scope research project.

## Admission Criteria

Fall deadline: none set, but January 31st for guaranteed consideration for departmental financial aid

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	530

- Minimum Academic IELTS scores:

Item	Score
OVERALL	5.5

**Note on GRE Scores and GPA:** Our quantitative assessment of applicants uses a combination of GPA for the last 60 hours and the student's GRE verbal, quantitative and analytical writing scores. We have a formula that weights the GPA and total GRE scores equally. Applicants with a GPA less than 3.0 may be considered, but their acceptance would require very strong GRE scores or exceptional circumstances.

## Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Admissions documents. We require applicants to submit applications through our online system.

*To the Geological Sciences Program:*

- 3 letters of recommendation (submitted through the Graduate School's online application system)
- Personal statement (uploaded into Graduate School application online)
- GRE scores

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellow-ships or other funding packages. Check the program website or ask the program contact for details.

## PhD in Geology

Contact: Dr. Francisco Gomez  
 101 Geological Sciences Building  
 (573) 882-9744  
<https://geology.missouri.edu/>

The doctoral degree requires 72 hours beyond a bachelor's degree, and may include as many as 24 hours credit from a prior master's degree. Doctoral candidates must pass a qualifying exam during their first year in residence to assess their general background so that a meaningful program of study can be constructed. The usual doctoral program involves courses within and outside the department, and researching the dissertation topic prior to taking the comprehensive examination by the end of the second year. The results of the dissertation research are presented to the faculty and graduate students when the student has completed the project.

## Admission Criteria

Fall deadline: none set, but January 31 for guaranteed consideration for departmental financial aid

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
71	530

- Minimum Academic IELTS scores:

Item	Score
OVERALL	5.5

**Scores and GPA:** Our quantitative assessment of applicants uses a combination of GPA for the last 60 hours and the student's GRE verbal, quantitative and analytical writing scores. We have a formula that weights the GPA and total GRE scores equally. Applicants with a GPA less than 3.0 may be considered, but their acceptance would require very strong GRE scores or exceptional circumstances.

## Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Admissions documents. We require applicants to submit applications through our online system.

*To the Geological Sciences Program:*

- 3 letters of recommendation (submitted through the Graduate Studies' online application system)
- Personal statement (uploaded into Graduate Studies application online)
- GRE scores

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellow-ships or other funding packages. Check the program website or ask the program contact for details.

## German

Tim Langen, Chair  
 College of Arts and Science  
 451 Strickland Hall  
 (573) 882-4328  
[grs@missouri.edu](mailto:grs@missouri.edu)

The Department of German and Russian Studies offers courses in German and Russian language, literature, film and civilization. It also offers instruction in Arabic, Chinese, Japanese, Hebrew and Korean. Many courses, such as civilization, culture, literature in translation and film courses, do not require knowledge of a foreign language.

The department offers the Bachelor of Arts with majors in German and in Russian, and the Master of Arts in German, and in Russian and Slavonic Studies. The department also offers minors in German, Russian, Chinese Studies, Japanese Studies, and Korean Studies. Many courses in the minor in East Asian Studies are taught in the Department of German and Russian Studies. The Film Studies program is also housed in the department.

## Faculty

**Professor** R. F. Cook\*, B. Prager\*, C. Strathausen\*  
**Associate Professor** S. Engelstein\*, S. Franzel\*, S. Ireton\*, K. Kopp\*  
**Assistant Professor** S. Howes\*

**Associate Teaching Professor** M. Fischer\*

**Assistant Teaching Professor** M. McKinstry, O. Schmidt

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in German (p. 199)
- Minor in German (p. 199)

## Dual Degrees and Double Majors

As a double major or a dual degree has become an ever more popular choice, an increasing number of students choose German or Russian as one of their majors. Students looking forward to a career in medicine or in the sciences use a double major to ensure a thorough background in the humanities to balance their scientific studies. Double majors within the College of Arts and Science can be arranged and, if the second degree program is identified early, dual degree programs outside the college are also possible. Combined programs with journalism, international studies, education and business are frequent choices. Within the college, combinations with political science, history, philosophy, art history, and the sciences are popular double major programs.

## Departmental Honors - German

Departmental honors are available for students majoring in German with a minimum 3.3 GPA. At least two literature courses must be taken at the 4000-level, with no grades below B. The equivalent of one of the courses may be completed in study abroad. Alternately, at the discretion of the department, a paper written within the capstone course may be substituted.

## Graduate

- MA in German (p. 200)

College of Arts and Science  
 451 Strickland Hall  
 (573) 882-4328  
<https://grs.missouri.edu/german/german-graduate-program>

**Director of Graduate Studies:** Sean Ireton

The German and Russian Studies Department offers BA and MA degrees in two cultures and languages of critical significance in the world today - German and Russian. The German program prepares students for admission to PhD programs and for professional language careers in a number of fields. Courses in language, literature, teaching techniques and skills, seminars in various specialized aspects of German studies, and directed study and research provide candidates with opportunities to acquire a comprehensive background in German studies. Teaching assistants receive training in pedagogy.

## Resources and Facilities

Resources include extensive library holdings in German literature, cultural studies, and teaching methodology, and an electronically equipped audiovisual laboratory for language training.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in German

### Degree Program Description

The German degree is the exploration of the language, literature and culture of German-speaking countries (Germany, Austria, and Switzerland). Many of the greatest thinkers and artists of the modern era - e.g. Einstein, Freud, Nietzsche, Kant, Beethoven, Marx, Kafka, Goethe - came from these regions, while almost every discipline in the humanities, sciences, and social sciences has a strong German tradition. In addition, Germany plays a crucial role in the European Union, on the world political stage, and in economic dealings with the United States and around the world. The BA in German offers you the possibility of participating in this vibrant cultural tradition first hand. MU German majors have successfully pursued careers in business, engineering, finance, law, journalism, government service, teaching, medicine, and the sciences, as well as in art, literature, philosophy, music, and film.

### Major Program Requirements

The major in German consists of 27 credits in German beyond GERMAN 2100. The German faculty strongly encourages all majors to spend at least one semester studying abroad at a German university. Equivalents to all the required courses for the major are available through study abroad. In addition, students must meet all degree, college and university graduation requirements including university general education.

#### Major core requirements (beyond the A&S language requirement)

The following courses or their equivalents must be included:

GERMAN 2260	Intermediate German II: Language and Culture	3
GERMAN 3160	German Conversation and Composition	3
or GERMAN 3190	Contemporary German Culture	
GERMAN 3230	Introduction to German Literature	3
GERMAN 4980	German Capstone Seminar	3
One GERMAN 4200-level literature course		3
GERMAN 2310	German Civilization: Beginning to 1850 *	3
or GERMAN 2320	German Civilization: 1850 to Present	

#### Electives

Elective courses and equivalents to replace the required courses above should be selected in consultation with the advisor.

Total Credits 18

\* GERMAN 2310 and GERMAN 2320 are Writing Intensive German civilization courses. Versions of both GERMAN 2310 and GERMAN 2320 taken online do NOT count towards the major or minor requirements.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
GERMAN 2260	3 GERMAN 3160	3
HIST 1100	3 Course for Second Major	3
ENGLISH 1000	3 MATH 1100	3
Course for Second Major	3 Foundation Requirements (Sciences with Lab)	5
Foundation Requirements (Humanities)	3 Foundation Requirements (Social Sciences)	3
15		17

Second Year		
Fall	CR Spring	CR
GERMAN 3230	3 GERMAN 3190	3
Course for Second Major	3 GERMAN 2320	3
Course for Second Major	3 Course for Second Major	3
Foundation Requirements (Sciences-Math Reasoning Proficiency)	3 Course for Second Major (WI)	3
Foundation Requirements (Behavioral Sciences)	3 Foundation Requirements (Science)	3
15		15

Third Year		
Fall	CR Spring	CR
GERMAN 3005	3 GERMAN 4230	3
GERMAN 4160	3 Course for Second Major	3
Elective in German	3 Foundation Requirements (Behavioral Sciences)	3
Elective in German	3 Elective Course	3
Foundation Requirements (Social Sciences)	3 Elective Course	3
15		15

Fourth Year		
Fall	CR Spring	CR
GERMAN 4240	3 GERMAN 4980	3
Course for Second Major	3 Capstone Course for Second Major	3
Course for Second Major	3 Foundation Requirements (Humanities)	3
Foundation Requirements (Social Sciences)	3 Elective	3
Elective Course	3 Elective	3
15		15

Total Credits: 122

**NOTE:** Third Year - Study Abroad at German University

## Minor in German

The department offers a minor in German consisting of 15 credits beyond GERMAN 2100. A minimum of 6 of these 15 credits must be in German courses numbered 3000 or above. In addition, a minimum of 9 of the 15 credits must be completed in residence. For the German minor, 12 of the 15 credits must be in courses where the language of instruction is German.



## MA in German

### Application and Admission Information

#### Admission Contact Information

Dr. Kristin Kopp  
koppkr@missouri.edu  
218A Strickland  
Columbia, MO 65211  
(573) 882-3367

### Admission Criteria

Fall deadline: First preference given to applications received by January 15, subsequent applications welcomed

Note: Applications received by January 15 receive first consideration

Spring deadline: August 1

Note: Applications to begin Spring semester are not encouraged.

Assistantships are typically not available for graduate students beginning Spring semester.

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GPA: 3.0
- Undergraduate major in German or equivalent

Note: The department reserves the right to evaluate the work presented for admission and to determine how the student may make up for background deficiencies.

### Required Application Materials

#### To the Office of Graduate Studies:

- All required documents

#### To the Program:

- Departmental application
- 3 letters of recommendation

### Degree Requirements

Students must complete a minimum of 30 hours of graduate-level courses with a GPA of B or higher. No fewer than 24 hours are to be earned in German courses at the 7000 or 8000 level and at least 15 hours must be taken in German courses at the 8000 level. A thesis, with a maximum of 6 hours of credit, or a critical essay, with a maximum of 3 hours credit, are optional. Courses taken outside the department must complement the student's plan of study and require the approval of the departmental advisor. No languages other than German and English are required. Information regarding specific course requirements can be obtained by writing to the director of graduate studies.

### Comprehensive Examinations

Candidates for the MA degree must pass comprehensive written and oral final examinations based on coursework and a cumulatively prepared reading list.

## History

J. Wigger, Chair  
College of Arts and Science  
101 Read Hall  
(573) 882-0250  
Fax: (573) 884-5151

The Department of History offers undergraduate work in the history of ancient, medieval and modern Europe, the United States, Latin America, Asia and Africa.

The department offers BA, MA and PhD degrees with majors in History. The department offers an emphasis in Public History for undergraduate history majors. A minor is also available.

### Faculty

**Curators Professor** A. M. Smith\*\*, J. Sperber\*\*

**Professor** J. Pasley\*\*, J. Sexton\*\*, S. Watts\*\*, J. Wigger\*\*

**Associate Professor** M. Carroll\*\*, J. Frank\*\*, J. Frymire\*\*, L. Huneycutt\*\*, I. Karthas\*\*, M. Morris\*\*, L. Reeder\*\*, C. Rymph\*\*, R. Smale\*\*

**Assistant Professor** K. Bowers, C. Dierksheide, K. Ervin\*\*, V. McFarland\*\*, D. Yang

**Professor Emeritus** R. Bienvenu\*, J. Bullion\*\*, W. Burggraaff\*, R. Collins\*\*, S. Flader\*\*, A. Ibrahim\*, W. King\*\*, T. Koditschek\*\*, J. Lankford, K. Miller\*\*, L. Whites\*\*, R. Zguta\*\*

**Associate Professor Emeritus** L. Okamura\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BA in History (p. 201)
  - with emphasis in Public History (p. 202)
- Minor in History (p. 202)

### Graduate

- MA in History (p. 202)
- PhD in History (p. 204)

College of Arts and Science  
101 Read Hall  
(573) 882-2481  
<http://history.missouri.edu/>

**Director of Graduate Studies:** Robert Smale

By any measure one might choose, the History Department at the University of Missouri is an outstanding one. Our faculty has compiled a distinguished record of scholarship, receiving major awards to support their research from the National Endowment for the Humanities, the National Science Foundation, the John Simon Guggenheim Foundation and many other sponsors of cutting edge scholarship. Their books have won prizes from the American Historical Association, the Organization

of American Historians and other national and regional scholarly organizations.

The department's teaching record is every bit as distinguished as its record of scholarly accomplishment. Graduate students work closely with professors in advanced seminars and write theses and dissertations on a wide variety of topics. The teaching opportunities the department offers graduate students prepare them well for dealing with the difficult job market for new history PhDs. Over the last ten years, University of Missouri history PhDs have found positions at more than forty different colleges and universities across the United States.

## Areas of Study

Lecture courses, seminars and directed research projects are available on the histories of Western Europe, East Asia, Latin America, and the United States. While students are expected to get specialized training in the fields of their choice, they are also urged to develop a broad historical background.

## Facilities and Resources

Ellis Library has substantial research materials in all fields of graduate study, including an unusual collection of more than 5,000 pamphlets on 17th- and 18th-century British history and 18th- and 19th-century British and continental journals, including publications of all the major academies. The Health Sciences Library has excellent publications on the history of medicine. An additional resource is the Western Historical Manuscript Collection, a unique repository of material for regional studies in political, social and economic history. The State Historical Society of Missouri has an outstanding library of finding aids and primary and secondary works dealing with Missouri history. The graduate program also has available the resources of the Truman Library at Independence, Missouri.

## Internal Funding

Applicants may compete for Office of Graduate Studies fellowships for entering students. Office of Graduate Studies fellowships require departmental nomination. Interested students should consult with the director of graduate studies for further details. The department provides qualified students the opportunity to gain college-level teaching experience as teaching assistants who conduct discussion sections in American and European history. Pending administrative approval and availability of funding, they earn at least \$18,000 an academic year at the PhD level and carry nine semester hours. Each appointment is subject to annual review and may be renewed up to a maximum of six years.

## BA in History

### Degree Program Description

History is the chronicle of humanity's activities throughout the ages. The study of history offers a means of understanding the present by investigating and analyzing the past. Students can choose from a wide selection of course work including courses in the history of the United States, Latin America, Europe (from ancient Greece to the present), Africa and East Asia. The curriculum provides course work in political, cultural, social, intellectual, environmental and diplomatic history. Beyond the classroom students gain hands-on experience by working as interns at sites such as the University of Missouri Archives the Boone County Historical Society and The Museum of Missouri Military History. Students skilled in research, analysis and writing are

attractive to graduate schools in history, museum studies, and public affairs as well as law schools, and business schools. Many history majors obtain their teaching certificate to allow them to teach in public schools. History majors are highly recruited in many fields of business, including management, marketing and finance. Libraries, museums, archives, publishing companies, and local history and preservation projects all offer careers with the possibility of continued specialization in history. A number of our majors have also found rewarding work in city, state and federal government, including city planning, historic preservation, and working on political campaigns locally and in Washington DC.

## Major Program Requirements

A student majoring in history must complete a total of 33 history credits. A grade of C- or better is required for all courses taken for the major. In addition, students must complete all university graduation requirements and Arts and Science Foundation Requirements.

<b>Major core requirements</b>	<b>33</b>
I. Introductory Courses. Choose 1 course in at least 3 of the following 5 areas. At least one course must be a "Pre-modern/Early Modern" course and one course must be a "Modern" course. (Please contact the department for a list of approved courses)	9
Areas: U. S. History, Africa/Middle East, Latin America, Europe, Asia	
II. Research Skills: HIST 2950 Sophomore Seminar	3
III. Area Specific Courses	9
Choose 3 courses, 1000 level or above, from 3 of the 5 areas listed (not to include HIST 1100, HIST 1200, HIST 1500, HIST 1510)	
Areas: United States, Europe, Africa/Middle East, Asia, Latin America	
One course must be a 3000 level or above	
IV. History Electives	6
Choose any 2 history courses, 3000 level or above	
V. Capstone (Required Prerequisite: HIST 2950) Choose one option	6
A. One seminar (HIST 4970, HIST 4971, HIST 4972) and one 4000 level history course	
B. Undergraduate Thesis: HIST 4970, HIST 4971, HIST 4972 & HIST 4981 OR HIST 4980 & HIST 4981	
C. Honors Thesis: HIST 4970, HIST 4971, HIST 4972 & HIST 4996 OR HIST 4995 & HIST 4996	
VI. U.S. History Requirement	
All students are required to take at least one 3 credit course in U.S. history (excluding HIST 1100 & HIST 1200). This course can be used to fulfill one of the requirements above.	

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1100	3 ENGLISH 1000	3
Behavioral Science Course	3 Biological/Physical/Math Science Course with lab	5
Social Science Course	3 Minor	3
Humanities Course	3 History Course	3
History Course	3	
15		14

Second Year		
Fall	CR Spring	CR
Foreign Language	5 Foreign Language	5
Behavioral Science Course	3 Minor	3
Humanities Course	3 Humanities Course	3
Social Science Course	3 History Course	3
History Course	3	
		17

Third Year		
Fall	CR Spring	CR
Foreign Language	3 Humanities Course	3
Biological/Physical/Math Science Course	4 Minor	3
History Course	3 History Course	3
History Course	3 History Course	3
Elective Course	3 Elective Course	3
		16

Fourth Year		
Fall	CR Spring	CR
Minor	3 Social Science Course	3
Minor	3 History Course	3
History Course	3 History Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
		15

Total Credits: 121

## BA in History with Emphasis in Public History

### Degree Program Description

The Public History emphasis is intended for history majors interested in the application of historical studies in public settings. The course of study encompasses historical work outside of the university setting, including, museums, heritage sites, national parks, archives, public agencies, private corporations and non-profit organizations. The emphasis is designed to prepare students for graduate programs in public history, museum studies, or careers in public service.

### Major Program Requirements

I. Introductory Courses (same as BA degree)	9
II. Research Skills (same as BA degree)	3
III. Area Specific Courses (same as BA degree)	9
IV. History Electives	6
HIST 4910: History in the Public + 1 history course at the 3000 level or above	
V. Capstone (Two Internships, HIST 4940)	6
At least one internship must involve some sort of public presentation (poster session, conference presentation, museum display or digital exhibit) based on original research	
VI. Public History Component	
Two courses from above, (not to include HIST 4910 or HIST 4940) must include a digital or public history component.	
VI. U.S. History Requirement (same as BA degree)	

### Semester Plan

The semester plan will be similar to the plan for the BA in History (p. 201) degree.

### Minor in History

A minimum of 15 credits is required for a minor in history. At least 9 of the 15 must be in courses numbered 2000 or above. A minimum of 9 credits must be taken in residence, 6 of which must be in courses numbered 2000 or above. A grade of C- or better is required for all history courses taken for the minor, however, a cumulative GPA in your minor must be at least a 2.0. The selection and mix of courses is left to the discretion of the student.

You cannot use minor coursework in your major. You cannot use the same coursework for multiple A&S minors. Once an A&S minor is awarded a student cannot return to MU to complete a major in the same department. A minor must be posted at the same time as the major degree is posted, you cannot return after you have graduated to obtain a minor.

### MA in History

#### Admission Contact Information

Nancy Taube (tauben@missouri.edu)  
 101 Read Hall; Columbia, MO 65211  
 (573) 882-9461

#### Admission Criteria

Fall deadline: Mid-January (see departmental website for specific date)

- Minimum GPA: 3.0 in last 60 hours
- BA or BS degree
- GPA of 3.3 in undergraduate history courses, and at least 18 hours in history
- Official GRE score report, recommended but not required
- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

Candidates who lack the necessary undergraduate hours in history must take graduate-level classes in history to remedy that deficiency before they can be considered for admission. They should consult with the director of graduate studies about appropriate classes. Graduate School regulations prohibit a non-degree student from taking more than twelve hours of course work.

Candidates must achieve a grade point average in these classes of at least 3.3 on a 4.0 scale to be considered for admission. A 3.3 GPA or higher does not guarantee admission. Course work taken as a non-degree student to remedy a deficiency in prerequisites ordinarily will not count toward the MA degree.

### Required Application Materials

To the Office of Graduate Studies:

- All required documents, including online application

- One uploaded copy of each college transcript where a degree was earned or is pending (official transcripts will be required upon admission)
- Short essay explaining goals and expectations in graduate study, including the fields in which the student plans to specialize (upload to the online application)
- Substantial writing sample, such as a final research paper from a course (upload to the online application)
- 3 letters of recommendation (submission through the online application system strongly preferred, but postal mail submission directly to the department allowed)
- Official GRE score report, recommended but not required
- Official TOEFL score for international students

**Note:** Incomplete applications will not be considered. It is the applicant's responsibility to ensure that all required documents have been received by the January deadline.

## Financial Aid from the Program

In this department, all applicants are considered for financial aid unless they indicate otherwise. Announcements of awards are made no later than April 1. Applicants may compete for fellowships for entering students. Fellowships require departmental nomination. Interested students should consult with the director of graduate studies for further details.

The department provides qualified students the opportunity to gain college-level teaching experience as graders who grade exams and papers in American and European history. Pending administrative approval and availability of funding, they earn at least \$8,000 an academic year and carry nine semester hours.

Each appointment is subject to annual review and may be renewed up to a maximum of two years.

## Requirements for the Degree Residency

A minimum of two semesters of full-time enrollment (9 hours each semester) or three semesters of part-time enrollment (6 hours each semester). Enrollment in all graduate courses requires the consent of the student's advisor and the instructor(s) of the class.

## Hours

Thirty semester hours of graduate credit are required by the Office of Graduate Studies for the MA degree. The Office of Graduate Studies also mandates that at least fifteen of these hours be in courses numbered 8000 or above, and will not count more than twelve hours of individually directed studies toward the thirty hours necessary to earn the degree. The department requires that at least twenty of these hours be in history. For students of United States history, at least fifteen hours must be in formally constituted US history courses. For students in the non-United States history program, at least twelve hours must be in formally constituted non-US history courses. Independently directed work does not count toward fulfilling this requirement in either category.

## Required Courses

A studies course in every semester in which as many as nine credit hours are carried, unless the student is granted an exemption by the director of graduate studies. Every master's student must take HIST 8480 Historiography unless excused by the director of graduate studies. HIST 8480 is offered regularly.

Every student who is a non-thesis candidate must complete at least two research seminars before receiving the MA degree. No master's candidates in US or non-US history are required by the department to demonstrate reading proficiency in any foreign languages or to develop research skills before receiving the MA degree. Individual advisors, however, can require MA candidates to become proficient in reading foreign languages and/or develop specific research skills if they determine such knowledge is essential for the successful completion of a student's master's program. As soon as any such determination is made, students will be informed by their advisors. The advisors will also discuss with them processes for achieving and demonstrating those proficiencies.

Master's candidates in Ancient History must demonstrate proficiency in at least one ancient language (Greek or Latin) and at least one modern language (generally, either French or German) before they begin work on their theses, if they choose that alternative, or before they take the non-thesis MA examination, if they are seeking a terminal master's degree. These students should also be aware that ancient history graduate courses can include readings in Greek and Latin. For directions on how to demonstrate proficiency in these ancient and modern languages, students should talk with their advisors and obtain a written description of this process from them.

**Special Note:** No student will receive graduate credit for any course in which s/he earns a grade below B. The grade of C in a graduate class is the equivalent of an F in an undergraduate course.

## Satisfactory Progress and Annual Review

At the beginning of every Spring semester, students must complete a "Progress Report" on the Office of Graduate Studies' Graduate Student Progress System (sometimes referred to as "online assessment"). This report will be read by the student's faculty advisor, who will then submit an "Advisor Response." In addition, the student and advisor should meet to discuss the student's progress, confirm expectations for the coming year, and address any concerns either may have regarding the report.

This is an extremely important process for two reasons. First, the advisor determines whether the student is making satisfactory progress toward a degree. If s/he is not, the advisor informs the student what needs to be done to rectify the situation. The student then usually has a year to return to making satisfactory progress. Failure to do so may result in loss of financial aid or dismissal from the program. Second, if the student is making satisfactory progress, the advisor and s/he decide together on what reasonable goals are for the next twelve months. These goals will define "satisfactory progress" at the next assessment meeting.

## Appeals

The student may appeal any assessment to the director of graduate studies. If not satisfied, s/he may seek the remedies described in the Graduate School catalog.

## Effect of Progress Report Completion on Funding

Completion of the Graduate Student Progress System forms by both student (Progress Report) and faculty (Advisor Response) is mandatory to maintain eligibility for any form of financial aid from the department. Receipt of financial aid requires confirmation by a student's advisor that s/he is making satisfactory progress. No student in the program who applies for or who is seeking renewal of financial aid will be eligible for aid without a complete and up-to-date Graduate Student Progress System Report on file.

## Plans for MA Degrees: Thesis plan

All students who wish to apply for admission to doctoral programs in history either at the University of Missouri or at other institutions must write a thesis. A thesis involves an original and extended analysis of an historical issue that requires substantial research. The topic of the thesis must be approved in advance by the student's faculty director and the thesis committee, which is composed of the director, at least one other member of the history faculty, and one faculty member from outside the department.

The Office of Graduate Studies regulations require that there be an outside faculty person on each thesis committee. At the discretion of the director, additional faculty members may be added to the committee. The appropriate forms, signed by the advisor and the director of graduate studies, will be submitted to the Office of Graduate Studies.

Students will take HIST 8090, Thesis Research, during those semesters they are actually engaged in writing their thesis. N.B.: The Office of Graduate Studies only permits six hours of HIST 8090 to count toward the 30 hours necessary to earn a master's degree. Students should also note that hours earned in HIST 8090 do count toward the maximum of 12 hours of independent study, i.e., HIST 8085 (Problems), HIST 8089 (Research), and HIST 8090 (Thesis Research), the Office of Graduate Studies will accept as credit for this degree.

## Plans for MA Degrees: Non-thesis plan

Students may earn a master's degree without writing a thesis. A non-thesis MA is a terminal degree. Those who receive it will not be considered for admission to the doctoral program. These students must successfully complete two research seminars in history. These seminars will count toward the thirty hours required for an MA degree. One of the seminar papers must be submitted to the department to fulfill the Office of Graduate Studies requirement for a substantial effort reflecting creativity or originality.

## Examination for the MA degree: For Thesis Plan

The student must defend her/his thesis before a committee of at least three faculty members, one of whom must be the thesis director. Another must be from a department other than History. The committee is appointed by the Office of Graduate Studies upon recommendation from the Department of History. The examining committee decides:

1. whether to recommend the awarding of the MA degree to the student
2. for prospective doctoral candidates, whether the student shall be permitted to enter the doctoral program.

This latter action constitutes a decision on the qualifying examination required in the doctoral program. Afterwards, the appropriate form(s) will be signed by the advisor, committee members, and the director of graduate studies, then sent to the Office of Graduate Studies.

## Examination for the MA degree: For Non-Thesis Plan

A comprehensive oral examination covering all work for the degree will be conducted by a committee of the advisor and at least two other faculty members, one of whom may be from a department other than history. The examining committee decides whether to recommend the awarding of the MA degree. Afterwards, the appropriate form(s) will be signed by

the advisor, committee members, and the director of graduate studies, then sent to the Office of Graduate Studies.

## Graduate School Deadlines for receipt of the MA degree

Students must meet the Office of Graduate Studies' deadlines for the awarding of degrees and the submission of theses. The final form of the thesis must be in conformity with the Office of Graduate Studies requirements.

## PhD in History

### Admission Contact Information

Nancy Taube (tauben@missouri.edu)  
101 Read Hall; Columbia, MO 65211  
(573) 882-9461

### Application Deadline

Fall deadline: Mid-January (see departmental website for specific date)

### Admission Criteria

- MA in history strongly preferred
- Quality of master's thesis or research seminar paper submission
- Official GRE score report, recommended but not required
- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
61	500

Students who do not meet one or more of these criteria may enroll as non-degree graduate students. Contact the director of graduate studies for further details. All admissions of doctoral candidates who did not receive the MA degree from the department are provisional. These students must pass a qualifying examination. See below for information about the qualifying examination.

## Required Application Materials

### To the Office of Graduate Studies:

- All required Office of Graduate Studies documents, including Office of Graduate Studies online application
- One uploaded copy of each college transcript where a degree was earned or is pending (official transcripts required upon admission)
- Short essay explaining goals and expectations in graduate study, including the fields in which the student plans to specialize (upload to the online application)
- Substantial writing sample, such as a final research paper from a course (upload to the online application)
- 3 letters of recommendation (submission through the online application system strongly preferred, but postal mail submission directly to the department allowed)
- Official GRE score report, recommended but not required
- Official TOEFL score for international students

**Note:** Incomplete applications will not be considered. It is the applicant's responsibility to ensure that all required documents have been received by the January deadline.

## Financial Aid from the Program

In this department, all applicants are considered for financial aid unless they indicate otherwise. Announcements of awards are made no later than April 1. Applicants may compete for Office of Graduate Studies fellowships for entering students. Office of Graduate Studies fellowships require departmental nomination. Interested students should consult with the director of graduate studies for further details.

The department provides qualified students the opportunity to gain college-level teaching experience as teaching assistants who conduct discussion sections in American and European history. Pending administrative approval and availability of funding, they earn at least \$18,000 an academic year and carry nine semester hours. Each appointment is subject to annual review and may be renewed up to a maximum of six years.

## Qualifying Examination

To be admitted to candidacy for a PhD in history, a student must have earned an MA in history or a related discipline and have passed a qualifying examination.

Students with an MA from the University of Missouri

Students earning their MA in history at this university may, with the approval of their advisory committee, combine their qualifying examination with their MA thesis defense. Other students must take their qualifying examination no later than the beginning of their third semester in the graduate program at the University of Missouri-Columbia.

Students Who Earned Degrees at Other Institution

All admissions of doctoral candidates who did not receive the MA degree from the department are provisional. These students must pass a qualifying examination no later than the beginning of their third semester of residence at MU. The exam will focus on a research paper the student wrote at MU.

## About the Exam

The examining committee will be composed of the student's advisor and at least two other history faculty members. During the consideration of prospective students, the committee on graduate admissions will consult closely with faculty best suited to advise them.

The basis for the examination will be a substantial research-based seminar paper written here. The exam will be oral, approximately one hour in length; the examiners will include the student's advisor and at least two other members of the department. It is designed to ascertain the candidate's intellectual capacity, aptitude, and preparation for PhD level work in history.

The committee reserves the right to reject otherwise qualified students if:

1. this department cannot provide the applicant with an adequate program in his/her area of interest
2. no faculty member is willing to supervise his/her work.

## PhD Program Overview

The PhD program in history at the University of Missouri-Columbia is governed by a number of rules, regulations, and expectations. What follows is an explanation of these elements of the program.

## Advisor and Advisory Committee

A student will meet with his/her advisor no later than the semester following passage of the qualifying examination for students who earn their MA in history at the University of Missouri and prior to the qualifying examination for other students. The advisor and student together will plan the student's class work up to the comprehensive exams. They will also choose other members of the student's doctoral committee. That committee will ordinarily consist of the advisor, three members of the history department who are on the graduate faculty, and one graduate faculty member from outside the department. The advisory committee must be approved by the dean of the Graduate School.

## Developing a PhD Plan of Study

The committee will meet formally with the student to help the student to develop a major field, two broad historical fields, a historical field outside his/her area of major emphasis, and one field in a discipline other than history for the comprehensive examination. How s/he will meet the foreign language and/or historical research technique requirement (see below) will be defined and approved by the advisor and the committee. Members of the advisory committee shall meet regularly with the student to ensure he/she is making satisfactory progress.

## PhD Degree Requirements

To obtain a PhD in history at the University of Missouri, a student must fulfill the following requirements:

1. residency
2. course work
3. foreign language and/or historical/research technique
4. comprehensive examination
5. dissertation and oral defense

## Residency

A minimum of two semesters of full-time enrollment (9 hours each semester) or three semesters of part-time enrollment (6 hours each semester). Enrollment in all graduate courses requires the consent of the student's advisor and the instructor(s) of the class.

## Course Work

The minimum requirement for the PhD degree at the University of Missouri is 72 hours of graduate credit beyond the baccalaureate degree. A student's advisor and committee may require more. Customarily, students in history have more than 72 hours when they defend their dissertations. If a student has earned an MA degree at another institution, with the approval of her/his advisor and committee, s/he may receive up to 30 hours of credit toward the 72 necessary for the PhD. If a student took additional courses beyond his/her MA degree at another institution, with the approval of her/his advisor and committee, s/he may receive up to a maximum of six hours of credit toward the PhD.

Graduate School regulations forbid the awarding of more than six hours. Two-thirds of the courses taken by a PhD candidate within the department prior to the comprehensive examination must be at the 8000 or 9000 level. These may, and probably will, include History 8085 (Problems), HIST 8410 (Independent Readings PhD Exam), HIST 9089 (Research), but not HIST 9090 (Dissertation Research).

Every doctoral student who earned his /her master's degree at another institution must take HIST 8480, Historiography, unless excused by the director of graduate studies. History 8480 is offered regularly.

#### Foreign Languages and Historical Research Techniques

PhD candidates must demonstrate abilities in foreign languages and/or historical research skills appropriate to the completion of a doctoral dissertation in their proposed field of research. There are four different ways a student may fulfill this requirement. Which one is chosen depends on the area of his/her research interest. The advisor and committee must approve the method for fulfilling this requirement.

## PhD Focus Areas

### Ancient History Focus

Candidates planning to write a doctoral dissertation in ancient history must demonstrate their competence in Greek and Latin, together with at least two modern languages (usually French and German).

For the ancient language, competence will be shown either by the successful completion of a translation examination designed by a history department faculty member with knowledge of the relevant language, or by the completion of upper-level courses in the department of classical studies, or by other such proof as the advisor and other members of the advisory committee deem appropriate.

Competence in the modern languages will be shown either by the successful completion of a translation examination designed by a history department faculty member with knowledge of the relevant language, or by passing the ETS language examination with a minimum score of 500, or by the successful completion of an upper level language course in any modern language department of the university.

### European History Focus

Candidates planning to write a dissertation in European history must be competent in two foreign languages.

Competence may be demonstrated either by successful completion of a research paper, the sources for which are predominantly in the foreign language under consideration, or by successful completion of a translation examination designed by a history department faculty member with knowledge of the relevant language, or by passing an ETS language examination with a minimum score of 500. A candidate's advisory committee may also require him/her to show competence in historical research technique. An historical research technique is a specialized field of study which provides a student with additional skills for research. Quantitative methods/statistics or techniques of historical exhibition, museum work, and the analysis of material culture are some examples. Competence will be demonstrated by satisfactory completion of a substantial research paper or other historical project for which the technique is necessary.

Students who take foreign language courses should keep in mind that all classes below 7000 may not be taken for graduate credit and do not count toward the 9 hours per semester required for those receiving financial aid.

### American History Focus

Candidates planning to write a dissertation in American history shall have a competent reading knowledge of one foreign language.

Competence in a foreign language shall be demonstrated in the ways described above for candidates in European history.

### Asian or Latin American History Focus

Candidates planning to write a dissertation in Asian or Latin American history shall demonstrate a competence in such languages as their advisory committee requires for their research. In addition, a candidate's advisory committee may require the candidate to demonstrate competence in an historical/research technique, as defined above in the American History section (3).

## Preparation for the Comprehensive Examination

In the department of history, each doctoral student must prepare five fields for the comprehensive examinations. The selection of those fields and the faculty who will be the examiners in each should be begun by the doctoral candidate and her/his advisor during her/his first semester at MU. The advisor will help the student prepare for examination in her/his major field. This will cover significant historical themes and historiographical trends in the specific period and area of the student's prospective dissertation topic.

Two other members of the history faculty will help the student prepare for examinations in two chronological and/or geographical areas of historical study that are appropriate for his/her dissertation topic. A fourth member of the history faculty will prepare the student for an examination in a chronological, geographical, and/or thematic area of historical study that is not directly related to his/her dissertation topic. A fifth faculty member from a department other than history will prepare the student for examination in an outside field. This will cover the methodologies and research findings of another academic discipline.

## Areas of Study and Dissertation Topics

What the student learns in this discipline should assist his/her understanding of and research on her/his dissertation topic. The student's choice of a discipline to work in for his/her outside field is potentially as wide as the number of programs and departments in the university. That choice is not confined merely to departments in the College of Arts and Science. The student must have his/her advisor's approval of the discipline and the outside faculty member. The Graduate School must approve these selections as well.

Within the department of history there are seven broad areas of historical study.

- US history to 1865 (including the colonial period)
- US history since 1865
- Ancient history
- European history from the fall of Rome through the Reformation
- European history since the Reformation
- Latin American history
- Asian history

The three history faculty who, together with the advisor, will help the student prepare for the comprehensive examinations, must each test him/her on material in a different broad area. Thus the student will be working on three different broad areas, plus the dissertation field. The three faculty members may, in consultation with the student, define the broad area as narrowly or as widely as they choose.

## Documenting Exam Preparation

The advisor and the four other faculty members must explain how they want the student to prepare, what they want the student to master, and which criteria they will use to assess the examinations in their particular

field. These explanations must be in writing, and copies of each placed in the student's permanent file.

## Comprehensive Examination Requirement

Students may take a comprehensive examination only after fulfilling their residency, course work and foreign language and/or historical research technique requirements. It will be administered by a committee consisting of his/her advisor and four other faculty members, one from a discipline other than history. These should be the faculty members who helped the student prepare for the examinations. Sometimes it may be necessary to find substitutes. The director of graduate studies and the Graduate School must approve any substitutions, and new committee members must describe their expectations in writing for the student and for his/her permanent file.

## Comprehensive Exams Processes

The comprehensive exams are given in two stages. The first is a series of at least three written exams. The second is an oral examination, which is conducted if the student passes the written portion. A report of the decision, signed by all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the comprehensive exam is completed. One of the written exams must be in the major field; the committee will determine the subjects of the other exams, and their number.

**Special Note:** All members can require the student to write on their areas of expertise. Therefore the written examinations could cover all five areas.

All members of the committee will read the written exams and discuss them within two weeks after their completion. If they determine the student has not successfully completed the exam, they will inform him/her immediately and discuss the results. Failure ends the comprehensive exam at this point. The committee must provide the student with an outline in writing of the weaknesses and deficiencies of his/her work.

A copy of this must be placed in the student's permanent file. If at any time the student believes that parts of the exam are unclear, or the decision of the committee is incorrect, or the advice given by the committee is inadequate, s/he may send a written request for clarification and rectification to the committee. A copy of this request should be sent to the Graduate School as well. The committee must respond to this request in writing within two weeks and a copy must be filed with the department and the Graduate School.

At least 12 weeks must pass before a student who failed can take the comprehensive exams again.

If the committee determines that the student did satisfactory work on the written examinations, they will schedule an oral examination. This second stage of the comprehensive exams will cover all five fields. Each member of the committee will test the student. At the end of the oral examinations, the committee discusses the student's performance on each field and on the entire examination. This discussion includes both the written and the oral parts of the whole process. Then they vote pass, fail, or abstain on the student's total performance on the exam.

## Criteria for Successful Completion of the Comprehensive Exam

To complete the comprehensive exams successfully, the student must receive a vote of pass from at least four of the five examiners. Should two or more votes be negative or abstentions, the committee follows the same procedure outlined above for failure to pass the written part. These students must repeat the entire examination, not just the fields failed, and not just the oral portion. If the candidate fails the second examination, the examining committee must enter on its report to the dean of the Graduate School a recommendation to prevent the student's further candidacy.

## Dissertation and Oral Defense

Soon after successful completion of the comprehensive examination, the student and advisor will form a dissertation committee of five faculty members. One member of the committee must be from outside the department. The student shall develop with her/his advisor and committee a dissertation topic and a plan of research. S/he should keep in regular contact with the advisor. Together they shall decide when written work will be read by other members of the committee.

## Travel Funding

When students begin work on their doctoral dissertations, they may apply for departmental fellowships and travel grants to assist their research and writing.

## Satisfactory Progress

The department requires PhD candidates to make satisfactory progress towards completion of their degree.

## Annual Review

At the beginning of every Spring Semester, students must complete a "Progress Report" on the Graduate School's Graduate Student Progress System. This report will be read by the student's faculty advisor, who will then submit an "advisor Response." In addition, the student and advisor should meet to discuss the student's progress, confirm expectations for the coming year, and address any concerns either may have regarding the report.

This is an extremely important process for two reasons. First, the advisor determines whether the student is making satisfactory progress toward a degree. If s/he is not, the advisor informs the student what needs to be done to rectify the situation. The student then usually has a year to return to making satisfactory progress.

Failure to do so may result in loss of financial aid or dismissal from the program. Second, if the student is making satisfactory progress, the advisor and s/he decide together on what reasonable goals are for the next twelve months. These goals will define "satisfactory progress" at the next assessment meeting.

## Appeals

The student may appeal any assessment to the director of graduate studies. If not satisfied, s/he may seek the remedies described in the Graduate School catalog.

## Funding Impact of Incomplete Reports

Completion of the Graduate Student Progress System forms by both student (Progress Report) and faculty (Advisor Response) is mandatory



to maintain eligibility for any form of financial aid from the department. Receipt of financial aid requires confirmation by a student's advisor that s/he is making satisfactory progress. No student in the program who applies for or who is seeking renewal of financial aid will be eligible for aid without a complete and up-to-date Graduate Student Progress System Report on file.

## Rate of Completion

A PhD student must successfully complete the comprehensive examination within a period of five years beginning with the first semester of enrollment as a PhD student. For an extension of this the student must petition the Graduate School by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate School. The director of graduate studies will also make a written recommendation. In addition, the dissertation must be successfully defended within five years of passing the comprehensive examination. On petition of the candidate and the candidate's department, an extension of time may be granted by the Graduate School.

## Interdisciplinary

Office of Multidisciplinary Degrees  
College of Arts and Science  
114 Switzler Hall  
(573) 882-6060

omd.missouri.edu

## Faculty

**Faculty members are housed in departments and schools throughout the University of Missouri.**

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Interdisciplinary (p. 208)
  - with emphasis in Black Studies (p. 209)
  - with emphasis in Environmental Studies (p. 210)
  - with emphasis in Peace Studies (p. 211)
  - with emphasis in Women's and Gender Studies (p. 212)

Interdisciplinary Studies provides for the needs and interests of individual students who are not being served by one of the existing majors. The Office of Multidisciplinary Degrees is responsible for a variety of multidisciplinary majors, including Interdisciplinary Studies, International Studies, and General Studies. The website is omd.missouri.edu.

## Graduate

While MU does not offer graduate degrees specifically in interdisciplinary, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Arts and Science, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## BA in Interdisciplinary

### Degree Program Description

The Bachelor of Arts in Interdisciplinary Studies (IDS) degree in the College of Arts and Science is available to students who have explored various departments at MU and discovered that their academic interests and goals are not easily accommodated in any one major. IDS degree requirements allow students to build an individualized major that is integrative, multidisciplinary, and reflects their personal academic interests and career goals. Students are attracted to IDS for various reasons: a desire to create a unique degree, broad interests, a need for flexibility, timely degree completion, or preparation for further study at the graduate level. Career options are as varied as the combination of curricula.

### Major Program Requirements

Students majoring in Interdisciplinary Studies may design an individual course of study. Students with very specific career plans and goals not easily accommodated in any one department may find this program suited for their needs. Others may find that this option permits a broader approach than the major found in a single department.

The Interdisciplinary Studies major is comprised of two or three components to total 36 credits. A component consists of course work from a single department or area, which may include programs outside the College of Arts and Science (e.g., Journalism, Business or Social Work). At least 18 hours must come from the College of Arts and Science. In addition to the 36 hours required in the major components, Interdisciplinary Studies students must also complete a 3-credit capstone.

Interdisciplinary Studies candidates must earn no less than a 2.0 GPA in each component. They are bound by rules and practices of the College of Arts and Science that pertain to admission to degree programs, the awarding of credit, and the awarding of degrees. Students must complete college as well as University requirements (p. 32), including University general education (p. 33).

### Major Core Requirements

Area of concentration (select one option) 36

- Three components of 12 credits each
- Three components, one of 15, one of 12 and one of 9 credits
- Two components of 18 credits each
- Two components, one of 21 and one of 15 credits

All courses in the major must be at the 2000 level, and at least 15 credits must be 3000 level or above.

A minimum of 12 credit hours within all components must be MU courses.

A maximum of 6 hours of Internship may apply to graduation.

A maximum of 12 hours of Internship, Readings and/or Special Problems may apply to graduation.

**Capstone requirement** (to be completed during final 45 hours of course work)

There are several ways a student can complete the capstone experience in Interdisciplinary Studies.

1. Special Readings project: With this option, the student completes an independent research project under the supervision of a faculty

member. The project allows the student to explore an area of interest and is designed to be an academic challenge. The department is open to creative, innovative approaches to learning. The supervising faculty member is responsible for grading the project. The student is responsible for locating a supervising faculty member.

2. Service Learning project: Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and résumé based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Course will be submitted for Writing Intensive credit each semester. Restricted to Interdisciplinary, General and International Studies students.
3. Internship: Students work approximately 50 clock hours per credit at an agency, company or corporation of their choice. Grades are on a pass-fail basis. For an internship to be approved as a capstone experience, it must help the student solidify and explore the areas of concentration. Internships must have prior approval from the Office of Multidisciplinary Degrees (<https://omd.missouri.edu>).
4. Capstone course: Students may have a specific course designated as a capstone course for the individual degree program. The course must be upper level, and the course must be taken in the last 45 hours of course work as a major. A course taken previously cannot retroactively be counted as a capstone course. Approval for the course must be provided in advance of registration from the Interdisciplinary Studies advisor.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ENGLISH 1000	3 MATH 1100	3
Second Language Level I	5-6 Second Language Level II	5-6
Social Science (MO State Law) 1000+	3 Behavioral Science 1000+	3
Humanities and Fine Arts 1000+	3 Humanities and Fine Arts 1000+	3
General Elective 1000+	1 General Elective 1000+	1
15-16		15-16
Second Year		
Fall	CR Spring	CR
Second Language Level III	3 Math Reasoning Proficiency	3
Science with a Lab 1000+	3-5 Behavioral Science 2000+	3
Writing Intensive I 1000+	3 Social Science 2000+	3
Social Science 1000+	3 Humanities and Fine Arts 2000+	3
Humanities and Fine Arts 1000+	3 IDS Component #1 2000+	3
15-17		15
Third Year		
Fall	CR Spring	CR
Science 1000+	3 IDS Component #1 3000+	3
IDS Component #1 2000+	3 IDS Component #2 2000+	3
IDS Component #2 2000+	3 IDS Component #3 2000+	3
IDS Component #3 2000+	3 Writing Intensive II 3000+	3

General Elective or Minor 1000+	3 General Elective or Minor 1000+	3
15		15
Fourth Year		
Fall	CR Spring	CR
IDS Component #1 3000+	3 IDS 4000+ Capstone	3
IDS Component #1 3000+	3 IDS Component #2 3000+	3
IDS Component #2 3000+	3 General Elective or Minor 1000+	3
IDS Component #3 3000+	3 General Elective or Minor 1000+	3
General Elective or Minor 1000+	3 General Elective or Minor 1000+	3
15		15

Total Credits: 120-124

## BA in Interdisciplinary with Emphasis in Black Studies

### Degree Program Description

Students in Black Studies learn about the varied experiences of people of African descent from various fields including arts and the humanities, the social sciences, the hard sciences, public policy, education, and law, to name a few. This interdisciplinary field of study focuses on African Americans, Africans, and other people in the African Diaspora. A BA in Interdisciplinary with an emphasis in Black Studies challenges students to learn about and critically analyze the global experiences of people of African descent, including conditions that have shaped their past, as well as their present lives. The degree provides knowledge in the following: critical thinking skills to understand and effectively articulate experiences and contributions of the people who share a common heritage; ability to critically think, research, write, and analyze the black experience; communication (both oral and written), problem solving, strategic planning and a range of research skills. Students acquire such skills while they develop in-depth knowledge that is beneficial to careers in multicultural, cross-cultural, and diversity consulting, all of which are critical in 21st century employment. In addition, graduates of the degree often pursue employment or graduate studies in academic fields such as Social and Intellectual Movements, Politics, Sociology, Literature, Psychology, Music, Art, History, and many others.

### Major Program Requirements

Emphasis in Black Studies - Coordinated with the Department of Black Studies, an academic department in the College of Arts and Science  
 Stephanie Shonekan, Chair  
 311 Gentry Hall  
 (573) 882-4326

The Department of Black Studies offers an interdisciplinary curriculum leading to a dual major or minor in the College of Arts and Science.

### Emphasis core requirements

- Completion of an area of concentration in another Arts and Science program or department
- Completion of an interdisciplinary area of concentration of at least 32 credits in Black Studies and related courses

In selecting a language to meet general education requirements in the College of Arts and Science, students are encouraged to consider Spanish, Portuguese or French.

## Semester Plan

Refer to the Semester Plan for the BA in Interdisciplinary Studies (p. 208).

# BA in Interdisciplinary with Emphasis in Environmental Studies

## Degree Program Description

The Bachelor of Arts in Interdisciplinary Studies with an emphasis in Environmental Studies is an individually-designed major for students interested in acquiring a broad understanding of environmental issues and the complex causes underlying them. Students design their major to reflect their own interests and goals in the field. Individualized majors of this kind require a higher level of commitment than is typical of traditional majors because students must do the work of building their own degree. The program prepares students for graduate study and careers in education, law, business, public policy, humanitarian aid, non-profit organizations, and government. The majority of students with the degree work in areas such as advocacy and outreach as well as policy and regulation.

## Major Program Requirements

The Bachelor of Arts in Interdisciplinary Studies with an emphasis in Environmental Studies is an individually-designed major for students interested in acquiring a broad understanding of environmental issues and the complex causes underlying them. Students design their major to reflect their own interests and goals in the field. Individualized majors of this kind require a higher level of commitment than is typical of traditional majors because students MUST do the work of building their own degree. The program prepares students for graduate study and careers in education, law, business, public policy, humanitarian aid, non-profit organizations, and government. The majority of students with the degree work in areas such as advocacy and outreach as well as policy and regulation. Find additional information and course options at <https://omd.missouri.edu/?q=env-st/index>.

Students in this major must complete 5 specified Core courses to fulfill College of Arts and Science Foundation Requirements and an additional 39 hours minimum for the major. D-range grades are not allowed in the major. In addition, students must complete all university graduation requirements and Arts and Science Foundation Requirements.

## Required Core Coursework

### Math Reasoning Proficiency (MRP)

- Complete a statistics course designated as MRP with a C- grade or higher.
- MRP courses are listed at the MU General Education website (<http://generaleducation.missouri.edu/requirements/math>).
- Recommended course options are STAT 1200, STAT 1300 or STAT 1400.

### Biological, Physical, and Mathematical Sciences

- Complete a general education approved Biological Sciences course. BIO\_SC 1010, BIO\_SC 1060, BIO\_SC 1200, or BIO\_SC 1500 are recommended course options.

- Complete a general education approved Geology course. GEOL 1100 or GEOL 1200 are the recommended course options.
- Complete a general education approved Chemistry course. CHEM 1100, CHEM 1320 and CHEM 1330 are recommended course options.
- One lecture with a corresponding laboratory must be completed.
- Laboratories should be taken with the corresponding lecture or after the lecture course is completed, but not before completing the corresponding lecture course.

### Social Sciences

- Complete a general education approved Economics or Agricultural Economics course. ECONOM 1014, ECONOM 1015, AG\_EC 1041, or AG\_EC 1042 are recommended.

## Major Requirements

### Policies

- A total of 39 hours is required for the major.
- Students must complete 30 hours numbered 2000 or higher in the major.
- 18 hours numbered 3000 level or higher are required in the major.
- D-range grades are not allowed in the major.

### Natural Dimensions

- Complete 15 hours of coursework in this section.
- The course levels will be determined by the academic advisor.
- Refer to the list of Natural Dimensions (<https://omd.missouri.edu/?q=env-st/courses/natural-dimensions>) courses to find options.

### Social Dimensions

- Complete 15 hours of coursework in this section.
- The course levels will be determined by the academic advisor.
- Refer to the list of Social Dimensions (<https://omd.missouri.edu/?q=env-st/courses/social-dimensions>) courses to find options.

### Practicum Core

- Complete AG\_EC 2070 or NAT\_R 2160.
- Complete 3 hours of Service Learning, Internships, or Readings.
- Complete an additional 3 hours of Service Learning, Internships, or Readings.
- Service Learning, Internship, or Readings can be taken as a single course for 6 hours.

## Service Learning, Internships, & Readings

### Policies

- The Capstone must be completed in the final 45 hours of coursework.
- Students must earn a C- or higher to fulfill the Capstone requirement.
- Students must have a Capstone approved by their academic advisor.
- Students may complete an Internship or Readings that is not used as a Capstone.
- Students may not earn retroactive credit for internships.

### Internships 4940

- Students must have a 2.0 cumulative GPA to apply for approval of an internship project.

- Students must not have any active Student Conduct holds.
- Students may not complete an internship at an existing position.
- Students must work 50 hours for each credit hour earned.
- Only internships in the United States can be approved.
- During the Internship period, students must submit the following assignments:
  - a well-written proposal outlining the details of the internship must accompany the application
  - a carefully-prepared factual report about the internship which addresses the questions outlined in the student's internship proposal
  - a résumé which includes the student's internship experience and documents the tangible skills they attained while working
  - an interpretative essay in which students connect what they have learned from their internship experience with their academic work in their individualized major
- Internship supervisors must submit a performance evaluation.
- Internships receive a grade of S or U (pass/fail).
- The Office of Multidisciplinary Degrees reserves the right to deny internship project approval to any student it believes will not be a good representative of the University.

#### Readings 4960

Students work independently with MU faculty on research and/or professional projects. A student finds a campus professor with whom to work. Together, they create concrete objectives for a meaningful project. The professor guides and supervises the student towards completion of the project and is responsible for awarding a letter grade for the course.

#### Service-Learning 4970

Service-Learning provides hands-on experience in service experiences that are coordinated in collaboration with MU and the community. Service-Learning experiences create valuable learning environments for students as they connect with the community in partnerships that provide effective and far-reaching assistance to those in need. To apply, students must have a 2.5 GPA or higher.

## Semester Plan

First Year			
Fall	CR Spring		CR
MATH 1100	3 General Education Biological Science Course		5
POL_SC 1100	3 General Education Chemistry Course		4
GEOL 1200	4 ENGLISH 1000		3
General Education Humanities Course	3 General Education Behavioral Science Course		3
	13		15
Second Year			
Fall	CR Spring		CR
General Education Social Science Course 2000+	3 AG_EC 2070 or NAT_R 2160		3
General Education Humanities Course	3 Foreign Language		5
General Education Behavioral Science Course	3 General Education Economics Course		3

Foreign Language	5 General Education Humanities Courses 2000+	6
General Education Statistics Course	3	
	17	17
Third Year		
Fall	CR Spring	CR
Natural Dimensions Course 2000+	3 Natural Dimensions Course 2000+	3
General Elective Course 1000+	3 Natural Dimensions Course 3000+	3
Foreign Language	3 Social Dimensions Courses 3000+	6
Social Dimensions Courses 3000+	6 General Elective Course 1000+	3
	15	15
Fourth Year		
Fall	CR Spring	CR
Natural Dimensions Course 3000+	3 Natural Dimensions Course 3000+	3
Social Dimensions Course 3000+	3 Internship, Readings or Service Learning Project	3
Internship, Readings or Service Learning Project	3 General Elective Courses 1000+	7
General Elective Courses 1000+	6	
	15	13

Total Credits: 120

## BA in Interdisciplinary with Emphasis in Peace Studies

### Degree Program Description

Peace Studies is offered as an emphasis area in the BA in Interdisciplinary Studies. Students with this emphasis examine issues related to global peace and social justice. The emphasis in Peace Studies helps prepare students for employment, volunteer assignments, and graduate study in such areas as conflict resolution, human rights, humanitarian assistance, sustainable development, social justice, nonviolent social change, and the understanding of global cultural diversity.

### Major Program Requirements

Clarence Lo, Ph.D, Director  
 326 Middlebush Hall  
 (573) 882-1736  
 loc@missouri.edu

The peace studies emphasis area addresses a wide range of issues concerning peace and justice, including international and civil war and peace; global social and environmental justice; nonviolent social movements, process, and change; cultures, intellectuals, and war and peace; and indigenous peoples and the imperial state. Our courses provide a liberal arts foundation: students explore values to set goals; they evaluate evidence to assess alternate means to achieve goals. Some courses focus on practical issues of community organization (PEA\_ST 4341), sustainable development (PEA\_ST 1120) and construction, and public health (PEA\_ST 3401), that students are likely to encounter in work, internship, or volunteer positions. Study abroad

courses taught by MU faculty are regularly offered. Since issues of peace and conflict cut across disciplines, the curriculum includes courses offered by both the program itself and cross listed between Peace Studies and other programs and departments of the University.

**Emphasis requirements** 30

**Core requirements**

PEA\_ST 1050 Introduction to Peace Studies

Select 12 credits from the following. It is recommended that students pick four courses distributed in at least four of the following areas 12

**Area 1: International and Civil War and Peace**

PEA\_ST 1051 International Conflict Resolution and Group Reconciliation (Section 2 is writing intensive, section 1 not)

PEA\_ST 2200 Nuclear Weapons: Environmental, Health and Social Effects (Section 2 is writing intensive, section 1 not)

PEA\_ST 2410 Philosophies of War and Peace

PEA\_ST 2550 Human Rights, Law, War and Peace

PEA\_ST 3230H Terrorism and Conflict Resolution - Honors

PEA\_ST 3610 Ireland, 1100s to 1850

PEA\_ST 3611 Ireland, 1850-1923

PEA\_ST 3612 Ireland, 1920-Present

PEA\_ST 4331 Nonproliferation Issues for Weapons of Mass Destruction

**Area 2: Global Social and Environmental Justice**

PEA\_ST 1052 Global Warming, Climate Change, Catastrophic Climate Destabilization (Section 2 is writing intensive, section 1 not)

PEA\_ST 1120 Population and Ecology

PEA\_ST 2000 Exploration in Social and Economic Justice

PEA\_ST 2284 Critical Dialogs: Global Environmental Policy Conflicts

PEA\_ST 2600 CAFO: Concentrated Animals, Deep Ecology (Section 2 is writing intensive, section 1 not)

PEA\_ST 3600 Criminology

PEA\_ST 3401 Global Public Health and Health Care Systems

PEA\_ST 3870 Social Revolution in Latin America

**Area 3: Nonviolent Social Movements, Process, and Change**

PEA\_ST 2182 Critical Dialogues: Nonviolence in Peace/Democracy Movements (Section 2 is writing intensive, section 1 not)

PEA\_ST 2285 Large Corporations, Economic Crisis, Social Responsibility

PEA\_ST 2810 Think Global: Fundamentals of Globalization and Digital Technologies

PEA\_ST 3520 Collective Behavior

PEA\_ST 3521 Group Decision Making Processes

PEA\_ST 3522 New Media, Conflict and Control

PEA\_ST 4341 Building Communities from the Grassroots

**Area 4: Cultures, Intellectuals, And War and Peace**

PEA\_ST 2280 Race, Democracy, and Violence in Cuba and Haiti (Section 2 is writing intensive, section 1 not)

PEA\_ST 2320 Literature of Spanish Civil War

PEA\_ST 3140 Art of War and Peace

PEA\_ST 3400 Politics of the Media

PEA\_ST 3780 World Political Geography

PEA\_ST 4600 Political and Social Philosophy

PEA\_ST 4830 Journalism and Conflict

**Area 5: Indigenous Peoples, Human Rights, and The Imperial State**

REL\_ST 2100 Indigenous Religions

ENGLSH 2490 Introduction to Native Studies

ENGLSH 3490 Native Writing and Representation

PEA\_ST 3496 Digital Indigenous Studies

PEA\_ST 3496H Digital Indigenous Studies - Honors

GEOG 3560 Native American Geographies

PEA\_ST 4550 Gender and Human Rights in Cross Cultural Perspective

**Other Peace Studies courses counted toward the emphasis requirements** 15

## Semester Plan

Refer to the Semester Plan for the BA in Interdisciplinary Studies (p. 208).

# BA in Interdisciplinary with Emphasis in Women's and Gender Studies

## Degree Program Description

Women's and Gender Studies is the interdisciplinary, feminist study of the social, cultural, and historical processes that effect gender human identity. The BA in Interdisciplinary with an emphasis in Women's and Gender Studies combines a broad range of approaches and methods with innovative classroom experiences and teaching. Students learn to integrate women's, gender, and/or queer studies with analyses of race, ethnicity, religion, spirituality, nationality, and class, and to think critically and synthetically about the multiple axes of power through which sexual and gendered identities are constructed. Courses encourage students to analyze the world in which they live, in order that they might act to transform it. An emphasis in Women's and Gender Studies prepares students for many different employment opportunities. Some fields include arts, business, education, healthcare, media, politics, law, social work and social services.

## Major Program Requirements

Interdepartmental Program in the College of Arts and Science

Joan Hermsen, Chair

Mary Jo Neitz, Director of Undergraduate Studies

325 Strickland Hall

(573) 882-2703

Students may earn a Bachelor of Arts in the College of Arts and Science with an Interdisciplinary Studies major and an emphasis in Women's and Gender Studies. A minor is also available as are departmental honors. Please consult the Women's and Gender Studies department for more information.

Advising of students and assistance in designing student-tailored academic plans is available from the Women's and Gender Studies department office.

The curriculum includes Women's and Gender Studies core courses as well as cross-listed courses from several departments throughout

the University. These courses assume that knowledge cannot be separated from the study of women and gender, and that gender and sexuality are fundamental categories of analysis in all disciplines. The department stresses interdisciplinary scholarship and teaching that are broadly comparative and range across multiple cultures, national and transnational contexts, and historical periods. Its faculty employ a broad range of theoretical approaches and methods.

When students graduate with an emphasis in Women's and Gender Studies, they should be able to:

- Apply cross-cultural and global awareness to "big questions" about women and gender
- Have a comprehensive grasp of intersectionality and matrices of domination
- Think critically: i.e. consider an issue from multiple perspectives; locate, evaluate and interpret diverse sources, including statistics; engage in critical self-reflection
- Construct arguments with evidence obtained from research
- Work collaboratively
- Recognize sexist/racist writing and thinking
- Connect knowledge and experience, theory and activism, Women's and Gender Studies materials with other courses
- Communicate effectively in writing and speech
- Apply knowledge for social transformation, citizenship
- Use gender (and other identity categories) as a category/ies for analysis

An emphasis in Women's and Gender Studies prepares students for many different employment opportunities. Some fields include arts, business, education, healthcare, policy, media, politics, law, social work and social services. Because of the diversity of Women's and Gender Studies, the WGST emphasis can be combined with a number of other potential majors to create a dual degree. Many students choose to combine two areas of study, such as Women's and Gender Studies and Sociology, or Women's and Gender Studies and Journalism. This results in a student receiving one degree with two areas of specialization that reflect the student's unique academic interests and his/her individually-designed course of study.

Thirty hours are required in Women's and Gender Studies. In addition to degree requirements, college and university requirements (p. 32), including university general education requirements (p. 33), must be met.

Required Core Courses		15
WGST 1120	Introduction to Women's and Gender Studies	3
WGST 2010	Gender and Identity: Understanding Intersectionality	3
WGST 2020	Feminist Theory	3
WGST 3450	Feminist Methodologies	3
WGST 4990	Capstone: Senior Research Seminar in Women's and Gender Studies	3

Additional courses		15
Students take an additional 15 hours selected from the lists of courses below. Students are encouraged to select the bulk of their elective coursework from the first list, Emphasis Core Courses, and must take a minimum of 9 hours from this list. Courses from the third list, Special Semester Topics Courses, may be either Emphasis Core Courses or Cross-listed Courses. Please seek advise from the department on which requirement these courses fulfill. 12 hours must be at 2000 level or above.		

#### Emphasis Core Courses

WGST 2030	Gender Perspectives: Colonial Histories, Post-Colonial Challenges	3
WGST 2040	Perspectives on Empowerment	3
WGST 2050	Gender Perspectives: Issues in Public Health	3
WGST 2080	Perspectives on Sexual and Gender Diversity	3
WGST 2250	Perspectives on Gender, Race, Class and Sexuality in the Americas	3
WGST 2260	Perspectives on Mass Media: Constructions of Gender, Race and Sexuality	3
WGST 2340	Perspectives on Gender and Popular Culture	3
WGST 2960	Sexual Health Advocacy and Service Learning	3
WGST 3080	Sexuality and Gender Theory	3
WGST 3230	Themes in Sexual Politics	3
WGST 3240	Nonprofit Work and the Pursuit of Social Justice	3
WGST 3370	Themes in Gender and Religion	3
WGST 3480	Themes in Sexuality and Literature	3
WGST 3560	Themes in Gender and Immigration	3
WGST 3670	Themes in Gender and Globalization	3
WGST 3850	Themes in Gender and the Politics of Representation	3
WGST 3960	Strategies for Effective Peer Education	1
WGST 4020	Studies in Feminist Thought	3
WGST 4110	Feminist Research and Criticism	3
WGST 4230	Women, Development, and Globalization	3
WGST 4420	Studies in Gender, Culture, and Politics	3
WGST 4550	Gender and Human Rights in Cross Cultural Perspective	3
WGST 4600	Studies in Women and Health	3
WGST 4640	Studies in Gender and Performance	3
WGST 4940	Internship in Women's and Gender Studies	1-12
WGST 4965	Special Readings in Women's and Gender Studies	1-6

#### Cross-listed Courses:

AR_H_A 4120	Gender and the Arts	3
ANTHRO 4370	Anthropology of Gender	3
ENGLSH 2180	Introduction to Women's Literature	3
ENGLSH 2200H	Studies in British Literature - Honors	3
ENGLSH 3180	Survey of Women Writers	3
ENGLSH 4180	Major Women Writers	3
ENGLSH 4181	Themes in Literature by Women	3
ENGLSH 4480	Major African Diaspora Women Writers	3
ENGLSH 4780	Women's Folklore and Feminist Theory	3
FRENCH 2370	French Women Writers (in translation)	3
HIST 2400	Social History of U.S. Women	3
HIST 2410	African American Women in History	3
HIST 3220	U.S. Women's Political History, 1880-Present	3
HIST 3430	Sex Radicals in U. S History	3
HIST 3570	European Women in the 19th Century	3
HIST 4310	Adoption, Child Welfare and the Family, 1850-Present	3
HIST 4660	European Women in the 20th Century	3
JOURN 4716	Women and the Media	3
PHIL 2500	Philosophy and Gender	3
POL_SC 4730	Women and Politics	3

REL_ST 3750	Women and Religions	3
REL_ST 4750	Women, Religion and Culture	3
RUSS 3870	Russian Women and Film	3
SOC_WK 4400	Domestic Violence	3
SOCIOL 1360	The Female Experience: Body, Identity, Culture	3
SOCIOL 3300	Queer Theories/Identities	3
SOCIOL 3320	Sociology of Gender	3
<b>Special Semester Topics Courses</b>		
WGST 1001	Topics in Women's and Gender Studies-General	1-3
WGST 1003	Topics in Women's and Gender Studies-Behavioral	1-3
WGST 1004	Topics in Women's and Gender Studies-Social Science	1-3
WGST 1005	Topics in Women's and Gender Studies-Humanities	1-3
WGST 2001	Topics in Women's and Gender Studies-General	1-3
WGST 2003	Topics in Women's and Gender Studies-Behavioral	1-3
WGST 2004	Topics in Women's and Gender Studies-Social Science	1-3
WGST 2005	Topics in Women's and Gender Studies-Humanities	1-3
WGST 3001	Topics in Women's and Gender Studies-General	1-3
WGST 3003	Topics in Women's and Gender Studies-Behavioral Sciences	1-3
WGST 3004	Topics in Women's and Gender Studies-Social Sciences	1-3
WGST 3005	Topics in Women's and Gender Studies-Humanities	1-3
WGST 4001	Topics in Women's and Gender Studies-General	1-3
WGST 4003	Topics in Women's and Gender Studies-Behavioral Sciences	1-3
WGST 4004	Topics in Women's and Gender Studies-Social Sciences	1-3
WGST 4005	Topics in Women's and Gender Studies-Humanities	1-3
WGST 4873	Women's and Gender Studies Abroad - Behavioral Science	3
WGST 4874	Women's and Gender Studies Abroad - Social Science	3
WGST 4875	Women's and Gender Studies Abroad - Humanities	3

## Semester Plan

<b>First Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
WGST 1120	3 WGST 2010	3
ENGLSH 1000	3 Foreign Language	5
Social Science (MO State Law)	3 MATH 1100	3
Foreign Language	5 General Elective	3
		<b>14</b>

<b>Second Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
WGST Major Course	3 WGST 2020	3
Science with a Lab	5 Minor	3
Foreign Language	3 Humanities/Fine Arts (Writing Intensive)	3
Behavioral Science	3 Behavioral Science	3
Social Science	3 Science	3
		<b>17</b>

<b>Third Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
WGST 3450	3 WGST Major Course	3
WGST Major Course	3 Minor	3
Minor	3 Humanities/Fine Arts	3
Science (Math Reasoning Proficiency)	3 Social Science	3
General Elective	3 General Elective	3
		<b>15</b>

<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
WGST Major Course	3 WGST 4990	3
WGST Major Course	3 Minor	3
Minor	3 Humanities/Fine Arts	3
Humanities/Fine Arts	3 General Elective	3
General Elective	3 General Elective	3
		<b>15</b>

Total Credits: 120

## International Studies

Office of Multidisciplinary Degrees  
 College of Arts and Science  
 114 Switzler Hall  
 (573) 882-6060

**International Studies** (<https://omd.missouri.edu/?q=intl-st/index>)

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. Students in the major have the opportunity to design a major that reflects their own interests and goals. The increased level of flexibility requires a higher level of commitment than is typical of traditional majors because students **MUST** do the work of building their own degree.

International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

**International Business** (<https://omd.missouri.edu/?q=intl-bus/index>)

The dual degree program in International Business leads to the BS in Business Administration from the Trulaske College of Business and the BA in International Studies from the College of Arts & Science. This degree typically takes 4 1/2 to 5 years to complete. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

## Faculty

Faculty for International Studies are housed within other departments.

## Undergraduate

- BA in International Studies (p. 215)
  - with emphasis in East Asian Studies (p. 217)
  - with emphasis in Environmental Studies (p. 217)
  - with emphasis in European Studies (p. 217)
  - with emphasis in International Business (p. 218)
  - with emphasis in Latin American Studies (p. 218)
  - with emphasis in Peace Studies (p. 218)
  - with emphasis in South Asian Studies (p. 219)

## Graduate

While the College does not offer a graduate degree specific to international studies, the Office of Graduate Studies does offer a graduate academic Minor in International Development (p. 733).

This catalog provides a complete list of graduate degree options (p. 17) for all Schools and Colleges at the University of Missouri.

## BA in International Studies

### Degree Program Description

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. Students in the major have the opportunity to design a major that reflects their own interests and goals. The increased level of flexibility requires a higher level of commitment than is typical of traditional majors because students MUST do the work of building their own degree. International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

### Major Program Requirements

A student majoring in the BA in International Studies must complete 18 hours of specified Core coursework to fulfill Arts and Science Foundation Requirements, an additional 42 hours minimum for the major, and a study abroad experience. D-range grades are not allowed in the major. In addition, students must complete all university graduation requirements and Arts and Science Foundation Requirements. The information below pertains to the BA in International Studies and additional information can be found at <https://omd.missouri.edu/?q=intl-st/index>. Students interested in the dual degree in International Business, which is a different major, should find additional information at <https://omd.missouri.edu/?q=intl-bus/index>.

## Required Core Coursework

Complete the following courses:

ANTHRO 2030	Cultural Anthropology	3
GEOG 1100	Regions and Nations of the World I	3
or GEOG 1200	Regions and Nations of the World II	
POL_SC 1400	International Relations	3
or POL_SC 2700	Comparative Political Systems	

In addition, complete 3 of the following courses and at least one of the courses completed must come from the Humanities section:

Biological and Physical Sciences Core Courses		
ANTHRO 2050	Introduction to Biological Anthropology with Laboratory	5
ANTHRO 2051	Introduction to Biological Anthropology	3
ATM_SC 1050	Introductory Meteorology	3
ATM_SC 2150	Natural Hazards	3
ATM_SC 3600	Climates of the World	3
BIO_SC 1060	Basic Environmental Studies	3
BIO_SC 1400	Evolution for Everyone	3
GEOG 1050	Planet Earth	3
GEOG 1100	Principles of Geology with Laboratory	4
GEOG 1200	Environmental Geology with Laboratory	4
GEOG 1250	The World's Oceans	3
Behavioral Sciences Core Courses		
ANTHRO 1000	General Anthropology	3
PEA_ST 2000	Exploration in Social and Economic Justice	3
SOCIOL 1000	Introduction to Sociology	1-3
or RU_SOC 1000	Rural Sociology	
SOCIOL 2200	Social Inequalities	3
WGST 2040	Perspectives on Empowerment	3
WGST 2250	Perspectives on Gender, Race, Class and Sexuality in the Americas	3
Social Sciences Core Courses		
ECONOM 1014	Principles of Microeconomics	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or AG_EC 1042	Applied Macroeconomics	
PEA_ST 1050	Introduction to Peace Studies	3
WGST 1120	Introduction to Women's and Gender Studies	3
Humanities Core Courses (at least one course from the list below is required)		
ARCHST 1600	Fundamentals of Environmental Design	3
AR_H_A 1110	Ancient and Medieval Art	3
AR_H_A 1120	Renaissance through Modern Art	3
ENGLSH 2155	Introduction to World Literatures	3
ENGLSH 2156	Introduction to World Literatures, Beginnings to 1603	3
ENGLSH 2157	Introduction to World Literatures, 1603 to 1789	3
ENGLSH 2158	Introduction to World Literatures, 1789 to 1890	3
ENGLSH 2159	Introduction to World Literatures, 1890 to Present	3
FILM_S 2820	Trends in World Cinema	3
GN_HON 2112H	The Middle Ages and the Renaissance	3



GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment	3
GN_HON 2114H	The Modern Era	3
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society	3
MUSIC_NM 1310	Masterpieces of Western Music	3
MUSIC_NM 1313	Introduction to World Music	3
PEA_ST 2410	Philosophies of War and Peace	3
PEA_ST 2810	Think Global: Fundamentals of Globalization and Digital Technologies	3
PHIL 2100	Philosophy: East and West	3
PHIL 2430	Contemporary Moral Issues	3
REL_ST 1100	Introduction to Religion	3
REL_ST 2100	Indigenous Religions	3
REL_ST 2110	Religions of the World	3
REL_ST 2310	Religions of China and Japan	3
WGST 2080	Perspectives on Sexual and Gender Diversity	3

## Major Requirements (42 hours minimum)

### Language Requirements (6 hours minimum)

For the major, students must complete 6 hours minimum of conversation and/or composition courses in a single foreign language, beyond the elementary level.

### Regional/Cultural Area (12 hours minimum)

Could include additional language and literature courses from the language of major study, as well as coursework with an international focus from Philosophy, Religious Studies, Art History, Film Studies, and Civilization courses.

### Social/Behavioral Sciences Area (12 hours minimum)

Could include coursework with an international focus from Geography, History, Political Science, Economics, Anthropology, Sociology, Rural Sociology, Women's and Gender Studies and Peace Studies.

### Focus Area (12 hours minimum)

Course work with an international focus from an area of the student's choice allowing the study of one area in depth. The focus area must be related to the foreign language the student is studying. Students are encouraged to take 9 credits from a single department or area. The 3-credit capstone experience will equal 12 hrs. of credit. See information on the capstone options below. The focus area options are: East Asian Studies, Environmental Studies, European Studies, Latin American Studies, Peace Studies, or South Asian Studies.

### Capstone Options

#### Policies

- The Capstone must be completed in the final 45 hours of coursework.
- Students must earn a C- or higher to fulfill the Capstone requirement.
- Students must have a Capstone approved by their academic advisor.
- Students may complete an Internship or Readings that is not used as a Capstone.
- Students may not earn retroactive credit for internships.

#### Internships 4940

- Students must have a 2.0 cumulative GPA to apply for approval of an internship project.

- Students must not have any active Student Conduct holds.
- Students may not complete an internship at an existing position.
- Students must work 50 hours for each credit hour earned.
- Only internships in the United States can be approved.
- During the Internship period, students must submit the following assignments:
  - a well-written proposal outlining the details of the internship must accompany the application
  - a carefully-prepared factual report about the internship which addresses the questions outlined in the student's internship proposal
  - a résumé which includes the student's internship experience and documents the tangible skills they attained while working
  - an interpretative essay in which students connect what they have learned from their internship experience with their academic work in their individualized major
  - Internship supervisors must submit a performance evaluation.
- Internships receive a grade of S or U (pass/fail).
- The Office of Multidisciplinary Degrees reserves the right to deny internship project approval to any student it believes will not be a good representation of the University.

#### Readings 4960

Students work independently with MU faculty on research and/or professional projects. A student finds a campus professor with whom to work. Together, they create concrete objectives for a meaningful project. The professor guides and supervises the student towards completion of the project and is responsible for awarding a letter grade for the course.

#### Service-Learning 4970

Service-Learning provides hands-on experience in service experiences that are coordinated in collaboration with MU and the community. Service-Learning experiences create valuable learning environments for students as they connect with the community in partnerships that provide effective and far-reaching assistance to those in need. To apply, students must have a 2.5 GPA or higher.

#### 4000-level Capstone course

Students can select a 4000-level course in the Focus Area to fulfill the Capstone requirement. This course does not need to be a departmental Capstone in order to fulfill the requirement.

### Study Abroad Experience Requirement

- Students should study abroad for a minimum of 4 weeks.
- If a program is less than 4 weeks, it must be approved by the academic advisor.
- Credit earned during a study abroad experience may be used to fulfill major requirements.
- Students should complete their study abroad experience prior to their last year.
- Preparation for a study abroad experience should begin a year in advance.
- Information on study abroad is available at the International Center website (<http://international.missouri.edu/study-outside-the-us>).

## Semester Plan

First Year		
Fall	CR Spring	CR
ENGLSH 1000	3 Foreign Language	5
Core Humanities	3 POL_SC 1400 or 2700	3
Foreign Language	5 Biological/Physical Science Course w/Lab	5
American History or Government course	3 MATH 1100	3
	14	16
Second Year		
Fall	CR Spring	CR
GEOG 1100 or 1200	3 Foreign Language	3
Foreign Language	3 ANTHRO 2030	3
Core Humanities	3 General Elective 1000+	2
Math Reasoning Proficiency	3 Biological/Physical Science Course	4
General Education Behavioral Science	3 Core Humanities 2000 level	3
	15	15
Third Year		
Fall	CR Spring	CR
Social/Behavioral 2000+ Major	3 Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major	3 Regional/Cultural 2000+ Major	3
General Education Humanities 2000+	3 Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major	3 Social Behavioral 3000+ Major	3
Foreign Language	3 Social Behavioral 3000+ Major	3
	15	15
Fourth Year		
Fall	CR Spring	CR
General Elective 3000+	3 Focus Area 3000+ Major	3
General Elective 1000+	3 focus Area Capstone 4000 Level	3
Focus Area 3000+ Major	3 General Elective 1000+	3
Focus Area 3000+ Major	3 General Elective 1000+	3
General Elective 1000+	3 General Elective 3000+	3
	15	15

Total Credits: 120

## BA in International Studies with Emphasis in East Asian Studies

### Degree Program Description

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. The emphasis in East Asian Studies focuses on creating an understanding and awareness of the culture, history, politics, geography and languages of the East Asian countries, with an emphasis in China, Japan or Korea. The program is multidisciplinary, encompassing course work from the departments of Geography, History, Anthropology, Religious Studies, Political Science and Philosophy, as well as in Chinese, Japanese and Korean. Students are encouraged to begin study of their foreign language no later than the sophomore year. The program prepares students for graduate study and

careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 215). East Asian Studies is one of the emphasis areas in the International Studies major. The program is multidisciplinary, encompassing course work from the departments of Geography, History, Anthropology, Religious Studies, Political Science and Philosophy, as well as in Chinese, Japanese and Korean. The program focuses on creating an understanding and awareness of the culture, history, politics, geography and languages of the East Asian countries, with an emphasis in China, Japan or Korea. Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience.

### Semester Plan

Refer to the program requirements for the BA in International Studies (p. 215).

## BA in International Studies with Emphasis in Environmental Studies

### Degree Program Description

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. The Environmental Studies emphasis is for students interested in developing a broad understanding of environmental problems and their underlying causes so they can work effectively in the areas of environmental advocacy, outreach, policy, and regulation. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 215). The Environmental Studies emphasis is for students interested in developing a broad understanding of environmental problems and their underlying causes so they can work effectively in the areas of environmental advocacy, outreach, policy, and regulation.

### Semester Plan

Refer to the program requirements for the BA in International Studies (p. 215).

## BA in International Studies with Emphasis in European Studies

### Degree Program Description

European studies is an emphasis area in the International Studies major. Students who are studying French, Spanish, German, Italian or Russian may wish to select European studies as their emphasis area. The student examines the politics, culture, history and geography of the European

continent, with a focus on the country whose native language is being studied by the student. Given the multidisciplinary approach to this degree, students take courses that are specifically geared to a better understanding of the culture, history, and language of a given country, as well as a better understanding of the entire continent of Europe. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

## Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 215). European studies is an emphasis area in the International Studies major. Students who are studying French, Spanish, German, Italian or Russian may wish to select European studies as their emphasis area. The student examines the politics, culture, history and geography of the European continent, with a focus on the country whose native language is being studied by the student. Given the multidisciplinary approach to this degree, students take courses that are specifically geared to a better understanding of the culture, history, and language of a given country, as well as a better understanding of the entire continent of Europe.

## Semester Plan

Refer to the program requirements for the BA in International Studies (p. 215).

# BA in International Studies with Emphasis in International Business

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## Degree Program Description

The dual degree program leads to the BS in Business Administration with emphasis in one of the four International Business areas and the BA in International Studies with emphasis in International Business. This dual degree typically takes 4 1/2 to 5 years to complete. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements. International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

## Major Program Requirements

Refer to the website at <https://omd.missouri.edu/?q=intl-bus/index>. The dual degree program in International Business leads to the BS in Business Administration from the Trulaske College of Business and the BA in International Studies from the College of Arts & Science. This degree typically takes 4 1/2 to 5 years to complete. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

## Semester Plan

Refer to the website at <https://omd.missouri.edu/?q=intl-bus/index>.

# BA in International Studies with Emphasis in Latin American Studies

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## Degree Program Description

Latin American Studies is offered as an emphasis area for the BA in International Studies. The Latin American Studies emphasis is designed to offer, in addition to linguistic competency in Spanish or Portuguese, a broad base of knowledge about Latin American politics, literature, economics and culture. This field of inquiry, alone or in combination with another discipline, is in high demand throughout the world and can provide students with an indisputable competitive edge in the contemporary professional arena. Students who graduate with an emphasis in Latin American Studies will be fully prepared to pursue graduate study in Latin American Studies programs offered around the country. Students are encouraged to study abroad in one of many program opportunities in Spain, Mexico, Central and South America, Brazil or the Caribbean.

## Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 215). Latin American Studies is offered as an emphasis area for the BA in International Studies. The Latin American Studies option is designed to offer, in addition to linguistic competency in Spanish or Portuguese, a broad base of knowledge about Latin American politics, literature, economics and culture.

This field of inquiry, alone or in combination with another discipline, is in high demand throughout the world and can provide students with an indisputable competitive edge in the contemporary professional arena. Students who graduate with an emphasis in Latin American Studies will be fully prepared to pursue graduate study in Latin American Studies programs offered around the country.

Students are encouraged to study abroad in one of many program opportunities in Spain, Mexico, Central and South America, Brazil or the Caribbean.

## Semester Plan

Refer to the program requirements for the BA in International Studies (p. 215).

# BA in International Studies with Emphasis in Peace Studies

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## Degree Program Description

Peace Studies is offered as an emphasis area for the BA in International Studies. Students with this emphasis examine issues related to global peace and social justice - in the international arena. The emphasis in Peace Studies helps prepare students for employment, volunteer assignments, and graduate study in such areas as conflict resolution, human rights, humanitarian assistance, sustainable development,

social justice, nonviolent social change, indigenous peoples, and the understanding of global cultural diversity

## Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 215). Students may opt for an emphasis in Peace Studies. Students with this emphasis examine issues related to global peace and social justice - in the international arena. The emphasis in Peace Studies helps prepare students for employment, volunteer assignments, and graduate study in such areas as conflict resolution, human rights, humanitarian assistance, sustainable development, social justice, nonviolent social change, indigenous peoples, and the understanding of global cultural diversity. The courses for the emphasis in Peace Studies center on those offered through the Peace Studies program, many of which are cross-listed with other departments. In addition, students can count towards the Peace Studies emphasis other courses from departments such as Black Studies, English, Geography, History, Political Science, Religious Studies, Romance Languages, and Women's and Gender Studies.

Peace Studies courses counting for the emphasis can be drawn from the list shown on the Peace Studies minor page (p. 318).

## Semester Plan

Refer to the program requirements for the BA in International Studies (p. 215).

## BA in International Studies with Emphasis in South Asian Studies

### Degree Program Description

The South Asian Studies emphasis offers courses in history, politics, philosophy, religion, culture, social life and languages of India. It thus provides the opportunity for study of an ancient and extensive civilization with a significant role in human history. An emphasis in South Asian Studies prepares students to enter MA and PhD programs in this area of specialization, which often provide intensive summer language programs. An advanced degree opens a variety of professional and job opportunities for those planning to work in such fields as international business, trade and diplomacy, international law or agricultural development, among others.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 215). The South Asian Studies emphasis offers courses in history, politics, philosophy, religion, culture, social life and languages of India. It thus provides the opportunity for study of an ancient and extensive civilization with a significant role in human history.

An emphasis in South Asian Studies prepares students to enter MA and PhD programs in this area of specialization, which often provide intensive summer language programs. An advanced degree opens a variety of professional and job opportunities for those planning to work in such fields as international business, trade and diplomacy, international law or agricultural development, among others.

### Semester Plan

Refer to the program requirements for the BA in International Studies (p. 215).

## Linguistics

Matthew Gordon, Chair  
Interdepartmental Program in the College of Arts and Science  
223 Tate Hall  
(573) 882-6421  
gordonmj@missouri.edu

Kibby Smith, Advisor  
Office of Multidisciplinary Degrees  
(573) 882-6060  
smithkib@missouri.edu

Linguistics is the scientific study of human language. It seeks to understand and explain the properties of language in a clear and formal manner. Linguists document understudied and endangered languages, explore the consequences of language contact, measure language variation and change, investigate the structure of language, and analyze the construction of meaning.

Some of the main subfields of linguistics are phonetics (the physical properties of sounds), phonology (the grammar of sounds), morphology (the structure of words), syntax (the organization of phrases and sentences), semantics (meaning), and sociolinguistics (the interaction of language and society).

A Bachelor of Arts with a major in linguistics is available (with an honors option) as is a linguistics minor, both involving coursework in the various subfields.

The study of linguistics prepares students for careers which utilize insight into the workings of language including language instruction, translation and interpreting, speech pathology, anthropology, the reconstruction of prehistory, and computational fields related to the interaction of language and technology. Academic careers of linguistic research and teaching are also possible after further training at the graduate level.

In addition, a major in linguistics offers students a liberal education and develops verbal and analytical skills that are valuable in a variety of less directly related careers such as journalism, literary study, and the law.

The linguistics program is staffed by faculty from a number of MU departments. Supporting course work is offered in Anthropology, Black Studies, Classical Studies, Communication, Communication Science and Disorders, the College of Education, English, German and Russian Studies, Psychology, Philosophy, Romance Languages and Literatures, and South Asian Studies.

Although specialists in the field commonly know one or more foreign languages, such knowledge is complementary rather than essential.

### Faculty

**Professors:** P. Weirich\*, J. Zemke\*, F. Zéphir\*

**Associate Professors:** J. Goodman\*, M. Gordon\*, C. Horisk\*, J. Kramer\*, M. McGrath\*, P. Robbins\*, T. Kazic\*

**Assistant Professors:** A. Alcazar\*, M. Fagan\*, M. Marlo\*, M. Popescu\*, A. Radulescu\*

**Emeritus Faculty:** L. Day\*, N. L. Furbee\*, D. E. Gulstad, B. L. Honeycutt, M-J Smythe, D. Watson, G. Youmans\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Linguistics (p. 220)
- Minor in Linguistics (p. 221)

## Departmental Honors

A student wishing to graduate with honors in Linguistics must earn a 3.3 GPA in all courses and complete all the requirements for the BA in Linguistics. In addition, with the assistance of his/her honors thesis advisor, the student must develop, plan and conduct research on an independent project, normally while enrolled in LINGST 4991. A committee consisting of the thesis advisor and a second reader, to be selected by the advisor and the program chair, will examine the student on the resulting thesis of 25-40 pages in an oral exam held no later than the thirteenth week of the term during which the student expects to graduate. The second reader will be provided with a copy of the thesis at least two weeks before the examination. After completing any revisions that the exam committee recommends, the student will submit a final version of the thesis for linguistics program records and will then be recommended to the college of Arts and Science for a BA with Honors in Linguistics.

## Graduate

- Graduate Minor in Linguistics (p. 221)

Interdepartmental Program in the College of Arts and Science  
224 Tate Hall  
(573) 882-8814

**Chair of Linguistics:** Matthew Gordon

A graduate minor in linguistics consists of at least 12 hours including two electives and two required courses: LINGST 7630 Phonology and LINGST 7640 Syntax. Electives are to be drawn from our list of upper level linguistics classes (see <http://linguistics.missouri.edu/courses.html>).

Graduate degrees in linguistics are not offered but MA and PhD programs that emphasize language and linguistics are available in some cooperating departments such as Anthropology, Communication, English, Romance Languages and Literatures, and Philosophy.

The linguistics area program is staffed by faculty from various departments (see below). Supporting course work may be drawn from a range of units including Anthropology, Black Studies, Classical Studies, Communication, Communication Science and Disorders, the College of Education, English, German and Russian Studies, Psychology, Philosophy, Romance Languages and Literatures, and South Asian Studies.

Financial aid, when available, is arranged through the participating departments.

## Cooperating Graduate Degree Programs

Anthropology (p. 140)

Interested Anthropology and other graduate students may minor in Linguistics. Linguistics is a integral component of ethnographic research.

Communication (p. 168)

In the Department of Communication, students learn to apply the study of communication to their professional and personal lives. Students may receive a MA, or PhD through this department.

Communication Science and Disorders (p. 551)

The discipline of Communication Science and Disorders encompasses the field of speech, language, and hearing science and the distinct but related professions of Speech-Language Pathology and Audiology. Students may receive a MA, or PhD through this department.

English (p. 180)

The English department offers MA and PhD degrees with an emphasis in English Language and Linguistics.

Philosophy (p. 249)

Linguistics majors benefit by taking courses offered by the Philosophy Department and can focus on issues at the intersection of philosophy and linguistics.

Romance Languages and Literatures (p. 279)

The Department of Romance Languages and Literatures offers the MA with an emphasis on Language Teaching (MALT).

## BA in Linguistics

### Degree Program Description

The study of linguistics offers students a liberal education and a window into the fascinating human linguistic capacity. Students can obtain a BA in linguistics, and many students double-major in linguistics and another field. The BA prepares students for graduate study in linguistics and related fields. It also develops analytical and verbal skills that are valuable in a wide variety of professional careers.

### Major Program Requirements

Major core requirements (minimum)	21
<b>I. Required areas/courses</b>	
Introduction to Linguistics	3
LINGST 1060 Human Language	
Language Structure - At least one in-depth structure course such as:	3
LINGST 4600 Structure of American English	
LINGST 4720 Structure of Modern French	
LINGST 4721 Structure of Modern Spanish	
Phonology	3
LINGST 4630 Phonology (typically offered Spring semesters)	
Syntax	3
LINGST 4640 Syntax (typically offered Fall semesters; a structure course prerequisite)	
Semantics	3
Select one of the following:	
LINGST 2700 Elementary Logic	
LINGST 4100 Philosophy of Language	
LINGST 4110 Advanced Logic	
<b>II. Electives</b>	
At least one additional course from any part of the linguistics curriculum, including but not limited to those listed above and below	3
Language variation	
LINGST 4620 Regional and Social Dialects of American English	

LINGST 4722	Spanish Across the Continents	
LINGST 4723	Language and Society: Spanish in the U.S.	
<b>Language and Culture</b>		
LINGST 3470	Culture as Communication	
LINGST 4412	Gender, Language and Communication	
<b>Historical Linguistics and Language Change</b>		
LINGST 4200	Introduction to Old English	
LINGST 4610	History of the English Language	
LINGST 4710	History of the French Language	
LINGST 4711	History of the Spanish Language	
<b>Phonetics</b>		
LINGST 3010	American Phonetics	
LINGST 3220	Speech Acoustics	
LINGST 3210	Anatomy and Physiology of the Speech Mechanism	
LINGST 3220	Speech Acoustics	
LINGST 3721	Spanish Phonetics	
<b>Language and the Mind</b>		
LINGST 2820	Introduction to Cognitive Science	
LINGST 4810	Psycholinguistics	
<b>III. Capstone Course</b>		<b>3</b>
LINGST 4870	Field Methods in Linguistics	

## Options

Topics courses such as LINGST 2001, LINGST 3001 and LINGST 4001 may also satisfy core requirements. Substitutions may be approved for courses in one of the required areas if no courses are available in that area during a student's senior year.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
LINGST 1060	3 Foreign Language	5
ENGLSH 1000	3 MATH 1100	3
Social Science (MO State Law)	3 Behavioral Science	3
Foreign Language	5 General Elective	3
	<b>14</b>	<b>14</b>
<b>Second Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
LINGST 2700 or PHIL 2700	3 Linguistics Elective	3
Behavioral Science	3 Minor	3
Foreign Language	3 Humanities/Fine Arts (Writing Intensive)	3
Social Science	3 Science with a Lab	5
General Elective	3 General Elective	3
	<b>15</b>	<b>17</b>
<b>Third Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
LINGST 4600, 4720, or 4721	3 LINGST 4630	3
Minor	3 Minor	3
Humanities/Fine Arts	3 Humanities/Fine Arts	3
Science	3 Science	3

General Elective	3 General Elective	3
	<b>15</b>	<b>15</b>
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
LINGST 4640	3 LINGST 4870	4
Minor	3 Minor	3
Social Science	3 Humanities/Fine Arts	3
General Elective	3 General Elective	3
General Elective	3 General Elective	3
	<b>15</b>	<b>16</b>

Total Credits: 121

## Minor in Linguistics

The minor in linguistics requires at least 15 credits of linguistic courses. They may be drawn from any part of the linguistics curriculum.

## Graduate Minor in Linguistics

### Completion Requirements for the Graduate Minor in Linguistics

A graduate minor field in linguistics is available to graduate students. It is comprised of 12 hours, two courses of which are required and two are to be selected from a list of upper level linguistics classes:

#### Required:

LINGST 7630	Phonology	3
LINGST 7640	Syntax	3

**Sample list from which two additional courses will be selected (appropriate substitutes may be accepted at the discretion of the chair):** 6-7

LINGST 7420	Historical Linguistics
LINGST 7415	Language and Discourse
LINGST 7600	Structure of American English
LINGST 7610	History of the English Language
LINGST 7620	Regional and Social Dialects of American English
LINGST 7400	Language and Culture
LINGST 7870	Field Methods in Linguistics

Total Credits 12-13

## Mathematics

Nakhle Asmar, Chair  
 College of Arts and Science  
 224 Math Sciences Building  
 (573) 882-6221  
 asmarn@missouri.edu

## Faculty

**Professor** I. M. Aberbach\*\*, N. Asmar\*\*, W. D. Banks\*\*, P. Casazza\*\*, T. Christiansen\*\*, S. D. Cutkosky\*\*, S. Dostoglou\*\*, D. S. Edidin\*\*, F. Gesztesy\*\*, L. Grafakos\*\*, A. D. Helfer\*\*, S. Hofmann\*\*, A. Koldobsky\*\*, Y. Latushkin\*\*, Y. Li\*\*, K. A. Makarov\*\*, D. I. Mitrea\*\*, M. Mitrea\*\*, S. Montgomery-Smith\*\*, M. M. H. Pang\*\*, Z. Qin\*\*, H. Srinivasan\*\*, A. Tsoi\*\*, I. Verbitsky\*\*, S. Wang\*\*, Q. Zhang\*\*

**Associate Professor** C. Chindris\*\*, A. Harcharras\*\*, C. Morpurgo\*\*, J. Segert\*, D. T. Weston\*\*

**Assistant Professor** P. Pivovarov\*\*, S. Walsh\*\*, S. Takeda\*\*, J. Tu\*\*

**Business Mathematics Coordinator** S. Goldschmidt

**Calculus Coordinator** A. Clayton

**College Algebra Coordinator** T. E. Christiansen

**Professor Emeritus** M. S. Ashbaugh\*\*, J. Beem\*, C. C. Chicone\*\*, R. Crownover, J. Lange\*, I. J. Papick\*, C. Petty\*, D. H. Pettey\*, J. Reeder, E. Saab\*, P. Saab\*, D. Sentilles\*, Z. Zhao\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Department Level Requirements (p. 223)
- BA in Mathematics (p. 223)
- BS in Mathematics (p. 223)
  - with emphasis in Actuarial Science and Mathematical Finance (p. 224)
- Minor in Mathematics (p. 225)

The Department of Mathematics offers a major with either a Bachelor of Arts or a Bachelor of Science degree. Within the BS degree, an emphasis in Actuarial Science and Financial Mathematics is available. Both the BA and BS degrees will prepare a student for a graduate program in Mathematics.

## Preparation for Graduate Study in Mathematics

Students satisfying the requirements for either the BA or the "traditional" BS will have the basic preparation for a graduate program in Mathematics. A student considering graduate work, however, should take additional coursework. Because of this, a BS degree would be considered preferable. Those students in the Actuarial Science area considering graduate work should take MATH 4720 as part of their program. Those students getting a dual degree in Mathematics and Mathematics Education considering graduate work in mathematics should choose to take both MATH 4700 and MATH 4720 as part of their program.

Courses recommended for students planning to pursue graduate studies in pure mathematics: MATH 4400, MATH 4500, MATH 4900, MATH 4920, and MATH 4940.

Courses recommended for students planning to pursue graduate studies in applied mathematics: MATH 4300, MATH 4310, MATH 4315, MATH 4320, MATH 4500, MATH 4540, MATH 4940.

## Departmental Honors

### Eligibility

To become a candidate for the BA or BS degree with a major in Mathematics with departmental honors, a student must have a cumulative grade point average that meets the Honors College standards. At present, students with a GPA of 3.30 or higher are automatically eligible to enter the departmental honors programs.

## Requirements

To graduate with departmental honors in mathematics, a student must satisfy the regular BA or BS degree requirements and must have a GPA of 3.5 or higher in all Mathematics Department courses. In addition, the student must have at least 26 credits in mathematics courses numbered 4000 or above. Furthermore, the student must complete one of the two options listed below.

### Option 1: Honors Thesis

The student must write an honors thesis in conjunction with a mentorship or in conjunction with MATH 4996. This option requires that the student enroll in MATH 4996.

### Option 2:

The student's program of study must include MATH 4700, MATH 4900, MATH 4720 and MATH 4920.

## Graduate

- MA in Mathematics (p. 225)
- MS in Applied Mathematics (p. 227)
- MST in Mathematics (p. 228)
- PhD in Mathematics (p. 229)

College of Arts and Science  
202 Mathematical Sciences Building  
(573) 882-6221

<https://www.math.missouri.edu/grad/index>

**Director of Graduate Studies:** Stephen Montgomery-Smith

## About Mathematics

The Graduate Program in Mathematics is large enough to encompass research and courses in many areas, yet small enough to remain responsive to the needs of individual students. There are approximately 80 graduate students, 40 professors, and 15 postdoctoral and visiting researchers. The active areas of research include: algebraic geometry, analysis (real, complex, functional and harmonic), analytic functions, applied mathematics, financial mathematics and mathematics of insurance, commutative rings, scattering theory, differential equations (ordinary and partial), differential geometry, dynamical systems, general relativity, mathematical physics, number theory, probabilistic analysis and topology.

The Mathematical Sciences Building houses a library with more than 34,000 volumes and 430 journal titles. MU students have access to an extensive array of computing resources.

## Admission Notice

Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

## Financial Aid from the Program

All domestic applications for admission are automatically considered for financial support, in most cases by Teaching Assistantships. Virtually all

current students are supported financially. Scholarships, assistantships, fellowships and other sources of aid are available.

The Department Research Fellowship, the Blumenthal Scholarship and the McFarlan Fellowship are administered by the department, while the Huggins Scholarship, Gregory Fellowship and Ridgel Fellowship are administered by the university.

International applications with TOEFL of 85 or higher (or equivalent) will also be automatically considered for departmental financial support.

## Department Level Requirements-Mathematics

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLISH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (expect for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

### Core Math Requirements for all Math degrees (24 credits)

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 3000	Introduction to Advanced Mathematics	3
MATH 4100	Differential Equations	3
MATH 4140	Matrix Theory	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
or CMP_SC 1050	Algorithm Design and Programming I	
Total Credits		25

## BA in Mathematics

### Degree Program Requirements

Mathematics is part of the foundation of all the sciences, engineering, statistics, and many social sciences. A degree in mathematics provides one with both the applied mathematics knowledge necessary to engage in these disciplines, and formal reasoning skills that can be applied in any area. The major is well suited for those interested in mathematics alone, or for those looking to supplement another major. Our students go on to jobs or further study in all the above disciplines, as well as many others (medical school or law school, for instance).

### Major Program Requirements

All MU General Education (p. 33) and Arts and Science Breadth and Depth requirements (for the BA) must be satisfied, in addition to the Department Level Requirements (p. 223). The foreign language requirement must be satisfied either by taking a foreign language for 4 years in high school or by completing a language sequence at MU.

### Additional requirements for the BA degree

- MATH 4700 Advanced Calculus of One Real Variable I
- MATH 4720 Introduction to Abstract Algebra I
- Four approved 4000 level Math electives

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 MATH 1700	5
Humanities/Fine Arts Course	3 Foreign Language (Level I)	5
ENGLISH 1000	3 Humanities/Fine Arts Course	3
HIST 1100, 1200, or POL_SC 1100	3 Biological/Physical/Mathematical Science Course (Not taught by the Math Department)	4
Elective Course		
		14
		17

Second Year		
Fall	CR Spring	CR
MATH 2300	3 MATH 4100	3
INFOTC 1040	3 MATH 4140	3
Foreign Language (Level II)	5 Foreign Language (Level III)	3
Humanities/Fine Arts Course	3 Biological/Physical/Mathematical Science Course (Not taught by the Math Department)	3
Elective Course	3 BIO SC course	3
		17
		15

Third Year		
Fall	CR Spring	CR
MATH 3000	3 MATH 4700	3
4000-level MATH elective	3 4000-level MATH elective	3
4000-level MATH elective	3 Social Science Course (in a field different from the History or Political Science Course taken in Fall I)	3
Biological/Physical/Mathematical Science Course (Not taught by the Math Department)	3 Elective Course	3
Elective Course	3 Elective Course	3
		15
		15

Fourth Year		
Fall	CR Spring	CR
MATH 4720	3 4000-level Math Elective	3
Behavioral Science Course 2000-level	3 Humanities/Fine Arts Course 2000-level	3
Humanities/Fine Arts Course	3 Social Science Course	3
Social Science Course	3 Elective Course	3
Elective Course	3	
		15
		12

Total Credits: 120

## BS in Mathematics

### Degree Program Description

Mathematics is part of the foundation of all the sciences, engineering, statistics, and many social sciences. A degree in mathematics provides one with both the applied mathematics knowledge necessary to engage in these disciplines, and formal reasoning skills that can be applied in any area. The major is well suited for those interested in mathematics alone,



or for those looking to supplement another major. Our students go on to jobs or further study in all the above disciplines, as well as many others (medical school or law school, for instance).

## Major Program Requirements

The Mathematics Department offers a "Standard" BS, a BS with emphasis in Actuarial Science and Mathematical Finance, and a Dual Degree in Mathematics and Mathematics Education. In each case all MU General Education (p. 33) and Arts and Science Breadth and Depth requirements (for the BS) must be satisfied, in addition to the Department Level Requirements (p. 223). Note that the courses accepted for the science requirement by the Mathematics department are more restrictive than the Arts and Science requirement.

All BS degrees require completion of the Foreign Language requirement by one of: four years of a language in high school, completion of a foreign language sequence at MU, or a Foreign Language Alternative (12 credits at the 2000 level or above in an area, or related areas, approved by the Director of Undergraduate Studies).

### Additional requirements for the BS degree

- MATH 4700
- MATH 4720
- Four approved 4000 level Math electives
- Science Requirement: 13 or more credits from the two groups below. Both groups must be represented.

Group I:

PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5

Group II: Any 4000 level courses in Statistics or Computer Science.

### Additional requirements for the BS Degree (Dual degree for Math and Math Ed majors)

- One of: MATH 4300, MATH 4500, or MATH 4700
- One of MATH 4510 or MATH 4720
- Four approved 4000 level Math electives
- Science Requirement: 10 or more credits from the two groups from the Course List above. Both groups must be represented.

### Additional requirements for the BS degree (Double major in Math and Economics)

- MATH 4700
- One of MATH 4310, MATH 4720, or MATH 4900
- Four approved 4000 level Math electives
- Science Requirement: 10 or more credits from the two groups from the Course List above. Both groups must be represented.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 MATH 1700	5
HIST 1100 or POL_SC 1100*	3 Behavioral Science Elective Course*	3
Humanities/Fine Arts Elective Course*	3 Humanities/Fine Arts Elective Course*	3
ENGLISH 1000*	3 INFOTC 1040	3
	14	14
Second Year		
Fall	CR Spring	CR
MATH 2300	3 MATH 4100	3
2000-level General Education Elective	3 MATH 3000	3
PHYSICS 2750	5 PHYSICS 2760	5
SPAN 1100	4 SPAN 1200	4
	15	15
Third Year		
Fall	CR Spring	CR
MATH 4700	3 MATH 4720	3
MATH 4140	3 4000-level MATH Course	3
Writing Intensive Elective Course*	3 2000-level General Education Elective*	3
SPAN 2100	4 Humanities/Fine Arts Course	3
Elective Course	3 Elective Course	3
	16	15
Fourth Year		
Fall	CR Spring	CR
4000-level MATH course	3 4000-level MATH course	3
4000-level Course in STAT or CMP SC	3 4000-level MATH course	3
4000-level MATH course	3 Elective Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
	15	15

Total Credits: 119

## BS in Mathematics with Emphasis in Actuarial Science and Mathematical Finance

### Degree Program Description

Actuarial science applies mathematical and statistical methods to finance and insurance, particularly to the assessment of risk. Actuarial science includes a number of interrelating disciplines, in particular the mathematics of probability and statistics. In the life insurance industry, traditional actuarial science focuses on the analysis of mortality and the production of life tables, and the application of compound interest. More recently, actuarial science has come to embrace more sophisticated mathematical modeling of finance. Ideas from financial economics are also becoming increasingly influential in actuarial thinking.

## Major Program Requirements

Students must complete the MU general education requirements (p. 33) and the Department Level Requirements (p. 223) in addition to the degree requirements listed below.

This emphasis area will serve those who want to pursue a career in the financial and insurance industries. It will also help BS students to prepare for their first actuarial exams. Those students considering further graduate work in Mathematics should also take

MATH 4700	Advanced Calculus of One Real Variable I	3
MATH 4355	Introduction to Financial Derivatives and Options	3
MATH 4370	Actuarial Modeling I	3
MATH 4371	Actuarial Modeling II	3
MATH 4315/STAT 4710	Introduction to Mathematical Statistics	3
MATH 4320/STAT 4750	Introduction to Probability Theory	3
MATH 4520/STAT 4760	Statistical Inference I	3
<b>Additional course requirements:</b>		
STAT 4870	Time Series Analysis	3
STAT 4510	Applied Statistical Models I	3
ECONOM 1014	Principles of Microeconomics	3
ECONOM 1015	Principles of Macroeconomics	3
<b>Science requirement: 5 or more credits from Group I courses (see above)</b>		
<b>The following courses are recommended in order to satisfy VEE requirements:</b>		
FINANC 3000	Corporate Finance	3
FINANC 4020	Investments	3
MATH 4590	Mathematics of Financial Derivatives	3
		10
Total Credits		52

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 MATH 1700	5
ECONOM 1014	3 ECONOM 1015	3
ENGLSH 1000	3 INFOTC 1040	3
General Elective	3 General Elective	3
		3
		14
		17
Second Year		
Fall	CR Spring	CR
MATH 2300	3 MATH 4100	3
PHYSICS 2750	5 MATH 4140	3
SPAN 1100	4 SPAN 1200	4
General Elective	3 STAT 4710	3
		15
		13
Third Year		
Fall	CR Spring	CR
MATH 3000	3 MATH 4700	3
MATH 4355	3 MATH 4371	3

STAT 4750	3 STAT 4760	3
SPAN 2100	4 General Elective	3
General Elective	3 General Elective	3
		16
		15

Fourth Year		
Fall	CR Spring	CR
MATH 4370	3 MATH 4590	3
STAT 4510	3 Elective	3
STAT 4870	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
		15
		15

Total Credits: 120

## Minor in Mathematics

To minor in mathematics, a student must satisfactorily complete the following requirements.

- The equivalents of MATH 1500, MATH 1700 and MATH 2300
- 9 additional credits in approved math courses (students not taking MATH 2320 or MATH 3000, must take all 9 credits at the 4000 level; students taking MATH 2320 or MATH 3000, need an additional 6 credits at the 4000 level)
- All courses completed with grades in C range or higher
- At least 9 credits used to satisfy the minor requirements taken in residence (College of Arts and Science requirement)

## MA in Mathematics

Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies

222 Mathematical Sciences Building

Columbia, MO 65211

(573) 882-6221

email: muasmathdgs@missouri.edu

## Admission Criteria

**Notes:** Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based

test) or equivalent. An ibtTOEFL Speaking subscore of 22 or higher is preferred.

- Minimum total academic IELTS score is 5.5

## Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)

Note: The application is submitted through the Office of Graduate Studies' ApplyYourself system. This includes the online credit card payment \$55.00 US for U.S. Citizens and Permanent Residents, \$75.00 US for Non-Resident International applicants.

## Completing the ApplyYourself Application:

This section consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the **Mathematics Master of Arts (MA)**
  - Admissions Category: Graduate Degree Sought at MU: Master's
  - Graduate Program to which you are seeking admissions: Mathematics Master of Arts (MA)
- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

## Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.

- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents.
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission.
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation.

**RECOMMENDATIONS:** The ApplyYourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)) system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

## International Applicants Only

- Unofficial copies of TOEFL/IELTS reports uploaded by applicant can be used for initial evaluation - official reports sent directly to the Graduate Admissions Office will still be required to finalize admission.
- Affidavit of Support for International Applicants: It is not necessary to complete this form. International applicants are required to complete the Affidavit of Support OR provide a letter of support from a University of Missouri graduate degree program before immigration documents can be issued. All international admissions to the Mathematics graduate program come with financial support which suffices to meet this requirement.

*The following (paper) application materials must be on file at the Graduate Admissions office before an admission offer can be finalized:*

- Official transcripts/mark sheets from each college or university you have attended (sent directly from the college or university). Applicants with degrees from outside the United States must provide academic credentials in both the native language and in English.
- Official TOEFL or IELTS scores (sent directly from the testing service). Please review the Graduate School's policy regarding proof of English Language proficiency.

Please arrange to have these materials mailed to the following address:

University of Missouri-Columbia  
 Graduate Admissions  
 210 Jesse Hall  
 Columbia, MO 65211  
 800-877-6312  
 573-884-8488

## MA Degree Completion Requirements

The degree requirements include the satisfactory completion of 30 hours of approved course work, of which at least 18 hours must be at the 8000 level.

Required		
MATH 8420	Theory of Functions of Real Variables I	3
MATH 8410	Algebra I	3

MATH 8190	Masters Project in Mathematics *	3
or		
MATH 8090	Master's Thesis Research in Mathematics *	

**Students are expected to make up any required deficiencies in their undergraduate training in advanced calculus and abstract algebra. Students may not list the courses:**

MATH 7110	Advanced Calculus With Applications	3
MATH 7140	Matrix Theory	3
MATH 7510	Higher Algebra	3

\* The successful completion of a Master's Project (MATH 8190) or Master's Thesis (MATH 8090) must be certified by a Master's Committee consisting of three members of the Mathematics regular faculty.

The following table lists the requirements for the MA, and also suggests an order in which to take courses.

First Year		
Fall	CR Spring	CR
MATH 7700	3 MATH 7900	3
7000 Class	MATH 7720	3
MATH 7920	3 7000 Class	
6		6
Second Year		
Fall	CR Spring	CR
MATH 8420	3 8000 Class	
MATH 8410	3 8000 Class	
8000 Class	Masters Project	
6		0

Total Credits: 18

## MS in Applied Mathematics

### Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
 222 Mathematical Sciences Building  
 Columbia, MO 65211  
 (573) 882-6221  
 email: muasmathdgs@missouri.edu

### Admission Criteria

**Notes:** Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

<b>Internet-based test (iBT)</b>	<b>Paper-based test (PBT)</b>
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 80

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An ibtTOEFL Speaking subscore of 22 or higher is preferred.

- Minimum total academic IELTS score is 5.5

### Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)

Note: The application is submitted through the Office of Graduate Studies' ApplyYourself system. This includes the online credit card payment \$55.00 US for U.S. Citizens and Permanent Residents, \$75.00 US for Non-Resident International applicants.

### Completing the ApplyYourself Application:

This section consists of four subsections.

- **Personal Information:** Complete all information as requested.
- **Application Information:** Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- **Indicate your selection for the Applied master of Mathematics Master of Arts (MS)**
  - Admissions Category: Graduate Degree Sought at MU: Master's
  - Graduate Program to which you are seeking admissions: Applied Mathematics Master of Science (MS)
- **Educational History:** Complete all information as requested.
- **Test Information:**
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

### Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.

- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation

**RECOMMENDATIONS:** The ApplyYourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)) system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

## MS Degree Completion Requirements

Designed to give students training in those areas of mathematics used frequently in applications.

A candidate must satisfactorily complete 30 hours of approved course work, at least 15 hours of which must be in 8000-level courses.

Required		
MATH 8420	Theory of Functions of Real Variables I	3
MATH 8440	Advanced Ordinary Differential Equations I	3
MATH 8190	Masters Project in Mathematics	3
or		
MATH 8090	Master's Thesis Research in Mathematics	3
Suggested		
MATH 8445	Partial Differential Equations I	3
MATH 8480	Advanced Probability	3

At least three hours of the 30 hours must be taken outside the department. Additional requirements (some of which may be satisfied by work done as an undergraduate) include the completion of one year of advanced calculus and at least one approved course in each of the areas of linear algebra, numerical analysis and mathematical statistics or probability.

### Students may not list the courses:

MATH 7110	Advanced Calculus With Applications	3
MATH 7100	Differential Equations	3
MATH 7140	Matrix Theory	3
MATH 7150	History of Mathematics	3

\* The successful completion of a Master's Project (MATH 8190) or Master's Thesis (MATH 8090) must be certified by a Master's Committee consisting of three members of the Mathematics regular faculty.

The following table lists the requirements for the MS, and also suggests an order in which to take courses.

First Year		
Fall	CR Spring	CR
MATH 7700	3 MATH 7900	3

7000 Class	MATH 7940	3
MATH 7920	3 7000 Class	
		6
		6

Second Year		
Fall	CR Spring	CR
MATH 8420	3 8000 Class	
MATH 8440	3 8000 Class	
8000 Class	Masters Project	
		6
		0

Total Credits: 18

## MST in Mathematics

### Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
 222 Mathematical Sciences Building  
 Columbia, MO 65211  
 (573) 882-6221  
 email: [muasmathdgs@missouri.edu](mailto:muasmathdgs@missouri.edu)

## Admission Criteria

**Notes:** Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An iBT TOEFL Speaking subscore of 22 or higher is preferred.

- Minimum total academic IELTS score is 5.5

## Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)
- Note: The application is submitted through the Office of Graduate Studies' ApplyYourself system. This includes the online credit card payment \$55.00 US for U.S. Citizens and Permanent Residents, \$75.00 US for Non-Resident International applicants.

## Completing the ApplyYourself Application:

The application consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the Mathematics Master of Science for Teachers (MST).
- Admissions Category: Graduate Degree Sought at MU: Master's.
- Graduate Program to which you are seeking admissions: Mathematics Master of Science for Teachers (MST).
- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

## Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents.
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission.
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation.

**RECOMMENDATIONS:** The ApplyYourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)) system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

## MST Degree Completion Requirements

This degree is designed primarily for those who want to teach mathematics at the secondary school level. A candidate for the degree must have a valid teaching certificate before entering the program and must satisfactorily complete 30 hours of approved course work. MATH 8190 or MATH 8090 is required. At least 15 hours must be in 8000-level courses, of which at least 9 hours must be courses from the Mathematics Department. At least two courses are required in the fields of algebra, analysis and geometry/topology. The successful completion of a Master's Project (MATH 8190) or Master's Thesis (MATH 8090) must be certified by a Master's Committee consisting of three members of the Mathematics regular faculty.

Note: The MU College of Education at the University of Missouri is a separate academic unit offering graduate degrees in Mathematics Education, with an emphasis on learning, teaching, and curriculum development.

## PhD in Mathematics

### Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
 222 Mathematical Sciences Building  
 Columbia, MO 65211  
 (573) 882-6221  
 email: [muasmathdgs@missouri.edu](mailto:muasmathdgs@missouri.edu)

## Admission Criteria

**Note:** Applicants for any graduate degree in mathematics should submit an application for graduate study. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80.	500 Effective July 1, 2015 must have score of 550.

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An ibtTOEFL Speaking subscore of 22 or higher is preferred.

- Minimum IELTS score:

Item	Score
OVERALL	5.5

## Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement

- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)

Note: The application is submitted through the Office of Graduate Studies' ApplyYourself (<http://gradschool.missouri.edu/admissions>) system. This includes the online credit card payment \$55.00 US for U.S. Citizens and Permanent Residents, \$75.00 US for Non-Resident International applicants.

## Completing the ApplyYourself Application:

The application consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the Mathematics Doctor of Philosophy (PhD)
- Admissions Category: Graduate Degree Sought at MU: Doctorate
- Graduate Program to which you are seeking admissions: Mathematics Doctor of Philosophy (PhD)
- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

## Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation

**RECOMMENDATIONS:** The ApplyYourself system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of

recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

## International Applicants Only

- Unofficial copies of TOEFL/IELTS reports uploaded by applicant can be used for initial evaluation - official reports sent directly to the Graduate Admissions Office will still be required to finalize admission
- Affidavit of Support for International Applicants: It is not necessary to complete this form. International applicants are required to complete the Affidavit of Support OR provide a letter of support from a University of Missouri graduate degree program before immigration documents can be issued. All international admissions to the Mathematics graduate program come with financial support which suffices to meet this requirement.

*The following (paper) application materials must be on file at the Graduate Admissions office before an admission offer can be finalized:*

- Official transcripts/mark sheets from each college or university you have attended (sent directly from the college or university). Applicants with degrees from outside the United States must provide academic credentials in both the native language and in English.
- Official TOEFL or IELTS scores (sent directly from the testing service). Please review the Graduate School's policy regarding proof of English Language proficiency.

Please arrange to have these materials mailed to the following address:

University of Missouri-Columbia  
 Graduate Admissions  
 210 Jesse Hall  
 Columbia, MO 65211  
 1-800-877-6312  
 (573) 884-8488

## PhD Degree Completion Requirements

This is a professional research degree designed to prepare students for various advanced professional careers, including college teaching and research. Before formally becoming a candidate, a student must have training equivalent to that required for a master's degree.

Year 0 courses include basic advanced undergraduate material, which incoming Ph.D. students are required to master before engaging in graduate coursework. Well prepared incoming students can petition to skip some or all of the Year 0 courses. The Director of Graduate Studies will administer an informal exam to see if the students are sufficiently ready to skip Year 0 courses.

Fall	CR Spring	CR
MATH 7700	3 MATH 7900	3
MATH 8655	3 MATH 7940	3
MATH 7920	3 MATH 7720	3
		9

Total Credits: 18

Year 1 courses will train students to develop a common solid foundation on basic graduate mathematics. The Ph.D. student is required to pass all 6 courses, and to pass qualifying exams in Algebra and Real Analysis. The qualifying exams will be given in May of each year, shortly after finals week. There will be an opportunity to retake a qualifying exam in August

just before the beginning of the Fall semester. The Analysis qualifying exams will be from topics from Real Analysis I and Real Analysis II. The Algebra qualifying exams will be from topics from Algebra I and Algebra II.

Extremely well prepared students, with the permission of their initial advisor and the Director of Graduate studies, may take one or both qualifying exams in August before they start their first semester. If they pass, then with the permission of their initial advisor and the Director of Graduate studies they may skip the corresponding courses in Year 1.

## Year 1: Take All 6

First Year		
Fall	CR Spring	CR
MATH 8420	3 MATH 8421	3
MATH 8410	3 MATH 8411	3
MATH 8425	3 MATH 8502 (.1†)	3
	9	9

Total Credits: 18

† Here, and elsewhere in this document, the number after the period refers to the section number.

Year 2 and above are the post-qual core courses. Every Ph.D. student must complete at least six of the post-qual core courses. (Note that the parity of the year is determined by the beginning of the AY. For example, Spring 2016 occurs in the beginning of AY 2015, and so would be considered to be in an odd year.)

## Year 2 and above: Minimum 6 classes Even Years

Fall	Spring		
MATH 8630	Harmonic Analysis I	MATH 8402	Topics in Mathematical Physics (Mathematical Physics)
MATH 8440	Advanced Ordinary Differential Equations I	MATH 8302	Topics in Harmonic Analysis (Theory of Distributions)
MATH 8102	Topics in Algebra (Algebraic Number Theory)	MATH 8480	Advanced Probability
MATH 8102	Topics in Algebra (Commutative Algebra I)	MATH 8650	Differentiable Manifolds and Riemannian Geometry
MATH 8628	Functional Analysis I	MATH 8102	Topics in Algebra (Commutative Algebra II)
MATH 8445	Partial Differential Equations I	MATH 8631	Harmonic Analysis II

## Odd Years

Fall	Spring		
MATH 8630	Harmonic Analysis I	MATH 8631	Harmonic Analysis II
MATH 8445	Partial Differential Equations I	MATH 8446	Partial Differential Equations II

MATH 8440	Advanced Ordinary Differential Equations I	MATH 8480	Advanced Probability
MATH 8202	Topics in Functional Analysis (.1)	MATH 8618	Introduction to Algebraic Topology
MATH 8615	Algebraic Geometry I	MATH 8616	Algebraic Geometry II

Some of the above courses are listed in the catalog under different names. Others are new courses, and are currently listed as topics courses until we are able to add them to the catalog.

The candidate must further complete a course of study approved by the doctoral program committee and pass a comprehensive examination. The active areas of research interest of the current members of the staff are: algebraic geometry, analysis (real, complex, functional and harmonic), analytic functions, applied mathematics, financial mathematics and mathematics of insurance, commutative rings, scattering theory, differential equations (ordinary and partial), differential geometry, dynamical systems, general relativity, mathematical physics, number theory, probabilistic analysis and topology.

*Note: Effective at the start of Winter Semester 2007, there is NO foreign language proficiency requirement for the Mathematics PhD. However, a student's Doctoral Committee still retains the discretion to impose a foreign language proficiency requirement.*

## Music

Julia Gaines, Director  
140 Fine Arts Bldg.  
(573) 882-2606

The School of Music is a department in the College of Arts and Sciences that offers instruction to those who want professional training in music as well as those who wish to pursue music as a vocation. Applied music instruction in piano, voice, string, woodwind, brass and percussion instruments is offered for beginning and advanced students. Elementary and advanced courses are given in music theory and composition. The appreciation, literature and history of music are covered by survey and specialized courses. The school has been an accredited member of the National Association of Schools of Music since 1933.

The School of Music also offers opportunities for all students of the university to participate in various performing groups. Regular programs are presented on campus and throughout the state by groups such as The University Philharmonic Orchestra, University Wind Ensemble, Marching Mizzou, Symphonic Band, University Band, Jazz Ensembles, Choral Union, University Singers, Chamber Singers, Concert Chorale, Hitt Street Harmony, Women's Choir, Opera Workshop and many vocal, string, percussion and wind chamber ensembles. Membership in these groups is open to interested students by audition, except University Choral Union and University Band, which do not require an audition.

The department offers BA, MA and MM degrees majors in Music and BM degrees in Music and Music Education. MA, MEd, EdSP and PhD degrees with majors in Music Education are offered through the Department of Learning, Teaching and Curriculum. A minor in Music and a minor and certificate in Jazz Studies are also available. A certificate in Music Entrepreneurship is also available.

## Faculty

Curators' Teaching Professor M. Budds\*



**Professor** P. Crabb\*, S. Freund\*, P. Miyamoto\*, L. Perna\*, W. Sims\*, M. Spence\*, E. Szekely\*, J. Wenger\*, D. Willett\*

**Associate Professor** I. Akhmadullin\*, J. Gaines\*, J. Mabary\*, A. Manzo\*, N. Minturn\*, L. Saguiguit\*, S. Shonekan\*, B. Silvey\*

**Associate Teaching Professor** C. Seitz\*

**Assistant Professor** M. Arns\*, A. K. Dade\*, M. Gibson\*, T. Howe\*, E. Lara\*, J. Rosenfeld\*, S. Tharp\*

**Assistant Teaching Professor** J. Bentley\*, A. Glise\*, S. Jepson\*, P. Lea\*, L. Munoz\*, W. Warnhoff\*

**Post Doc** P. Sink

**Adjunct Instructor** E. Andrews, A. Beeson, N. Bolshakova, J. Gotlib, S. Hennessy, E. Manzo, P. Seitz\*, S. Stubbs, B. Tate

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Music (p. 232)
- BM in Music (p. 233)
  - with emphasis in Composition (p. 234)
  - with emphasis in Music Education (p. 235)
  - with emphasis in Music History (p. 237)
  - with emphasis in Music Theory (p. 238)
  - with emphasis in Performance (p. 239)
- Minor in Music (p. 242)

## Departmental Honors

Departmental Honors for the School of Music are designed to reward truly superlative achievement by an undergraduate music student, focusing on the student's area of performance, theory and composition, or history and literature. A minimum GPA of 3.3 at the onset of the senior year is required, not including grades for large ensembles. The student must initiate the process by submitting a formal application to the Director of the School of Music at the beginning of the semester prior to the semester of graduation, and must receive approval from his or her area coordinator and faculty advisor. Further information and an application form may be obtained by contacting the Director of Undergraduate Studies in Music.

## Graduate

- MA in Music (p. 243)
  - with emphasis in Musicology (p. 243)
- MM in Music (p. 244)
  - with emphasis in Collaborative Piano (p. 245)
  - with emphasis in Composition (p. 246)
  - with emphasis in Conducting (p. 246)
  - with emphasis in Jazz Performance and Pedagogy (p. 247)
  - with emphasis in Music Theory (p. 247)
  - with emphasis in Performance (p. 247)
  - with emphasis in Piano Pedagogy (p. 249)

School of Music  
140 Fine Arts Center

(573) 882-2604

<http://music.missouri.edu/>

## About the School of Music

Founded in 1907, the School of Music is one of the larger academic units in the College of Arts and Science. Comprised of 38 full-time faculty members and approximately 260 music majors, it is small enough to permit close, personal interaction between students and faculty, but large enough to provide many wonderful opportunities for talented students to excel. Our primary mission is to prepare students to become professional musicians and music educators. The School of Music is widely known for its scholarship in the field, and it is an important cultural resource for the profession, the campus community, and the people of Missouri.

## Performance

At MU a student of music has the opportunity to hear many concerts or to participate in a variety of performing organizations. Many recitals are given by students, faculty and visiting artists. Among the student ensembles that give several concerts during the year are the University Philharmonic, University Wind Ensemble and other concert bands, jazz ensembles, University Singers and other choral ensembles, Show-Me Opera, and chamber music groups. Faculty ensembles that present recitals regularly include the Esterhazy String Quartet, the Missouri Woodwind Quintet and the MU Faculty Brass Quintet.

## Resources and Facilities

The music section of the Fine Arts Building contains a recital hall, classrooms, studios and practice facilities. The music holdings in Ellis Library, both printed and recorded materials, constitute a substantial research and reference collection. The School of Music maintains a digital piano and MIDI laboratory, analog and digital music studios, and access to a listening laboratory for history and theory courses.

## Additional Degree Options

Graduate Certificate in Jazz Studies (p. 320)

## Music Education Degrees

These are degrees offered by the Department of Learning, Teaching, and Curriculum in the College of Education (p. 416) in conjunction with the School of Music. These degrees include

- Master of Arts (MA) (p. 423)
- Master of Education (M Ed) (p. 423)
- Educational Specialist (EdSp) (p. 421)
- Doctor of Philosophy (PhD) (p. 439)

## BA in Music

### Degree Program Description

The Bachelor of Arts (BA) in Music is a 120-hour degree in which the number of courses in music is less than in the professionally-oriented BM degree, thereby making more hours available for non-music courses. The degree does, however, require a well-rounded set of courses that will leave the student with excellent musical understanding and performance skills. In addition, the student has the freedom to pursue a secondary area of interest, which might form the basis of a specific kind of professional training. Most students pursuing a double major (music and another field) choose the BA degree.

## Major Program Requirements

Students who elect to earn a Bachelor of Arts with a major in Music will complete a general, liberal arts degree with a strong music emphasis. Students must also complete all degree, college and university graduation requirements, including Arts & Science Foundation Requirements.

Courses completed in the D range may not fulfill music course requirements without the approval of the advisor and the dean, and the student must achieve an overall average of at least C (2.0) in all of the courses attempted in the School of Music.

## Major Core Requirements

MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUSIC 4300 level	History Elective (Writing Intensive)	3
MUS_GENL 3085	Problems in Music (Capstone Experience)	1
MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 semesters)	0
MUS_APMS 2455	Studio Instruction (Total of 8 credit hours)	8
MUS_APMS 3455	Studio Instruction	2
MUS_ENS 1841	Instrumental Ensemble (Total of 4 credit hours)	4
or MUS_ENS 1842	Choral Ensemble	
Total Credits		40

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MUS_GENL 1091 (Section 3)	0 MUS_GENL 1091	0
MUS_THRY 1220	2 MUS_THRY 1221	2
MUS_THRY 1230	2 MUS_THRY 1231	2
MUS_ENS 1841 or 1842	1 MUS_H_LI 1322	2
MUS_APMS 2455	2 MUS_ENS 1841 or 1842	1
Non-Music Courses	8 MUS_APMS 2455	2
	Non-Music Courses	6
	15	15
Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2

MUS_APMS 2455	2 MUS_APMS 2455	2
Non-Music Courses	6 Non-Music Courses	6
	15	15

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_APMS 3455	2 Non-Music Courses	15
Music History Elective	3	
Non-Music Course	10	
	15	15

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 3085	1
Non-Music Courses	15 Non-Music Courses	14
	15	15

Total Credits: 120

## BM in Music

### Degree Program Description

The Bachelor of Music (BM) degree is a program of 123-143 hours that may be earned with an emphasis in Performance (brass, classical guitar, percussion, piano, strings, voice, or woodwinds), Music History, Music Theory, Composition, or Music Education. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. Students must audition to be admitted into the program.

### Major Program Requirements

The Bachelor of Music (BM) is a professional degree that offers the maximum concentration in music. The student may focus on instrumental, keyboard or vocal performance; music theory; composition; music history or music education by choosing an emphasis area. In addition, students must complete degree, college and university requirements, including Arts & Science Foundation Requirements.

#### Foreign Language Requirement:

- Woodwind or Percussion Performance: 12-13 hours of any foreign language
- Theory, Composition, or Piano or Brass Performance: 12-13 hours of French, Italian, or German
- Music History: 10 hours of German + 5-6 hours of second language, approved by advisor (15-16 total)
- String Performance: 12-13 hours of French, Italian, German or Spanish
- Vocal Performance: GERMAN 1100 Elementary German I (5 hours), FRENCH 1100 Elementary French I (5 hours), and ITAL 1100 Elementary Italian I (6 hours); and one additional course in German (5 hours), French (5 hours), or Italian (6 hours) (21-22 hours total). In addition, one hour each in Italian, French, and German diction (music courses; 3 hours total)
- Music Education: Foreign language is not required

Candidates must pass an examination administered by the applied faculty in the area of performance at the completion of their sophomore year before entrance is approved to studio instruction at the 4455-level

(for performance tracks) or 3455-level (for all other tracks). Degree recitals must be approved two weeks in advance by a faculty hearing committee.

Courses completed in the “D” range may not fulfill music course requirements without the approval of the advisor and the dean, and the student must achieve an overall average of at least C (2.0) in all of the courses attempted in the School of Music at MU. Music education students must have an overall grade point average (GPA) of 2.75, a music content GPA of 3.00, and an education course GPA of 3.00 to qualify for teacher certification.

**Requirements for ALL emphasis areas and tracks, except music education.**

MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 semesters)	0
Total Credits		36

## Semester Plan

Refer to the sample plans of study that have been designed for the emphasis areas.

## BM in Music with Emphasis in Composition

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Composition focuses on music theory, methodology, composition of music, and music history. The program requires 123-143 hours, including courses in music theory, music history, studio instruction, and ensembles. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. Admission to the composition emphasis area requires an application, examination, and/or samples of work. Incoming freshmen accepted to the University of Missouri may be admitted to the BM composition major after a review of sample compositions and an interview with the composition faculty (normally on one of the Mizzou Music Days). Students already pursuing a music degree may be admitted to the emphasis area, typically toward

the end of the sophomore year of study, through an application and examination process.

## Major Program Requirements

In addition to the list of required courses below for the emphasis in Composition, students must complete the bachelor of music (p. 233), college and university requirements (p. 32), including Arts & Science Foundation Requirements (p. 133).

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors	0
MUS_APMS 1435	Studio Instruction for Majors (total of 4 credit hours)	1
MUS_APMS 2455	Studio Instruction (total of 8 credit hours)	1-5
MUS_APMS 3455	Studio Instruction (total of 8 credit hours)	1-3
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2215	Composition I	2
MUS_THRY 2216	Composition II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 3215	Composition III	2
MUS_THRY 3216	Composition IV	2
MUS_THRY 4215	Composition V	2
MUS_THRY 4216	Composition VI	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 4225	Sixteenth-Century Counterpoint	3
MUS_THRY 4227	Orchestration	2
MUS_THRY 4245	Introduction to Electronic Music	2
MUS_THRY 42xx	Theory Elective 2+2+2	6
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective 3+3	6
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
Total Credits		69-76

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_THRY 2216	2
MUS_THRY 2215	2 MUS_H_LI 1322	2
MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 2455	2 MUS_APMS 2455	2
Non-Music Courses	6-8 Non-Music Courses	6-8
18-20		18-20

Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_APMS 1435	1 MUS_APMS 1435	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 3216	2
MUS_THRY 3215	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_APMS 2455	2 MUS_APMS 2455	2
MUS_I_VT 2610	1 MUS_I_VT 2611	1
Non-Music Courses	3-5 Non-Music Courses	3-5
16-18		16-18

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_APMS 1435	1 MUS_APMS 1435	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 3455	2 MUS_I_VT 2631	2
MUS_THRY 4215	2 MUS_APMS 3455	2
MUS_THRY 4220	2 MUS_THRY 4216	2
MUS_THRY 4227	2 MUS_THRY 42xx (Theory Elective)	2
MUS_THRY 4223	3 Non-Music Courses	4-6
MUS_THRY 4245	2	
Non-Music Courses	3	
18		14-16

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_ENS 1841 or 1842	1
MUS_ENS 1841 or 1842	1 MUS_APMS 3455	2
MUS_APMS 3455	2 MUS_THRY 4216	2
MUS_THRY 4216	2 Music History Elective Course	3
MUS_THRY 4225	3 Music Theory Elective Course	2
Music History Elective Course	3 Non-Music Courses	4-7
Music Theory Elective Course	2	
Non-Music Courses	3-5	
16-18		14-17

Total Credits: 130-145

## BM in Music with Emphasis in Music Education

### Degree Program Description

The music education degree program is designed for students who wish to become school music teachers. Graduates will be certified to teach music to children in kindergarten through twelfth grade, including elementary general music and either secondary instrumental or vocal music. MU music education students become successful teachers and performers who are sought after by schools in Missouri and beyond, as well as by prestigious graduate programs. Students enhance their musicianship by taking private lessons and participating in ensembles, and acquire a breadth of knowledge through coursework in general education, professional education and core music areas. They develop skills related to music teaching and rehearsing in their music education classes, which are accompanied by observing, interacting with, and instructing students in the public schools. This allows for important hands-on experience prior to the full semester of student teaching. The faculty members who teach music education courses are active professionals who publish research in prestigious journals, and play leadership roles in international and national organizations devoted to improving prekindergarten through college-level music instruction.

### Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As we continue to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

The lists below are provided as an overview of the degree requirements. Because this degree program is highly sequenced, and includes requirements leading to state certification including specified content, education, and overall grade point averages, students should not use this list to self advise but must work closely with their music education advisors to plan their coursework.

**MU General Education Requirements** - Students will plan for this coursework with their Music Education Advisors

#### Music and Education Requirements for All Music Education Students

MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_I_VT 2631	Basic Conducting and Score Reading	2

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (6 semesters)	0
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_APMS 2455	Studio Instruction (Major instr. total of 4 semesters, 8 credit hours)	2
MUS_APMS 3455	Studio Instruction (total of 4 credit hours)	2
MUS_ENS 1841	Instrumental Ensemble (total of 7 credit hours)	1
or MUS_ENS 1842	Choral Ensemble	
MUS_EDUC 1100	Orientation: Music Education	1
MUS_EDUC 4140	Teaching Music I	3
MUS_EDUC 4141	Teaching Music I Field Experience	1
MUS_EDUC 4142	Teaching Music II	2
MUS_EDUC 4143	Teaching Music II Field Experience	1
MUS_EDUC 4144	Teaching Music III	3
MUS_EDUC 4145	Teaching Music III Field Experience	1
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4971	Internship and Capstone Seminar	12
<b>Additional Music Requirements - Vocal Majors</b>		
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 2633	Rehearsal Clinic: Choral Conducting I	2
MUS_I_VT 2635	Rehearsal Clinic: Choral Conducting II	2
MUSIC_NM 1612	Elementary Folk Guitar Class	1
MUS_I_VT 3643	Symposium in Instrumental Music (rec) OR Inst Music: 2hrs of Ens/Lesson Tech)	2
MUS_I_VT 3670	Diction in Singing: Italian	1
MUS_I_VT 3671	Diction in Singing: German	1
MUS_I_VT 3672	Diction in Singing: French	1
MUS_THRY 4230	Choral Arranging	2
<b>Additional Music Requirements - Instrumental Majors</b>		
MUS_I_VT 2634	Rehearsal Clinic: Band Conducting I	1
MUS_I_VT 2636	Rehearsal Clinic: Band Conducting II	1
MUS_I_VT 2648	Percussion	1
MUS_I_VT 2640	Strings I	1
MUS_I_VT 2641	Strings II	1
MUS_I_VT 2637	Woodwinds I	1
MUS_I_VT 2638	Woodwinds II	1
MUS_I_VT 2645	Brass I	1
MUS_I_VT 2646	Brass II	1
MUS_THRY 4227	Orchestration	2
or MUS_THRY 4229	Band Arranging	
MUS_I_VT 3642	Seminar in String Techniques	1

or MUS_I_VT 3646	Marching Band Techniques	
MUS_I_VT 3644	Jazz Methods and Materials	1
MUS_ENS 1841	Instrumental Ensemble	1
Vocal Music: 1 hour (voice lessons or choir)		

## Semester Plan

### Option, Vocal Music K-12

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring		CR
MUS_EDUC 1100	1 MUS_THRY 1221		2
MUS_THRY 1220	2 MUS_THRY 1231		2
MUS_THRY 1230	2 MUS_H_LI 1322		2
MUS_I_VT 1610	1 MUS_I_VT 1611		1
MUS_APMS 2455	2 MUS_APMS 2455		2
MUS_ENS 1842	1 MUS_ENS 1842		1
MUS_GENL 1091	0 MUS_GENL 1091		0
PSYCH 1000 (or Behavioral Science Elective)	3 MUSIC_NM 1612		1
ENGLISH 1000	3 MATH 1100		3
	Humanities Elective		3
			17

Second Year			
Fall	CR Spring		CR
ESC_PS 2010 or LTC 2040	3 LTC 2040 or ESC_PS 2010		3
ESC_PS 2014 or LTC 2044	1 LTC 2044 or ESC_PS 2014		1
MUS_THRY 2220	2 MUS_THRY 2221		2
MUS_THRY 2230	2 MUS_THRY 2231		2
MUS_H_LI 2307	2 MUS_H_LI 2308		2
MUS_I_VT 2610	1 MUS_I_VT 2611		1
MUS_APMS 2455	2 MUS_APMS 2455		2
MUS_ENS 1842	1 MUS_ENS 1841		1
MUS_I_VT 3670	1 MUS_ENS 1842 (lab ensemble)		1
MUS_I_VT 3672	1 MUS_I_VT 3671		1
MUS_I_VT 3643	2 MUS_I_VT 2631		2
MUS_GENL 1091	0 MUS_GENL 1091		0
			18

Third Year			
Fall	CR Spring		CR
MUS_EDUC 4140	3 MUS_EDUC 4142W		2
MUS_EDUC 4141	1 MUS_EDUC 4143W		1
MUS_THRY 4230	2 SPC_ED 4020		3
MUS_I_VT 2633	2 LTC 4560		3
MUS_APMS 3455	2 MUS_I_VT 2635		2
MUS_ENS 1842	1 MUS_APMS 3455		2
MUS_THRY 4220	2 MUS_ENS 1842		1
American History or Political Science (State Law)	3 Biological Science		3
MUS_APMS 1435 (piano or voice)	1 MUS_APMS 1435		1
MUS_GENL 1091	0 MUS_GENL 1091		0
			17

Fourth Year		
Fall	CR Spring	CR
MUS_EDUC 4144W	3 LTC 4971 (Elementary) Internship and Capstone 3-9	
MUS_EDUC 4145W	1 LTC 4971 (Secondary) Internship and Capstone 3-9	
ED_LPA 4060	3 (Total of 12 Hours for LTC 4971)	12
STAT 1200 or ESC_PS 4170	3	
Physical Science w/lab	3	
MUS_ENS 1842	1	
LTC 4460	3	
	17	12

Total Credits: 132

### Option, Instrumental Music K-12

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MUS_EDUC 1100	1 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2
MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_APMS 2455	2 MUS_APMS 2455	2
MUS_ENS 1841 (Marching Mizzou)	1 MUS_ENS 1841	1
MUS_ENS 1841	1 MUS_I_VT 2641 (or MUS_I_VT 2638 or MUS_I_VT 2646)	1
MUS_GENL 1091	0 MATH 1100	3
PSYCH 1000 ( or Behavioral Science Elective)	3 Humanities Elective	3
ENGLSH 1000	3 MUS_GENL 1091	0
	16	17

Second Year		
Fall	CR Spring	CR
ESC_PS 2010 or LTC 2040	3 LTC 2040 or ESC_PS 2010	3
ESC_PS 2014 or LTC 2044	1 LTC 2044 or ESC_PS 2014	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_I_VT 2610	1 MUS_I_VT 2611	1
MUS_APMS 2455	2 MUS_APMS 2455	2
MUS_I_VT 2645 or 2637	1 MUS_ENS 1841 (Lab Ensemble)	1
STAT 1200 or ESC_PS 4170	3 MUS_I_VT 2641 (or MUS_I_VT 2638 or MUS_I_VT 2646)	1
MUS_GENL 1091	0 MUS_I_VT 2631 MUS_GENL 1091	2 0
	17	17

Third Year		
Fall	CR Spring	CR
MUS_EDUC 4140	3 MUS_EDUC 4142W	2
MUS_EDUC 4141	1 MUS_EDUC 4143W	1
MUS_ENS 1842	1 MUS_I_VT 2636	1
MUS_I_VT 2634	1 SPC_ED 4020	3

MUS_APMS 3455	2 MUS_APMS 3455	2
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_THRY 4220	2 MUS_I_VT 3642 or 3646	1-2
MUS_I_VT 2641	1 American History or Political Science (State Law)	3
MUS_I_VT 2648	1 Biological Science	3
MUS_I_VT 2637 or 2645	1 MUS_GENL 1091	0
MUS_I_VT 3644	1	
MUS_THRY 4229	2	
MUS_GENL 1091	0	
	17	17-18

Fourth Year		
Fall	CR Spring	CR
MUS_EDUC 4144W	3 LTC 4971 (Elementary) Internship and Capstone 3-9	
MUS_EDUC 4145W	1 LTC 4971 (Secondary) Internship and Capstone 3-9	
ED_LPA 4060	3 (Total of 12 Hours for LTC 4971)	12
LTC 4560	3	
MUS_ENS 1841	1	
Physical Science w/lab	3	
LTC 4460	3	
	17	12

Total Credits: 130-131

## BM in Music with Emphasis in Music History

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Music History focuses on the history and significance of musical traditions. The program requires 123-143 hours, including courses in music theory, music history, studio instruction, and ensembles. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. In addition to audition on the major instrument or voice, students must be approved for admission by the music history faculty.

### Major Program Requirements

In addition to the list of required courses below for the emphasis in History, students must complete the bachelor of music (p. 233), college and university requirements (p. 32), including Arts & Science Foundation Requirements (p. 133).

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors	0
MUS_APMS 1435	Studio Instruction for Majors (Piano; total of 4 credit hours) or MUS_APMS 2455 Studio Instruction	1-5
MUS_APMS 2455	Studio Instruction (total of 8 credit hours)	1-5
MUS_APMS 3455	Studio Instruction (total of 4 credit hours)	1-3
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours) or MUS_ENS 1842 Choral Ensemble	0-1
MUS_THRY 1210	Introduction to Computer Technology and Music	2

MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4225	Sixteenth-Century Counterpoint	3
or MUS_THRY 4223	Eighteenth-Century Counterpoint	
MUS_THRY 4227	Orchestration	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_H_LI 43xx	History Elective 3+3+6+6	18
MUS_GENL 3085	Problems in Music	1
Total Credits		59-70

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MUS_GENL 1091 (Section 3)	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2
MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 2455	2 MUS_APMS 2455	2
Non-Music Courses	6-8 Non-Music Courses	6-8
		16-18

Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_APMS 2455	2 MUS_APMS 2455	2
MUS_I_VT 2610	1 MUS_I_VT 2611	1
Non-Music Courses	6-8 Non-Music Courses	6-8
		16-18

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_APMS 1435 or 2455 (piano)	1 MUS_APMS 1435 or 2455 (piano)	1

MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 3455	2 MUS_I_VT 2631	2
MUS_THRY 4220	2 MUS_APMS 3455	2
MUS_THRY 4223 or 4225	3 MUS_THRY 4227	2
Music History Course	3 Music History Course	3
Non-Music Courses	4-6 Non-Music Courses	5-7
		16-18

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_APMS 1435 or 2455 (piano)	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 1435 or 2455 (piano)	1 MUS_GENL 3085 (Capstone)	1
Music History Courses	6 Music History Courses	6
Non-Music Courses	8-10 Non-Music Courses	7-9
		16-18

Total Credits: 128-144

## BM in Music with Emphasis in Music Theory

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Music Theory teaches students how music works, critical listening, technical performance, and composition. The program requires 123-143 hours, including courses in music theory, music history, studio instruction, and ensembles. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. In addition to audition on the major instrument or voice, admission into the emphasis area requires an application and examination.

### Major Program Requirements

In addition to the list of required courses below for the emphasis in Music Theory, students must complete the bachelor of music (p. 233), college and university requirements (p. 32), including Arts & Science Foundation Requirements (p. 133).

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 1435	Studio Instruction for Majors (secondary instr. total of 4 credit hours)	1
MUS_APMS 2455	Studio Instruction (Major instr. total of 8 credit hours)	1-5
MUS_APMS 3455	Studio Instruction (total of 8 credit hours)	1-3
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2215	Composition I	2
MUS_THRY 2216	Composition II	2

MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 4225	Sixteenth-Century Counterpoint	3
MUS_THRY 4227	Orchestration	2
MUS_THRY 42xx	Theory Elective 2+2+2 or 3	6-7
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective 3+3	6
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_GENL 3085	Problems in Music (Capstone Theory)	2
Total Credits		61-69

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MUS_GENL 1091 (Section 3)	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2
MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 2455	2 MUS_APMS 2455	2
Non-Music Courses	6-8 Non-Music Courses	6-8
16-18		16-18

Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_APMS 1435 (Secondary Instrument)	1 MUS_APMS 1435 (Secondary Instrument)	1
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_THRY 2215	2 MUS_THRY 2216	2
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_APMS 2455	2 MUS_APMS 2455	2
MUS_I_VT 2610	1 MUS_I_VT 2611	1
Non-Music Courses	3-5 Non-Music Courses	3-5
16-18		16-18

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_APMS 1435 (Secondary Instrument)	1 MUS_APMS 1435 (Secondary Instrument)	1

MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 3455	2 MUS_I_VT 2631	2
MUS_THRY 4220	2 MUS_APMS 3455	2
MUS_THRY 4223	3 Music Theory Elective Course	2
MUS_THRY 4227	2 Non-Music Courses	6-8
Non-Music Courses	5-7	
16-18		14-16

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_ENS 1841 or 1842	1
MUS_ENS 1841 or 1842	1 MUS_GENL 3085 (Theory)	2
MUS_APMS 3455	2 MUS_APMS 3455	2
MUS_THRY 4225	3 Music History Elective Course	3
Music History Elective Course	3 Music Theory Elective Course	2-3
Music Theory Elective Course	2 Non-Music Courses	5-7
Non-Music Courses	5-7	
16-18		15-18

Total Credits: 125-142

## BM in Music with Emphasis in Performance

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Performance focuses on studio instruction, pedagogy, and literature for instrumental or vocal performance. Students select brass, classical guitar, percussion, piano, strings, voice, or woodwinds as a primary instrument. The program requires 123-143 hours, including courses in music theory, music history, studio instruction, and ensembles. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. Students must audition to be admitted into the emphasis area.

### Major Program Requirements

In addition to the list of required courses below for the emphasis in Performance for each track (piano, string performance, vocal performance, wind or percussion performance), students must complete the bachelor of music (p. 233), college and university requirements (p. 32), including Arts & Science Foundation Requirements (p. 133).

#### Piano Track

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 16 credit hours)	1-5
MUS_APMS 4455	Studio Instruction (total of 14 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1841	Instrumental Ensemble (total of 2 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_ENS 1846	Chamber Music (total of 4 credit hours)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2



MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 2661	Keyboard Skills for Piano Majors I	2
MUS_I_VT 2662	Keyboard Skills for Piano Majors II	2
MUS_I_VR 3753	Piano Literature I	2
MUS_I_VR 3754	Piano Literature II	2
MUS_I_VT 4661	Piano Pedagogy Survey I	2
MUS_I_VT 4662	Piano Pedagogy Survey II	2
Total Credits		53-62

**String Performance Track**

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 16 credit hours)	1-5
MUS_APMS 4455	Studio Instruction (total of 14 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1841	Instrumental Ensemble (University Philharmonic)	1
MUS_ENS 1846	Chamber Music (1+1)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
Total Credits		46-54

**Vocal Performance Track**

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 12 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4455	Studio Instruction (total of 10 credit hours)	1-5
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1842	Choral Ensemble (1+1+1+1+1+1+1)	1
MUS_ENS 1865	Opera Workshop (1+1)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 3670	Diction in Singing: Italian	1
MUS_I_VT 3671	Diction in Singing: German	1
MUS_I_VT 3672	Diction in Singing: French	1
MUS_I_VR 4767	Vocal Literature I	2
MUS_I_VR 4768	Vocal Literature II	2
Total Credits		53-61

**Wind or Percussion Performance Track**

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 16 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4455	Studio Instruction (total of 14 credit hours)	1-5
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
MUS_ENS 1846	Chamber Music (1+1)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Syntax, Structure and Style of Music III	2
MUS_THRY 2221	Syntax, Structure and Style of Music IV	2

MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	20th Century Composition Techniques	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 2634	Rehearsal Clinic: Band Conducting I	1
Total Credits		46-55

## Semester Plan

Below is a sample plan of study, semester by semester, for each track. A student's actual plan may vary based on course choices where options are available.

### Piano Performance Track

First Year		
Fall	CR Spring	CR
MUS_GENL 1091 (Section 3)	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2
MUS_ENS 1841 or 1842	1 MUS_ENS 1841 or 1842	1
MUS_APMS 2455	4 MUS_APMS 2455	4
Non-Music Courses	4-6 Non-Music Courses	4-6
		15-17

Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_I_VT 2661	2 MUS_H_LI 2308	2
MUS_I_VT 4661	2 MUS_APMS 2455	4
MUS_H_LI 2307	2 MUS_I_VT 2662	2
MUS_APMS 2455	4 MUS_I_VT 4662	2
Non-Music Courses	2-4 Non-Music Courses	2-4
		16-18

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1846	1 MUS_ENS 1846	1
MUS_THRY 4220	2 MUS_I_VT 2631	2
MUS_APMS 4455	4 MUS_APMS 3970	1
Music History Elective	3 MUS_APMS 4455	3
Non-Music Courses	5-7 Music Theory Elective Course	2
		3-5
		12-14

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_ENS 1846	1
MUS_ENS 1846	1 MUS_I_VR 3754	2
MUS_I_VR 3753	2 MUS_APMS 4970	1
MUS_THRY 4223	3 MUS_APMS 4455	3
MUS_APMS 4455	4 Non-Music Courses	6-8
Non-Music Courses	5-7	
		13-15

Total Credits: 117-133

### String Instrument Performance Track

First Year		
Fall	CR Spring	CR
MUS_GENL 1091 (Section 3)	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2
MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_APMS 2455	4 MUS_APMS 2455	4
undefined	3-6 Non-Music Courses	3-6
		15-18

Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_APMS 2455	4 MUS_APMS 2455	4
MUS_I_VT 2610	1 MUS_I_VT 2611	1
Non-Music Courses	3-6 Non-Music Courses	3-6
		15-18

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_THRY 4220	2 MUS_I_VT 2631	2
MUS_APMS 4455	4 MUS_APMS 3970	1
Music History Elective	3 MUS_APMS 4455	3
Non-Music Courses	5-8 Music Theory Elective	2
		3-5
		15-18

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_ENS 1841	1
MUS_ENS 1841	1 MUS_APMS 4455	3
MUS_APMS 4455	4 MUS_ENS 1846	1
MUS_THRY 4223	3 MUS_APMS 4970	1
MUS_ENS 1846	1 Non-Music Courses	8-10
Non-Music Courses	7-9	
		14-16

Total Credits: 117-138

## Vocal Performance Track

First Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2
MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_ENS 1842	1 MUS_ENS 1842	1
MUS_APMS 2455	3 MUS_APMS 2455	3
Non-Music Courses	5-7 Non-Music Courses	5-7
16-18		16-18
Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1842	1 MUS_ENS 1842	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_APMS 2455	3 MUS_APMS 2455	3
MUS_I_VT 2610	1 MUS_I_VT 2611	1
MUS_I_VT 3670	1 MUS_I_VT 3671	1
MUS_I_VT 3672	1 Non-Music Courses	5-7
Non-Music Courses	5-7	
18-20		17-19
Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1842	1 MUS_ENS 1842	1
MUS_I_VT 3670	1 MUS_I_VT 2631	2
MUS_THRY 4220	2 MUS_APMS 3970	1
MUS_APMS 4455	3 MUS_APMS 4455	2
Music History Elective	3 MUS_I_VR 4767	2
Non-Music Courses	6-8 Music Theory Elective	2
	Non-Music Courses	3-5
16-18		13-15
Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_ENS 1842	1
MUS_ENS 1842	1 MUS_I_VR 4768	2
MUS_THRY 4223	3 MUS_APMS 4455	2
MUS_APMS 4455	3 MUS_APMS 4970	1
MUS_ENS 1865	1 MUS_ENS 1865	1
Non-Music Courses	6-8 Non-Music Courses	7-9
14-16		14-16

Total Credits: 124-140

## Wind or Percussion Performance Track

First Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_THRY 1210	2 MUS_THRY 1221	2
MUS_THRY 1220	2 MUS_THRY 1231	2
MUS_THRY 1230	2 MUS_H_LI 1322	2

MUS_I_VT 1610	1 MUS_I_VT 1611	1
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_APMS 2455	4 MUS_APMS 2455	4
Non-Music Courses	4-6 Non-Music Courses	4-6
16-18		16-18

Second Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_THRY 2220	2 MUS_THRY 2221	2
MUS_THRY 2230	2 MUS_THRY 2231	2
MUS_H_LI 2307	2 MUS_H_LI 2308	2
MUS_APMS 2455	4 MUS_APMS 2455	4
MUS_I_VT 2610	1 MUS_I_VT 2611	1
Non-Music Courses	4-6 Non-Music Courses	4-6
16-18		16-18

Third Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_GENL 1091	0
MUS_ENS 1841	1 MUS_ENS 1841	1
MUS_THRY 4220	2 MUS_I_VT 2631	2
MUS_APMS 4455	4 MUS_APMS 4455	3
Music History Elective Course	3 MUS_APMS 3970	1
Non-Music Courses	6-8 Music Theory Elective Course	2
	Non-Music Courses	3-5
16-18		12-14

Fourth Year		
Fall	CR Spring	CR
MUS_GENL 1091	0 MUS_ENS 1841	1
MUS_ENS 1841	1 MUS_I_VT 2634	1
MUS_APMS 4455	4 MUS_APMS 4455	3
MUS_THRY 4223	3 MUS_APMS 4970	1
MUS_ENS 1846	1 MUS_ENS 1846	1
Non-Music Courses	9-11 Non-Music Courses	6-8
18-20		13-15

Total Credits: 123-139

## Minor in Music

Students who have chosen a major in another field but who wish to continue their musical growth may wish to pursue a music minor. Approval for declaration of the Minor in Music must be received from the Associate Director in Music. A minimum of 18 credits is required, including least 6 at the 2000-level or higher:

Music Theory		
MUS_THRY 1220	Syntax, Structure and Style of Music I	2
MUS_THRY 1221	Syntax, Structure and Style of Music II	2
Music History		
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
Ensembles/Applied Music		
Any combination of MUSIC 1841, 1842, 2445 (must all be in one area)		4

Additional Credits in either Theory, History, or Performance (must all be in one area)	4
Total Credits	18

## MA in Music

### About the MA

The MA in Music provides opportunities for continued development of musical insights, scholarly competencies, and the enhancement of interests in musical and related non-musical areas. This liberal graduate education is designed to prepare a student to pursue a career in college teaching, especially as preparation for doctoral studies in music history or musicology.

### Prerequisites

Completion of a bachelor's degree in music (or demonstrated equivalent), with a **GPA of 3.0 in the last 60 credit-hours**, is required. Additional prerequisites listed below. In the event that a candidate does not meet the required prerequisites, appropriate additional course(s) will be added as requirements to the degree program.

- Keyboard competency as is typically developed in an undergraduate music degree program
- 4 semesters of languages: 2 semesters each of French, Italian, or German
- 3 courses beyond the core music history courses (MUS\_H\_LI 2307, MUS\_H\_LI 2308 at MU)
- Freshman/sophomore music theory courses
- 1 semester of orchestration
- 1 course in counterpoint (3 credits or equivalent)
- 1 course in Western civilization
- 1 course in European history prior to 1800

### Priority Application Deadline

All graduate applicants are expected to submit required application materials (for both the School of Music and the Office of Graduate Studies) by January 15 for fall semester matriculation, in order to receive full consideration for admission and assistantship or scholarship support. Applications submitted after January 15 will be considered as space permits on a rolling basis. Applicants interested in spring semester matriculation should contact the Associate Director of the School of Music (see below).

### Application Process

Apply online via Graduate Admission's Slate (<https://applygrad.missouri.edu/apply>) system, which will prompt you to complete the following:

- Register for an interview during a Graduate Audition/Interview day.
- Submit samples of written scholarly work.
- Submit your unofficial transcript.
- Submit an essay explaining professional goals.
- Request three references to submit letters of recommendation.

**Note:** The School of Music does **not** require GRE scores.

## International Student Information

Strong English reading, writing, and speaking abilities are necessary for success in the graduate programs in the School of Music. The following scores are required for admission to a graduate degree program in the School of Music:

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

**Note:** No TOEFL subscores below 50 (paper) or 15 (internet), or IELTS 5

- Minimum Academic IELTS scores:

Item	Score
OVERALL	6.5

**Note:** No IELTS subscores below 5

**Note:** the University of Missouri's institutional code for the TOEFL is 6875.

### CONTACT INFORMATION:

Ben Harting, Admissions Coordinator  
 School of Music  
 150 Fine Arts Building  
 Columbia, MO 65211-6120  
 HartingB@missouri.edu  
 573-882-4471

## Course of Study

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
7xxx-8xxx	Music History courses	8-10
MUS_GENL 8090	Research in Music	4-8
7xxx-8xxx	Advanced Theory courses	4-8
MUS_APMS 7455	Studio Instruction	2-8
7xxx Non-music electives		2-4
MUS_ENS 8841	Instrumental Ensemble	1
or MUS_ENS 8842	Choral Ensemble	

At least 15 credits must be at 8000 level

<b>Total credits:</b>	<b>33</b>
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### Additional Requirements:

- Comprehensive Exam.
- MA degree candidates must satisfactorily complete a Thesis on an approved topic and must pass a final oral examination, administered by a faculty committee, about their projects.

## MA in Music with Emphasis in Musicology

This liberal degree is designed to prepare a student to pursue a career in college teaching, or doctoral studies in music history or musicology. Opportunities are provided for continued development of musical insights, scholarly competencies, and the enhancement of interests in musical and related non-musical areas.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Keyboard competency as is typically developed in an undergraduate music degree program
- 4 semesters of languages: 2 semesters each of French, Italian, or German
- 3 courses beyond the core music history courses (MUS\_H\_LI 2307, MUS\_H\_LI 2308 at MU)
- Freshman/sophomore music theory courses
- 1 semester of orchestration
- 1 course in counterpoint (3 credits or equivalent)
- 1 course in Western civilization
- 1 course in European history prior to 1800

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Required Courses (Only one course grade below B- allowed; at least 12 credits must be at the 8000 level)**

## Admissions

For admission requirements, refer to the Graduate Studies' website for the minimum qualifications for the MA in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate Studies (<http://gradstudies.missouri.edu/academics/programs/music>).

Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MM in Music

### About the MM

The principal function of the MM program is to provide students with opportunities for continued development of their musical talents--in a specific area--and overall musicianship. This degree is designed to prepare the graduate for a career in performance or composition, teaching, or continued graduate studies toward a doctoral degree.

### Prerequisites

Completion of a Bachelor of Music degree (or demonstrated equivalent) is required, normally with the same major as that to be pursued at the graduate level, **and a GPA of 3.0 in the last 60 credit-hours**. In the event that a candidate does not meet the required prerequisites for a specific curriculum (listed below), then appropriate course(s) may be added to the degree program as additional requirements.

### WOODWIND, BRASS, PERCUSSION, CLASSICAL GUITAR, OR STRING PERFORMANCE

- Senior recital

### VOCAL PERFORMANCE

- Senior recital
- Proficiency in French, Italian, and German languages and diction.

### PIANO PERFORMANCE

- Senior Recital
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

### COLLABORATIVE PIANO

- Senior Recital
- 2 courses in either French or German
- 2 courses in French, German, or Italian diction
- 1 upper-level music history course
- 3 credits in 18th-century counterpoint

### PIANO PEDAGOGY

- 1 upper-level music history course
- 3 credits in 18th-century counterpoint
- A senior recital and undergraduate courses in piano pedagogy or teaching experience are desirable, but not required for admission.

### JAZZ PERFORMANCE AND PEDAGOGY

- Senior Recital

### THEORY

- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 2 credits of a theory elective
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307-MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

### COMPOSITION

- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 8 credits of composition
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307-MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

### CONDUCTING (Choral, Orchestral, or Wind Ensemble)

- 2 undergraduate conducting courses
- Previous conducting experience
- Proficiency in French, Italian, and German diction (Choral Conducting only)
- Proficiency in vocal pedagogy (Choral Conducting only)

### Priority Application Deadline

All graduate applicants are expected to submit required application materials (for both the School of Music and the Office of Graduate Studies) by January 15 for fall semester matriculation, in order to receive full consideration for admission and assistantship or scholarship support. Applications submitted after January 15 will be considered as space permits on a rolling basis. Applicants interested in spring semester matriculation should contact the Admissions Coordinator of the School of Music (see below).

## Application Process

Apply online through Graduate Admission's (<http://gradstudies.missouri.edu/admissions/apply>) Slate system, which will prompt you to complete the following:

- Register for an audition or interview during a Graduate Audition/Interview day.
- Submit an essay explaining professional goals.
- Submit an unofficial transcript.
- Request three references to submit letters of recommendation.
- For performance areas, a recording will be required.

**Notes:** The School of Music does **not** require GRE scores.

## International Student Information

Strong English reading, writing, and speaking abilities are necessary for success in the graduate programs in the School of Music. The following scores are required for admission to a graduate degree program in the School of Music:

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- Minimum Academic IELTS scores:

Item	Score
OVERALL	6.5

**Note:** No IELTS subscores below 5

**Note:** the University of Missouri's institutional code for the TOEFL is 6875.

## Audition Information

A visit to the School of Music and in-person audition are strongly encouraged for applicants planning to major in an applied area (brass, classical guitar, jazz, percussion, piano, strings, voice, woodwinds), either on one of the graduation audition days or at another arranged time. In-person auditions are required for all conducting applicants. MM jazz performance and pedagogy applicants should contact the Director of Jazz Studies to confirm the audition repertoire for video submissions. Applicants who audition initially by recording may be required to participate in a video conference interview (Skype, iChat, etc.) or to audition on campus at a later time. Please visit the School of Music website, [music.missouri.edu](http://music.missouri.edu), for more information regarding graduate audition days.

CONTACT INFORMATION:

Ben Harting, Admissions Coordinator  
 School of Music  
 150 Fine Arts Building  
 Columbia, MO 65211-6120  
[HartingB@missouri.edu](mailto:HartingB@missouri.edu)  
 (573) 882-4471

## Audition/Interview Information by Area

**Piano:** click here for detailed audition requirements for all MM piano programs (collaborative, pedagogy, and performance).

**Voice:** eight selections required, including at least one operatic aria and selections in French, Italian, German, and English.

**Jazz Performance and Pedagogy:** Please see the audition requirements for the Graduate Certificate in Jazz Studies and contact the Director of Jazz Studies for more information.

**Other Applied Areas:** contact the appropriate applied faculty member for information about audition repertoire and procedures.

**Composition:** submit representative original compositions and register for an interview. Portfolio materials are due by the Priority Application Deadline.

**Theory:** submit examples of written scholarly work and register for an interview. Portfolio materials are due by the Priority Application Deadline.

**Conducting applicants** should arrange an audition and interview with the appropriate faculty member:

- Dr. R. Paul Crabb, Choral Conducting
- Professor Edward Dolbashian, Orchestral Conducting
- Dr. D. Bradley Snow, Wind Ensemble Conducting

**Additional information for Choral Conducting applicants:** Students applying for MM in Choral Conducting or PhD in Music Education with choral emphasis will rehearse one MU choir for 15-20 minutes (music will be assigned and sent to you before the audition); take a short conducting lesson on the same music; sing a prepared aria or art song; demonstrate proficiency in sight-reading and ear-training; demonstrate basic piano proficiency.

## Degree Completion Requirements

See Courses of Study (<https://music.missouri.edu/grad/master-music>). In addition, students must complete the following:

- Comprehensive Exam.
- Music Theory majors must satisfactorily complete a Thesis on an approved topic, and Composition majors must complete a substantial compositional project. Both Music Theory and Composition majors must pass a final oral examination, administered by a faculty committee, about their projects.

## MM in Music with Emphasis in Collaborative Piano

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.

Repertoire and performance are emphasized, with three required degree recitals. Extensive experiences in chamber music are provided with both vocal and instrumental students, and potentially in opera, choral, orchestra, and wind ensembles. All master's students meet weekly in piano performance classes with faculty. MU enjoys a wealth of carefully maintained grand pianos as well as a digital piano lab, two harpsichords and a fortepiano. Annually, distinguished pianists provide masterclasses to MU piano students, including recent guests Boris Berman, Malcolm Bilson, Anne Epperson, Claude Frank, Peter Frankl, Ian Hobson, and Ralph Votapek.

**Prerequisites**

- Bachelors degree in Piano (or demonstrated equivalent)

- GPA of 3.0 in the last 60 hours
- Senior recital
- 2 courses in either French or German
- 2 courses in French, German, or Italian diction
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate Studies' website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music with Emphasis in Composition

This degree is designed to prepare the graduate for a career in composition, college teaching, or doctoral study.

MU offers numerous opportunities for collaboration with artists various mediums, community engagement in the creative process, and performance of works on and off campus. The graduate New Music Ensemble is dedicated to performing works of student composers studying at MU. Our annual Sinquefeld Composition Prize gives one of our students the opportunity to have a work for large ensemble performed at the annual Chancellor's Concert. In addition we host a Student Composers Concert each spring, a Composers Forum, and a student chapter of Society of Composers, Inc. Our graduates have been admitted to some of the most prestigious doctoral programs in the country, and our students have won many competitions of the Music Teachers National Association, the Music Educators National Conference, and the prestigious Broadcast Music Incorporated (BMI) Student Composers.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 8 credits of composition
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307, MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate Studies' website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate

Studies (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate Studies and the degree program to which you've applied.

## MM in Music with Emphasis in Conducting

### CHORAL CONDUCTING:

Through focus on practical conducting skills while integrating the academic areas of theory, history and pedagogy, this degree is designed to prepare the graduate for a career in conducting or teaching, or doctoral study. Conducting opportunities include conducting labs, ad hoc ensembles, and five regular ensembles. We also regularly offer opportunities to study with national and international figures. Recent guests include Peter Phillips, Joseph Flummerfelt, Erwin Ortner, Amy Kaiser, Simon Carrington and Charles Bruffy.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Basic keyboard skills
- Two undergraduate conducting courses
- Previous conducting experience
- Proficiency in French, Italian, and German diction
- Proficiency in vocal pedagogy

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### ORCHESTRAL CONDUCTING:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in conducting or teaching, or doctoral study. Students receive individual conducting lessons and regular podium time with the orchestra.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 2 undergraduate conducting courses
- Previous conducting experience

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### WIND CONDUCTING:

Through focus on practical conducting skills while integrating the academic areas of theory, history and pedagogy, this degree is designed to prepare the graduate for a career in conducting or teaching, or doctoral study. Conducting and teaching opportunities include three concert ensembles, assisting with courses in basic conducting, score reading, and rehearsal techniques, and working and traveling with athletic bands, including Marching Mizzou.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Two undergraduate conducting courses
- Previous conducting experience

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music with Emphasis in Jazz Performance and Pedagogy

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in jazz performance, conducting, teaching, or doctoral study.

Students regularly conduct and coach MU jazz ensembles.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Previous jazz teaching and conducting experience

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate Studies' website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate Studies and the degree program to which you've applied.

## MM in Music with Emphasis in Music Theory

This degree is designed to prepare the graduate for college-level teaching or doctoral study.

The program includes in-class teaching experience, study and survey of a wide variety of theory texts, and collaboration with a faculty advisor/mentor. Applicants are encouraged to consider studying music theory

pedagogy paired with another area (i.e. performance, musicology, conducting, composition, or piano pedagogy).

Active listening, a skill necessary for understanding music and cultivating musical thought, requires musical proficiency: playing an instrument at a moderately accomplished level, score reading, and fluency in keyboard harmony. A theorist must hear what one sees in a score and see in a score what one hears.

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 2 credits of a theory elective
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307, MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate Studies' website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate Studies (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate Studies and the degree program to which you've applied.

## MM in Music with Emphasis in Performance

### BRASS:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.

Performance opportunities include large ensembles, mixed chamber ensembles, and faculty-directed chamber ensembles (brass quintets, brass choirs, the MU Trumpet Ensemble, the Mizzou Horn Choir, the MU Trombone Choir, and the MU Tuba/Euphonium Ensemble).

### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### GUITAR:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.



Performance opportunities include large ensembles, mixed chamber ensembles, and faculty-directed chamber ensembles (brass quintets, brass choirs, the MU Trumpet Ensemble, the Mizzou Horn Choir, the MU Trombone Choir, and the MU Tuba/Euphonium Ensemble).

#### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### PERCUSSION:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.

Performing opportunities include large ensembles, Marching Mizzou Drumline, jazz ensembles and three different percussion ensembles (University Percussion Ensemble, World Percussion Ensemble, and the Graduate Percussion Ensemble). MU has a large inventory of world percussion instruments including a full traditional steel pan band.

#### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements*

### PIANO:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.

Performance opportunities include recitals, weekly studio class, and chamber music. Most student elect to take courses in pedagogy and qualify to teach in the Community Music Program. The program is supported by a wealth of carefully maintained grand pianos as well as a digital piano lab, two harpsichords and a fortepiano. Annually, distinguished pianists provide masterclasses to MU piano students, including recent guests Boris Berman, Malcolm Bilson, Anne Epperson, Claude Frank, Peter Frankl, Ian Hobson, and Ralph Votapek.

#### Prerequisites

- Bachelors degree in Piano (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### STRINGS:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study. Performance opportunities include the University Philharmonic, Chamber Soloists

chamber orchestra, studio ensembles such as the MU Cello Choir, and chamber groups coached by members of the Esterhazy Quartet.

#### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### VOICE:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.

Performance opportunities include choral ensembles, opera workshop, and chamber ensembles with instrumentalists. The Opera Workshop presents scenes every fall semester and a fully staged production each spring semester. In Spring 2015, the Show-Me Opera is presented a production of Puccini's *Suor Angelica* and *Gianni Schicchi*. Other recent opera productions include Robert Ward's *The Crucible*, Mozart's *Così fan tutte* and *The Magic Flute*, Rossini's *La Cenerentola*, Lehar's *The Merry Widow*, and Puccini's *Gianni Schicchi* paired with Act II of *La bohème*.

#### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital
- Proficiency in French, Italian, and German languages and diction.

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### WOODWINDS:

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or doctoral study.

Performance opportunities include large ensembles, mixed chamber ensembles, and faculty-directed chamber ensembles (flute choir, clarinet choir, bassoon ensemble, saxophones quartets and choir).

#### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### Admissions

For admission requirements, refer to the Graduate Studies'website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate Studies (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your

application materials will be reviewed by both the Graduate Studies and the degree program to which you've applied.

## MM in Music with Emphasis in Piano Pedagogy

Through coursework, practical teaching experiences, and performances, this degree prepares students for teaching at all levels—with a focus on promoting wellness, creativity, and injury prevention—or doctoral study. Practical experiences include teaching group classes and private lessons for children and adults through the Experiencing Piano program, the Community Music Program, and the Group Piano program. MU enjoys a wealth of carefully maintained grand pianos as well as a digital piano lab, two harpsichords, and a fortepiano. Annually, distinguished pianists and pedagogues provide masterclasses to MU piano students, including recent guests Boris Berman, Martha Hilley, Claude Frank, Peter Frankl, Ian Hobson, and Ralph Votapek.

### Prerequisites

- Bachelors degree in Piano (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

Note: a senior recital and undergraduate courses in piano pedagogy or teaching experience are desirable, but not required for admission.

## Admissions

For admission requirements, refer to the Graduate Studies' website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music>) and the Graduate Studies (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate Studies and the degree program to which you've applied.

## Philosophy

Matthew S. McGrath, Chair  
College of Arts and Science  
438 Strickland Hall  
(573) 882-2871  
Fax: (573) 884-8949  
[philosophy@missouri.edu](mailto:philosophy@missouri.edu)  
<http://philosophy.missouri.edu/>

The Department of Philosophy offers a wide variety of undergraduate and graduate courses, including courses on applied ethics, ethical theory, epistemology, logic, metaphysics, philosophy of mind, philosophy of language, philosophy of religion, philosophy of science, philosophy of biology, decision theory, political philosophy, non-Western philosophy, and the history of philosophy. The study of philosophy is not only fascinating in its own right but practical too, since it encourages the development of marketable intellectual abilities. These include the

abilities to read, think, and write about conceptually complex and abstract material, and to construct and analyze elaborate chains of reasoning. Philosophy majors go on to pursue careers in such fields as law, medicine, business, the non-profit sector, the church, and academia.

The department offers BA, BS, MA, and PhD degrees in philosophy, as well as an undergraduate minor.

## Faculty

**Professor** R. N. Johnson\*\*, P. J. Markie\*\*, M. S. McGrath\*\*, A. Melnyk\*\*, D. E. Sievert\*, P. L. Vallentyne\*\*, P. Weirich\*\*

**Associate Professor** A. Ariew\*\*, C. S. Horisk\*\*, P. Robbins\*\*

**Assistant Professor** K. Boyce\*, M. Folescu\*, A. Radulescu\*

**Professor Emeritus/a** J. J. Bien\*, W. B. Bondeson\*, B. Gupta\*\*, J. H. Kultgen\*

**Associate Professor Emeritus** A. von Schönborn\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Philosophy (p. 250)
- BS in Philosophy (p. 251)
- Minor in Philosophy (p. 252)

## Double and Dual Majors

A philosophy major can be paired with a major in another department in the College of Arts and Science (double major) or in some other College (dual major). Students must meet the major requirements of both departments. The program for each department must be approved by the advisor for that department.

## Departmental Honors

To earn a BA (or BS) with Departmental Honors in philosophy, a student must achieve at least a 3.3 GPA in all courses, and a 3.7 GPA in all philosophy courses; meet all the standard requirements for the regular philosophy BA (or BS); take PHIL 4998 Honors I in Philosophy, and PHIL 4999 Honors II in Philosophy, writing a satisfactory senior thesis normally of 3,000 to 9,000 words under the guidance of a faculty member who has consented to work with the student; and pass an oral examination on the thesis before a committee of three members of the philosophy faculty.

## Graduate

- MA in Philosophy (p. 252)
- PhD in Philosophy (p. 252)

College of Arts and Science  
438 Strickland Hall  
(573) 882-2871  
<http://philosophy.missouri.edu/>

**Director of Graduate Studies:** André Ariew

## About the Program

The Department of Philosophy provides excellent training in both research and teaching. The nationally and internationally renowned faculty have expertise in the core areas of philosophy, with particular strengths in epistemology, ethics, philosophy of mind, and political philosophy, and also in various specialties, including philosophy of biology, experimental philosophy, and the foundations of decision and game theory. With 13 full time faculty and around 25 graduate students, we offer a supportive community for pursuit of the MA and the PhD, with a broad range of courses, rigorous training, attentive, high-quality advising, the opportunity to develop a professional network through our series of colloquia and conferences, and help in every aspect of job seeking. We give students the advice and support they need to present their work at regional and national conferences, and to publish in professional journals, before they begin to look for jobs. We also give our students extensive training and experience in teaching, including assistantships with award-winning teachers.

Although we award an MA degree, we **only admit students to our PhD program** (with the MA obtained in the process).

We receive about 50 applications per year and offer funding to about 10-15% of these. The normal ranges of scores for students we admit are: GRE Verbal 158-170, GRE Quantitative 147-166, and GPA in the major (normally philosophy) 3.9. Of course, our decisions are also based on the writing sample, letters of reference, and other factors, such as degree of fit with the Department.

## Professional Development

Presentation of research at professional meetings and publication by graduate students is strongly encouraged. Prominent philosophers from other institutions visit the Department yearly for talks and symposia. Twice yearly, the Florence G. Kline endowment sponsors an intensive workshop at which papers on a special topic are presented by several leading figures in philosophy.

## Financial Aid from the Program

Fellowships and teaching assistantships are available to qualified students. Applications for fellowships must meet the Office of Graduate Studies deadlines, usually in January. Applications for teaching assistantships must meet the Department deadline of January 15.

## BA in Philosophy

### Degree Program Description

Philosophy is the search for reasoned answers to certain fundamental questions about the nature of the universe and the place of humans in it, questions that science seems unable to answer. To do philosophy is to construct and evaluate the best arguments for and against the various answers to the questions that philosophy seeks to answer. The Bachelor of Arts is broader in scope than the Bachelor of Science, and is the better choice for most students. The practical value of studying philosophy lies in the intellectual training that it provides. Successful study of philosophy requires, and helps develop, several intellectual abilities: the ability to grasp the big picture as well as fine details; the ability to think, speak, and write about highly abstract and conceptually demanding questions; the ability to identify key assumptions made in arguments; the ability to make relevant conceptual distinctions; and the ability to assess the pros and cons of proposed solutions. These abilities are highly prized in a wide

variety of careers, and philosophy majors go on to successful careers in a wide range of fields, including law, medicine, and business.

## Major Program Requirements

Undergraduates pursuing a BA degree in philosophy must meet all the non-philosophy requirements for a BA degree in the College of Arts and Science, including university general education requirements (p. 33). In addition, they are recommended, but not required, to pursue a minor in another field. Finally, they must earn 30 credits in philosophy, with a grade of "C-" or above in every course, distributed as follows:

<b>Required Courses: Twelve Credits</b>		<b>12</b>
PHIL 2700	Elementary Logic	
PHIL 3000	Ancient Western Philosophy	
PHIL 3200	Modern Philosophy	
PHIL 4950	Senior Seminar in Philosophy	
<b>At Least Three Of The Following Courses: Nine Credits</b>		<b>9</b>
PHIL 4100	Philosophy of Language	
PHIL 4110	Advanced Logic	
PHIL 4120	Selected Topics in Logic	
PHIL 4130	Probability and Induction	
PHIL 4200	Metaphysics	
PHIL 4210	Philosophy of Mind	
PHIL 4220	Philosophy of Religion	
PHIL 4300	Epistemology	
PHIL 4400	Philosophy of Science	
PHIL 4420	Philosophy of Biology	
PHIL 4500	Theories of Ethics	
PHIL 4600	Political and Social Philosophy	
PHIL 4610	Philosophy of Law	
<b>Philosophy Electives: Nine Credits</b>		<b>9</b>
Any nine philosophy credits, but no more than three 1000-level philosophy courses may be used as philosophy electives.		
Total Credits		<b>30</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary, depending on his or her course choices and whether options are available.

First Year		
Fall	CR Spring	CR
ENGLISH 1000	3 Philosophy elective (e.g., 1000, 1100, or 1200)	3
Humanities/Fine Arts course	3 Foreign Language	5
Social Science	3 MATH 1100	3
Foreign Language	5 General elective	3
		<b>14</b>
Second Year		
Fall	CR Spring	CR
Philosophy elective	3 PHIL 2700	3
Foreign Language	3 Humanities/Fine Arts (Writing Intensive)	3
Behavioral Science	3 Behavioral Science	3
Social Science	3 Social Science	3
Natural Science	3 Natural Science	3
		<b>15</b>

Third Year		
Fall	CR Spring	CR
PHIL 3000	3 PHIL 3200	3
General elective	3 Philosophy elective	3
Course in the minor	3 Course in the minor	3
Natural Science course with lab	4 Humanities/Fine Arts course	3
General elective	3 General elective	3
		16

Fourth Year		
Fall	CR Spring	CR
Philosophy course, 4000-level	3 PHIL 4950	3
Philosophy course, 4000-level	3 Philosophy course, 4000-level	3
Course in minor	3 Course in minor	3
Humanities/Fine Arts course	3 Course in minor	3
General Elective	4 General elective	3
		16

Total Credits: 120

## BS in Philosophy

### Degree Program Description

Philosophy is the search for reasoned answers to certain fundamental questions about the nature of the universe and the place of humans in it, questions that science seems unable to answer. To do philosophy is to construct and evaluate the best arguments for and against the various answers to the questions that philosophy seeks to answer. The Bachelor of Science emphasizes the formal aspects of philosophy and its many connections with the sciences. It may be a better choice for those wishing to double major in philosophy and a science. The practical value of studying philosophy lies in the intellectual training that it provides. Successful study of philosophy requires, and helps develop, several intellectual abilities: the ability to grasp the big picture as well as fine details; the ability to think, speak, and write about highly abstract and conceptually demanding questions; the ability to identify key assumptions made in arguments; the ability to make relevant conceptual distinctions; and the ability to assess the pros and cons of proposed solutions. These abilities are highly prized in a wide variety of careers, and philosophy majors go on to successful careers in a wide range of fields, including law, medicine, and business.

### Major Program Requirements

Undergraduates pursuing a BS degree in philosophy must meet all the non-philosophy requirements for a BS degree in the College of Arts and Science, including university general education (p. 33) requirements.

In addition, they are recommended, but not required, to pursue a minor in another field. Finally, they must earn 42 credits in philosophy, with a grade of "C-" or above in every course, distributed as follows:

**Required Courses: Twelve Credits** 12

PHIL 2700	Elementary Logic
PHIL 3000	Ancient Western Philosophy
PHIL 3200	Modern Philosophy
PHIL 4950	Senior Seminar in Philosophy

**At Least Three Of The Following Courses: Nine Credits** 9

PHIL 4100	Philosophy of Language
PHIL 4110	Advanced Logic
PHIL 4120	Selected Topics in Logic

PHIL 4130	Probability and Induction
PHIL 4400	Philosophy of Science
PHIL 4200	Metaphysics
PHIL 4210	Philosophy of Mind
PHIL 4220	Philosophy of Religion
PHIL 4300	Epistemology
PHIL 4400	Philosophy of Science
PHIL 4420	Philosophy of Biology
PHIL 4500	Theories of Ethics
PHIL 4600	Political and Social Philosophy

**At Least Four Of The Following Courses: Twelve Credits** 12

PHIL 2600	Rational Decisions
PHIL 2820	Introduction to Cognitive Science
PHIL 4110	Advanced Logic
PHIL 4120	Selected Topics in Logic
PHIL 4130	Probability and Induction
PHIL 4400	Philosophy of Science
PHIL 4420	Philosophy of Biology

**Philosophy Electives: Nine Credits** 9

Any nine credits in philosophy, but no more than three 1000-level courses may be used as philosophy electives.

Total Credits 42

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary, depending on his or her course choices and whether options are available.

First Year		
Fall	CR Spring	CR
Introductory Philosophy course (e.g., PHIL 1000, PHIL 1100, or PHIL 1200)	3 General elective	3
ENGLISH 1000	3 Foreign Language or general elective	5-6
Social Science	3 MATH 1100	3
Foreign Language or general elective	5-6 Philosophy major course	3
		14-15

Second Year		
Fall	CR Spring	CR
Behavioral or Social Science	3 Philosophy major course	3
Natural Science	3 Humanities/Fine Arts course (writing intensive)	3
PHIL 2700	3 Behavioral or Social Science	3
Foreign Language or general elective	3 Natural Science	3
General elective	3 General elective	3
		15

Third Year		
Fall	CR Spring	CR
PHIL 3000	3 PHIL 3200	3
Philosophy major course	3 Humanities/Fine Arts course	3
Natural Science with lab	3 Foreign Language or general elective	3
General electives	8 Philosophy major course	3

Philosophy major course		
	17	15
Fourth Year		
Fall	CR Spring	CR
Philosophy major course	3 PHIL 4950	3
Philosophy major course	3 Philosophy major course	3
Philosophy major course	3 Humanities/Fine Arts course	3
Foreign Language or general elective	3 Foreign Language or general elective	3
Foreign Language or general elective	3 General elective	3
	15	15

Total Credits: 120-122

## Minor in Philosophy

A minor in philosophy requires 15 credits in philosophy, including at least 3 credits at the 4000-level and a further 3 credits at the 3000-level or 4000-level.

The remaining credits may be earned in any philosophy courses, except for PHIL 4998 and PHIL 4999.

Of the 15 credits required, 9 must be taken in MU course work.

Students considering a minor might want to consult the requirements for the philosophy major before selecting their courses, so as to leave open the option of upgrading to a major at some later date.

Prospective philosophy minors must get the permission of their academic unit.

## MA in Philosophy

### About the Master of Arts in Philosophy

At this time, our Department is not admitting students who are seeking a terminal master's degree. However, our doctoral students earn an MA degree en route to the PhD.

Please see the admission criteria for our doctoral degree program (p. 252).

Admission Contact Information  
 Paul Weirich  
 College of Arts and Science  
 Department of Philosophy  
 415 Strickland Hall  
 (573) 882-6760

### Master of Arts Degree Completion Requirements

- 30 semester hours of graduate work, 15 of which must be at the 8000 level.
- At least 80 percent of the hours submitted for the master's program must be completed with a grade of A or B.
- A distribution of graduate courses including a proseminar for all first year students, one course in the history of philosophy and one course in either ethics, political philosophy, metaphysics, or epistemology.

- A thesis or two papers of format and topic appropriate for a refereed paper in a major journal, displaying sustained research and philosophical analysis, and an oral defense of the thesis or papers.

## PhD in Philosophy

### Admission Contact Information

Paul Weirich  
 College of Arts and Science  
 Department of Philosophy  
 415 Strickland Hall  
 (573) 882-6760

**Note:** Although we award the MA degree, we only admit students to our PhD program (with the MA obtained in the process). Any unusual circumstances regarding failure to meet the minimum requirements should be called to the attention of the director of graduate admissions.

### Admission Process

In order to be considered for our graduate program, the following steps need to be completed (including receipt of transcripts and test scores) by January 15th:

1. Arrange for all relevant official transcripts to be sent directly to the Office of Graduate Studies by your college or university (student copies are not acceptable).
2. Arrange with Educational Testing Services for your GRE scores to be sent directly to the Office of Graduate Studies (MU's school code is 6875; philosophy's department code is 2801). Only electronic scores are acceptable.
3. International students also should arrange for their TOEFL scores to be sent directly to the Office of Graduate Studies (MU's school code is 6875; philosophy's department code is 2801). The minimum required scores are 100 (internet) total with a speaking score of at least 23 (internet). (For more information about scores, see the Office of Graduate Studies' TOEFL policy.)
4. Complete the basic information in online Graduate Studies application.
5. Upload a 750-word Statement of Interest to the Supplemental Information section of the on-line Graduate Studies application form. It should explain why are you are interested in graduate study in philosophy at the University of Missouri. We encourage you to address, if you wish, how you can advance the department's commitment to diversity.
6. Upload a sample of your 15-25 page philosophical writing (e.g., a paper or thesis chapter) to the Supplemental Information section of the on-line Graduate Studies application form. For the sake of blind evaluation, do not include your name on the sample you upload.
7. In the Recommendation section of the on-line Graduate Studies application form, enter the information for three letters of recommendation regarding your academic potential. You should first obtain agreement from the professors writing these letters. They will be contacted by e-mail to submit their letters electronically. If a professor is unable to send his/her letters electronically, you should still enter all his/her information in the Recommendation section, but you should write "(off-line)" immediately after her name.
8. A hardcopy of the recommendation should then be sent to the Director of Graduate Studies, Department of Philosophy University of Missouri, Columbia, MO 65211-4160. Because all other materials

are electronic, hardcopies often do not receive the same attention. It is thus in your strong interest to have your letters submitted electronically.

- Complete the Department Philosophy application form (<https://philosophy.missouri.edu/grad/graduate-program>).

## Admission Criteria

Fall deadline: January 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100*	600

\* Speaking score of at least 23

- Average GRE scores:

When did you take the GRE?	Verbal	Quantitative
Prior to August 1, 2011	650	700
On or After August 1, 2011	163	155

- Eligibility for any graduate work in philosophy requires the equivalent of the following six undergraduate courses in philosophy: formal logic, ethics, ancient philosophy, modern philosophy, epistemology, and metaphysics.
- Deficiencies may be made up after the student is enrolled at MU.
- Average GPA in the major: 3.9

## Required Application Materials

To the Office of Graduate Studies

- All required Graduate Studies documents
- 3 letters of recommendation (submission through the online application system strongly preferred, but postal mail submission directly to the department allowed)
- Statement of interest (upload to the online application)
- Writing sample (upload to the online application)
- Departmental application (download this from <https://philosophy.missouri.edu/grad/graduate-program> and then upload to the online application).

To the Philosophy Program

- GRE score report (electronic only)

## Qualifying Exam

Qualification for the PhD program is established by a qualifying examination (typically by superior performance on the MA research requirement).

## Graduation Requirements for the PhD

- 72 hours of course work in philosophy, with at least 42 hours of regular course work.
- A distribution of graduate courses including an introductory seminar for all first year students, two advanced courses in logic, two courses in the history of philosophy, and one course in each of ethics, epistemology, and metaphysics.
- A written and oral dissertation proposal requirement designed to ensure the student's familiarity with the relevant philosophical

literature and ability to analyze philosophical issues. A dissertation and a final oral examination on the dissertation.

## Physics

Sashi Satpathy, Chair  
 College of Arts and Science  
 223 Physics Building  
 (573) 882-3335  
 Fax: (573) 882-4195  
<https://physics.missouri.edu/>

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research.

The Department of Physics and Astronomy offers a major in physics with either a Bachelor of Arts or a Bachelor of Science Degree. The BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by students who do not envision a professional career in physics, but plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. The BS degree in Physics is designed to prepare students for scientific careers immediately upon graduation, for further training in graduate school, or for teaching high school physics. A minor in physics or astronomy is also available.

Physics education plays a pivotal role in such areas of burgeoning and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security. Therefore, the Department of Physics has introduced several new courses and electives to train undergraduate students in optical sciences, biological physics, materials sciences and nanotechnology.

## Faculty

**Professor** M. Chandrasekhar\*\*, S. J. Chen\*\*, S. Gangopadhyay\*\*, Linda Godwin\*\*, S. Guha\*\*, D. Hanuscin\*, M. F. Hawthorne\*, K. Katti\*\*, S. M. Kopekin\*\*, I. Kosztin\*\*, A. Li\*\*, B. Loftin\*, P. Miceli\*\*, P. Pfeifer\*\*, S. Satpathy\*\*, D. Singh\*\*, A. Speck\*\*, C. Ullrich\*\*, G. Vignale\*\*, C. Wexler\*\*, P. Yu\*\*, X. Zou\*\*

**Associate Professor** G. King\*\*, W. T. Montfrooij\*\*, H. Yan\*\*

**Assistant Professor** G. Bian\*\*, D. Singh\*\*

**Teaching Professor** D. Kosztin\*

**Associate Teaching Professor** Y. Zhang\*

**Assistant Teaching Professor** S. Bompadre\*, K. King\*

**Adjunct Professor** S. M. Badalyan, S. Balasubramanian, C. Chicone\*, P. Cornish\*, F. Y. Hansen, F. Hehl, A. Helfer\*, H. Kaiser, A. Neagu, Z. S. Popovic, W. Yelon\*

**Adjunct Associate Professor** X. Fan, J. Farmer\*\*

**Professor Emeritus** H. R. Chandrasekhar, D. L. Cowan, G. Forgacs, B. Mashhoon, P. Plummer, J. J. Rhyne, G. Schupp, H. Taub, C. W. Tompson, S. A. Werner, H. W. White\*, J. E. Willett

**Associate Professor Emeritus** C. J. Peterson

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Physics (p. 255)
- BS in Physics (p. 256)
  - with emphasis in Astronomy (p. 257)
  - with emphasis in Biological Physics (p. 257)
  - with emphasis in Materials Science (p. 258)
- Minor in Physics (p. 259)

Candidates for both degrees must complete 120 credits with an average grade of C or better. For the BA in physics degree, students must complete 30 credits in physics and 19 credits in math and chemistry. For the BS in physics degree, students must complete 45 credits in physics and 25 credits in math and chemistry. Students pursuing a Bachelor of Science in Secondary Education, emphasis in Physics, have the option of receiving a BS in physics degree by completing 33 credits in physics and 19 hours in math and chemistry. In addition, students must meet all degree, college, and university requirements including University general education. All students who complete the BS degree in Physics automatically also complete a minor in Mathematics.

## Departmental Honors

The departmental honors program in physics provides exceptional students with an opportunity to develop skills beyond the normal course work. It also acknowledges those students who have attained a level of achievement beyond what is normally expected of an undergraduate physics major.

To receive an honors degree with a major in physics, a student must meet the following criteria:

- Satisfy the BA or BS degree requirements
- Cumulative GPA of at least 3.30 and minimum GPA of 3.50 in Physics Department courses
- Complete a six credit hours research sequence, by signing up for PHYSCS 4950/ASTRON 4950 Undergraduate Research in Physics/Astronomy in the first (second) semester junior year and for PHYSCS 4950/ASTRON 4960 Senior Thesis (or PHYSCS 4950/ASTRON 4950 again) in the first (second) semester senior year. In PHYSCS 4950 /ASTRON 4950 students will work on a research project, either by doing research in a lab or by doing reading research and completing specific readings under the supervision of a faculty advisor.
- Present the results of the research project in a poster or in a paper prepared in the form of a scientific journal article at a regional or national meeting, to a faculty panel that will consist of no fewer than three Physics Department faculty members, or in a physics seminar.

In order to receive departmental honors recognition, the student must be recommended by the director of undergraduate studies. Upon recommendation, the Office of the University Registrar will be notified that the candidate has earned departmental honors recognition. This acknowledgement will appear on the student's diploma as well as on the transcript.

## Elective Tracks

Students have available a variety of courses from which they may select the required credits of physics electives for the BS or BA degree. The department offers tracks that allow students to specialize in astronomy, biological physics, condensed matter physics, energy storage, materials science, nanomaterials, or optoelectronics. Students may wish to pursue one of these tracks, or follow a general track in which they can choose any of the courses that are listed and are not required courses.

Note: Tracks are not indicated on the diploma.

## Foreign Language Alternative (BS)

Students who elect an undergraduate program leading to the BS degree with a major in Physics have an option regarding the College of Arts and Science foreign language requirement. This requirement of 12 or 13 credits (depending on the language studied) may be satisfied alternatively by the substitution of an approved specialization. This consists of a minimum of 12 credits at the 2000/3000 level or above and may not include courses normally required of all physics majors. It is to be selected from an area with special relevance to physics and to the student's own interests and future plans.

Students have selected options in aerospace engineering, atmospheric science/geophysical fluid dynamics, radiation biology, chemistry, computer science, electrical engineering (circuits or computer hardware option), geology, nuclear engineering, material science, math and other areas. The choice and planning of an option must be done under the direction of the departmental undergraduate advisor.

## Dual Degrees and Double Majors

Students may wish to pursue two baccalaureate dual degrees simultaneously. For example, this might include a BS in Physics and a BS in Engineering, which is the most common choice. In order to receive two baccalaureate degrees, a student must complete a minimum of 132 credits and complete all the specified requirements for both degrees.

Another degree option is a single baccalaureate degree with two majors (double majors), which may be developed with the concurrence of appropriate advisors in the two departments. A notation of the successful completion of the two areas appears on the student's transcript. Both departments must be in the College of Arts and Sciences. Double major options often chosen by a physics major are chemistry, mathematics or geology. Mathematics is a particularly viable double major because the extensive mathematics component normally required in the BS degree with a major in physics, if coupled with a specialization area chosen from mathematics, nearly completes the BS degree with a major in mathematics.

Careful planning, started early in the academic career, is required to meet the conditions of dual majors or dual degrees. Students who complete such programs obtain the maximum from their undergraduate experience.

## Graduate

- MS in Physics (p. 259)
- PhD in Physics (p. 260)
- Graduate Certificate in Teaching High School Physics (p. 262)

Department of Physics & Astronomy  
223 Physics Building  
(573) 882-3335

<https://physics.missouri.edu/grad/graduate-program>

**Director of Graduate Studies:** Carsten Ullrich  
424 Physics Building  
(573) 882-2467

## About Physics

At the University of Missouri, the physics degrees are offered by the Department of Physics and Astronomy. Because the Department has a moderate size, graduate students are better able to maintain a close relationship with the faculty. Our facilities include various laboratories within the Physics Building as well as the Research Reactor. In certain cases, a student's work may be done in collaboration with other science and engineering departments.

The largest research area is in experimental and theoretical condensed-matter physics. Graduates in these fields have been very successful in continuing their careers in industry and academics. Other research programs in which thesis work may be accomplished are biological physics and astronomy/astrophysics.

## Research Resources

The Department of Physics and Astronomy offers many opportunities for scientific research in internationally recognized programs, some of which are unique at a university and at a level expected only in much larger departments. The main focus of research is in the areas of theoretical and experimental condensed matter physics, biological physics, astrophysics, and alternative energy. These research efforts are fostered by the existence of the University of Missouri Research Reactor (MURR), a 10 MW light-water moderated reactor that is the highest-power university research reactor in the country. Furthermore, many research activities involve facilities at National Laboratories such as Argonne, Oak Ridge, or NIST.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## More Details

For more details on the Physics graduate program please consult the departmental web site: <https://physics.missouri.edu/grad/graduate-program>

In particular, details about degree requirements, rules and regulations can be found in the Physics graduate handbook (<https://physics.missouri.edu/sites/default/files/grad-files/graduatehandbook10-02-14.pdf>).

## BA in Physics

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through

research. The BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by students who plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. Physics plays a pivotal role in such areas of expanding and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security, and as such, courses are offered in optical sciences, biological physics, materials sciences and nanotechnology.

## Major Program Requirements

Students must complete the University of Missouri's general education requirements in addition to the Major Program Requirements below.

PHYSCS 2800	Undergraduate Seminar in Physics	2
PHYSCS 2750 & PHYSCS 2760	University Physics I and University Physics II	10
PHYSCS 3150	Introduction to Modern Physics	3
PHYSCS 4080	Major Themes in Classical Physics	3
MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1320	College Chemistry I	4
<b>Electives:</b>		
Additional physics/astronomy		12
Total Credits		50

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500 <sup>^</sup>	5 MATH 1700 <sup>^</sup>	5
PHYSCS 2800 <sup>^</sup>	2 PHYSCS 2750 <sup>^</sup>	5
ENGLSH 1000 <sup>*</sup>	3 Humanities/Fine Arts Course <sup>*</sup>	3
HIST 1100, 1200, or POL_SC 1100 <sup>*</sup>	3	
	13	13
Second Year		
Fall	CR Spring	CR
MATH 2300 <sup>^</sup>	3 MATH 4100 <sup>^</sup>	3
PHYSCS 2760 <sup>^</sup>	5 PHYSCS 3150 <sup>^</sup>	3
Foreign language (level 1) <sup>*</sup>	5 Foreign language (level 2) <sup>*</sup>	5
Elective Course	3 Behavioral Science Course <sup>*</sup>	3
	Elective Course	3
	16	17
Third Year		
Fall	CR Spring	CR
PHYSCS 4080 <sup>&amp;</sup>	3 PHYSCS elective <sup>^</sup>	3
PHYSCS elective <sup>^</sup>	3 CHEM 1320 <sup>^</sup>	4
Foreign language (level 3) <sup>*</sup>	3 2000-level Humanities/Fine Arts Course (Writing Intensive) <sup>*</sup>	3
Social Science Course <sup>*</sup>	3 Elective Course	3



2000-level Behavioral Science Course <sup>*</sup>	3 Elective Course	3
		15

Fourth Year		
Fall	CR Spring	CR
PHYSICS Elective/Research Course <sup>^</sup>	3 PHYSICS elective/research <sup>^</sup>	3
Humanities/Fine Arts Course <sup>*</sup>	3 Humanities and fine arts course <sup>*</sup>	3
2000-level Social Science Course <sup>*</sup>	3 Elective Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
		15

Total Credits: 120

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## BS in Physics

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. The BS degree in Physics is designed to prepare students for scientific careers immediately upon graduation, for further training in graduate school, or for teaching high school physics. Physics plays a pivotal role in such areas of expanding and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security, and as such, courses are offered in optical sciences, biological physics, materials sciences and nanotechnology. Students can specialize by pursuing a BS in physics with an emphasis in astronomy or materials science.

### Major Program Requirements

Students must complete the University general education (p. 33) requirements in addition to the Major Program Requirements below.

PHYSICS 2800	Undergraduate Seminar in Physics	2
PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	10
PHYSICS 3150	Introduction to Modern Physics	3
PHYSICS 4060	Advanced Physics Laboratory I	3
PHYSICS 4100	Electricity and Magnetism I	3
PHYSICS 4120	Introduction to Thermodynamics	3
PHYSICS 4140	Mechanics	3
PHYSICS 4800	Introduction to Quantum Mechanics I	3
MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1320	College Chemistry I	4
<b>Electives</b>		
Additional physics/astronomy		15

Additional math	6
Total Credits	71

### Major Core Requirements for the BS Program for Science Education Majors

This degree is available only to students who are also pursuing a Bachelor of Science in Education, emphasis in Physics education.

PHYSICS 2800	Undergraduate Seminar in Physics	2
PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	10
PHYSICS 3150	Introduction to Modern Physics	3
PHYSICS 4060	Advanced Physics Laboratory I	3
PHYSICS 4080	Major Themes in Classical Physics	3
MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1320	College Chemistry I	4

#### Electives:

Additional physics/astronomy (a student must select 4 courses from the list below)	12	
PHYSICS 3010	Introduction to Modern Astrophysics	3
PHYSICS 3100	Teaching Physics	3
PHYSICS 4050	Electronic Laboratory	4
PHYSICS 4110	Light and Modern Optics	4
PHYSICS 4180	Solar System Science	3
PHYSICS 4190	Physics and Chemistry of Materials	3
Total Credits	73	

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500 <sup>^</sup>	5 PHYSICS 2750 <sup>^</sup>	5
General Education <sup>*</sup>	3 MATH 1700 <sup>^</sup>	5
CHEM 1320 <sup>^</sup>	4 General Education <sup>*</sup>	3
ENGLISH 1000 <sup>*</sup>	3	
PHYSICS 2800	2	
		17

Second Year		
Fall	CR Spring	CR
PHYSICS 2760 <sup>^</sup>	5 PHYSICS 3150 <sup>^</sup>	3
MATH 2300 <sup>^</sup>	3 MATH 4100 <sup>^</sup>	3
General Education <sup>*</sup>	3 PHYSICS 4140 <sup>^</sup>	3
General Education <sup>*</sup>	3 General Education <sup>*</sup>	3
	Specialized/Foreign Language	3
		14

Third Year		
Fall	CR Spring	CR
PHYSICS 4100 <sup>^</sup>	3 PHYSICS 4120 <sup>^</sup>	3
PHYSICS Elective <sup>^</sup>	3 Physics Elective <sup>^</sup>	3
MATH 4500 <sup>^</sup>	3 Math Elective <sup>^</sup>	3

PHYSICS 4060 <sup>^</sup>	3 General Education <sup>*</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 Specialized/ Foreign Language <sup>*</sup>	3
		15
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
PHYSICS 4800 <sup>^</sup>	3 PHYSICS 4810 <sup>^</sup>	3
PHYSICS Elective <sup>^</sup>	3 PHYSICS 4985 <sup>^</sup>	3
PHYSICS Elective <sup>^</sup>	3 PHYSICS Elective <sup>^</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 Electives/Research	3
		12

Total Credits: 113

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## BS in Physics with Emphasis in Astronomy

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. An emphasis area in astronomy is excellent preparation also for science teachers, laboratory technicians, computer programmers, and science journalists. It can also serve as the basis for graduate degrees in other fields, such as law or medical school. People with a degree (or background) in Physics with and emphasis in astronomy find jobs in planetariums, science museums, national observatories, national laboratories, federal agencies, universities, business or private industry.

### Major Program Requirements

Students interested in astronomy may pursue a BS in Physics with an Emphasis in Astronomy. For this option, students must take the same required courses as the students pursuing a regular BS degree and take all their physics electives in astronomy. One of the 4 required astronomy electives is ASTRON 3010 Introduction to Modern Astrophysics. If successfully completed, the emphasis in Astronomy will be recorded on the student's diploma."

ASTRON 3010	Introduction to Modern Astrophysics	3
PHYSICS 2800	Undergraduate Seminar in Physics	2
PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	10
PHYSICS 3150	Introduction to Modern Physics	3
PHYSICS 4060	Advanced Physics Laboratory I	3
PHYSICS 4100	Electricity and Magnetism I	3
PHYSICS 4120	Introduction to Thermodynamics	3
PHYSICS 4140	Mechanics	3
PHYSICS 4800	Introduction to Quantum Mechanics I	3
PHYSICS 4810	Introduction to Quantum Mechanics II	3

MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1320	College Chemistry I	4
<b>Electives</b>		
Additional Astronomy		9
Additional math		6
Total Credits		71

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500 <sup>^</sup>	5 MATH 1700 <sup>^</sup>	5
General Education <sup>*</sup>	3 PHYSICS 2750 <sup>^</sup>	5
ENGLISH 1000 <sup>*</sup>	3 General Education <sup>*</sup>	3
PHYSICS 2800	2	
CHEM 1320 <sup>^</sup>	4	
		17

Second Year		
Fall	CR Spring	CR
MATH 2300 <sup>^</sup>	3 MATH 4100 <sup>^</sup>	3
General Education <sup>*</sup>	3 PHYSICS 4140 <sup>^</sup>	3
General Education <sup>*</sup>	3 General Education <sup>*</sup>	3
PHYSICS 2760 <sup>^</sup>	5 Specialized/Foreign Language	3
		PHYSICS 3150 <sup>^</sup>
		3
		14

Third Year		
Fall	CR Spring	CR
PHYSICS 4100 <sup>^</sup>	3 PHYSICS 4120 <sup>^</sup>	3
ASTRON Elective <sup>^</sup>	3 Math Elective <sup>^</sup>	3
MATH 4500 <sup>^</sup>	3 General Education <sup>*</sup>	3
PHYSICS 4060 <sup>^</sup>	3 Specialized/ Foreign Language <sup>*</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 ASTRON Elective <sup>^</sup>	3
		15

Fourth Year		
Fall	CR Spring	CR
PHYSICS 4800 <sup>^</sup>	3 PHYSICS 4810 <sup>^</sup>	3
ASTRON Elective <sup>^</sup>	3 PHYSICS 4985 <sup>^</sup>	3
ASTRON Elective <sup>^</sup>	3 ASTRON Elective <sup>^</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 Electives/Research	3
		12

Total Credits: 113

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

&lt;

## BS in Physics with Emphasis in Biological Physics

## Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. Biological physics is an interdisciplinary area that employs and develops theories and methods of the physical sciences for the investigation of biological systems. There is a long history of the quantitative tools and techniques originally developed within the physics community finding critical applications in biology. Examples range from the first visualization of the DNA double helix via X-ray diffraction to the widespread use of magnetic resonance imaging in hospitals throughout the world. Currently, biological physics is one of the fastest growing physics research areas that is vital for many other fields, including medicine, bioengineering, and biology. Students specializing in this area have career opportunities in medical centers, research institutes and biotechnology industries, as well as the more traditional academic venues.

## Major Program Requirements

Students interested in biological physics may choose to pursue a BS in Physics with an Emphasis in Biological Physics. For this option, students must take the same required courses as the students pursuing a regular BS degree, take PHYSCS 4520 Introduction to Biophysics, and three additional physics electives (3 courses) from the list below:

PHYSCS 4190	Physics and Chemistry of Materials	3
PHYSCS 4310	Physics in Cell and Developmental Biology	3
PHYSCS 4410	Analysis of Biological Macromolecules and Biomaterials	3
PHYSCS 4420	Introduction to Biomedical Imaging	3
PHYSCS 4500	Computational Biological Physics	3
PHYSCS 4510	Single Molecule Biophysics	3
PHYSCS 4520	Introduction to Biophysics	3
PHYSCS 4950	Undergraduate Research in Physics (with approval)	1-3
PHYSCS 4960	Senior Thesis in Physics (with approval)	3

Only courses with a grade of C- or above will be counted toward the emphasis area.

### Required Courses

PHYSCS 2800	Undergraduate Seminar in Physics	2
PHYSCS 2750 & PHYSCS 2760	University Physics I and University Physics II	10
PHYSCS 3150	Introduction to Modern Physics	3
PHYSCS 4060	Advanced Physics Laboratory I	3
PHYSCS 4100	Electricity and Magnetism I	3
PHYSCS 4120	Introduction to Thermodynamics	3
PHYSCS 4140	Mechanics	3
PHYSCS 4800	Introduction to Quantum Mechanics I	3
One Physics Elective		3

### Choose 4 electives:

PHYSCS 4190	Physics and Chemistry of Materials	3
PHYSCS 4310	Physics in Cell and Developmental Biology	3
PHYSCS 4410	Analysis of Biological Macromolecules and Biomaterials	3
PHYSCS 4420	Introduction to Biomedical Imaging	3

PHYSCS 4500	Computational Biological Physics	3
PHYSCS 4510	Single Molecule Biophysics	3
PHYSCS 4520	Introduction to Biophysics	3
PHYSCS 4950	Undergraduate Research in Physics (with approval)	1-3
PHYSCS 4960	Senior Thesis in Physics (with approval)	3

## Semester Plan

First Year		
Fall	CR Spring	CR
MATH 1500	5 MATH 1700 <sup>^</sup>	5
General Education <sup>*</sup>	3 PHYSCS 2750 <sup>^</sup>	5
ENGLISH 1000 <sup>*</sup>	3 General Education <sup>*</sup>	3
PHYSCS 2800	2	
CHEM 1320	4	
	17	13

Second Year		
Fall	CR Spring	CR
MATH 2300 <sup>^</sup>	3 MATH 4100 <sup>^</sup>	3
General Education <sup>*</sup>	3 PHYSCS 4140 <sup>^</sup>	3
General Education <sup>*</sup>	3 General Education <sup>*</sup>	3
PHYSCS 2760 <sup>^</sup>	5 Specialized/Foreign Language	3
	PHYSCS 3150 <sup>^</sup>	3
	14	15

Third Year		
Fall	CR Spring	CR
PHYSCS 4100 <sup>^</sup>	3 PHYSCS 4120	3
PHYSCS 4620	3 MATH Elective <sup>^</sup>	3
MATH 4500 <sup>^</sup>	3 General Education <sup>*</sup>	3
PHYSCS 4060 <sup>^</sup>	3 Specialized/Foreign Language <sup>*</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 PHYSCS Elective <sup>^</sup>	3
	15	15

Fourth Year		
Fall	CR Spring	CR
PHYSCS 4800 <sup>^</sup>	3 PHYSCS 4810 <sup>^</sup>	3
PHYSCS Elective <sup>^</sup>	3 PHYSCS 4985 <sup>^</sup>	3
PHYSCS Elective <sup>^</sup>	3 PHYSCS Elective <sup>^</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 Electives/Research	3
	12	12

Total Credits: 113

<sup>^</sup> Course meets degree program requirements.

<sup>\*</sup> Course meets University General Education and/or campus graduation requirements.

## BS in Physics with Emphasis in Materials Science

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and

developing the skills that enable such knowledge to be advanced through research. Materials Science is an interdisciplinary field encompassing several disciplines of science and technology. Physics lies at the heart of materials science since it provides a rationale for understanding the mechanical, thermal, optical, and magnetic properties of matter. The emphasis area in materials science prepares students in areas of high demand for the 21st century workforce in the US. Materials scientists are employed by companies who make products ranging from metals, ceramics, and biomedical implants to integrated-circuit chips and superconducting materials. A major concentration of the program is on nanomaterials, which prepares students in areas of nanotechnology and energy-related issues.

## Major Program Requirements

Students interested in materials science may choose to pursue a BS in Physics with an Emphasis in Materials Science. For this option, students must take the same required courses as the students pursuing a regular BS degree, take PHYSCS 4620 Introduction to Materials Science, and three additional physics electives (3 courses) from the list below:

PHYSCS 4190	Physics and Chemistry of Materials	3
PHYSCS 4230	Scanning and Transmission Electron Microscopy and Microanalysis	3
PHYSCS 4400	The Physics of Electronic Devices	3
PHYSCS 4410	Analysis of Biological Macromolecules and Biomaterials	3
PHYSCS 4600	Semiconductor Optics	3
PHYSCS 4620	Introduction to Materials Science	3
PHYSCS 4650	Modern Condensed Matter Physics	3
PHYSCS 4950	Undergraduate Research in Physics	1-3
PHYSCS 4960	Senior Thesis in Physics	3

With approval, one materials science related course may be taken from outside the physics program. Only courses in which a grade of C- or above will be counted toward the emphasis area.

## Semester Plan

First Year		
Fall	CR Spring	CR
MATH 1500 <sup>^</sup>	5 MATH 1700 <sup>^</sup>	5
General Education <sup>*</sup>	3 PHYSCS 2750 <sup>^</sup>	5
ENGLSH 1000 <sup>*</sup>	3 General Education <sup>*</sup>	3
PHYSCS 2800	2	
CHEM 1320 <sup>^</sup>	4	
	17	13

Second Year		
Fall	CR Spring	CR
MATH 2300 <sup>^</sup>	3 MATH 4100 <sup>^</sup>	3
General Education <sup>*</sup>	3 PHYSCS 4140 <sup>^</sup>	3
General Education <sup>*</sup>	3 General Education <sup>*</sup>	3
PHYSCS 2760 <sup>^</sup>	5 Specialized/Foreign Language	3
	PHYSCS 3150 <sup>^</sup>	3
	14	15

Third Year		
Fall	CR Spring	CR
PHYSCS 4100 <sup>^</sup>	3 PHYSCS 4120 <sup>^</sup>	3
PHYSCS 4620	3 MATH Elective <sup>^</sup>	3
MATH 4500 <sup>^</sup>	3 General Education <sup>*</sup>	3

PHYSCS 4060 <sup>^</sup>	3 Specialized/Foreign Language <sup>*</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 PHYSCS Elective <sup>^</sup>	3
	15	15

Fourth Year		
Fall	CR Spring	CR
PHYSCS 4800 <sup>^</sup>	3 PHYSCS 4810 <sup>^</sup>	3
PHYSCS Elective <sup>^</sup>	3 PHYSCS 4985 <sup>^</sup>	3
PHYSCS Elective <sup>^</sup>	3 PHYSCS Elective <sup>^</sup>	3
Specialized/Foreign Language <sup>*</sup>	3 Electives/Research	3
	12	12

Total Credits: 113

<sup>^</sup> Course meets degree program requirements.

<sup>\*</sup> Course meets University General Education and/or campus graduation requirements.

## Minor in Physics

A student whose area of concentration is in another department may receive a minor in physics with the completion of the following courses with grades of C or better: PHYSCS 2750, PHYSCS 2760, PHYSCS 3150, plus two additional physics courses at the 4000 level or above. In order to complete these requirements, the student must complete mathematics through MATH 4100 Differential Equations.

Conversely, a student whose area of concentration is physics may pursue a minor in another department in the College of Arts and Sciences.

## MS in Physics

### About the Master of Science

The master of science degree in physics prepares students for a variety of scientific careers. Since physics is the most fundamental of the physical sciences, graduate-level studies in the field provide essential knowledge for application in many areas. Students with strong backgrounds in physics, as well as in areas ranging from biology to engineering, are encouraged to consider a personalized MS program in physics. Graduates have many job opportunities in a variety of areas.

### Application Process

We welcome applications from students who have successfully completed a 4-year undergraduate degree in physics or closely related fields. International students who have gone through a 3-year undergraduate degree program need to have an MS degree to become eligible for admission.

Applications for admission for graduate study in physics have to be completed online. Your online application should include the following material (to be uploaded in electronic format):

- University of Missouri Graduate School Application. Use the online application system to fill out the application form and upload the required documents.
- The results of the general GRE Test (required).
- The results of the GRE Advanced Physics Test, if available (not mandatory, but strongly recommended).
- For international applicants, the results of the TOEFL Test. The minimum total TOEFL scores for graduate admission into the MU

Physics program are 550 (paper-based), 213 (computer-based) or 80 (internet-based). The IELTS test with a minimum score of 6.5 is an acceptable alternative to the TOEFL.

- A statement of purpose, in which you tell us a bit about yourself (e.g. your motivations, career goals, and research interests, and why you chose to apply at the University of Missouri).
- Three letters of recommendation from three of your professors who are familiar with you and your work.
- Official transcripts from all undergraduate and graduate institutions applicant has attended.

## Admission Criteria

Fall deadline: March 1

Spring deadline: Rolling (target date: October 1)

Minimum GRE score: none set

International applicants must submit results of the TOEFL test.

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- MU institutional code for GRE and TOEFL: 6875
- GRE department code: 0808
- TOEFL department code: 76

## Degree Completion Requirements

In general, students must present at least 30 credit hours for the MS degree, including at least 15 hours in courses at the 8000 level. The program must include at least 15 hours of physics courses. There is no foreign language requirement.

## Physical Science Option

The master of science (physical science) degree is designed for those preparing to teach more than one science or for those broadening their foundation in science before proceeding to the doctoral degree. It emphasizes broad training in physics, chemistry and mathematics. No thesis is required.

## Plan of Study

The MS Degree requires completion of a minimum of 30 course hours beyond the Bachelor's Degree (at least 15 hours of those in 8000 level courses) with a grade of 3.0 (B) or better, and completion of the Departmental Qualifying Examination at least at the MS pass level. The basic residency requirement stipulates that 24 hours of this work be courses taken at MU (i.e., no more than 6 hours may be transfer credits). In a normal program, this requirement is met by the end of the second year at MU. The required courses for a Master's Degree are:

PHYSCS 8610	Classical Mechanics	3
PHYSCS 8620	Electrodynamics I	3
PHYSCS 8660	Methods in Mathematical Physics	3
PHYSCS 8680	Thermodynamics and Statistical Mechanics	3
PHYSCS 8710	Quantum Mechanics I	3

Other additional courses may be taken from 7000 and 8000 level courses in astronomy, mathematics, chemistry, biology, engineering, and physics to make a total of 30 hours of course work. In some cases, a student who is a transfer graduate student or who has a particularly strong undergraduate background may have had course work which satisfies the requirement of

one or more of these core courses. Exemption from taking these courses at MU may be granted upon written application to the Departmental Graduate Studies Committee.

## Research

It is essential for the MS degree that the student carries out some research. Three hours of research, PHYSCS 8090, should be taken, but not more than nine hours of reading and research courses may be included in the 30 hour requirement. (Note: This 9 hour limitation is a departmental requirement and is more restrictive than the Office of Graduate Studies requirement.) A formal MS thesis is not required in Physics. The student, in consultation with his/her advisor, can choose to write an MS thesis as an option (MU Graduate Studies thesis guidelines (<http://gradschool.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline>)).

## Qualifying Examination

The student must pass the Departmental Qualifying Examination at least at the MS pass level. Upon completion of the qualifying examination, the student fills out the form M3, "Report of the Master's Examining Committee" and gathers the signatures of the Qualifying Examination Committee members. This form is then signed by the Director of Graduate Studies and forwarded to the Office of Graduate Studies Dean. Graduation Requirements

After performing satisfactory work for the first year, the student with the advisor's assistance completes the form M1, "Plan of Study for the Master's Degree," an outline of the course of study for the student's graduate program, and forwards the application through the Departmental Graduate Studies Committee to the Dean of the Graduate Studies. The plan of study form must be filed no later than the session preceding the session in which the student expects to receive the degree. Upon approval of the M1 form by the Dean of the Graduate Studies, the student is a candidate for the degree.

The program for the Master's Degree must be completed within a period of eight years beginning with the first semester of enrollment, not including time spent in the armed services. For any extension of this time limitation, the student must petition the Graduate Studies Dean. Such petitions must be received in the Graduate School Office prior to the expiration of the normal period and must be approved by the advisor, the Departmental Director of Graduate Studies, and the Graduate Studies Dean. The Office of Graduate Studies will notify the advisor in writing of the final decision.

The candidate must be enrolled at the MU campus during the semester in which the program of study, outlined in the "Plan of Study for the Master's Degree", is expected to be completed. During the first six weeks of this semester, the candidate must personally confirm with the Office of Graduate Studies for all graduation arrangements.

## PhD in Physics

The doctor of philosophy degree is designed to educate scientists to be capable of independently formulating and solving problems of fundamental scientific importance. Detailed policies for the PhD degree are listed at the MU Graduate Studies. Here we give details specific to the Physics program.

## Application Process

Applications for admission for graduate study in physics have to be completed online. Your online application should include the following material (to be uploaded in electronic format):

- University of Missouri Graduate Studies Application. Use the online application system ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=umc-grad)) to fill out the application form and upload the required documents.
- The results of the general GRE Test (required). MU institutional code for GRE: 6875 GRE department code: 0808
- The results of the GRE Advanced Physics Test, if available (not mandatory, but strongly recommended).
- For international applicants, the results of the TOEFL Test. A minimum test score of 80 is required. The IELTS test with a minimum score of 6.5 is an acceptable alternative to the TOEFL.
- A statement of purpose, in which you tell us a bit about yourself (e.g. your motivations, career goals, and research interests, and why you chose to apply at the University of Missouri).
- Three letters of recommendation.
- Your official transcripts from all undergraduate and graduate institutions attended.

## Admission Criteria

- Fall deadline: March 1
- Spring deadline: Rolling (target date: October 1)
- Minimum GRE score: none set
- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Note: MU institutional code for TOEFL: 6875. TOEFL department code: 76

## Degree Completion Requirements

A Ph.D. Degree requires completion of a minimum of 18 hours beyond the Master's Degree, with a grade of 3.0 (B) or better, and completion of the Department Qualifying Examination at the PhD pass level. The degree candidate must also meet the residency requirements. There is no foreign language requirement.

The required courses for a PhD Degree (in addition to those for the MS Degree in physics) are as follows:

- PHYSCS 8640 Electrodynamics II (3)
- PHYSCS 8720 Quantum Mechanics II (3)
- Two graduate-level (>8000) courses in the student's area of specialization (6)
- A graduate-level (>8000) course in an area other than the student's area of specialization (3)

Additional graduate-level courses to make a total of 18 hours beyond the Master's Degree are required. See the graduate courses in Physics and Astronomy for electives. In addition, students can choose selected 7000 and 8000 level courses in Mathematics, Chemistry, Biology and Engineering.

A student is required to have taken a minimum of three full years of graduate work beyond the Bachelor's Degree. All acceptable graduate

work, including one year's residence for a Master's Degree, is used to compute the three-year requirement for the PhD Degree. It is important to note that this is not a requirement for three calendar years of work, but rather a three-year's equivalent of full time study. When this three-year residency requirement is satisfied, a student should have finished a minimum of 72 credit hours of graduate work.

Within the three-year residence, each doctoral student must successfully complete at least two 12-hour semesters or three 8-hour semesters of graduate level program within a period of 18 calendar months. During this period, the student must be fully involved in academic pursuit, be it study, teaching, or research. This period of full-time reading, reflection, study, teaching, and research is considered necessary to give the student's program continuity and to fulfill the spirit and special demands of the doctoral program.

A student who is a graduate assistant, or who is engaged in other activities that reduce the time available for graduate study, may need more than the anticipated time to meet course and dissertation requirements. Nonetheless, a reasonable rate of progress is required. A PhD student must successfully complete the comprehensive examination within a period of five years beginning with the first semester of enrollment as a PhD student. In addition, the program for the doctoral degree must be completed within five years of passing the comprehensive examination.

For an extension of this time, the student must, before the expiration of the normal period, petition the Office of Graduate Studies by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate Studies which has been endorsed by the departmental Director of Graduate Studies. An extension, if granted, may entail a revision of the candidate's program to update course work and research.

## Transfer of Credit

A student who has completed a master's degree at the University of Missouri-Columbia or elsewhere may, upon recommendation of the advisor and approval by the departmental Director of Graduate Studies and the Office of Graduate Studies, transfer a maximum of 36 credit hours toward the total hours required for the doctoral degree. Transfer credit for doctoral students who do not have an earned master's degree is limited to a maximum of 12 hours of graduate credit.

## Degree Completion Requirements

In general, a PhD requires completion of a minimum of 18 hours beyond the master's degree, with a grade of 3.0 (B) or better, and completion of the department qualifying examination at the PhD pass level. The degree candidate must also meet the residency requirement. For more details, please consult the department's website or ask the director of graduate studies.

## Plan of Study

The doctoral program committee guides the student in planning a program of study. The Chair of the Doctoral Program Committee, after conferring with the student and the Doctoral Program Committee, submits to the Graduate School a report, including a copy of the proposed course of study and any request for transfer of graduate credit. This plan of study will, when completed,

- prepare the student for research in the chosen field of Physics or Astronomy,
- satisfy the credit-hour and residency requirements.

The student must substantially complete the course work outlined in the "Plan of Study for the Doctoral Degree" form (Form D2), to the satisfaction of the Doctoral Program Committee and the Dean before being considered for the Comprehensive Examination.

## Comprehensive Examination

To be an official candidate, the student must pass the Doctoral Comprehensive Examination, which is based upon graduate coursework in the Department (PHYSICS 8610, PHYSICS 8620, PHYSICS 8660, PHYSICS 8710, PHYSICS 8720, and other optional courses). The student must be enrolled to take this examination. It is to be administered only when MU is officially in session. The major advisor applies to the Dean for the Doctoral Program Committee to administer the Comprehensive Examination when the doctoral student has

- passed the Qualifying Examination,
- substantially completed the planned course work, and
- completed two years of the residence requirement.

The Comprehensive Examination is the most advanced general exam posed by MU. It may consist of both written and oral sections. It must be completed at least seven months before the final Dissertation Defense. The two sections of the examination must be completed within one month.

The written segment of the Comprehensive Examination is arranged and supervised by the major advisor. It consists of either (1) written questions prepared and graded by members of the Doctoral Program Committee, or (2) a research proposal on the work to be done for the PhD. Normally, the student will have two weeks to answer eight questions. Upon satisfactory completion of the written examination (or research proposal), the student is then given an oral examination by the committee.

For the Comprehensive Examination to be successfully completed, all or all but one of the committee, must vote to pass the student on the entire examination, both written and oral. A report of this examination, as in the "Doctoral Comprehensive Examination Results Form" (Form D3), carrying the signatures of all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the completion of the examination.

A failure of either the written or oral section of the examination constitutes failure of the comprehensive examination. If a failure is reported, the committee will include in the report an outline of the general weaknesses of deficiencies of the student's work. The student and the committee will work together to identify steps the student might take to become fully prepared for the next examination. If at any time the student believes that the advice given by the committee is inadequate, the student may send a written request for clarification to the committee. A copy of this request should be sent to the Office of Graduate Studies as well. The committee must respond to this request in writing within two weeks and a copy must be filed with the Office of Graduate Studies. A student who fails may not take a second examination for 12 weeks. Failure to pass two Comprehensive Examinations automatically prevents candidacy.

## Doctoral Candidacy and Continuous Enrollment

Candidacy for a doctoral degree is established by passing the comprehensive examination. Status as a continuous enrollment doctoral student begins the term after the term in which the comprehensive exam was successfully completed. Candidacy is maintained by enrolling in

PHYSICS 9090 research for two semester hours each fall and winter semester and for one semester hour each summer session up to and including the term in which the dissertation is defended. Continuous enrollment provides access to an advisor's support, doctoral program committee guidance and University research facilities for completion of the dissertation. Failure to continuously enroll in PHYSICS 9090 research until the doctoral degree is awarded terminates candidacy.

Candidacy may be reestablished by paying the registration and late fees owed and completing the requirements specified by the student's doctoral program committee. Registration fees owed may not exceed the amount owed for seven terms, regardless of the number of terms beyond seven for which the student failed to continuously enroll. The committee's requirements may include a second comprehensive examination of evidence of currency in the research field as suggested by publications in refereed journals. Candidacy is reestablished when the student's advisor and the departmental Director of Graduate Studies submit a written request to the Office of Graduate Studies explaining the basis of the decision. Once approved, a Request to Re-enroll form must be completed by the student and sent to the department for processing.

## Dissertation and Defense

The dissertation must be written on a subject approved by the candidate's Doctoral Program Committee, must embody the results of original and significant investigation, and must be the candidate's own work. Candidates should consult the Graduate Studies' Theses and Dissertations Guidelines.

All dissertation defenses shall be open to all Physics and Astronomy faculty and graduate students. Dissertation defense dates should be publicly announced in advance. The candidate must be enrolled to defend the dissertation, which is administered when MU is officially in session. A report of the dissertation defense form (Form D4), carrying the signatures of all members of the committee, is sent to the Graduate School before the deadline preceding the anticipated date of graduation. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

## Graduate Certificate in Teaching High School Physics

Through this project, participants gain an expanded range of leadership expertise, content knowledge and pedagogical proficiency to share with others, as they become resources and catalysts for reform in science education at the secondary and post-secondary institutional levels. Ultimately, the overall goal is a significant increase in student achievement in science and science coursework.

For more information please visit the A TIME for Physics First website: <http://www.physicsfirstmo.org/#> or contact the Department of Physics by calling 573-882-7997 or emailing [hillsar@missouri.edu](mailto:hillsar@missouri.edu)

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/teaching-high-school-physics-graduate-certificate/teach-hs-ge/Gedt.html>.

## Political Science

Moises E. Arce, Chair

College of Arts and Science  
113 Professional Building  
(573) 882-2843  
arcem@missouri.edu

Political science is concerned with government, politics and public policies. In political science courses, students learn how government operates and how to analyze and evaluate public policies and political ideas. This training can help students be more effective as active citizens, as political leaders and as government administrators.

Many political science graduates attend law school or graduate school in political science, public administration, business administration, the social sciences, and other subjects. Others are employed in governmental or political jobs as legislative assistants, military officers or lobbyists, and more go into business or private employment. Many public officials and government administrators have political science degrees.

Courses in political science help students learn to think critically, analyze complex material and communicate effectively. Political science classes require extensive writing assignments, and majors are given many opportunities to hone their writing skills.

The department offers BA, MA and PhD degrees with majors in Political Science.

## Faculty

**Professor** M. E. Arce\*\*, J. K. Dow\*\*, A. C. Drury\*\*, W. T. Horner, L. R. Keiser\*\*, L. M. Overby\*\*, P. Squire\*\*

**Associate Professor** J. B. Dyer\*\*, J. W. Endersby\*\*, J. T. Kriekhaus\*\*, S. L. Quackenbush\*\*, L. K. Williams\*\*

**Assistant Professor** A. Benjamin, S. E. Greitens\*\*, J. B. Haselswerdt\*\*, B. W. Reeder\*\*, J. L. Selin, M. B. Wahman\*\*

**Adjunct Professor** C. N. Conklin\*, J. D. Milyo\*, M. A. Stegmaier\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Political Science (p. 264)
- Minor in Political Science (p. 265)

## Departmental Requirements

Students complete a graduation plan, usually at the end of the sophomore year or beginning of the junior year. They should prepare for political science courses by completing university (p. 32) and College of Arts and Science foundation requirements, including university general education (p. 33).

Students must complete the following classes with letter grades in the C range or better to file a graduation plan:

- POL\_SC 1100 or an equivalent course
- ENGLISH 1000 or an equivalent course
- MATH 1100 followed by a mathematics or statistics course (STAT 1200 will count)
- An analytical course e.g. SOCIOL 1000, PSYCH 1000, ECONOM 1014, PHIL 1000 or PHIL 1200

- POL\_SC 3000

Students are required to complete 30 credits in political science. Fifteen of the 30 must be numbered 4000 or above.

## Internships

The Political Science Department offers internship course credit for work in a variety of governmental settings, including work with state legislators, administrative agencies, lobbyists, members of Congress, statewide elected officials, and state political parties. Seniors in good standing with a GPA of 2.67 and juniors in good standing with a GPA of 3.0 who have completed appropriate coursework are eligible to apply. No more than 3 internship credit hours may be included in the 30 hours required for the major.

## Departmental Honors

Students who have honors eligibility and a 3.5 GPA may enter the departmental honors program. Students who successfully complete a senior honors paper with a letter grade in the "B" range or better will have the phrase "with Honors in Political Science" added to their diplomas. Each year many political science honors students are selected for Phi Beta Kappa, Mortar Board, Golden Key and other scholastic honoraries.

Students who plan to enter graduate school are encouraged to enter the departmental honors program and to speak with a faculty member early in their academic career. Some areas of graduate study require significant preparation in language, statistics and methodology.

## Graduate

- MA in Political Science (p. 265)
  - with emphasis in Public Policy (p. 266)
- PhD in Political Science (p. 266)

College of Arts and Science  
113 Professional Building  
(573) 882-2062  
gradpolsci@missouri.edu  
<http://politicalscience.missouri.edu/>

**Director of Graduate Studies:** Stephen Quackenbush

The department emphasizes both quality teaching and research. Several faculty members have received awards and prizes for teaching excellence and innovative research. The department aims to train people as experts in the study of politics and government, while encouraging students to acquire a sufficient background in other disciplines to enable them to correlate their specialized knowledge with all aspects of modern life.

## Careers

The MA can serve multiple career goals: community-college teaching, continuation of studies to the PhD, entrance into and advancement in public service, or acquisition of skills for a position in the private sector.

Alumni with PhDs have received teaching appointments at public and private colleges as well as positions of responsibility in state and national government in the United States and in many foreign countries. In recent years, an average of five students a year entered the PhD job market. Approximately eighty percent of the PhD graduates became college teachers. Most of the remainder went into public service and a few



into the private sector. Six departmental alumni have become college presidents.

## Financial Aid from the Program

Applications for admission and financial aid are considered on the basis of the entire packet submitted. Students may apply for departmental teaching and research assistantships and fellowships, as well as university scholarships and fellowships. Many of our students are supported by departmental assistantships providing a stipend and course tuition waivers. Consult the program website or ask the program contact for details.

## Satisfactory Progress

A graduate student must maintain a minimum 3.0 GPA after the first semester of graduate study and a 3.4 cumulative GPA in all subsequent semesters. A student should complete and pass required courses, activities, and examinations on schedule. The student's advisor and the director of graduate studies will monitor and provide an annual assessment of a student's progress. Failure to maintain satisfactory progress can have serious consequences, including dismissal from the program.

## BA in Political Science

### Degree Program Description

Political science is concerned with government, politics and public policies. In political science students learn how government operates and how to analyze and evaluate public policies and political ideas. This training can help students be more effective as active citizens, as political leaders and as government administrators. The curriculum offers opportunities to link academic study with internships and study abroad. Political Science graduates pursue many careers, some related to politics, but many others pursue other paths in a wide variety of areas such as: law, business and finance, consulting, government, public relations, media, advertising, lobbying, and international relations.

### Major Program Requirements

Students must complete the University of Missouri's general education requirements and the Departmental Requirements (p. 263), in addition to the degree requirements below.

All majors must take:

POL_SC 1100	American Government
POL_SC 3000	Introduction to Political Research *

\*POL SC 3000 should be taken as a sophomore. It introduces majors to the systematic study of political phenomenon and prepares students for upper-class courses. A grade of C- or higher is required.

Comparative government (at least one course required)

POL_SC 2600	Canadian Politics and Government
POL_SC 2700	Comparative Political Systems
POL_SC 2720	European Democracies
POL_SC 4500	The European Union in the Global System
POL_SC 4600	Latin American Politics
POL_SC 4605	Latin American Politics through Film
POL_SC 4610	European Political Systems
POL_SC 4670	The Political System of the European Union
POL_SC 4680	Chinese Politics and Foreign Policy
POL_SC 4720	Politics of Development

POL_SC 4730	Women and Politics
POL_SC 4750	Power and Money
POL_SC 4760	Comparative Political Parties
POL_SC 4770	Comparative Political Behavior
POL_SC 4780	Dictatorship and Democracy

International affairs (at least one course required)

POL_SC 1400	International Relations
POL_SC 4400	Theories of International Relations
POL_SC 4410	Politics and War
POL_SC 4411	Genocide, Terrorism and Civil War
POL_SC 4412	Strategy and Warfare
POL_SC 4420	Politics of International Economic Relations
POL_SC 4440	International Organization
POL_SC 4540	American Foreign Policies

Political theory/methodology (one course highly recommended, but not required)

POL_SC 2800	Liberty, Justice and the Common Good
POL_SC 2860	American Political Thought
POL_SC 4000	Introductory Statistics for Political Science
POL_SC 4010	Computing Methods
POL_SC 4030	Formal Political Analysis
POL_SC 4800	Classical Political Theory
POL_SC 4830	Democracy in America (and Elsewhere)

American politics/public policy (at least two courses required)

POL_SC 2100	State Government
POL_SC 2200	The Judicial Process
POL_SC 4100	Political Parties and Election Campaigns
POL_SC 4110	Political Behavior
POL_SC 4120	Politics and the Media
POL_SC 4130	African-American Politics
POL_SC 4140	Congress and Legislative Policy
POL_SC 4150	The American Presidency
POL_SC 4160	Interest Groups
POL_SC 4170	Politics of the American South
POL_SC 4180	Politics and Hollywood
POL_SC 4200	The American Constitution
POL_SC 4210	Constitutional Rights
POL_SC 4230	Constitution and Civil Liberties
POL_SC 4310	Comparative State Politics
POL_SC 4320	Public Policy
POL_SC 4370	The Administrative State, Public Policy and Constitutional Democracy
POL_SC 4380	Politics of Criminal Justice

### Options

For students who want to concentrate on a specific area, suggestions for a course of study are available from the academic advisor. These include:

- Government service for students who want to become government administrators
- Public information and reporting for students who plan to be governmental press secretaries, public information specialists, interest group lobbyists or government reporters
- International relations for students who want to work for multinational corporations or international agencies
- Graduate school preparation

- Law school preparation

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
POL_SC 1100 <sup>**</sup>	3 Political Science <sup>^</sup>	3
ENGLSH 1000 <sup>*</sup>	3 Foreign Language 1200 <sup>*</sup>	5
Behavioral Science <sup>*</sup>	3 Elective	1
Elective	1 MATH 1100	3
Foreign Language 1100 <sup>*</sup>	5 Behavioral Science <sup>*</sup>	3
	15	15
Second Year		
Fall	CR Spring	CR
Foreign Language 2100 <sup>*</sup>	3 POL_SC 3000 (WI)	3
Math/Stat class <sup>**</sup>	3 Biological Science <sup>*</sup>	3
Political Science <sup>^</sup>	3 Humanities	3
Social Science <sup>*</sup>	3 Social Science <sup>*</sup>	3
Social Science <sup>*</sup>	3 Elective	3
	15	15
Third Year		
Fall	CR Spring	CR
Political Science <sup>^</sup>	3 Political Science <sup>^</sup>	3
Humanities <sup>*</sup>	3 Humanities <sup>*</sup>	3
Physical Science (lab) <sup>*</sup>	3 Elective (WI)	3
Elective	3 Elective	3
Elective	3 Humanities <sup>*</sup>	3
	15	15
Fourth Year		
Fall	CR Spring	CR
Political Science <sup>^</sup>	3 Political Science <sup>^</sup>	3
Political Science <sup>^</sup>	3 Political Science <sup>^</sup>	3
Elective	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits: 120

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## Minor in Political Science

To earn a minor in political science, students must complete 15 credits, including the following:

- POL\_SC 1100, American Government (3) or an equivalent course
- Additional political science courses totaling 12 credits with at least 6 at the 4000 level
- No more than 3 internship credits may be included and will not count as a 4000 level
- Nine credits must be in residence including 6 at the 4000 level

- A grade of C- or better is required of all political science classes in either a minor or a major with an overall GPA of 2.0 or greater.

## MA in Political Science

### Admission Contact Information

Graduate Studies Office  
 113 Professional Bldg.  
 Columbia, MO 65211  
 (573) 882-2062  
 gradpolsci@missouri.edu

### Admission Criteria

Admission into the MA program is determined by the graduate committee's consideration of the applicant's performance on the applicant's academic record, personal statement, letters of recommendation, and the GRE general test.

Fall deadline: December 15

- Minimum TOEFL scores for international applicants: 89
- Minimum GPA: 3.0 overall, in last 60 hours, and in political science courses.
- 12 hours of upper-division course work in political science is recommended.
- An undergraduate major in an area other than political science may be acceptable.

### Required Application Materials

- Graduate Studies online application form
- one to two page statement of purpose, describing interests and goals in graduate study in Political Science
- three letters of recommendation
- transcripts from all universities attended [official transcripts upon admission]
- official results from the Graduate Record Examination (GRE)
- writing sample
- Test of English as a Foreign Language (TOEFL) scores (for International students)

### MA Degree Completion Requirements

All MA students must complete POL\_SC 7000, POL\_SC 7010, and POL\_SC 9030. Each candidate must take one graduate seminar (8000 level) in each of two fields. Fields include: American political institutions and behavior, comparative politics and government, international relations, and public policy and administration.

The master's degree program culminates in a comprehensive oral examination and defense of the research project. The Master of Arts degree may be earned by completing either the thesis or the non-thesis program.

### Thesis Option

Students wishing to advance from the master's program to the PhD program at MU must take the thesis option. The thesis program requires 30 hours of academic credit (at least 18 in 8000-level Political Science

seminars) and an acceptable thesis for which up to six semester hours of credit must be earned (POL\_SC 8090).

## Non-Thesis Option

The non-thesis program is a 30-hour generalist master of arts. It requires a student to take at least 30 hours of academic credit (at least 18 in 8000-level Political Science seminars) and to write a master's paper for which up to three hours of credit must be earned (POL\_SC 8085).

## Satisfactory Progress

A master's student should maintain a minimum 3.0 GPA after the first semester and a 3.4 cumulative GPA in subsequent semesters. The MA program must be completed within five years of the first semester of enrollment. Most students complete the master's program within two years.

## MA in Political Science with Emphasis in Public Policy

The Department of Political Science is no longer accepting applications to the MA with emphasis in Public Policy degree program. We are accepting applications to the regular MA in Political Science program (p. 265). Please see their page for more information.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Political Science program (<http://gradschool.missouri.edu/academics/programs/political-science/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Political Science

### Admission Contact Information

Graduate Studies Office  
113 Professional Bldg.  
Columbia, MO 65211  
(573) 882-2062  
[gradpolsci@missouri.edu](mailto:gradpolsci@missouri.edu)

### Admission

Admission into the PhD program is determined by the graduate studies committee's consideration of the applicant's performance on the applicant's academic record, personal statement, letters of recommendation, and the GRE general test.

### Admission Criteria

Fall deadline: December 15

- Minimum TOEFL score for international students: 89
- Minimum GPA: 3.0 overall, in last 60 hours, and in political science courses

- 12 hours of upper-division course work in political science is recommended.

## Required Application Materials

- Graduate Studies online application form
- one to two page statement of purpose, describing interests and goals in graduate study in Political Science
- three letters of recommendation
- transcripts from all universities attended (official transcripts required upon admission)
- official results from the Graduate Record Examination (GRE)
- writing sample
- Test of English as a Foreign Language (TOEFL) scores (for International students)

## PhD Degree Completion Requirements

A student's doctoral program must include at least 45 hours of graduate seminars, exclusive of comprehensives and dissertation research. At the discretion of the student's doctoral program committee, up to 30 hours of an MA program may be included in the PhD program.

## Plan of Study

Students choose a primary and secondary field from the four doctoral fields: American political institutions and behavior, comparative politics and government, international relations, and public policy and administration.

Graduate courses must include:

- A minimum of 12 seminar hours in the primary (research) field
- A minimum of nine seminar hours in a secondary field supporting the primary field
- A minimum of 13 hours in a methodology or research tool field. Required courses include POL\_SC 7000, POL\_SC 7010, and POL\_SC 9030.
- The remaining six hours in the methodology field may be in advanced formal or quantitative methods, advanced foreign language, or a combination of the two.

Besides completing the necessary course work, the candidate must demonstrate the capacity to use a research tool (such as a foreign language or statistics), should obtain some teaching experience in political science (for academic careers), must pass written and oral comprehensive examinations, must submit and defend a dissertation proposal, and must submit and defend a dissertation.

## Length of Study

All required courses and the comprehensive examination must be completed within five years of the first semester in the graduate program. The dissertation must be completed and defended within five years of passing the comprehensive examination.

The PhD usually requires five years full time or the equivalent in part-time work beyond the bachelor's degree and four years beyond the master's degree. Full-time students (including teaching and research assistants) must carry a minimum of nine credit hours of courses per semester (except for students conducting dissertation research).

## Timeline

The first five semesters of doctoral study typically include course work and preparation for the comprehensive examinations. Comprehensive exams (POL\_SC 9970) are typically taken in the spring of the third year. A proposal for dissertation research is defended within a few months of the comprehensive exams. The remaining time is devoted to dissertation research (POL\_SC 9090).

## Satisfactory Progress

A doctoral student must maintain a minimum 3.0 GPA after the first semester and a 3.4 cumulative GPA in subsequent semesters. Comprehensive exams and dissertation proposal must be completed within a timely fashion. Most students complete the doctoral program within five years.

## Psychology

Dr. Jamie Arndt  
 College of Arts and Science  
 210 McAlester Hall  
 (573) 882-6860  
<http://psychology.missouri.edu>

The faculty and staff of the Department of Psychological Sciences are committed to providing students with a high quality, broadly-based undergraduate education. Understanding that undergraduate students use the psychology major as preparation for a variety of postbaccalaureate experiences, the department is dedicated to offering a wide range of courses and services to students. While some students are interested in pursuing psychology-related interests in graduate school, most are interested in pursuing careers after graduating with a Bachelor of Arts (BA).

Regardless of a student's ultimate goals, faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect instructors to take a scientific approach to the psychological content of each course.

The department offers the BA and BS degrees with a major in Psychology, and the MA and PhD degrees with an emphasis in Clinical Psychology, Cognition & Neuroscience, Developmental Psychology, Quantitative Psychology, and Social & Personality Psychology. A minor in Quantitative Methods is also available.

## Faculty

**Professor** J. Arndt\*\*, B. Bartholow\*\*, D. Bell\*\*, A. Bettencourt\*\*, C. Borduin\*\*, L. Cooper\*\*, N. Cowan\*\*, D. Geary\*\*, J. Kerns\*\*, L. King\*\*, D. McCarthy\*\*, M. Naveh-Benjamin\*, T. Piasecki\*\*, A. Rose\*\*, J. Rouder\*\*, T. Schachtman\*\*, K. Sheldon\*\*, K. Sher\*\*, W. Slutske\*\*, D. Steinley\*\*, T. Trull\*\*, P. Wood\*\*

**Associate Professor** D. Beversdorf\*\*, N. Campione-Barr\*\*, S. Christ\*\*, C. Davis-Stober\*\*, I. Gizer\*\*, S. Hackley\*\*, K. Hawley\*\*, J. Johnson\*\*, Y. Luo\*\*, E. Merkle\*\*, D. Miller\*\*, V. Shaffer\*\*, K. vanMarle\*\*, M. Will\*\*

**Assistant Professor** , J. Craggs, A. Groh\*\*, L. Scherer\*\*

**Research Assistant Professor** J. Bohanek

**Clinical Professor** N. Presser

**Clinical Associate Professor** M. Klein-Trull, S. O'Neill, J. Skinner, E. Waller

**Assistant Teaching Professor** L. Bauer, J. Ludlam, E. Naveh-Benjamin, I. Segert, M. Skaggs Sheldon, I. Zimmerman

**Professor Emeritus** W. Anderson, B. Biddle, R. Geen, J. LoPiccolo, A. Strathman, M. Thelen, D. Wright

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Psychology (p. 268)
- BS in Psychology (p. 270)
- Minor in Psychology (p. 273)

## Graduate

- MA in Psychology (p. 273)
  - emphasis in Child Development and Developmental Psychology (p. 273) \*
  - emphasis in Clinical Psychology (p. 273) \*
  - emphasis in Cognition and Neuroscience (p. 273) \*
  - emphasis in Developmental Psychology (p. 273) \*
  - emphasis in Quantitative Psychometrics (p. 273)
  - emphasis in Social/Personality Psychology (p. 274) \*
- PhD in Psychology (p. 274)
  - emphasis in Child Clinical and Developmental Psychology (p. 274)
  - emphasis in Clinical and Quantitative Psychology (p. 275)
  - emphasis in Clinical Psychology (p. 275)
  - emphasis in Cognition and Neuroscience (p. 275)
  - emphasis in Developmental Psychology (p. 276)
  - emphasis in Quantitative Psychology (p. 276)
  - emphasis in Social/Personality Psychology (p. 276)

\* **Please refer to the corresponding PhD programs for the MA emphasis areas indicated above. Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.**

College of Arts and Science  
 210 McAlester Hall  
 (573) 882-0838  
 FAX (573) -882-7710  
<https://psychology.missouri.edu/grad/graduate-program>

**Director of Graduate Studies:** Dennis K. Miller

## About Psychological Sciences' Degrees

Most students accepted have an undergraduate major in psychology or its equivalent. Acceptance is based on training, quality of work, recommendations, GRE scores and other information. For additional information on admission requirements, consult Graduate Study in Psychology and Associated Fields, published annually by the American Psychological Association and available in most libraries.

## More Information about Emphasis Areas

These programs and others are more fully described at the departmental website at <http://psychology.missouri.edu>.

### Dual Emphases: Child Clinical and Developmental Psychology

Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical (child track) and developmental psychology. Students in this program are involved in training that bridges the two areas of developmental psychology and child-clinical psychology.

### Dual Emphases: Clinical and Quantitative Psychology

Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical and quantitative psychology. Students in this program are involved in training that bridges the two training areas. This program provides intensive training in the area of quantitative psychology with the added benefit of training in the research and practice of clinical psychology.

For more information on dual emphases degrees: <https://psychology.missouri.edu/area/dual-degree-clinical-and-developmental-psychology>

## BA in Psychology

### Degree Program Description

The study of Psychology aims to understand the mind, behavior, and mental health. The Bachelor of Arts in Psychology (BA) degree is for students interested in studying human behavior in preparation for either employment after completion of the undergraduate psychology degree, or in preparation for applied psychology and other related graduate programs (e.g., counseling, social work, management). Regardless of a student's ultimate goals, our faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect their instructors to take a scientific approach to the particular psychological content of each course.

Psychology majors work in diverse fields such as community and social services, human resources, management and business, health care, student affairs and services, law enforcement, education, and scientific research.

### Major Program Requirements

To graduate with a Bachelor of Arts in Psychology in the College of Arts and Science, a student must complete all degree, college, and university graduation requirements, including university general education (p. 33) as well as all degree and college or school requirements. Students are reminded to check the Undergraduate Catalog for course descriptions and prerequisite information.

### Major Core Requirements

- The psychology major requires 30 credit hours.
- All courses that count toward the psychology major requirements must be completed with a grade of C or better. Grades of C- or below will not be accepted. This includes STAT 1200 or its equivalent (a required course for all psychology majors).
- Students must complete MATH 1100 before STAT 1200 and PSYCH 3010, before PSYCH 3020, before the capstone lab.

We make no exceptions to the research methods sequence requirements.

- Students must complete at least two psychology courses numbered 4000 or above. The Psychology capstone lab will meet one of these 4000-level courses.
- Students must complete at least one psychology course numbered 3000 or above that is designated Writing Intensive. The psychology capstone lab will meet the WI requirement if completed during the fall or spring semesters. Capstones are not WI in the summer sessions.
- No more than 43 psychology credits may count toward the required 120 credits to graduate. Students enrolled in the two-semester Honors Capstone only may use up to 49 psychology credits toward graduation.
- Students may use no more than 12 hours of Special Problems Courses, Special Readings Courses, or Internship Courses (PSYCH 2950, PSYCH 4940, PSYCH 4950 & PSYCH 4960 toward graduation. Within the 12 hours, no more than 9 hours may be Special Problems Courses. (i.e., psychology research credit hours). A student may complete either 6 hours of PSYCH 2950 and 3 hours of PSYCH 4950, or they may complete 3 hours of PSYCH 2950 and 6 hours of PSYCH 4950.
- Psych majors may have up to a total of 6 hours of PSYCH 4940.

#### Required courses

PSYCH 1000	General Psychology	3
STAT 1200	Introductory Statistical Reasoning	3

#### Research Methods sequence

PSYCH 3010	Research Methods in Psychology I	3
PSYCH 3020	Research Methods in Psychology II	3
Capstone course (psychology lab course)		3-6

### Distribution Areas

Psychology majors are required to take one course from four of the five distribution areas. This ensures that students will have exposure to a wide range of psychological theory and research. In addition, students choose two additional Psychology courses to receive further education according to their interests. Although the distribution areas are presented below as distinct areas of study, a great deal of overlap exists among them. Students should understand the ways in which the various areas complement one another and gain the ability to integrate information learned in the different areas.

### Learning/Cognition

This distribution area studies the mechanisms of the mind and how they are altered by experience. Courses in this distribution area include:

PSYCH 2110	Learning, Memory, and Cognition	3
PSYCH 3110	Theories of Learning	3
PSYCH 3140	Cognitive Psychology	3
PSYCH 3150	Human Memory	3
PSYCH 3160	Perception and Thought	3
PSYCH 4110	Perception	3

### Biological/Neuroscience

This distribution area studies the biological basis of the behavior of humans and other animals. Courses in this distribution area include:

PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3

PSYCH 2810	Human Sexuality	3
PSYCH 3830	Health Psychology	3
PSYCH 4210	Physiological Psychology	3
PSYCH 4240	Cognitive Neuroscience	3

Note: A student may not receive credit for PSYCH 2210 if it is completed after PSYCH 4210.

## Social/Personality

This distribution area employs scientific methods to understand the nature and causes of individuals' thoughts, feelings and behavior in social situations. Courses in this distribution area include:

PSYCH 2310	Social Psychology	3
PSYCH 2320	Introduction to Personality	3
PSYCH 2330	Consumer Psychology	3
PSYCH 3350	Positive Psychology	3
PSYCH 3360	Automatic Social Judgments	3
PSYCH 3370	The Science of Mindfulness (Psych 3010 prerequisite)	3
PSYCH 4815	Cross-Cultural Psychology	3

Note: Due to overlap in content, a student may not receive credit for both PSYCH 3350 AND ESC\_PS 4200.

## Developmental

This distribution area studies the cultural and biological influences on age-related changes in cognition, emotion and social behavior that take place throughout an individual's lifespan. Courses in this distribution area include:

PSYCH 2410	Developmental Psychology	3
PSYCH 3420	Cognitive Development in Childhood	3
PSYCH 3430	Social Development in Childhood	3
PSYCH 4440	Sex Differences	3

Note: Due to the overlap in course content, a student may receive credit for only one of the following three courses: PSYCH 2410, H\_D\_FS 3420 or ESC\_PS 2500.

## Clinical/Abnormal

This distribution area focuses on scientific study of the causes of mental disorders as well as methods for assessing and alleviating mental health problems and related types of maladjustment. It also is concerned with the study of mental health and wellness, including strategies for preventing the development of mental disorders. Courses in this area include:

PSYCH 2510	Survey of Abnormal Psychology	3
PSYCH 2830	Human-Companion Animal Interaction	3
PSYCH 3510	Introduction to Clinical Psychology	3
PSYCH 4520	Behavior Genetics (Prerequisite of Psych 3010 and Stat 1200 with a C or better)	3
PSYCH 4530	Research in Psychopathology	3
PSYCH 4540	Emotional Disorders in Childhood and Adolescence	3
PSYCH 4560	Schizophrenia	3
PSYCH 4570	Pediatric Neuropsychology	3
PSYCH 4580	Externalizing Spectrum Disorders	3

## Psychology Electives (2000-level) 6 credit hours

Students must complete two psychology elective courses numbered 2000 or above, excluding Special Problems/Readings (i.e., PSYCH 2950, PSYCH 4950, PSYCH 4960), Internship PSYCH 4940, and Capstone Labs.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Psychology majors are required to earn a C or higher (no C- or below) in all Psychology courses and STAT 1200.

First Year		
Fall	CR Spring	CR
PSYCH 1000 <sup>^</sup>	3 Psych Social/Personality Course <sup>^</sup>	3
ENGLISH 1000 <sup>++</sup>	3 MATH 1100 <sup>++</sup>	3
Behavioral Science Course <sup>+</sup>	3 Social Science Course <sup>+</sup>	3
AGH: Social Science Course <sup>++</sup>	3 Humanities (2000+ Arts and Science approved) <sup>+</sup>	3
Humanities Course <sup>+</sup>	3 1000+ elective	3
	15	15

Second Year		
Fall	CR Spring	CR
Psych Developmental Course <sup>^</sup>	3 Psych Clinical/Abnormal Course <sup>^</sup>	3
Foreign Language 1 <sup>++</sup>	4 Foreign Language 2 <sup>++</sup>	4
Biological/Physical Science Course <sup>+</sup>	3 Psych 2000+ elective <sup>^</sup>	3
1000+ elective	3 1000+ elective	3
1000+ elective	1 1000+ elective	1
	14	14

Third Year		
Fall	CR Spring	CR
PSYCH 3010 <sup>^</sup>	3 PSYCH 3020 <sup>^</sup>	3
Psych Biological/Neuroscience Course <sup>^</sup>	3 Biological/Physical Science Course (with LAB) <sup>+</sup>	3
Foreign Language 3 <sup>++</sup>	4 Social Science (2000+ Arts and Science approved) <sup>+</sup>	3
STAT 1200 <sup>++</sup>	3 1000+ elective	3
1000+ elective (Writing Intensive) <sup>+</sup>	3 3000+ elective	3
	1000+ elective	1
	16	16

Fourth Year		
Fall	CR Spring	CR
Psych Capstone (Writing Intensive) <sup>++</sup>	3 Psych 4000+ elective <sup>^</sup>	3
Behavioral Science Course (2000+ Arts and Science approved) <sup>+</sup>	3 Humanities Course <sup>+</sup>	3
Humanities Course <sup>+</sup>	3 3000+ elective	3
3000+ elective	3 3000+ elective	3

3000+ elective	3 3000+ elective	3
	15	15

Total Credits: 120

- ^ Course meets degree program requirements
- \* Course meets University general education and/or campus graduation requirements
- + Course meets College of Arts and Science foundation (Basic Skills)

## BS in Psychology

### Degree Program Description

The study of Psychology aims to understand the mind, behavior, and mental health. The Bachelor of Science in Psychology (BS) degree is for students interested in a more science-oriented curriculum to better prepare them for further study in science-oriented psychology graduate programs (e.g., neuroscience, quantitative psychology), or medical school (e.g., Doctor of Medicine/MD, psychiatry), or other health-related graduate programs (e.g., pharmacy, physical therapy). The required science track is not noted on the BS diploma or transcripts, but students can indicate the science track on resumes and/or graduate school application forms. Regardless of a student's ultimate goals, our faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect their instructors to take a scientific approach to the particular psychological content of each course. While most psychology majors plan to find employment upon graduation with the undergraduate psychology degree, some psychology majors plan to pursue further study in psychology-related graduate or professional programs. Psychology majors work in diverse fields such as community and social services, human resources, management and business, health care, student affairs and services, law enforcement, education, and scientific research.

### Major Program Requirements

To graduate with a Bachelor of Science in Psychology from the College of Arts and Science, a student must complete all degree, college and university graduation requirements (p. 32), including university general education (p. 33) as well as all degree and college or school requirements. Students are reminded to check the Undergraduate Catalog for course descriptions and prerequisite information.

### Major Core Requirements

- The psychology major requires 30 credit hours.
- All courses that count toward the psychology major requirements must be completed with a grade of C or better. Grades of C- or below will not be accepted. This includes STAT 2500 and the required science track.
- A required statistics course (STAT 2500 or higher, or STAT 1200 and STAT 2200).
- Students must complete MATH 1100 before STAT 2500 and PSYCH 3010, before PSYCH 3020, before the capstone lab. We make no exceptions to the research methods sequence requirements.
- Students must complete at least two psychology courses numbered 4000 or above. The Psychology capstone lab will meet one of these 4000-level courses.

- Students must complete at least one psychology course numbered 3000 or above that is designated Writing Intensive. The psychology capstone lab will meet the WI requirement if completed during the fall or spring semesters. Capstones are not WI in the summer sessions.
- Students may use no more than 12 hours of Special Problems Courses, Special Readings Courses, or Internship Courses (PSYCH 2950, PSYCH 4940, PSYCH 4950, & PSYCH 4960) toward graduation. Within the 12 hours, no more than 9 hours may be Special Problems Courses (i.e., psychology research credit hours). A student may complete either 6 hours of PSYCH 2950 and 3 hours of PSYCH 4950, or they may complete 3 hours of PSYCH 2950 and 6 hours of PSYCH 4950.
- Psych majors may have up to a total of 6 hours of PSYCH 4940.
- Other than the 12 hour limit of Special Problems Courses, Special Readings Courses, and Internship hours described above, there is no limit to the number of psychology credits that may count toward the required 120 credits to graduate with the Bachelor of Science.

### Required Courses

PSYCH 1000	General Psychology	3
STAT 2500	Introduction to Probability and Statistics I	3
OR		
STAT 1200 & STAT 2200	Introductory Statistical Reasoning and Introductory Statistical Methods	4

### Research Methods Sequence

PSYCH 3010	Research Methods in Psychology I	3
PSYCH 3020	Research Methods in Psychology II	3
Capstone course (psychology lab course)		3-6

### Distribution Areas

Psychology majors are required to take one course from four of the five distribution areas. This ensures that students will have exposure to a wide range of psychological theory and research. In addition, students choose two additional Psychology courses to receive further education according to their interests. Although the distribution areas are presented below as distinct areas of study, a great deal of overlap exists among them. Students should understand the ways in which the various areas complement one another and gain the ability to integrate information learned in the different areas.

### Learning/Cognition

This distribution area studies the mechanisms of the mind and how they are altered by experience. Courses in this distribution area include:

PSYCH 2110	Learning, Memory, and Cognition	3
PSYCH 3110	Theories of Learning	3
PSYCH 3140	Cognitive Psychology	3
PSYCH 3150	Human Memory	3
PSYCH 3160	Perception and Thought	3
PSYCH 4110	Perception	3

### Biological/Neuroscience

This distribution area studies the biological basis of the behavior of humans and other animals. Courses in this distribution area include:

PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 2810	Human Sexuality	3
PSYCH 3830	Health Psychology	3

PSYCH 4210	Physiological Psychology	3
PSYCH 4240	Cognitive Neuroscience	3

Note: A student may not receive credit for PSYCH 2210 if it is taken after PSYCH 4210.

## Social/Personality

This distribution area employs scientific methods to understand the nature and causes of individual's thoughts, feelings and behavior in social situations. Courses in this distribution area include:

PSYCH 2310	Social Psychology	3
PSYCH 2320	Introduction to Personality	3
PSYCH 2330	Consumer Psychology	3
PSYCH 3350	Positive Psychology	3
PSYCH 3360	Automatic Social Judgments	3
PSYCH 3370	The Science of Mindfulness (Psych 3010 prerequisite)	3
PSYCH 4360	Social Cognition	3
PSYCH 4815	Cross-Cultural Psychology	3

Note: Due to overlap in course content, a student may not receive credit for both PSYCH 3350 and ESC\_PS 4200.

## Developmental

This distribution area studies the cultural and biological influences on age-related changes in cognition, emotion and social behavior that take place throughout an individual's lifespan. Courses in this distribution area include:

PSYCH 2410	Developmental Psychology	3
PSYCH 3420	Cognitive Development in Childhood	3
PSYCH 3430	Social Development in Childhood	3
PSYCH 4440	Sex Differences	3

Note: Due to the overlap in course content, a student may receive credit for only one of the following three courses: PSYCH 2410, H\_D\_FS 3420 or ESC\_PS 2500.

## Clinical/Abnormal

This distribution area focuses on scientific study of the causes of mental disorders as well as methods for assessing and alleviating mental health problems and related types of maladjustment. It also is concerned with the study of mental health and wellness, including strategies for preventing the development of mental disorders. Courses in this area include:

PSYCH 2510	Survey of Abnormal Psychology	3
PSYCH 2830	Human-Companion Animal Interaction	3
PSYCH 3510	Introduction to Clinical Psychology	3
PSYCH 3840	Individual Differences	3
PSYCH 4520	Behavior Genetics (Prerequisite of Psych 3010 and Stat 1200 with a C or better)	3
PSYCH 4530	Research in Psychopathology	3
PSYCH 4540	Emotional Disorders in Childhood and Adolescence	3
PSYCH 4560	Schizophrenia	3
PSYCH 4570	Pediatric Neuropsychology	3
PSYCH 4580	Externalizing Spectrum Disorders	3

## Psychology Electives (2000-level) 6 credit hours

Students must complete two psychology elective courses numbered 2000 or above, excluding Special Problems/Readings (i.e., PSYCH 2950, PSYCH 4950, PSYCH 4960), Internship PSYCH 4940, and Capstone Labs..

## Approved Science Course Tracks

Psychology Bachelor of Science students must complete 12 credit hours of approved science coursework in one of the following five approved areas: Biological Sciences, Chemistry, Computer Science, Mathematics, or Statistics. Course grades must be a C or higher. No C- or lower will be accepted.

## Biological Sciences Track

### Required Core: (5 hours)

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
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OR

BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	5
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OR

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory (with grades of A- or better)	5
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### Additional Approved Coursework (at least 7 credit hours from the list below)

BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3400	Evolution and Ecology	3
BIO_SC 3700	Animal Physiology	5
BIO_SC 4500	Neurobiology	3
BIO_SC 4600	Evolution	3
BIO_SC 4640	Behavioral Biology	3-4
BIO_SC 4986	Neurology of Motor Systems	3
BIO_SC 4988	Nerve Cells and Behavior	3
MPP 3202	Elements of Physiology	5

## Chemistry Track

### Required Core: (6 to 8 hours)

#### Prior to Fall Semester 2013: CHEM 1310 (2 hours) and CHEM 1320 or CHEM 1320H (3 hours) and CHEM 1330 or CHEM 1330H (3 hours)

CHEM 1320 & CHEM 1330	College Chemistry I and College Chemistry II	8
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OR

CHEM 1320H & CHEM 1330H	College Chemistry I - Honors and College Chemistry II - Honors	8
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#### Beginning in Fall Semester 2013: CHEM 1320 or CHEM 1320H (4 hours) and CHEM 1330 or CHEM 1330H (4 hours)

CHEM 1320 & CHEM 1330	College Chemistry I and College Chemistry II	8
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OR

CHEM 1320H & CHEM 1330H	College Chemistry I - Honors and College Chemistry II - Honors	8
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### Additional Approved Coursework (at least 4 to 6 credit hours from list below)

CHEM 2100	Organic Chemistry I	3
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CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 2140	Organic Laboratory II	2
CHEM 2160H	Honors Organic Chemistry I - Honors	4
CHEM 2170H	Honors Organic Chemistry II with Lab - Honors	5
CHEM 2190H	Honors Organic Chemistry Laboratory - Honors	2
CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 3300	Fundamentals of Physical Chemistry (OR CHEM 3310 Physical Chemistry)	3
CHEM 3330	Physical Chemistry II	3
CHEM 3340	Physical Chemistry Laboratory	3
CHEM 4170	Medicinal Chemistry	3
CHEM 4400	Inorganic Chemistry	3

## Computer Science Track

### Required Core: (6 to 9 hours):

INFOTC 1040	Introduction to Problem Solving and Programming	3
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Note: Students with college credit hours for MATH 1100 (not an exemption) may begin in CMP\_SC 1050 and complete at least 6 hours of additional approved coursework below.

CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3

### Additional Approved Coursework (at least 3 to 6 credit hours from list below)

CMP_SC 2270	Introduction to Digital Logic (Prior to SP14 course was numbered 3270)	3
CMP_SC 3380	Database Applications and Information Systems	3

## Mathematical Sciences Track

### Required Courses: (The Math Track requires 13 credit hours):

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3

## Statistics Track

### Required Core: (6 hours)

STAT 3500	Introduction to Probability and Statistics II	3
STAT 4710	Introduction to Mathematical Statistics	3

### Additional Approved Coursework (at least 6 credit hours from list below)

STAT 4110	Statistical Software and Data Analysis	3
STAT 4150	Applied Categorical Data Analysis	3
STAT 4210	Applied Nonparametric Methods	3
STAT 4310	Sampling Techniques	3
STAT 4410	Biostatistics and Clinical Trials	3
STAT 4420	Applied Survival Analysis	3
STAT 4430	Applied Longitudinal Data Analysis	3
STAT 4510	Applied Statistical Models I	3
STAT 4560	Applied Multivariate Data Analysis	3
STAT 4810	Nonparametric Methods	3
STAT 4830	Categorical Data Analysis	3

Note: Students completing this track must complete additional math courses to meet the pre-req's for STAT 4710. Students will complete MATH 1160 OR MATH 1100 and MATH 1140 and MATH 1500, MATH 1700 and MATH 2300 in sequence as prerequisites to STAT 4710.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Psychology majors are required to earn a C or higher (no C- or below) in all Psychology courses, STAT 2500 or STAT 1200 and STAT 2200 and all Science Track courses.

First Year		
Fall	CR Spring	CR
PSYCH 1000 <sup>^</sup>	3 Psy Social/Personality Course <sup>^</sup>	3
ENGLSH 1000 <sup>+</sup>	3 Behavioral Science <sup>+</sup>	3
MATH 1100 <sup>+</sup>	3 AGH: Social Science Course <sup>+</sup>	3
Social Science Course <sup>+</sup>	3 Humanities Course <sup>+</sup>	3
Humanities Course <sup>+</sup>	3 B.S. Science Track Course <sup>^+</sup>	3-5
	15	15-17

Second Year		
Fall	CR Spring	CR
Psy Biological/Neuroscience Course <sup>^</sup>	3 Psy Clinical/Abnormal Course <sup>^</sup>	3
Humanities (2000+ Arts & Sci approved) <sup>+</sup>	3 B.S. Science Track Course (with LAB) <sup>^+</sup>	3-5
Behavioral Science (2000+ A&S approved) <sup>+</sup>	3 STAT 1200 <sup>^++</sup>	3
B.S. Science Track Course <sup>^</sup>	3-5 Humanities Course <sup>+</sup>	3
1000+ elective	3 1000+elective (Writing Intensive) <sup>+</sup>	3
	15-17	15-17

Third Year		
Fall	CR Spring	CR
PSYCH 3010 <sup>^</sup>	3 PSYCH 3020 <sup>^</sup>	3
Psy 2000+ elective <sup>^</sup>	3 Social Science (2000+) <sup>+</sup>	3
B.S. Science Track Course (if necessary) <sup>^</sup>	3 3000+ elective	3
3000+ elective	3 Foreign Language + 1 <sup>++</sup>	4
1000+ elective	3 STAT 2200 <sup>^</sup>	1
	1000+ elective	1
	15	15

Fourth Year		
Fall	CR Spring	CR
Psy Capstone (Writing Intensive) <sup>^++</sup>	3 Psych 4000+ elective <sup>^</sup>	3
Psy Learn/Cog or Developmental Course <sup>^</sup>	3 Foreign Language + 3 <sup>++</sup>	4
Foreign Language + 2 <sup>++</sup>	4 3000+ elective	3
3000+ elective	3 3000+ elective	3
1000+ elective	1 3000+ elective	3
	14	16

Total Credits: 120-126

<sup>^</sup> Course meets degree program requirement.

<sup>+</sup> Course meets University General Education and/or campus graduation requirement.

+ Course meets College of Arts & Science foundation (Basic Skills)

## Minor in Psychology

The psychology minor requires 15 credits, distributed as shown below.

PSYCH 1000	General Psychology	3
Four regularly-scheduled psychology courses		12

At least two of these courses must be numbered 3000 or above.  
 "Regularly-scheduled" includes all on-campus and online MU courses offered via Mizzou Online, except special problems courses (i.e., psychology research credit hours), which are PSYCH 4950 and PSYCH 4960: Readings.

Total Credits	15
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Students must receive a grade of C or better in all courses required for the minor. Grades of C- will not be accepted.

Only 6 credits in transfer courses will be accepted toward the minor.

AP credit for PSYCH 1000 is considered a transfer course.

Online MU courses offered by Mizzou Online are considered "regularly-scheduled courses".

## MA in Psychology

Our department is admitting students who are seeking a terminal master's degree.

All other students are only accepted for the PhD in psychology and the MA is earned as a secondary degree en route to the PhD.

**Please see the admission criteria for our doctoral degree program.**

Admission Contact Information  
 Graduate Student Services  
 gradpsych@missouri.edu  
 210 McAlester Hall  
 Columbia, MO 65211  
 (573) 882-0838  
 (573) 882-7710 (fax)

## MA in Psychology with Emphasis in Child Development and Developmental Psychology

Please refer to the PhD program with an Emphasis in Child Development and Developmental Psychology (p. 274). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

### Admissions

Please refer to the admission requirements for the PhD program with an Emphasis in Child Development and Developmental Psychology. (p. 274) Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Clinical Psychology

Please refer to the PhD program with an Emphasis in Clinical Psychology. (p. 275) Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

### Admissions

Please refer to the admission requirements for the PhD program with an Emphasis in Clinical Psychology (p. 275). Students are accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Cognition and Neuroscience

Please refer to the PhD program with an Emphasis in Cognition and Neuroscience (p. 275). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

### Admissions

Please refer to the admission requirements for the PhD program with an Emphasis in Cognition and Neuroscience (p. 275). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Developmental Psychology

Please refer to the PhD program with an Emphasis in Developmental Psychology (p. 276). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

### Admissions

Please refer to the admission requirements for the PhD program with an Emphasis in Developmental Psychology (p. 276). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Quantitative Psychometrics

A minimum of 35 hours of graduate-level courses is required for the M.A. in Psychology with an emphasis in Quantitative Psychometrics. Students must complete 30 hours of advanced study at the University of Missouri to receive the degree. This means that a maximum of six hours of graduate coursework taken elsewhere can count toward the master's degree. Such transfer of credit must be recommended by the student's advisor and approved by the director of graduate studies.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Psychology program with an

emphasis in Quantitative Psychometrics (<http://gradstudies.missouri.edu/academics/programs/psychology>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MA in Psychology with Emphasis in Social/Personality Psychology

Please refer to the PhD program with an Emphasis in Social & Personality Psychology (p. 276). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

### Admissions

Please refer to the admission requirements for the PhD program with an Emphasis in Social & Personality Psychology (p. 276). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## PhD in Psychology

Admission Contact Information  
Graduate Student Services  
[gradpsych@missouri.edu](mailto:gradpsych@missouri.edu)  
210 McAlester Hall  
Columbia, MO 65211  
(573) 882-0838  
(573) 882-7710 (fax)

### Admission Criteria

Fall deadline: December 1

- Minimum GPA: 3.0
- Minimum GRE score: no minimum, subject test is strongly recommended
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

An interview is required for admission. Students earn an MA en route to the PhD, but we do not admit students seeking a terminal master's degree.

Most students accepted have an undergraduate major in psychology or its equivalent. Acceptance is based on training, quality of work, recommendations, GRE scores and other information. For additional information on admission requirements, consult Graduate Study in Psychology and Associated Fields, published annually by the American Psychological Association and available in most libraries.

### Required Application Materials

Note: *Submit all application materials directly to the Office of Graduate Studies*

- Graduate School online application including:
- Faculty interest document (available at department website)
- Statement of purpose
- Writing sample
- Three letters of recommendation
- One unofficial copy of each college transcript where a degree was earned or is pending
- Official GRE score report (subject test report recommended)
- Official TOEFL score (if applicable)

## PhD Degree Completion Requirements

The PhD qualifying examination requirement is satisfied by successful completion of the MA degree. A master's degree with an empirical thesis is required for doctoral study. The master's with thesis is typically completed as part of a student's normal progress through the doctoral program.

## Students with Degrees from Other Universities

Students who enter the doctoral program with a master's (thesis) degree from another university can satisfy the MA requirement at this university by having their thesis and course work approved by a three-member thesis committee. The committee must be composed of one faculty member from the student's training area, one faculty member from another training area, and one MU faculty member from outside the department. Those entering the department with a master's degree obtained without an empirical thesis may meet this requirement by conducting an investigation under the supervision of their advisor and having the resulting thesis approved by a three-member committee with the composition identified above.

## Plan of Study

General requirements for the PhD include nine hours of distribution courses, 11 hours in statistics, 24 hours in the area of concentration, other elective courses, and research. Students must earn 83 hours to graduate with the PhD. Practica, internship and additional course work are required for the clinical program. Other requirements include a dissertation and comprehensive and final oral examinations. More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook.

## Financial Aid from the Program

Financial aid is available through departmental research and teaching assistantships and from university fellowships.

## PhD in Psychology with Emphasis in Child Clinical and Developmental Psychology

Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical (child track) and developmental psychology. This program provides training in the area of developmental psychopathology, which bridges the two areas of developmental psychology and child-clinical psychology. To pursue the joint program, students must be officially admitted into both the clinical and developmental training

areas within the Department of Psychological Sciences and complete requirements for both areas. Students should initially apply and be admitted to just one training area, either the clinical or developmental area. Once they have successfully completed the first year in that training area, they may apply to the second area.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradstudies.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Psychology with Emphasis in Clinical and Quantitative Psychology

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Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical and quantitative psychology. This program bridges the two training areas, combining intensive training in the area of quantitative psychology with the added benefit of intensive training in the research and practice of clinical psychology. To pursue the joint program, students must be officially admitted into both the clinical and quantitative training areas within the Department of Psychological Sciences and complete the requirements for both areas.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradstudies.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Clinical Psychology

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The Clinical Psychology program is accredited by the American Psychological Association and by the Psychological Clinical Science Accreditation System, and is a member of the Academy of Psychological Clinical Science. The Clinical program follows a clinical science model of training. Central to this model is a commitment:

1. to using an empirical approach to understand, ameliorate, and prevent human problems in behavior, affect, cognition, and health;
2. to promoting adaptive human functioning; and

3. to disseminating and applying knowledge in ways consistent with scientific evidence.

The Clinical program prepares students for careers involving production, dissemination and support of clinical science research. Clinical faculty and students are active in research and scholarship that advances understanding of the symptoms, causes, course, treatment, and prevention of many of our nation's most distressing and impairing mental/behavioral health issues (e.g., addictions, anxiety, developmental disorders, juvenile delinquency, mood instability and disorders, schizophrenia) in youth and adults. Students work primarily with core clinical faculty, but may also collaborate with researchers throughout the department and in other campus and community units (e.g., health psychology, Psychiatry, engineering, Thompson Center for Autism and Developmental Disabilities, Fulton State Hospital, Psychological Services Clinic).

Students also develop clinical skills in empirically supported approaches to assessment, prevention and intervention. The Clinical program maintains its own community-based outpatient clinic (the Psychological Services Clinic or PSC) as the primary practicum training site for students in the clinical program. The PSC is staffed by doctoral-level clinical psychologists and clinical graduate students, and it serves a broad range of clients through individual, couple, family, and group assessment and therapy services. The PSC also offers training in specialty services through its Dialectical Behavior Therapy program, Strategies Targeting Alcohol Responsibility program, and MU Center for Evidence-Based Youth Mental Health and Multisystemic Therapy program. Additional clinical experiences are available through paid or volunteer positions at institutions such as Fulton State Hospital, University Hospitals and Clinics, and the Thompson Center.

After completing high quality internships, typically at medical centers, VAs, or university research centers, graduates are employed in positions that involve research, teaching and service in universities, medical centers, clinics, hospitals and similar agencies.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradstudies.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Cognition and Neuroscience

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The faculty and students in the Cognition and Neuroscience Training Area explore the interactions among mind, brain and behavior from individual and biological levels of analysis. Graduate training provides students with a thorough background in psychology, statistics and scientific methodology, through course work and participation in ongoing

research. Students are expected to be actively engaged in faculty-mentored and independent research projects throughout their training.

Faculty and students in cognition and neuroscience investigate a variety of topics in human cognition, cognitive neuroscience, learning and memory, and behavioral neuroscience and use human and animal models. Our researchers investigate the structure and function of the nervous system and its impact on behavior in brain imaging, psychophysiology and neuropharmacology experiments. Studies survey human memory, intelligence and sensorimotor function across the lifespan and the impact of physical and psychological disorders on these processes. Animal research examines motivation, learning and the biological basis of human psychopathologies.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradschool.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Developmental Psychology

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Developmental psychology is the scientific study of social, cognitive, and physical development over time. The Developmental Psychology doctoral program offers a strong background in statistics and research methodology and intensive research mentoring. Graduate students engage in research with their primary advisor beginning in their first semester in the program and take supporting coursework.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradschool.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Quantitative Psychology

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The goal of the PhD program with emphasis in quantitative psychology is to produce researchers who are able to develop, evaluate, and

apply advanced methodological techniques to psychological research questions. The program offers considerable diversity in faculty research and coursework offerings; our substantive interests span clinical, social, health, developmental, and cognitive psychology. Quantitative areas of expertise cover a range of linear and non-linear approaches to modeling, as well as meta-analysis, time series, state-space models, and issues in large-scale data management.

Students in quantitative psychology complete course work in mathematical statistics, experimental design, and measurement, as well as courses in quantitative methods. Students can acquire extensive experience as statistical consultants through specific coursework in statistical consultation. Program requirements are fairly flexible, and students with particular interests in a substantive area of psychology are encouraged to take advanced courses in that area. Quantitative course offerings focus both on classic analytic methods as well as advanced techniques such as structural equation modeling, multilevel modeling, and meta-analysis.

Strong ties exist between the Department of Psychological Sciences and the Department of Statistics, and students may opt to complete a master's degree in statistics as they progress through the PhD program. In addition, students have the opportunity to gain experience as statistical consultants through specific coursework in this area.

On-going projects conducted by the faculty include research in meta-analytic and secondary analysis techniques, structural equation modeling, particularly as applied to longitudinal models of change and growth, multilevel modeling, and mathematical and statistical models of cognition and perception.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradschool.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Social/Personality Psychology

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Social/Personality psychology offers training in the traditional areas of social and personality psychology, as well as their relevance for several applied areas including health psychology. This Social/Personality area integrates the psychology of the person and the situation, with the goal of understanding the psychological processes that underlie people's emotions, motivations, beliefs, actions, and decisions.

Training focuses on the multi-faceted view of social behavior from three levels:

1. the individual level;
2. the contextual level (or social level); and

3. the interaction of the individual and the contextual levels.

All three levels are vital to fully understanding human psychology. Particular research foci in the area include the sources of motivation, both individual and social; the nature of meaning-making, both existential and interpersonal; the determinants of optimal and destructive functioning, both within and between groups and in relationships; and the causes and consequences of psychological well-being, growth, and defense.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<http://gradschool.missouri.edu/academics/programs/psychology/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Religious Studies

Richard Callahan, Chair  
 College of Arts and Science  
 221 A&S Building  
 (573) 882-4769  
[rsinfo@missouri.edu](mailto:rsinfo@missouri.edu)  
<http://ReligiousStudies.missouri.edu>

## Faculty

**Associate Professors** R. J. Callahan\*, S. M. Cohen\*  
**Assistant Professors** D. Amponsah\*, C. Duncan\*, R. Gregory\*, N. Hofer\*, D. Kelley\*  
**Teaching Assistant Professors** D. Cohen\*, J. Flanagan\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Religious Studies (p. 277)
- Minor in Religious Studies (p. 278)

The department's field of study includes religious expressions from many cultures and in every period of history. Systematic study of this rich world of expression employs the widest range of academic tools and competencies, from the skills of the literary critic and historian to the analytic abilities of the social scientist and anthropologist. Because of this broad base, study in the department promotes fundamental academic skills and critical judgment and provides deeper understanding of national and international cultures. Thus, the religious studies major provides students with a foundation to pursue careers in business, government, counseling, law, medicine and journalism, as well as advanced professional study in religion. The department offers BA and MA degrees with majors in Religious Studies. A minor is also available.

## Double Majors

Students are encouraged to pursue dual majors that combine religion with other interests.

## Graduate

- MA in Religious Studies (p. 278)

221 Arts & Science Bldg.  
 Columbia, MO 65211  
 (573) 882-4769  
<http://religiousstudies.missouri.edu/>

**Director of Graduate Studies:** Dennis Kelley

## About the Religious Studies MA Program

The master's program in religious studies at the University of Missouri is a two-year stand-alone graduate program in the academic study of religion. Many of the program's alumni have gone on to PhD programs in religious studies or related disciplines, while others have completed the master's degree in order to enrich their educational lives or to prepare for work in journalism, education, law, or other fields that demand critical thinking and analytical skills.

The master's program offers training in the academic study of religion, with particular emphasis on theory and methods in religious studies. Students work closely with their advisors and mentors in order to develop and grow as scholars of the discipline. The department offers courses in the areas of Biblical Studies, History of Christianity, Religion in America, Islam, Judaism, Indigenous Religions, Hinduism, Buddhism, Women and Religion, and Religion and Neuroscience. Students must complete a total of 30 credit hours at the graduate level, pass comprehensive exams in theory and methods in the academic study of religion, and complete a Master's thesis or portfolio.

## BA in Religious Studies

### Degree Program Description

What do shamans, politicians, nurses, prophets, intellectuals, nuns, slaves, and soldiers have in common? They are all part of the Religious Studies curriculum at MU, which studies religion as a powerful influence in human life and history, shaping global cultures, national identities, and the values of individuals. Religious Studies majors explore the roles religion plays in societies, the ways that religious institutions grow and change, the meanings of scriptures from around the world, the extraordinary experiences of religious specialists, and much more. Graduates of the major pursue a variety of employment and graduate school opportunities.

### Major Program Requirements

Students must earn a minimum GPA of 2.0 or higher in order to have the credit applied. In addition, students must complete all degree, college and university graduation requirements, including university general education (p. 33).

#### Major core requirements

REL_ST 1100	Introduction to Religion	3
or REL_ST 2110	Religions of the World	
REL_ST 3990	Majors Seminar	3
REL_ST 4100	Advanced Theories and Methods	3

REL_ST 4990	Senior Seminar in Religious Studies	3
<b>Additional requirements</b>		
At least one course in Asian, Western, and Indigenous Religions.		18
Total Credits		30

## Semester Plan

Below is a **sample** plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
REL_ST 1100*	3 REL_ST 2310*	3
HIST 1100 or 1200	3 ENGLISH 1000	3
SPAN 1100	4 CL_HUM 1060	3
PSYCH 1000	3 ECONOM 1000	5
MATH 1100	3 SPAN 1200	4
		16

Second Year		
Fall	CR Spring	CR
REL_ST 2500*	3 REL_ST 2100	3
SPAN 2100	4 Elective	3
BIO_SC 1010	3 GEOG 1100	3
English Literature	3 HIST 3820	3
PSYCH 2310	3	
		16

Third Year		
Fall	CR Spring	CR
REL_ST 2610*	3 REL_ST 3200*	3
REL_ST 3710*	3 REL_ST 3990*	3
GEOG 1100	4 ANTHRO 1000	3
POL_SC 1100	3 AR_H_A 3760	3
		13

Fourth Year		
Fall	CR Spring	CR
REL_ST 4100	3 Senior Seminar	3
PHYSICS 1050	3 Electives	9
Electives	9	
		15

Total Credits: 114

\* Degree requirements that also meet University general education requirements

## Minor in Religious Studies

A minor in religious studies is available with the following requirements: a minimum of 15 credits (at least one course each in Asian, Western, and Indigenous Religions), including 6 in courses numbered 2000 or above. A minimum 2.0 MU GPA is required in all courses toward the minor.

## MA in Religious Studies

Admission Contact Information  
 Prof. Signe Cohen  
 221 Arts & Science Bldg  
 Columbia, MO 65211

(573) 882-4760 or cohens@missouri.edu

## Admission Criteria

- Fall deadline:  
 February 1 (for consideration of financial aid)  
 April 1 (for students not seeking financial aid)
- Spring deadline: October 15
- Minimum GPA: 3.0
- Minimum GRE score: none set
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

## Required Application Materials

*To the Office of Graduate Studies*

All required Graduate Studies documents, including transcripts

*To the Religious Studies MA Program*

Departmental application and writing sample

3 letters of recommendation (use departmental form)

GRE score report

## Additional Information

The match between the interests of applicants and the areas of emphasis offered in the program will be an important consideration in the evaluation of applications.

All application materials are available online, and applications should be submitted electronically at <https://app.applyyourself.com/?id=umc-grad>. Although electronic applications are preferred, a student may also print out the application materials and mail them to the Religious Studies Department at the following address:

The Director of Graduate Studies  
 The Department of Religious Studies  
 221 Arts & Science Bldg  
 The University of Missouri  
 Columbia, MO 65211

International students should contact the Office for International Admissions. Students whose native language is not English should achieve a score of 550 or more on the TOEFL exam for admission to the program.

Applications must be completed at least six weeks before the start of graduate studies. Applicants seeking teaching assistantships or fellowships must submit applications no later than February 1. Notification of admission and awards will be made no later than April 1. Applicants who wish to enter the program in January of an academic year must submit materials no later than October 15.

## Romance Languages

Charles Presberg, Chair  
 Department of Romance Languages and Literature  
 143 Arts and Science Building  
 (573) 882-4874  
 Fax: (573) 884-8171

The study of a foreign language allows for the development and refinement of communication, listening and speaking skills. Such study

also endows students with a concern for world affairs and an appreciation of and respect for individual differences.

The Department of Romance Languages and Literatures offers language and literature courses in French, Italian, Portuguese and Spanish. Students may elect a major in Romance Languages with an emphasis in French or Spanish. Minors are also available in Afro-Romance literatures in Translation, French, Italian Area Studies, Luso-Brazilian Area Studies, Romance Literatures in Translation, and Spanish. The department also participates in the interdepartmental minor in film studies.

Double majors within the College of Arts and Science, as well as dual degree programs outside of the College of Arts and Science, can be arranged if the second degree is identified early. Combined programs with journalism, political science, agriculture, education and business are among the possibilities.

The department offers BA and MA degrees in Romance Languages with major emphasis in French and Spanish; an MA with a major in French Language Teaching or Spanish Language Teaching, and a PhD in Romance Languages. Minors are also available.

## Faculty

**Professor** R. Cavigiolo\*\*, J. Cordones-Cook\*\*, C. Lazzaro-Weis\*\*, M. J. Muratore\*\*, M. Ugarte\*\*, J. M. Zemke\*\*, F. Zéphir\*\*

**Associate Professor** A. Alaczar\*\*, M. Badiane\*\*, E. Blandón\*\*, J. Draper\*\*, R. B. Gallimore\*\*, V. M. Kaussen\*\*, C. D. Presberg\*\*, I. Reyna\*\*, D. Sipe\*\*, R. Tabanelli\*\*

**Assistant Professor** M. Moore\*\*, G. Pérez-Anzaldo\*\*, M. Soria-López\*

**Teaching Associate Professor** D. Anzaldo-González\*, M. Marcos-Llinas, J. Otabela-Mewolo\*

**Teaching Assistant Professor** A. Aviles-Quinones\*, K. Fleak\*, D. M. Heston, J. Sandone

**Instructor** L. McCune, A. Wetzel

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Romance Languages (p. 279)
  - with emphasis in French (p. 280)
  - with emphasis in Spanish (p. 280)

## Graduate

- MA in Romance Languages (p. 281)
  - with emphasis in French (p. 282)
  - with emphasis in Language Teaching (p. 283)
  - with emphasis in Spanish (p. 285)
- PhD in Romance Languages (p. 286)

Department of Romance Languages and Literature  
143 Arts and Science Building  
(573) 882-4874

<http://romancelanguages.missouri.edu/grad.shtml>

**Director of Graduate Studies:** Charles Presberg

## About the Department of Romance Languages and Literatures

The Department of Romance Languages and Literatures offers graduate degree programs with an emphasis in Spanish (p. 285), and French (p. 282), both with the option of an emphasis in foreign language teaching. The department's faculty and graduate student seminars are an interdisciplinary, interdepartmental series seeking to provide a collegial atmosphere in which scholars can present their recent work. The department strongly encourages study abroad as a way to reinforce language skills, broaden one's horizons, and add an unforgettable experience to a meaningful university education.

The Department of Romance Languages and Literatures at the University of Missouri has the country's only focus area in the field of Afro-Romance Studies. In order to facilitate research collaboration between our faculty members working in this field and scholars outside our institution, we have established the Institute for Languages and Literatures of the African Diaspora. The Institute serves first and foremost to expose black writers of French, Portuguese and Spanish expression to a wider audience.

## Specialization

The Department of Romance Languages and Literatures offers four fields of specialization at the doctoral level: French Literature, Francophone Literature, Spanish Literature or Spanish American Literature.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in Romance Languages

### Degree Program Description

Romance Languages is the study of language and literature in French, Italian, Portuguese, and Spanish. The study of a foreign language allows for the development and refinement of communication, listening and speaking skills. Such study also endows students with a concern for world affairs and an appreciation of and respect for individual differences. The Bachelor of Arts degree in Romance Languages is offered in two emphasis areas: French and Spanish. Students must choose one of the emphasis areas to earn the BA in Romance Languages. Given the liberal arts foundation of a degree in Romance Languages students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

### Major Program Requirements

The bachelor of arts degree in Romance Languages is offered in two emphasis areas: French (p. 280) and Spanish (p. 280). Students must choose one of the emphasis areas to earn the BA in Romance Languages. Details on the requirements for the programs are listed under each emphasis.



## Semester Plan

A sample plan of study has not been designed for this major, as students are required to select an emphasis. Refer to the semester plans designed for the emphasis in French (p. 280) or Spanish (p. 280).

# BA in Romance Languages with Emphasis in French

## Degree Program Description

The BA in Romance Languages with an emphasis in French is the exploration of the language, literature, and culture of French-speaking countries. The degree requires a minimum of 30 hours of French beyond FRENCH 2100. Faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. Given the liberal arts foundation of a degree in French students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

## Major Program Requirements

Course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the major. Students must meet all major requirements listed below, as well as all College of Arts and Science and University graduation requirements (p. 32), including University general education (p. 33).

Students who work toward a double major (two degrees within the College of Arts and Science) may be able to complete the majors with a minimum of 120 credits. Students who are considering a dual degree program (in Arts and Science and in another school or college) are advised that a minimum of 132 credits are necessary.

To obtain the BA degree in Romance Languages with an emphasis in French, the following courses, or their equivalents, must be included in the graduation plan (numbers in parentheses indicate prerequisite courses).

### Major core requirements

FRENCH 2160	Intermediate French Composition and Conversation	3
FRENCH 3160	Advanced French Composition and Conversation I	3
or FRENCH 3280	Commercial French	
FRENCH 3410	Introduction to Literary Analysis	3
FRENCH 3420	Introduction to French Literature I	3
FRENCH 3430	Introduction to French Literature II	3
FRENCH 4130	Stylistics	3

## Additional Requirements

- Students must complete five additional 4000-level courses (one of which must be stylistics and one must be a capstone) selected with the advisor's approval. FRENCH 4960: Special Readings in French cannot be used to fulfill this requirement except by permission of the department chair.
- Students beginning at a level higher than FRENCH 2160 due to placement testing must still complete 30 credits in order to receive the major.

- In addition, the student is required to take a Writing Intensive course in the major, normally designated sections of FRENCH 3420 or FRENCH 3430, and must complete a minor.
- It is highly recommended that students take FRENCH 2310: French Civilization as an elective and, if at all possible, study for a summer, a semester or a full year in a French-speaking country.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year		
Fall	CR Spring	CR
FRENCH 2160 <sup>^</sup>	3 FRENCH 3160 <sup>^</sup>	3
ENGLISH 1000 <sup>*</sup>	3 Science with Lab <sup>*</sup>	5
MATH 1100 <sup>*</sup>	3 Behavioral Science Course <sup>*</sup>	3
Social Science Course <sup>*</sup>	3 Social Science Course <sup>*</sup>	3
	12	14

Second Year		
Fall	CR Spring	CR
Science Course <sup>*</sup>	3 FRENCH 3430 <sup>^</sup>	3
FRENCH 3410 <sup>^</sup>	3 Science Course <sup>*</sup>	3
Humanities Course <sup>*</sup>	3 Humanities Course <sup>*</sup>	3
Behavioral Science Course <sup>*</sup>	3 Humanities Course <sup>*</sup>	3
	12	12

Third Year		
Fall	CR Spring	CR
FRENCH 3420 <sup>^</sup>	3 FRENCH 4000-level <sup>^</sup>	3
Social Science Course <sup>*</sup>	3 FRENCH 4130 <sup>^</sup>	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
	15	15

Fourth Year		
Fall	CR Spring	CR
FRENCH 4000-level <sup>^</sup>	3 FRENCH 4993 (Capstone) <sup>^</sup>	3
FRENCH 4000-level <sup>^</sup>	3 Elective Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Humanities Course <sup>*</sup>	3
	15	15

Total Credits: 110

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus requirements

Electives may be replaced by courses that fulfill requirements for a double/dual major or a minor.

# BA in Romance Languages with Emphasis in Spanish

## Degree Program Requirements

The BA in Romance Languages with an emphasis in Spanish is the exploration of the language, literature, and culture of Spanish-speaking countries. The degree requires a minimum of 30 hours of Spanish beyond SPAN 2100. Faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. Given the liberal arts foundation of a degree in Spanish students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

## Major Program Requirements

Course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the major. Students must meet all major requirements listed below, as well as all College of Arts and Science and University graduation requirements, including University general education (p. 33).

Students who work toward a double major (two degrees within the College of Arts and Science) may be able to complete the majors with a minimum of 120 credits. Students who are considering a dual degree program (in Arts and Science and in another school or college) are advised that a minimum of 132 credits are necessary.

To obtain the BA degree in Romance Languages with an emphasis in Spanish, the following courses, or their equivalents, must be included in the graduation plan (numbers in parentheses indicate prerequisite courses):

### Major core requirements

SPAN 2160	Intermediate Spanish Composition and Conversation (SPAN 2100)	3
SPAN 3150	Advanced Spanish Conversation (SPAN 2160)	3
OR SPAN 3720: Spanish Phonetics (SPAN 2160)		
SPAN 3160	Advanced Spanish Composition (SPAN 2160)	3
OR SPAN 3280: Commercial Spanish (SPAN 2160)		
SPAN 3420	Introduction to Hispanic Literature I (SPAN 3160)	3
SPAN 3430	Introduction to Hispanic Literature II (SPAN 3160)	3

## Additional Requirements

Students must complete five 4000-level courses selected with the advisor's approval.

- Required courses: one peninsular lit., one Spanish-American lit., three courses of choice.

It should be noted that SPAN 4960 Special Readings in Spanish cannot be used to fulfill this requirement except by permission of the department chair. Students who plan to teach at any level should include courses SPAN 3160 and SPAN 3721, rather than their alternates.

- Students beginning at a level higher than SPAN 2160 due to placement testing must still complete 30 credits in order to receive the major.
- In addition, the student is required to take a Writing Intensive course in the major, normally designated sections of SPAN 3420 or SPAN 3430, and must complete a minor.

- It is highly recommended that students take SPAN 2310 Spanish Civilization as an elective and, if at all possible, study for a summer, a semester or a full year in a Spanish-speaking country.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
SPAN 2160 <sup>^</sup>	3 SPAN 3150 or 3721 <sup>^</sup>	3
ENGLISH 1000 <sup>*</sup>	3 Science/Science Lab <sup>*</sup>	5
MATH 1100 <sup>*</sup>	3 Behavioral Science <sup>*</sup>	3
Social Science <sup>*</sup>	3 Social Science <sup>*</sup>	3
		12
		14

Second Year		
Fall	CR Spring	CR
Science <sup>*</sup>	3 SPAN 3420 or 3430 <sup>^</sup>	3
SPAN 3160 or 3280 <sup>^</sup>	3 Science <sup>*</sup>	3
Humanities <sup>*</sup>	3 Humanities <sup>*</sup>	3
Behavioral Science <sup>*</sup>	3 Humanities <sup>*</sup>	3
		12
		12

Third Year		
Fall	CR Spring	CR
SPAN 3420 or 3430 <sup>^</sup>	3 SPAN 4000-level <sup>^</sup>	3
Social Science <sup>*</sup>	3 SPAN 4130 <sup>^</sup>	3
Elective	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
		15
		15

Fourth Year		
Fall	CR Spring	CR
SPAN 4000-level <sup>^</sup>	3 SPAN 4993 <sup>^</sup>	3
SPAN 4000-level <sup>^</sup>	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
Elective	3 Humanities	3
		15
		15

Total Credits: 110

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus requirements

Electives may be replaced by courses that fulfill requirements for a double/dual major or a minor.

## MA in Romance Languages

The master of arts degree in Romance Languages is offered in three emphasis areas. Students must choose one of the emphasis areas listed below:

- French (p. 282)
- Spanish (p. 285)
- Language Teaching (p. 283)

Details on the requirements for the programs are listed under each emphasis.

## MA in Romance Languages with Emphasis in French

### Admission Contact Information

Mary Harris  
143 Arts and Science  
Columbia, MO 65211  
(573) 882-5039  
<http://romancelanguages.missouri.edu/grad.shtml>

### Admission Criteria

Fall deadline: February 15  
Spring deadline: October 15

- Minimum GPA: 3.0 in field of major
- Masters applicants must have a bachelor's degree
- Minimum TOEFL scores (international applicants):

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

**Note:** Applicants must also demonstrate adequate preparation in advanced language and literature courses. This will require their having completed at least four courses equivalent to a 4000-level course for masters applicants or a 7000 level course for doctoral applicants at the University of Missouri. At a minimum, three of these courses must be in literature. If the faculty determines a deficiency, they will require that the student complete remedial course work in literature during the first year of enrollment. The director of graduate studies will inform students of these additional requirements at the time of their admission.

### Required Application Materials

To the Office of Graduate Studies

- All required Graduate Studies documents
- Official Transcript
- 10-15 page writing sample in language of desired degree program, must be uploaded to the online application
- 500-word Personal Statement, uploaded to the online application
- 3 letters of recommendation (submitted through Apply Yourself or mailed to the Romance Languages Department, 143 Arts & Science, University of Missouri, Columbia, MO 65211)
- Résumé or CV

### Choosing an Advisor

All graduate students in the department may choose, or the director of graduate studies will assign them, an academic advisor at the start of their first semester of graduate study. Students must choose an academic advisor by the end of their first semester of graduate study.

### Plan of Study

The department offers MA degrees with an emphasis in both French and Spanish (Peninsular or Spanish-American literature).

### Minors

Students may also elect a minor field of study, which requires a minimum of 9 hours of course work completed in another department or other departments. Students interested in such minors should consult the section titled Plan of Study in the Graduate Catalog. These minor fields appear on students' plan of study, but not on their transcript. Students electing minors must complete the standard MA examination in their major field of emphasis (French or Spanish).

### MA Degree Requirements

Students must complete a total of 30 credit hours at the graduate-level to earn their MA degree. At least 15 hours must be in courses at the 8000 level or above. The plan of study for the MA with an emphasis in Spanish must include a minimum of nine hours of course work in Spanish peninsular literature and a minimum of nine hours of course work in Spanish-American literature. The plan of study for an MA with an emphasis in Spanish must also include three credit hours in the history of the Spanish language (completion of or the equivalent).

For the MA with an emphasis in either French or Spanish, the total number of credit hours in special readings (7960), problems (8085) or any combination of both may not exceed twelve. The number of credit hours in special readings (7960) within the student's major field may not exceed three per semester. Graduate Instructors with no pedagogical experience or those who have completed no graduate course in foreign language teaching methodology will be required to take FRENCH 7120/SPAN 7120, Foreign Language Teaching Methodology.

Non-native speakers will be required to complete an online proficiency assessment with the appropriate course coordinator before a decision on their admission status is finalized by the department.

### Submitting Your Plan of Study to the Graduate School Office

MA candidates must submit a completed M-1 Plan of Study form to the Graduate School at least one semester before taking their MA examinations.

### Funding Through Graduate Instructorships

MA candidates normally receive 4 semesters of financial support from the University while completing their degree. This support will customarily take the form of a graduate instructorship, though it may take the form of either a research or teaching assistantship.

### Possible Fifth Semester of Support

In exceptional cases, students in good standing — with no grades of Incomplete and unproblematic teaching — may receive a fifth semester of support, at the discretion of the faculty. Faculty will award a fifth semester of support according to the department's need for instructors. Students must submit all requests for a fifth semester of support in writing to the director of graduate studies. No student will receive more than five semesters of support.

### Normal Teaching Load vs. Course Load

The minimum teaching assignment for MA candidates holding instructorships is 1 course per semester, although there may be an opportunity for two. International students may never teach more than 2 courses per semester owing to visa restrictions. All MA candidates must be registered in a minimum of 6 hours of course work for each semester

in which they hold an instructorship. Students may enroll in up to 6 hours per semester of 8080 (Readings) if they have completed all their course work and are preparing for their MA exams.

## Annual Review

The faculty and course directors in both major languages meet during the fall and spring semesters to evaluate the teaching and academic performance of all graduate students. The director of graduate studies informs all students in writing of their status at the end of each semester. Students who fail to remove a grade of Incomplete will be limited to teaching one course per semester for as long that grade of Incomplete remains on their academic record.

## Master's Thesis

The writing of a thesis is optional. A minimum of 4 hours and a maximum of 6 hours of 8090 Research will be allowed for the thesis. Students are urged to obtain the Graduate School's guidelines for thesis/dissertation writing as the thesis must conform to the Office of Graduate Studies' formatting and style specifications.

## Thesis Committee

Students choosing to write a thesis must name a thesis committee consisting of no fewer than three members of the doctoral faculty at the University of Missouri, one of whom should be from a department other than the Department of Romance Languages and Literatures.

## Comprehensive Examination for the MA degree

All candidates for the Master of Arts degree must pass a 6-hour written examination based on the MA reading list. The examination is given twice a year, generally in late October and late March.

The French Master's examination consists of six 1-hour parts covering literature of the Middle Ages/Renaissance, 17th, 18th, and 19th centuries, and two of the following three periods in the contemporary period: twentieth century French Literature, twentieth century Francophone Literature, contemporary literary theory.

The Spanish examination consists of two 3-hour examinations. The first component covers Peninsular Spanish literature from the Middle Ages to the present and the second component covers Spanish American literature from the Colonial period to the present.

At least half the examination must be written in the candidate's language of specialization.

## Grading of the Comprehensive Exam

The MA examination is graded as follows: High Pass, Pass, and Fail. In order to receive a passing grade on any section of the examination, a student must receive passing grades from two thirds of the examining committee. To pass the entire examination, students must receive passing grades on all sections. With permission from the examining committee, students who fail part of the examination may retake only the failed section or sections of the examination. Two failures of the examination, in whole or in part, will terminate candidacy for the degree and result in dismissal from the program.

# MA in Romance Languages with Emphasis in Language Teaching

## Admission

Students desiring to work for the degree of Master of Arts, Emphasis on Language Teaching (MALT) should apply directly online to the Graduate School. Applicants can find links for information, instructions for applying and the online application form on the Graduate School's site (<http://gradschool.missouri.edu/admissions>). This online form is submitted electronically to the Graduate School, along with the application fee.

Additionally, the following materials submitted via the Graduate School's Apply Yourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=umc-grad)) system:

- Official transcripts from the institution(s) previously attended
- TOEFL scores (international applicants only)
- Photocopies of diplomas earned at colleges/universities outside the US (international applicants only)

In addition, our department requires the following materials from all applicants:

- Departmental Graduate Studies Application
- Three Letters of Reference
- A 10-15 page-writing sample
- 500-word personal statement detailing the applicant's reasons for selecting the University of Missouri for graduate studies and academic/career goals. Applicants may also send other supporting materials, such as a résumé, if desired.

The application form and the form for reference letters are available on the Department's page (<http://romancelanguages.missouri.edu>).

## Eligibility

Candidates for the MA must hold a Bachelor's degree (or equivalent) with a grade point average of 3.0 or better in their major field of study. They must also demonstrate adequate preparation in advanced language and literature courses for admission. This will normally be four courses equivalent to a 4000-level course at the University of Missouri. At least three of these courses must be in literature or linguistics. If the Admissions Committee believes that a deficiency exists, it will prescribe additional course work (during the first year of enrollment) beyond the 30 credit hours necessary for the MALT degree. The Director of Graduate Studies will inform students of these additional requirements at the time of admission.

All non-native speakers of French/Spanish will be required to complete an online proficiency assessment prior to admission. Applicants will be contacted by the appropriate course coordinators to schedule this assessment. Students who are judged deficient in any of these areas are required to do remedial work. New graduate students who are required to do remedial work because of the departmental language proficiency examination will be retested within one year. Students must receive a passing score, or their candidacy will be terminated.

All graduate students will be assigned an advisor by the Director of Graduate Studies at the start of their first semester of graduate study.

## MALT Program of Study

A total of 30 hours selected from courses receiving graduate credit must be completed for the MALT (Master of Arts in Language Teaching). A minimum of 21 of the 30 hours must be taken in either French or Spanish. At least 15 hours must be in courses at the 8000 level or above. Of these 8000-level courses, six hours must be in the Department of Romance Languages. The remaining 9 hours may be taken from course work outside the department with the approval of the student's academic advisor.

Note: The College of Education no longer offers a certification program in the field of foreign language education. However, students who do not have a teaching certificate and who are interested in completing relevant courses in the field of education while working on their MALT will need to contact the professional advisors in the School of Education. These students, with advisor's consent, could use their 9 hours allowed outside the department-provided that they are graduate-level courses-toward courses in education. At the completion of their MA, students can work directly with the Missouri Department of Elementary and Secondary Education to see how they can be certified in the State of Missouri.

Please note also that the number of hours of credit allowed for Special Readings (7960) and Problems (8085) may not exceed twelve. MA candidates may not take more than one of these two independent readings course per semester.

Students wishing to transfer MA credits from another university may transfer up to six hours, provided these courses were taken within the last eight years.

MALT candidates must submit a completed M-1 Program of Study to the Graduate School at least one semester before completing their comprehensive examinations.

## Teaching Assistants

MALT students normally have 4 semesters of support in which to complete their degree. This support will customarily take the form of a Graduate Instructorship. MA students may not teach more than ten hours per semester. A fifth and final semester may be granted in exceptional circumstances to students in good standing (i.e., no incompletes, history of good teaching, etc.). This extra semester will be awarded on the basis of departmental need and will be granted only if a request is made formally and in writing to the Graduate Studies Committee, which will make its recommendation to the entire faculty. No student will receive support beyond the fifth semester.

The normal course load for MALT candidates holding teaching assistantships is 9 hours. All MALT candidates must register for a minimum of 6 hours of graded courses included in the Master's program in every semester in which they hold a teaching assistantship. Exceptions to this regulation must have the approval of the Graduate Studies Committee prior to registration. International students must not fall below six hours or they will lose their student status. Students who have completed all coursework may enroll in up to 6 hours per semester of 8080 (Readings) in order to prepare for the MALT exam.

The faculty and the course directors in each of the major languages will meet during the fall and winter semesters to evaluate the performance of all graduate students as students and as teaching assistants. The Director of Graduate Studies will inform all students in writing of their status following this formal performance review.

Any student who fails to have an incomplete removed within one year of its issuance will be limited to teaching one class per semester until the incomplete grade is removed. This excludes Dissertation/Thesis (9090) courses.

## Course Distribution

The course distribution for the MALT program is as follows:

### WITHIN THE DEPARTMENT

<b>* Language/Linguistics</b>		6
Course may be take from:		
FRENCH 7710	History of the French Language	3
FRENCH 7130	Stylistics	3
FRENCH 7720	Structure of Modern French	3
or any French language/linguistic course approved by the student's advisor		
<b>* Civilization/Culture</b>		3-6
FRENCH 7510	African Francophone Literature	3
FRENCH 7980	Special Themes in French	3
FRENCH 8087	Seminar in French	3
<b>* Literature</b>		3-6
French: any one or two courses in French or Francophone literature at the 7000 level or above (see Graduate Courses for wide range of offering)		
<b>* Methodology/Second Language Acquisition</b>		9
FRENCH 7120	Foreign Language Teaching Methodology	3
or SPAN 7120	Foreign Language Teaching Methodology	
FRENCH 8087	Seminar in French	3
or SPAN 8087	Seminar in Spanish	
FRENCH 8120	Bilingualism and Language Contact	3
or SPAN 8120	Bilingualism and Language Contact	

### OUTSIDE THE DEPARTMENT (UP TO 9 HRS)

\*\* For students interested in education, suggested courses from the College of Education can include:

- ESC\_PS 7000 Foundation of Teacher Prep I
- SPC\_ED 7020 Teaching the Exceptional Learner

#### Preparation II (4)

\*\* For students interested in ESL, courses can include:

- Structure of American English (3)
- History of the English Language (3)
- Regional and Social Dialects of English (3)

**Please Note:** Courses taken outside the department must be approved by the student's academic advisor.

## Comprehensive Examination for the MALT degree

All graduate students in Language Teaching are required to pass a series of examinations in order to fulfill degree requirements.

### \* Written Examination

All students take a six-hour written examination, which consists of three two-hour components. Two of the components include: a) Foreign Language Methodology and Second Language Acquisition; b) Applied Linguistics. In addition, each candidate will be examined in a third field of

their choice, either civilization/culture or literature. The two-hour written questions will reflect the coursework completed by each candidate and appropriate texts suggested by faculty represented on the examination committee. These examinations are generally given in November and March.

The MALT examination is graded as follows: High Pass, Pass, and Fail. In order to receive a passing grade, the candidate must attain a Pass in all fields of the written examination. Should a candidate fail any part of the exam and wish second consideration for the degree (s)he must retake the failed section(s). Two failures eliminate the candidate from consideration for the MA in language teaching.

## MA in Romance Languages with Emphasis in Spanish

### Admission Contact Information

Mary Harris  
143 Arts and Science  
Columbia, MO 65211  
(573) 882-5039  
<http://romancelanguages.missouri.edu/grad.shtml>

### Admission Criteria

Fall deadline: February 15  
Spring deadline: October 15

- Minimum GPA: 3.0 in field of major
- Masters applicants must have a bachelor's degree
- Minimum TOEFL scores (international applicants):

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Applicants must also demonstrate adequate preparation in advanced language and literature courses. This will require their having completed at least four courses equivalent to a 4000-level course for masters applicants or a 7000 level course for doctoral applicants at the University of Missouri. At a minimum, three of these courses must be in literature. If the faculty determines a deficiency, they will require that the student complete remedial course work in literature during the first year of enrollment. The director of graduate studies will inform students of these additional requirements at the time of their admission.

### Required Application Materials

*To the Office of Graduate Studies*

- All required Graduate Studies documents
- Official Transcript
- 10-15 page writing sample in language of desired degree program, must be uploaded to the online application
- 500-word Personal Statement, uploaded to the online application
- 3 letters of recommendation (submitted through Apply Yourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=umc-grad)) or mailed to the Romance Languages Department, 143 Arts & Science, University of Missouri, Columbia, MO 65211)

- Résumé or CV

### Choosing an Advisor

All graduate students in the department may choose, or the director of graduate studies will assign them, an academic advisor at the start of their first semester of graduate study. Students must choose an academic advisor by the end of their first semester of graduate study.

### Plan of Study

The department offers MA degrees with an emphasis in both French and Spanish (Peninsular or Spanish-American literature).

### Minors

Students may also elect a minor field of study, which requires a minimum of 9 hours of course work completed in another department or other departments. Students interested in such minors should consult the section titled Plan of Study in the Graduate Catalog. These minor fields appear on students' plan of study, but not on their transcript. Students electing minors must complete the standard MA examination in their major field of emphasis (French or Spanish).

### MA Degree Requirements

Students must complete a total of 30 credit hours at the graduate-level to earn their MA degree. At least 15 hours must be in courses at the 8000 level or above. The plan of study for the MA with an emphasis in Spanish must include a minimum of nine hours of course work in Spanish peninsular literature and a minimum of nine hours of course work in Spanish-American literature. The plan of study for an MA with an emphasis in Spanish must also include three credit hours in the history of the Spanish language (completion of or the equivalent).

For the MA with an emphasis in either French or Spanish, the total number of credit hours in special readings (7960), problems (8085) or any combination of both may not exceed twelve. The number of credit hours in special readings (7960) within the student's major field may not exceed three per semester. Graduate Instructors with no pedagogical experience or those who have completed no graduate course in foreign language teaching methodology will be required to take FRENCH 7120/SPAN 7120, Foreign Language Teaching Methodology.

Non-native speakers will be required to complete an online proficiency assessment with the appropriate course coordinator before a decision on their admission status is finalized by the department.

### Submitting Your Plan of Study to the Office of Graduate Studies

MA candidates must submit a completed M-1 Plan of Study form to the Office of Graduate Studies at least one semester before taking their MA examinations.

### Funding Through Graduate Instructorships

MA candidates normally receive 4 semesters of financial support from the University while completing their degree. This support will customarily take the form of a graduate instructorship, though it may take the form of either a research or teaching assistantship.

### Possible Fifth Semester of Support

In exceptional cases, students in good standing — with no grades of Incomplete and unproblematic teaching — may receive a fifth semester of support, at the discretion of the faculty. Faculty will award a fifth semester

of support according to the department's need for instructors. Students must submit all requests for a fifth semester of support in writing to the director of graduate studies. No student will receive more than five semesters of support.

## Normal Teaching Load vs. Course Load

The minimum teaching assignment for MA candidates holding instructorships is 1 course per semester, although there may be an opportunity for two. International students may never teach more than 2 courses per semester owing to visa restrictions. All MA candidates must be registered in a minimum of 6 hours of course work for each semester in which they hold an instructorship. Students may enroll in up to 6 hours per semester of 8080 (Readings) if they have completed all their course work and are preparing for their MA exams.

## Annual Review

The faculty and course directors in both major languages meet during the fall and spring semesters to evaluate the teaching and academic performance of all graduate students. The director of graduate studies informs all students in writing of their status at the end of each semester. Students who fail to remove a grade of Incomplete will be limited to teaching one course per semester for as long that grade of Incomplete remains on their academic record.

## Master's Thesis

The writing of a thesis is optional. A minimum of 4 hours and a maximum of 6 hours of 8090 Research will be allowed for the thesis. Students are urged to obtain the Graduate School's guidelines for thesis/dissertation writing as the thesis must conform to the Graduate School's formatting and style specifications.

## Thesis Committee

Students choosing to write a thesis must name a thesis committee consisting of no fewer than three members of the doctoral faculty at the University of Missouri, one of whom should be from a department other than the Department of Romance Languages and Literatures.

## Comprehensive Examination for the MA degree

All candidates for the Master of Arts degree must pass a 6-hour written examination based on the MA reading list. The examination is given twice a year, generally in late October and late March.

The French Master's examination consists of six 1-hour parts covering literature of the Middle Ages/Renaissance, 17th, 18th, and 19th centuries, and two of the following three periods in the contemporary period: twentieth century French Literature, twentieth century Francophone Literature, contemporary literary theory.

The Spanish examination consists of two 3-hour examinations. The first component covers Peninsular Spanish literature from the Middle Ages to the present and the second component covers Spanish American literature from the Colonial period to the present.

At least half the examination must be written in the candidate's language of specialization.

## Grading of the Comprehensive Exam

The MA examination is graded as follows: High Pass, Pass, and Fail. In order to receive a passing grade on any section of the examination, a student must receive passing grades from two thirds of the examining

committee. To pass the entire examination, students must receive passing grades on all sections. With permission from the examining committee, students who fail part of the examination may retake only the failed section or sections of the examination. Two failures of the examination, in whole or in part, will terminate candidacy for the degree and result in dismissal from the program.

## PhD in Romance Languages

### Note to Internal Doctoral Applicants

Students who wish to advance to the doctoral program after completing their MA degree in the Department of Romance Languages and Literatures may do so only after receiving written approval from the MA examining committee. Alternatively, candidates may not advance to the doctoral program if the examining committee determines, after the MA examination, that their degree is terminal.

Students advancing directly from the MA to the PhD program need to complete only a Change of Degree Program form, which the department submits to the Office of Graduate Studies.

Students who apply to the doctoral program one semester or more after completing their MA examinations must complete a Request to Re-enroll form and reapply to the doctoral program. They must submit a new departmental application and reference letters. They need not submit a new application to the Office of Graduate Studies.

## Application and Admission Information

### Admission Contact Information

Mary Harris  
143 Arts and Science  
Columbia, MO 65211  
(573) 882-5039  
<http://romancelanguages.missouri.edu/grad.shtml>

## PhD Admission Criteria

Fall deadline: February 15  
Spring deadline: October 15

- Minimum GPA: 3.0 in field of major
- Doctoral applicants must have a master's degree.
- Minimum TOEFL scores (international applicants):

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Applicants must also demonstrate adequate preparation in advanced language and literature courses. This will require their having completed at least four courses equivalent to a 4000-level course for masters applicants or a 7000 level course for doctoral applicants at the University of Missouri. At a minimum, three of these courses must be in literature. If the faculty determines a deficiency, they will require that the student complete remedial course work in literature during the first year of enrollment. The director of graduate studies will inform students of these additional requirements at the time of their admission.

## Required Application Materials

*Submit to the Office of Graduate Studies using the online application system:*

- All required Graduate Studies documents
- Official Transcript (send to Graduate School at 210 Jesse Hall, University of Missouri, Columbia, MO 65211-1160)
- 10-15 page writing sample in language of desired degree program, must be uploaded to the online application
- 500-word Personal Statement, uploaded to the online application
- 3 letters of recommendation (submitted through Apply Yourself or mailed to the Romance Languages Department, 143 Arts & Science, University of Missouri, Columbia, MO 65211)
- Résumé or CV

**Note:** All application forms are on the Graduate School site

## Specialization

The Department of Romance Languages and Literatures offers four fields of specialization at the doctoral level: French Literature, Francophone Literature, Spanish Literature or Spanish American Literature.

Candidates may elect a secondary field, which entails a minimum of 9 hours of course work within another department, in consultation with their doctoral program committee. This secondary field appears on students' plan of study, but not on their transcript. Students electing a secondary field must complete a PhD examination that will include at least one question devoted to their secondary field.

## Choosing an Advisor

All graduate students in the department may choose, or the director of graduate studies will assign them, an academic advisor at the start of their first semester of graduate study. Students must choose an academic advisor by the end of their first semester of graduate study.

## Qualifying Examination

All PhD candidates must complete a qualifying examination during their first year in the program to determine their fitness for doctoral study.

## Exemptions

The faculty may excuse students from this requirement if those students received their MA degree from this department, earned a grade of High Pass on all sections of their MA examination, and enrolled in the PhD program the semester after fulfilling all requirements for the MA degree.

## Purpose and Questions

The qualifying examination provides an opportunity for the faculty to evaluate candidates and advise their future course of study in the program. The examination consists of two questions related to the candidate's course work during the previous and current semester: one question requires analysis of a text; the other, discussion of a general topic (e.g., a literary genre, a particular author, a critical or artistic movement, and so on). The candidate's academic advisor delivers both questions to the candidate three days before a meeting with the examining committee.

## Exam Meeting with the Committee

At this meeting, the candidate offers two oral presentations of 20-25 minutes each, based on the two questions. Following these presentations, the candidate responds to comments and questions from the examining committee. At the close of this meeting, the examining committee determines whether the candidate's performance warrants a grade of Pass or Fail. The examining committee communicates these results to the Graduate School in writing, on a D-1 form bearing the

signatures of the candidate and all members of the committee. Students who receive a failing grade must retake this examination before the end of the following semester. A second failure on this examination terminates eligibility for the PhD degree and will result in dismissal from the graduate program.

## Arranging the Committee

All arrangements for the qualifying examination are the joint responsibility of the candidate and the candidate's academic advisor. Any tenured or tenure-track member of the faculty may act as academic advisor to students during their first year of doctoral study. The academic advisor need not act as the director of that student's PhD examination or dissertation committee.

## Submitting Results

Students who earn a passing grade on their qualifying examination submit the D-1 form to the Office of Graduate Studies, communicating the results of the examination and formally naming their doctoral committee.

## Plan of Study & Degree Requirements

After the qualifying exam, students and their doctoral committee meet to devise a plan of study. The doctoral committee signs and submits this plan of study with the D-2 form to the Graduate School. Students in the PhD program must complete a minimum of 72 hours of course work, which includes a maximum of 30 credit hours earned as part of their MA degree. These credit hours must include course work in language teaching methodology (FRENCH 7120/SPAN 7120 or the equivalent) and, if applicable, the candidate's secondary field. Spanish doctoral candidates must also complete course work in Old Spanish.

## Foreign Language Requirements

PhD candidates must demonstrate reading proficiency in 2 languages other than English and their language of specialization (French or Spanish). They may satisfy this requirement, at a minimum, by completing intensive beginning courses in the required languages (4070 or the equivalent) with a grade of B- or better, or by passing written examinations administered by departments at the University of Missouri offering courses in those languages. Students choosing Latin as one of their foreign languages may satisfy this requirement by completing with a grade of B- or better, a beginning honors class (LATIN 1100H, or the equivalent). Students also fulfill this requirement if they demonstrate proficiency by objective measures (courses, examinations) that exceed this minimum standard, as approved by the Director of Graduate Studies.

Students must satisfy the foreign language requirement before they take their Comprehensive Examination for the PhD. Basic language courses carry no credit toward the PhD and are therefore not included in the Plan of Study.

## Latin Requirements for Students of Medieval and Renaissance Literatures

Students specializing in literature of either the Middle Ages or the Renaissance- literature produced within the period from the rise of the vernacular to the end of the seventeenth century- must demonstrate reading proficiency in Latin. In doing so, they fulfill half their foreign language requirement. They demonstrate proficiency in Latin according to the standard explained in the previous paragraph: by means of a beginning Honors course (LATIN 1100H), a written examination administered by the Classics Department, or equivalents of these.



## Language Requirements for Students With Secondary Field in Non-English Literature

Students pursuing a secondary field in a non-English literature different from that of their major field must complete with a final grade of B- or better at least three 7000-level courses (or the equivalent) in literature of their secondary field. Completing these courses fulfills half the foreign language requirement.

For example, a student specializing in French literature of the Romantic period may choose a secondary field of German literature of the Romantic period. That student must complete 3 courses in German literature at the 7000 level (or the equivalent). Completing these courses satisfies half the foreign language requirement.

## Financial Support: Graduate Instructorships

PhD candidates normally receive 6 semesters of financial support from the university while completing their plan of study and 4 additional semesters of support after completing their PhD examination. This support will customarily take the form of a Graduate Instructorship, though it may take the form of either a Research or Teaching Assistantship.

The minimum teaching assignment for PhD candidates holding instructorships is one course during their first semester of study. Depending on staffing needs, there may be an opportunity to teach two courses per semester. Students writing their dissertation may teach an additional course. International students may never teach more than 2 courses per semester owing to visa restrictions. All PhD candidates must be registered in a minimum of 6 hours of course work for each semester in which they hold an instructorship.

Students may enroll in a maximum of 6 hours per semester of 9080 (Readings) if they have completed all their course work and are preparing for their PhD exams. Students may enroll in a maximum of 12 hours of 9080 (Readings) over the course of their doctoral studies, provided this occurs within their first six semesters of financial support. After passing their PhD examination, students may retain their Instructorships if they enroll in Research (9090) for a minimum of 5 credit hours per year (2 in fall; 2 in spring; 1 in summer).

## Annual Review

The faculty and course directors in both major languages meet during the fall and spring semesters to evaluate the teaching and academic performance of all graduate students. The director of graduate studies informs all students in writing of their status at the end of each semester. Students who fail to remove a grade of Incomplete will be limited to teaching one course per semester as long that grade of Incomplete remains on their academic record. This restriction applies to courses other than Research (9090).

## The PhD Comprehensive Examination

### Reading List, Examining Committee, and Faculty Preparing Questions

Each candidate will name a PhD Examining Committee and, as necessary, other faculty members who will prepare examination questions relating to their respective periods of expertise. The Examining Committee consists of at least 4 members: 3 members of the regular (tenured or tenure-track) faculty from the Department of Romance Languages and Literatures, including the student's academic advisor, 1 outside member from a different department. All of them must belong to

the graduate faculty at the University of Missouri. Beyond this minimum, candidates may name other members to the committee - recognized experts in the candidates field - from either the University of Missouri or another institution, with the approval of both the student's academic advisor and the Director of Graduate Studies.

A member of the regular faculty in the Department of Romance Languages and Literatures who is an expert in literature pertaining to each part of the PhD examination will prepare questions for that part. If there is only one available expert in a specific field (for example, only one regular faculty member who is an expert in Medieval literature of either France or Spain), that faculty member must prepare and grade examination questions relating to that field. If there is more than one expert available in a particular field (for example, more than one member of the regular faculty who is an expert in contemporary French literature, contemporary Spanish literature, or contemporary Spanish-American literature), the student may choose one of those faculty members to prepare and grade questions in that field.

All questions on the PhD Examination derive from a reading list that the candidate compiles with the collaboration and approval of the Doctoral Committee and of all other faculty preparing questions. This list aims at both breadth and depth, but mainly depth. It should include texts of literature, criticism, and history that are indispensable for an expert in the candidate's specialized field. Yet, in the non-specialized fields, this list should include a solid literary history of all genres in the period (drama, fiction, lyric, essay), while also including literary texts that would prove indispensable only for an undergraduate survey course that the candidate might teach on works of all periods and all genres over a span of two semesters. In other words, readings from this list should yield both a generalist and a specialist - an instructor who can both design and teach a survey course, and an expert who can produce original scholarship.

## Timetable of the PhD Comprehensive Examination in French and Spanish

The candidate and the academic advisor set both the dates and the order for all parts of the Comprehensive Examination, in consultation with the Director of Graduate Studies. The Comprehensive Examination in French or Spanish consists of a written and an oral section. The written section comprises 4 parts of 3 hours per part. Candidates complete the written examination on 4 separate days - 1 part per day - within a period of 14 days. They complete the oral examination no later than five weeks after earning a passing grade on all parts of the written examination. This allows candidates to complete the written examination at the end of the fall semester and to complete the oral examination at the start of the spring semester of the same scholastic year.

Either the Director of Graduate Studies or someone delegated by the Director of Graduate Studies will administer the written part of the PhD Examination. Only members of the department faculty of departmental staff may administer the examination.

## Oral Examination

Students complete the oral examination after receiving a passing grade on all sections of the written examination. The oral examination will last 1-2 hours, part of which must be in the language of the candidate's specialized field. The oral exam allows candidates to clarify, strengthen or amplify the answers of the written exam. Only members of the Doctoral Committee must attend the oral examination.

With permission from the Doctoral Committee, students who fail part of the written or oral examination may retake only the failed part of parts. A

minimum of 14 days must elapse before a student retakes a failed part or failed parts of the examination. Two failures of the examination, in whole or in part, will terminate candidacy for the degree and result in dismissal from the program.

## Prospectus

After passing both the written and oral parts of the PhD Examination, doctoral students present a prospectus of the dissertation. This presentation occurs immediately after completing and passing the oral part of the Examination. Candidates prepare the prospectus in consultation with the academic advisor and deliver it in writing at least one week before the date of the oral examination to all members of the Doctoral Committee. The Prospectus requires approval by all members of the Doctoral Committee.

The prospectus presents a working outline, with a working bibliography, of the proposed project - its topic, organization, and critical method. Just as important, the prospectus should present a line of inquiry that promises to contribute to human knowledge - a thesis, or a position that warrants defending by means of both critical analysis and empirical evidence.

## Research and Dissertation

Doctoral students register in 9090 (Research) once they have passed their PhD examinations. They will need to enroll for a minimum of 2 credit hours of 9090 during the fall and spring semesters and 1 hour during the summer semester in order to complete the 12 hours of dissertation credits required for graduation. In addition, the program for the doctoral degree must be completed within five years of passing the comprehensive examination. Individual departments or area programs may stipulate a shorter time period. Doctoral students should complete all requirements for the degree, including the dissertation, within five years of passing the comprehensive examination. The Office of Graduate Studies extends this deadline in extenuating circumstances. Nonetheless, students must request additional time in writing from the director of graduate studies. Failure to show sufficient progress on the dissertation may result in dismissal from the graduate program. Students should obtain the Graduate Studies' guidelines for thesis/dissertation writing since the dissertation must conform to the formatting and style specifications established by the Office of Graduate Studies.

## Defense

Candidates and their directors schedule a formal defense of a dissertation after its acceptance by all members of the doctoral committee. This oral defense, conducted by members of the doctoral committee, is open to the public. For additional information, contact the Director of Graduate Studies in the Department of Romance Languages and Literatures.

## Russian

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Tim Langen, Chair  
College of Arts and Science  
451 Strickland Hall  
(573) 882-4328  
grs@missouri.edu

The Department of German and Russian Studies offers courses in German and Russian language, literature, film and civilization. It also offers instruction in Arabic, Chinese, Japanese, Hebrew and Korean.

Many courses, such as civilization, culture, literature in translation and film courses, do not require knowledge of a foreign language.

The department offers the Bachelor of Arts with majors in German, and in Russian, and the Master of Arts in German, and in Russian and Slavonic Studies. The department also offers minors in German, Russian, Chinese, Japanese, and Korean. Many courses in the minor in East Asian Studies are taught in the Department of German and Russian Studies. The Film Studies program is also housed in the department.

## Faculty

**Professor** G. Barabtarlo\*

**Associate Professor** T. Langen\*

**Assistant Professor** M. Kelly\*

**Associate Teaching Professor** N. Monnier\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Russian (p. 290)
- Minor in Russian (p. 291)

## Dual Degrees and Double Majors

As a double major or a dual degree has become an ever more popular choice, an increasing number of students choose German or Russian as one of their majors. Students looking forward to a career in medicine or in the sciences use a double major to ensure a thorough background in the humanities to balance their scientific studies. Double majors within the College of Arts and Science can be arranged and, if the second degree program is identified early, dual degree programs outside the college are also possible. Combined programs with journalism, international studies, education and business are frequent choices. Within the college, combinations with political science, history, philosophy, art history, and the sciences are popular double major programs.

## Departmental Honors - Russian

Departmental honors are available for students majoring in Russian with a minimum 3.3 GPA. A three-course literature sequence must be completed with no grades below B or, at the discretion of the department, a thesis paper may be written.

Beginning Fall 2013: Departmental Honors are available for student majoring in Russian with a minimum 3.5 GPA in the Russian major and 3.3 GPA overall. Students must complete a minimum of three literature courses, two of which must be at the 4000 level, with no grades below a B. At the discretion of the department, students may write a thesis paper in lieu of one of the 4000 level literature courses.

## Graduate

- MA in Russian and Slavonic Studies (p. 291)

College of Arts and Science  
451 Strickland Hall  
(573) 882-4328  
<https://grs.missouri.edu/>

**Director of Graduate Studies:** Gene Barabtarlo

The Master of Arts program in Russian and Slavonic Studies offers advanced study in the literature and culture of Russia. Course offerings are primarily in literature, but reflect a variety of interrelated fields, including religion, philology, intellectual history, and philosophy. In two years of coursework students receive training in the theory and history of Russian literature and culture in general, as well as an introduction to the history of the language.

## Careers

Students may go on to careers in a number of fields, including government work and international business; they will also be prepared to continue their studies at the doctoral level.

## Facilities and Resources

The library of the University of Missouri is particularly strong in Russian history and literature. We are also part of a consortium that provides quick access to the holdings of many other major academic and public libraries.

## Financial Support

In this program, qualified graduate students may have the opportunity to work as teaching assistants in language, literature or civilization courses. Incoming graduate students are normally offered paid positions as Teaching Assistants. To be eligible for a teaching assistantship, your application must be received by March 1. Teaching assistants (TAs) are normally appointed for one academic year (two semesters / nine months). The Fall Semester runs from late August to mid-December; the Spring Semester from mid-January to mid-May. TA appointments are normally renewed for the second year of study when teaching and progress toward the degree are satisfactory. Appointments after the second year may be available in special cases, depending upon departmental needs and resources. At present the TA position provides a stipend of approximately \$1,000 per month. In addition, tuition for courses taken toward the MA are waived for TAs. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details. The Graduate School offers several valuable fellowships for which the department may nominate incoming students.

## BA in Russian

### Degree Program Description

The Russian degree is the exploration of the language, literature, and culture of Russian-speaking countries. The BA in Russian offers you the possibility of participating in this vibrant cultural tradition first hand. The major in Russian consists of 27 credits in Russian beyond RUSS 1200. Within these 27 hours, students must meet minimum requirements within three categories: language, literature, and culture. The Russian faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. Given the liberal arts foundation of a degree in Russian, students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

## Major Program Requirements

The major in Russian consists of 27 credits in Russian beyond RUSS 1200. Within these 27 hours, students must meet minimum requirements within three categories: language, literature, and culture (see below). The Russian faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. In addition, students must meet all degree, college and university graduation requirements, including those for university general education (p. 33).

Major core requirements (beyond the A&S language requirement)

Four of the following courses in language or their equivalents (minimum of two at the 3000-plus level) must be included:	12
RUSS 2130	Second-Year Russian I
RUSS 2160	Second-Year Russian II
RUSS 3001	Topics in Russian-General
RUSS 3130 or RUSS 3160	Intermediate Russian Intermediate Conversation and Composition
RUSS 3630	Russian Classics I
RUSS 3640	Russian Classics II
RUSS 4160	Advanced Russian Conversation
Three literature or culture courses, chosen from the following, and to include at least one at the 4000-level:	9
RUSS 2100	Classics and Iconoclasts: An Introduction to Russian Literature
RUSS 3005	Topics in Russian-Humanities
RUSS 3310	Heroes of Their Times: Individualism in Russian Literature
RUSS 3320	Matters of Life and Death: The Fiction of Tolstoy and Dostoevsky
RUSS 3330	Decline, Fall, and Resurrection in Modern Russian Literature
RUSS 3350	The Split Tree of Russian Literature: Contemporary Russian Prose
RUSS 3380	Sinners, Saints, and Madmen: 19th Century Russian Literature
RUSS 3390	True Fictions: Russian Prose since 1900
RUSS 4005	Topics in Russian-Humanities
RUSS 4420	Russian Poetry
RUSS 4350	Special Readings in Russian
RUSS 4430	Russian Drama
RUSS 4435	Russian Prose
RUSS 4440	The Russian Novel
RUSS 4510	The Art and Life of Pushkin
RUSS 4520	Nikolai Gogol
RUSS 4530	Dostoevsky
RUSS 4540	Tolstoy's Fiction and Truth
RUSS 4550	Nabokov's Russian Fiction
RUSS 4820	Blogging the World: The Web in Cultural Context
One of the following two courses in culture:	3
RUSS 2310	Between Heaven and Earth: Russian Civilization
or RUSS 2320	The Arts of Survival: Civilization in Soviet Times
Electives	3

Elective courses and equivalents to replace the required courses above should be selected in consultation with the advisor

Total Credits 27

\* Both RUSS 2310 and RUSS 2320 are Writing Intensive Russian civilization courses.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
RUSS 1100	6 RUSS 1200	6
HIST 1100	3 Course for second major / minor	3
ENGLISH 1000	3 MATH 1100	3
Foundation Requirements (humanities)	3 Foundation Requirements (behavioral Sciences)	3
	15	15
Second Year		
Fall	CR Spring	CR
RUSS 2100	3 RUSS 2160	4
RUSS 2130	4 Course for second major / minor	3
Course for second major / minor	3 RUSS 2320	3
Foundation Requirements (sciences, Math Reasoning Proficiency)	3 Foundation Requirements (humanities)	3
Foundation Requirements (social science)	3 Foundation Requirements (sciences)	3
	16	16
Third Year		
Fall	CR Spring	CR
RUSS 3130	3 RUSS 3630	3
RUSS 3390	3 Foundation Requirements(sciences with lab)	5
Foundation Requirements (humanities)	3 Foundation Requirements(behavioral sciences)	4
Course for second major / minor	3 Course for second major /minor / elective	3
Course for second major / minor	3	
	15	15
Fourth Year		
Fall	CR Spring	CR
RUSS 3890	3 4000-level Russian literature course	3
4000-level Russian literature/culture course	3 Capstone course for second major /elective	3
Foundation Requirements (humanities)	3 Foundation Requirements (social sciences)	3
Second major/ minor / elective	3 Second major/ minor / elective	3
Second major/ minor / elective	3 Second major/ minor / elective	3
	15	15

Total Credits: 122

## Minor in Russian

The department offers a minor in Russian, consisting of 15 credits beyond RUSS 1200. A minimum of 6 of these 15 credits must be in Russian courses numbered 3000 or above. In addition, a minimum of 9 of the 15 credits must be completed in residence.

## MA in Russian and Slavonic Studies

### Admission Contact Information

Professor Gene Barabtarlo

Send email to Dr. Barabtarlo: barabtarlog@missouri.edu  
451 Strickland Hall  
Columbia, MO 65211  
(573) 882-4328

### Admission Information

Before applying, please send an informal letter of intent or inquiry to Dr. Barabtarlo at either the physical address or e-mail address above.

### Admission Criteria

Fall deadline: January 1 (domestic); December 15 (international)

**Note:** to be eligible for a teaching assistantship, application must be received by March 1

Spring deadline: September 1 (domestic); May 1 (international)

Minimum GPA: 3.0 in last 60 hours

Undergraduate major or minor in Russian or equivalent

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Note: No language other than English and Russian is required for admission.

### Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents

To the Program:

- 2 letters of recommendation

### Degree Requirements

Students must complete a minimum of 30 hours of graduate-level courses with a GPA of B or higher. In accordance with the Office of Graduate Studies policy, no fewer than 24 of these must be Russian and Slavonic Studies courses at the 7000 or 8000 level, with at least 12 at the 8000 level. In addition, students must demonstrate adequate language skills in English and Russian.

### Thesis

A master's thesis is optional.

## Sociology

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Edward E. Brent, Chair  
College of Arts and Science  
312 Middlebush Hall  
brente@missouri.edu  
573) 882-9172

Sociology is a discipline founded over 100 years ago to bring the scientific method to the study of human societies. It has pioneered in the development of methods and techniques designed to provide accurate and verifiable information about contemporary societies. It is the inventor of survey research and a host of statistical measures. The techniques created by sociologists are now used in all disciplines concerned with human behavior.

Sociologists today conduct research and reason from research findings to generate deeper understandings of how societies work. The generation of theoretical statements and the testing of those statements in a wide variety of social settings is the core of sociological work. Sociologists are knowledge builders, rather than change agents, although there is an emergent group of scholars who apply sociological knowledge to create changes in organizations, individuals and communities. Sociology contributes to human improvement by seeing that change can be based on credible information and reasoned understanding of how humans work together in groups or larger aggregates.

### Faculty

**Professor** W. Brekhus\*\*, E. E. Brent Jr.\*\*  
**Associate Professor** E. Bjornstrom\*\*, E. Brown\*\*, J. M. Hermsen\*\*, V. L. Johnson\*\*, C. Y. Lo\*\*, A. Prasad\*\*, S. Prasad\*\*, R. Scott\*\*  
**Assistant Professor** T. Ivory  
**Postdoctoral Researcher** N. Jones  
**Professors Emeritus** J. K. Benson\*\*, D. Granberg, J. Gubrium, J. Hall, R. M. Hessler\*\*, T. Pearce, A. C. Twaddle\*\*, C. E. Vaughan, T. Vaughan

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BA in Sociology (p. 292)
- Minor in Sociology (p. 294)

### Departmental Honors

Students with a cumulative GPA of at least 3.3 are eligible for departmental honors in sociology. Qualified students who seek this option must write an honors thesis under the supervision of a sociology faculty member. Students who take the honors thesis option are not required to take SOCIOL 4970. Students enroll in SOCIOL 4995 for 3 credits *each semester* of the senior year for a total of 6 credits.

### Graduate

- MA in Sociology (p. 294)
- PhD in Sociology (p. 294)

Department of Sociology

312 Middlebush Hall  
(573) 882-8331  
<http://sociology.missouri.edu/grad/graduate-program>

**Director of Graduate Studies:** Eileen Bjornstrom

### About the Program

The Department of Sociology engages students in research, utilizing qualitative and quantitative research methodologies, in order to analyze issues and problems affecting societies. The core of doctoral training is in classical and contemporary theory, and research methods including quantitative, historical, and feminist methodologies, and interviews and field work.

### Specializations

Students may focus their studies on any two of the following graduate program areas:

- Culture and Identity
- Health, Aging, and Environment
- Political Economy, Power, and Movements
- Social Inequalities

Within these program areas, students conduct research on such topics as gender, health-care policy, popular culture, hunger, race, criminology, sexualities, and elites and protest movements in the global economy.

### Financial Aid from the Program

Financial support for students includes teaching and research assistantships, both of which include remission of educational fees. International students cannot be awarded teaching assistantships until they have completed one semester of residence at MU and pass a test of spoken English.

## BA in Sociology

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### Degree Program Description

Sociology is a discipline founded about 100 years ago to bring the scientific method to the study of human societies. It has pioneered in the development of methods and techniques designed to provide accurate and verifiable information about contemporary societies. It is the inventor of survey research and a host of statistical measures. The techniques created by sociologists are now used in all disciplines concerned with human behavior. A Bachelor of Arts with a major in Sociology consists of 33 credits organized to provide progressively more sophisticated levels of sociological analysis culminating in a capstone experience. The degree offers five tracks of study for students who want a closer fit between the major and future employment: Law, Justice and Society; Power, Inequalities and Social Change; Sexuality, Health and the Life Course; Culture, Identity and the Media; Organizations, Work, Technology and the Economy. Sociologists today conduct research and reason from research findings to generate deeper understandings of how societies work. The generation of theoretical statements and the testing of those statements in a wide variety of social settings is the core of sociological work. We are knowledge builders, rather than change agents, although there is an emergent group of "applied sociologists" who use sociological knowledge to create changes in organizations, individuals, and communities. We contribute to human improvement by seeing that change can be based on good information

and reasoned understanding of how humans work together in groups or larger aggregates.

## Major Program Requirements

A Bachelor of Arts with a major in Sociology consists of 33 credits organized to provide progressively more sophisticated levels of sociological analysis culminating in a capstone experience or other advanced 4000 level course. It is expected that students start with entry courses, progress to basic courses and then to upper-level electives. In addition, students must complete all degree, College of Arts and Sciences and University graduation requirements (p. 32), including University General Education (p. 33).

### Major core requirements

#### Entry courses

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2200	Social Inequalities	3

#### Basic courses

SOCIOL 2950	Social Research I	3
SOCIOL 3100	Recent Theories in Sociology (prerequisite: SOCIOL 2200)	3

#### Post-basic courses

Three additional sociology courses numbered 3000 or above; may include no more than 3 credits in SOCIOL 4940, SOCIOL 4942, or SOCIOL 4960	9
Additional hours in sociology	6

An additional 6 credits in elective coursework in the major

#### Capstone course

SOCIOL 4970	Senior Seminar (or any 4000 level course with the exception of SOCIOL 4940, SOCIOL 4942 or SOCIOL 4960)	3
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Should be taken in the last semester of undergraduate work

#### Departmental honors

SOCIOL 4995	Honors in Sociology (1st semester of senior year)	3
SOCIOL 4995	Honors in Sociology (2nd semester of senior year)	3

Students with a cumulative GPA of at least 3.3 are eligible for departmental honors in sociology. Qualified students who seek this option must write an honors thesis under the supervision of a sociology faculty member. Students who take the honors thesis option are not required to take SOCIOL 4970. Students enroll in SOCIOL 4995 for 3 credits each semester of the senior year.

#### Statistics

A course in statistics is required for the major.

#### Course Options:

STAT 1200	Introductory Statistical Reasoning
STAT 2200	Introductory Statistical Methods

**Total Credits** 30

## Optional Tracks

The course work in sociology fits into five recommended tracks of study. Although sociology majors are *not required* to select a track, students who want a closer fit between the major and future employment are encouraged to do so. Each track has recommended courses in the major, complementary internships, and service learning opportunities. (Note: Tracks are not listed on transcripts or diplomas.) These tracks are outlined below.

## Track: Law, Justice and Society

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 1650	Social Deviance	3
SOCIOL 1010	Social Problems	3
SOCIOL 3600	Criminology	3
SOCIOL 4500	Sociology of Social Policy	3
SOCIOL 4610	Society and Social Control	3
SOCIOL 1010	Social Problems	3

## Track: Power, Inequalities and Social Change

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2210	The Black Americans	3
SOCIOL 3200	Class, Status, and Power	3
SOCIOL 3210	Sociology of Globalization	3
SOCIOL 3320	Sociology of Gender	3
SOCIOL 3510	Public Opinion and Communication	3
SOCIOL 3520	Collective Behavior	3
SOCIOL 4220	Race and Ethnic Relations	3
SOCIOL 4230	Women, Development, and Globalization	3

## Track: Sexuality, Health and the Life Course

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 1360	The Female Experience: Body, Identity, Culture	3
SOCIOL 2230	Social Perspectives on Aging	3
SOCIOL 1010	Social Problems	3
SOCIOL 3300	Queer Theories/Identities	3
SOCIOL 3320	Sociology of Gender	3
SOCIOL 3420	The Family	3
SOCIOL 3460	Technology and Society	3
SOCIOL 3440	Sociology of Health	3
SOCIOL 4210	Aging and the Life Course	3
WGST 4420	Studies in Gender, Culture, and Politics	3

## Track: Culture, Identity and the Media

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2300	Self and Society	3
SOCIOL 2310	Culture and Mass Media	3
SOCIOL 3300	Queer Theories/Identities	3
SOCIOL 3310	Social Psychology	3
SOCIOL 3400	Politics of the Media	3
SOCIOL 3430	The Sociology of Sport	3
SOCIOL 3450	The Sociology of Religion	3
SOCIOL 3510	Public Opinion and Communication	3
SOCIOL 4320	Culture, Identity and Interaction	3

## Track: Organizations, Work, Technology and the Economy

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 3200	Class, Status, and Power	3
SOCIOL 3210	Sociology of Globalization	3
SOCIOL 3460	Technology and Society	3
SOCIOL 3520	Collective Behavior	3
SOCIOL 3700	Institutions and Society	3
SOCIOL 3710	The Sociology of Work	3

SOCIOL 4230 Women, Development, and Globalization 3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
SOCIOL 1000	3 SOCIOL 2200	3
ENGLISH 1000	3 MATH 1100	3
Humanities Elective	3 Humanities Elective	3
Social Science Elective (Missouri State Law Requirement)	3 Social Science Elective	3
Science Elective	3 Science Elective with Lab	4
	15	16
Second Year		
Fall	CR Spring	CR
SOCIOL 1650	3 SOCIOL 2950	3
Foreign Language level 1	3 SOCIOL 3600	3
Humanities Elective	5 Foreign Language level 2	5
Social Science Elective (upper level)	3 Humanities Elective (upper level)	3
Statistics 1200 (also Math/Proficiency Elective)	3 Behavioral Science Elective	3
	17	17
Third Year		
Fall	CR Spring	CR
SOCIOL 3200	3 SOCIOL 3100	3
Foreign Language level 3	3 Elective - upper level	3
Behavioral Science Elective (upper level)	3 Elective - upper level	3
Writing Intensive Elective	3 Elective	3
Elective	3 Elective	3
	15	15
Fourth Year		
Fall	CR Spring	CR
SOCIOL 3330	3 SOCIOL 4970	3
Elective - upper level	3 SOCIOL 4220	3
Elective - upper level	3 Elective	3
Elective	3 Elective	3
Elective	3 Elective	3
	15	15

Total Credits: 125

## Minor in Sociology

To minor in sociology, a student must complete a total of 15 credits of sociology coursework as follows:

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2200	Social Inequalities	3
Two courses at the 3000-level or above		6
One other sociology course at any level		3
Total Credits		15

At least nine credit hours for the minor must be from MU courses.

## MA in Sociology

### About the Master of Arts in Sociology

At this time, our Department is not admitting students who are seeking a terminal master's degree. However, our doctoral students earn an MA degree en route to the PhD.

Please see the admission criteria for our doctoral degree program (p. 294).

## PhD in Sociology

### Admission Contact Information

Graduate Admissions Coordinator (oakesm@missouri.edu)  
 312 Middlebush Hall  
 Columbia, MO 65211  
 (573) 882-8331

### Admission Criteria

Fall deadline: January 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE score: case-by-case
- 15 hours of undergraduate sociology with a grade of B or better, including one course in sociological theory and a basic statistics course

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents

To the Sociology Program: <http://sociology.missouri.edu/grad/admission-and-application-forms>

- GRE score report
- Departmental application
- 3 letters of recommendation
- Statement of research interests
- Copy of Graduate Studies application (needs to be printed out when done online)
- Copies of transcripts (it is helpful to have unofficial copies sent to the department)
- One page Application for Financial Support
- Research paper, master's thesis, senior thesis, or term paper

## PhD Plan of Study

The PhD program requires a minimum of 30 hours of course work including:

SOCIOL 8100	Theoretical Thinking in Sociology	3
and two additional seminars in sociological theory:		
SOCIOL 9187	Seminar in Sociological Theory I	3

SOCIOL 9487	Seminar in Sociological Theory II	3
SOCIOL 8120	The Logic of Social Research	3
SOCIOL 7120	Social Statistics (or its equivalent)	3
SOCIOL 8130	Advanced Social Statistics	3
and two seminars in sociological research methods:		
SOCIOL 7110	Feminist Research and Criticism	3
SOCIOL 8187	Seminar on Interview Theory and Technique	3
SOCIOL 9287	Seminar in Qualitative Methods in Sociology	3
SOCIOL 9288	Ethnographic Fieldwork	3
SOCIOL 9687	Topical Seminar in Historical Sociology	3
SOCIOL 9837	Seminar in Multivariate Analysis Techniques	3
plus six courses targeted to the student's specialty interests.		

## Exams and Research

All students are required to submit a research paper no later than their fourth semester of residence. Students with a Master's Thesis in sociology can fulfill this requirement as early as their first semester. At least eight months before the date on which they expect to complete the degree, candidates must pass a comprehensive examination centered on two of the five graduate program areas. Students must prepare and successfully defend a dissertation that makes an original contribution to the discipline.

## Statistics

Dongchu Sun, Chair  
 College of Arts and Science  
 146 Middlebush Hall  
 (573) 882-6376  
[www.stat.missouri.edu](http://www.stat.missouri.edu)  
[umcasstat@missouri.edu](mailto:umcasstat@missouri.edu)

Information is needed to solve the many problems of today's world. How much information? What kind? After it is obtained, what must be done with it? Statisticians are trained to help answer these questions. Early admission into the Statistics Department will allow students to plan their programs so that the math and statistics prerequisites can be taken in the most efficient sequence.

The department offers BA, BS, MA and PhD degrees with a major in Statistics. A minor is also available.

## Faculty

**Professor** Z. He\*\*, S. Holan\*\*, D. Sun\*\*, J. Sun\*\*, C. K. Wikle\*\*  
**Associate Professor** S. Chakraborty\*\*, S. Guha\*\*, A. Micheas\*\*, L. A. Thombs\*\*

**Assistant Professor** H. Cao\*, T. Ji\*, E. Schliep\*, X. Zhang\*

**Associate Teaching Professor** S. Lee\*, L. D. Ries\*

**Assistant Teaching Professor** J. Shows\*, I. Zaniletti\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Statistics (p. 296)

- BS in Statistics (p. 297)
- Minor in Statistics (p. 298)

## Credit for Beginning Courses

(Applies to all students and all majors)

- A student may not receive credit toward an undergraduate degree for more than one of STAT 1200, STAT 1300 and STAT 1400.
- A student may not receive credit toward an undergraduate degree for more than one of STAT 2500 and STAT 2530.
- Subject to the above restrictions, a student may receive a maximum of 4 credits toward an undergraduate degree for any combination of STAT 1200, STAT 1300, STAT 1400, STAT 2200, STAT 2500 and STAT 2530.
- A student may not receive credit toward an undergraduate degree for any statistics course numbered 2999 or below if a statistics course numbered 4000 or above was successfully completed prior to or concurrent with the course in question. Exceptions may be approved at the discretion of the department.

## Department Degree Requirements - Statistics

The Department of Statistics approves majors in statistics only for students who have met the following criteria:

- Completion of at least one statistics course at the 3000-level or above (or equivalent)
- Cumulative GPA of at least 2.50 overall
- Have earned a grade of C or higher in each statistics course completed

Students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. In addition, students must complete all degree, college and university graduation requirements (p. 32), including university general education (p. 33).

## Options

Students may pursue either a BA or a BS degree. For both degrees, students may pursue either a traditional track or an applied track. Students who are interested in graduate study in statistics are strongly encouraged to follow the traditional track.

## Departmental Honors

To be admitted to the undergraduate honors program in the Department of Statistics, a student must have completed at least 12 of the 21 credits of statistics courses required for the major, have a grade-point average of at least 3.25 in all completed statistics courses, and identify a faculty member from the department who agrees to supervise the student's honors research project.

In order to receive the departmental honors designation, students who have been accepted into the program must graduate with a grade-point average of at least 3.25 in statistics courses, prepare a senior thesis based on their honors project, and present the results of the thesis in a departmental colloquium or other public forum approved by their mentor. They also must earn a grade of "B" or better in 3 credits of STAT 4999.



## Graduate

- MA in Statistics (p. 298)
  - with emphasis in Biostatistics (p. 300)
  - with emphasis in Data Analytics (p. 300)
- PhD in Statistics (p. 300)
- Graduate Minor in Statistics (p. 301)

Kathleen Maurer, Coordinator of Graduate Studies  
 146 Middlebush  
 Columbia, MO 65211  
 (573) 882-6376  
<http://www.stat.missouri.edu/>

**Director of Graduate Studies:** Athanasios Micheas

## About Statistics

The statistics department faculty is known for both cutting edge methodological and collaborative research and for outstanding teaching. Faculty members are currently investigating statistical problems in the fields of ecology, genetics, economics, meteorology, wildlife management, epidemiology, AIDS research, geophysics, and climatology. The program’s faculty members have ongoing collaborative programs across disciplines such as biostatistics, bioinformatics, economics, atmospheric science, psychology and with the Missouri Department of Conservation.

The graduate program provides opportunities for graduate study and thesis direction in various areas of probability and statistics, both theoretical and applied. A variety of consulting and collaborative opportunities allow both faculty and graduate students to conduct cooperative and interdisciplinary research. Regular statistics colloquia provide opportunities for faculty and outside speakers to present the results of their research. Faculty and graduate students also participate in weekly seminar series in Bayesian statistics, bioinformatics, and biostatistics.

## Dual Master’s Degree in Economics and Statistics

The department offers a cooperative MA degree with the Economics Department. Students may obtain MA degrees in economics and statistics with 48 hours of course work numbered 7000 or higher from the University of Missouri instead of the 52 or more required for separate degrees. (These 48 hours may not include any of the following: ECONOM 7351, ECONOM 7353, or STAT 7510, STAT 7530, STAT 7710.) Eighteen or more hours are required from the Department of Economics. At least 15 hours must be numbered 8000 or higher with no more than four hours of 8090. Students must take the core economics courses ECONOM 8451 and ECONOM 8453 and research workshop ECONOM 8413 (2 credit hours). Eighteen or more hours are required from the Department of Statistics. At least 15 hours must be numbered 8000 or higher with no more than three hours of 8090. STAT 7750 and STAT 7760 and MATH 7140 are required if equivalent courses were not taken as an undergraduate.

All candidates must submit a thesis or written project demonstrating an independent effort towards producing original work satisfactory for each degree. The candidate may complete separate theses/projects for both economics and statistics or a single joint thesis/project satisfying both requirements.

## Career Opportunities

Statisticians are in demand in education, medicine, government, business and industry as well as in the biological, social and physical sciences.

## Facilities & Resources

The Department of Statistics maintains a state-of-the-art computer network with Linux workstations and servers for research and personal productivity software on PCs. Students have access to the network through PCs in student offices and through the statistics department computer laboratory. An extensive library of software including R, SAS, and common programming languages is maintained. Students also have access to the campus computing network. The statistics department is located in newly renovated space in Middlebush, with easy access to the main library’s outstanding collection of books and journals in statistics.

## Financial Aid from the Program

Fellowships and teaching and research assistantships are available to qualified graduate students. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in Statistics

### Degree Program Description

Statistics is a modern science concerned with making decisions and inferences from empirical data subject to random variability and error. It deals with designing experiments, sample surveys, summarizing numerical information, building and analyzing statistical models, prediction and choosing between alternate actions. Statistics can tell us how much safer it is to fly than drive, the odds of winning the lottery, our life expectancy and who is likely to win the next election. The BA in Statistics allows students to pursue either a traditional track or an applied track. Students who are interested in graduate study are strongly encouraged to follow the traditional track. All students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. Because of its importance as a scientific method, the demand for trained statisticians has grown in education, medicine, government, business and industry as well as in the biological, social and physical sciences. Students are trained to meet this demand and develop careers in teaching and research.

### Major Program Requirements

Students must complete the university general education requirements (p. 33) and the Department Degree Requirements (p. 295), in addition to the degree requirements below.

#### Mathematics courses

Traditional track		
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4140	Matrix Theory	3
Applied track		
MATH 1500	Analytic Geometry and Calculus I	5-6

or MATH 1300 & MATH 1400	Finite Mathematics and Calculus for Social and Life Sciences I	
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6 additional credits in statistics (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above and may not include STAT 4050 Connecting Statistics to Middle and Secondary Schools

#### Statistics Courses

##### Traditional Track

STAT 4970	Senior Seminar	3
STAT 4710	Introduction to Mathematical Statistics	3
or STAT 4750	Introduction to Probability Theory	
STAT 3500	Introduction to Probability and Statistics II	3
or STAT 4760	Statistical Inference	

12 additional credits offered by the department, at least 9 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

##### Applied Track

STAT 4970	Senior Seminar	3
STAT 4710	Introduction to Mathematical Statistics	3
or STAT 4760	Statistical Inference	
or STAT 3500	Introduction to Probability and Statistics II	

21 additional credits offered by the department, at least 18 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

#### Computing Courses

##### Both tracks

INFOTC 1040	Introduction to Problem Solving and Programming	3
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## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1160 <sup>+</sup>	5 MATH 1500	5
ENGLSH 1000 <sup>+</sup>	3 INFOTC 1040	3
Elective	3 Foreign Language II <sup>+</sup>	5
Foreign Language I <sup>+</sup>	5 American History or Government <sup>+</sup>	3
	16	16

Second Year		
Fall	CR Spring	CR
MATH 1700	5 MATH 2300	3
STAT 2500	3 STAT 3500	3
Foreign Language III <sup>+</sup>	3 Behav Science Elective <sup>+</sup>	3
WI Elective	3 Hum/Fine Arts Elective <sup>+</sup>	3
	Soc Science Elective <sup>+</sup>	3
	14	15

Third Year		
Fall	CR Spring	CR
MATH 4140	3 Behav Sci Elective <sup>+</sup>	3
Hum/Fine Arts Elective <sup>+</sup>	3 Hum/Fine Arts Elective <sup>+</sup>	3

Soc Science Elective <sup>+</sup>	3 STAT 4530	3
STAT 4510	3 STAT 4110	3
Elective	3 Elective	3
	15	15

#### Fourth Year

Fall	CR Spring	CR
STAT 4750	3 STAT 4760	3
Hum/Fine Arts elective	3 STAT 4970 <sup>+</sup>	3
Electives	9 Electives	8
	15	14

Total Credits: 120

\* Courses used as area in lieu of foreign language

+ Course meets University General Education and/or campus requirements

## BS in Statistics

### Degree Program Description

Statistics is a modern science concerned with making decisions and inferences from empirical data subject to random variability and error. It deals with designing experiments, sample surveys, summarizing numerical information, building and analyzing statistical models, prediction and choosing between alternate actions. Statistics can tell us how much safer it is to fly than drive, the odds of winning the lottery, our life expectancy and who is likely to win the next election. The BS in Statistics allows students to pursue either a traditional track or an applied track. Students who are interested in graduate study are strongly encouraged to follow the traditional track. All students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. Students pursuing the BS degree may elect to take an alternative to a foreign language. Because of its importance as a scientific method, the demand for trained statisticians has grown in education, medicine, government, business and industry as well as in the biological, social and physical sciences. Students are trained to meet this demand and develop careers in teaching and research.

### Major Program Requirements

Students must complete the university general education requirements (p. 33) and Department Degree Requirements (p. 295) in addition to the degree requirements below.

#### Mathematics courses

##### Traditional track

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4140	Matrix Theory	3

##### Applied track

MATH 1500	Analytic Geometry and Calculus I	5-6
or MATH 1300 & MATH 1400	Finite Mathematics and Calculus for Social and Life Sciences I	

6 additional credits in statistics courses (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above

**Statistics courses**
**Traditional Track**

STAT 4970	Senior Seminar	3
STAT 4710	Introduction to Mathematical Statistics	3
or STAT 4750	Introduction to Probability Theory	
STAT 3500	Introduction to Probability and Statistics II	3
or STAT 4760	Statistical Inference	

12 additional credits offered by the department, at least 9 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

**Applied Track**

STAT 4970	Senior Seminar	3
STAT 4710	Introduction to Mathematical Statistics	3
or STAT 4760	Statistical Inference	
or STAT 3500	Introduction to Probability and Statistics II	

21 additional credits offered by the department, at least 18 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

**Computing courses**
**Both tracks**

INFOTC 1040	Introduction to Problem Solving and Programming	3
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AND 3 additional credits in computer science or other approved computing courses (STAT 4110: Statistical Software and Data Analysis may be used as part of this requirement if it is not counted in statistics group above.)

**Professional writing courses**

ENGLSH 2030	Professional Writing	3
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## Foreign Language Option for Students Pursuing a BS Degree

Students pursuing the BS degree may elect to take an alternative to a foreign language. Such students must complete no fewer than 12 upper-class credits that are not from the parent department, are not normally required of departmental majors and do not appear elsewhere in the graduation plan. This program must be carefully planned to form a coherent unit and must be approved by the director of undergraduate studies.

The following are examples of foreign language alternatives:

- mathematical sciences
- biological sciences
- behavioral sciences
- physical sciences
- business
- engineering
- economics

## Semester Plan

First Year		
Fall	CR Spring	CR
MATH 1160 <sup>+</sup>	5 MATH 1500	5
ENGLSH 1000 <sup>+</sup>	3 INFOTC 1040	3
Hum/Fine Arts Elective <sup>+</sup>	3 Soc/Behav Science Elec <sup>+</sup>	3

American History of Government <sup>+</sup>	3 Bio/Phys Science lab <sup>+</sup>	5
Elective	3	
		17

**Second Year**

Fall	CR Spring	CR
MATH 1700	5 MATH 2300	3
STAT 2500	3 STAT 3500	3
ENGLSH 2030	3 Hum/Fine Arts Elective <sup>+</sup>	3
Hum/Fine Arts Elective <sup>+</sup>	3 WI Elective <sup>+</sup>	3
Elective	3 Elective	3
		17

**Third Year**

Fall	CR Spring	CR
MATH 4140	3 STAT 4530	3
STAT 4510	3 STAT 4110	3
Elective	6 Soc/Behav Science Elective <sup>*</sup>	3
Foreign Language Substitute <sup>*</sup>	3 Foreign Language Substitute <sup>*</sup>	3
		Elective
		3
		15

**Fourth Year**

Fall	CR Spring	CR
STAT 4750	3 STAT 4760	3
Electives	8 STAT 4970 <sup>+</sup>	3
Foreign Language Substitute <sup>*</sup>	3 Electives	4
		14

Total Credits: 119

\* Course used as area in lieu of foreign language

+ Course meets University General Education and/or campus requirements

## Minor in Statistics

A minor in statistics requires a minimum of 15 credits in statistics courses numbered 3000 or above. The courses used to complete the minor must be chosen in consultation with the director of undergraduate studies and must include at least one of the following:

STAT 3500	Introduction to Probability and Statistics II	3
STAT 4710	Introduction to Mathematical Statistics	3
STAT 4750	Introduction to Probability Theory	3

A maximum of 3 of the 15 credits may be in:

STAT 4002	Topics in Statistics-Biological/Physical/Mathematics	1-99
or STAT 4085	Problems in Statistics for Undergraduates	

## MA in Statistics

### Admission Criteria

Fall deadline for regular MA track: January 15

Fall deadline for applied MA track: March 30

Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
74	535

- Minimum GPA: 3.0 in math and statistics courses to enter master's program
- Bachelor's degree from accredited college or university in related area

Undergraduate courses in statistics are recommended but not required. Consideration also is given to rank in graduating class, trends in grade records, maturity and experience, and other criteria bearing on qualifications.

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not taken as an undergraduate may be taken for graduate credit as part of the graduate program.

## Required Application Materials

### To the Office of Graduate Studies:

- All required Graduate Studies documents

### To the Program:

- Departmental application
- 3 letters of recommendation (use departmental form)
- Letter of intent
- GRE score report

## Degree Completion Requirements

The general requirements for receiving a master's degree are at least 30 semester hours of course work at the 7000 level or higher, of which at least 18 hours must be from the Department of Statistics at MU. The 30 hours may not include credit hours of

STAT 7020	Statistical Methods in the Health Sciences	3
STAT 7050	Connecting Statistics to Middle and Secondary Schools	3
STAT 7510	Applied Statistical Models I	3
STAT 7530	Analysis of Variance	3
STAT 7710	Introduction to Mathematical Statistics	3
STAT 8090	Master's Thesis Research in Statistics (more than a total of six hours of)	1-99
STAT 8220	Applied Statistical Models II	3

At least 15 semester hours of course work at the 8000 level or above must be taken from the Department of Statistics at MU. The 15 semester hours cannot include more than a total of three hours of STAT 8090.

Additional courses recommended but not required are:

STAT 7110	Statistical Software and Data Analysis	3
STAT 7310	Sampling Techniques	3
STAT 7410	Biostatistics and Clinical Trials	3
STAT 7420	Applied Survival Analysis	3
STAT 7430	Applied Longitudinal Data Analysis	3
STAT 7450	Applied Statistical Methods for Bioinformatics	3
STAT 7610	Applied Spatial Statistics	3
STAT 7810	Nonparametric Methods	3
STAT 7830	Categorical Data Analysis	3

STAT 7850	Introduction to Stochastic Processes	3
STAT 7870	Time Series Analysis	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 8370	Statistical Consulting	3
STAT 8410	Statistical Theory of Bioinformatics	3
STAT 8640	Bayesian Analysis I	3
STAT 9250	Statistical Computation and Simulation	3
STAT 9310	Theory of Linear Models	3
STAT 9320	Advanced Linear Models	3
STAT 9410	Survival Analysis	3
MATH 7700	Advanced Calculus of One Real Variable I	3
CMP_SC 1050	Algorithm Design and Programming I	3
or CMP_SC 2050	Algorithm Design and Programming II	

## Remedial Courses

The following courses are required if equivalent courses were not taken as an undergraduate: MATH 7140, STAT 7750 and STAT 7760. These courses may not be used for more than six of the required 30 hours.

## Applied Track Masters of Arts Degree

### Required core courses

Students must complete the following six courses or equivalent.

STAT 7110	Statistical Software and Data Analysis	3
STAT 7540	Experimental Design	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3

In addition, students must take four elective courses, at least three of which must be selected from the department of statistics course offerings numbered 8000 or above.

## Examination

Students in the applied track must pass written and oral master's exams administered by a departmental committee.

## Regular Track Masters of Arts Degree

### Original Written Work

All candidates must submit a written report on an independent effort toward producing original work. This report may, with the advisor's consent, take the form of a thesis, a written review on a set of papers in statistics, or a written report on an independent study project, which may include an original application of statistics. For this work, a student must register for at least three semester hours of STAT 8090.

### Presenting the Work

All candidates are required to present an open seminar on the results of the written report. The report should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

## Examination

The MA examination covers material presented in the written report and the seminar and may also cover course work.

## Satisfactory Progress

### Length of Study

A master's candidate is expected to complete the master's degree within three calendar years beginning with the first semester of enrollment unless approval is obtained from the graduate faculty of the Department of Statistics.

### Grade Requirements

Any student, while a graduate student in this program, who receives a grade of C or lower in six or more hours of courses offered by the Department of Statistics or a grade of C or lower in nine or more hours of all courses taken will be dismissed from the graduate program unless contrary action is taken by the graduate faculty of the department.

For each credit hour over three hours with a grade of C or lower in courses offered by the Department of Statistics at the 7000 level and above, the student must receive a credit hour with a grade of A in courses offered by the department at the 7000 level and above.

## MA in Statistics with Emphasis in Biostatistics

Students who wish to specialize in biostatistics may obtain a degree with special emphasis. The general requirements are the same as those for the MA degree in statistics (p. 298). In addition, students must satisfy the following:

1. Take STAT 7410 and either STAT 7420, STAT 8410 or STAT 9410 or the equivalent;
2. Submit a project or thesis related to biostatistics.

## MA in Statistics with Emphasis in Data Analytics

### Prerequisites

Three semesters of calculus (or equivalent), one semester of linear algebra, and at least one post-calculus course in probability and statistics. At least one course in applied linear models is recommended.

### Degree Requirements

At least 30 hours of course work in the Department of Statistics; of these, at least 15 hours must be numbered 8000 or above.

#### Required Courses

STAT 7110	Statistical Software and Data Analysis	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 8330	Data Analysis III	3
STAT 8640	Bayesian Analysis I	3

#### Elective Courses

STAT 7580	Introduction to Statistical Methods for Customized Pricing	3
STAT 7830	Categorical Data Analysis	3
STAT 7870	Time Series Analysis	3

STAT 9250	Statistical Computation and Simulation	3
STAT 9530	Data Mining and Machine Learning Methods	3

## Master's Exam

All students must pass a written comprehensive exam on the core data analytics portion of the program: STAT 7750, STAT 7760, STAT 8310, STAT 8320. These exams will be administered at least twice per year and may be taken on campus or in testing centers in the United States or Internationally.

## PhD in Statistics

### Admission Criteria

Fall deadline: January 15

Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	535

- Minimum GPA: 3.5 in math and statistics to enter PhD program
- Master's degree from accredited college or university in related area

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not taken as an undergraduate may be taken for graduate credit as part of the graduate program.

### Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Studies documents

*To the Program:*

- Departmental application
- 3 letters of recommendation (use departmental form)
- Letter of intent
- GRE score report

### Qualifying Examination

All doctoral students must pass the qualifying exam, which is offered in August and January of each year. The exam consists of two parts, one covering STAT 7750 and STAT 7760 (Statistical Inference), and a second part covering STAT 8310 and STAT 8320. All doctoral students must take the exams at the first opportunity after taking the required courses, usually in August at the start of the second year. Students have two attempts to pass each part.

### Doctoral Committee

Within one semester of passing the qualifying examination, a student must choose a doctoral program committee in consultation with his or her advisor. This committee consists of at least five members, at least three of whom are members of the doctoral faculty in statistics and at least one from another MU doctoral program.

## Preliminary Examination

The preliminary exam is a written exam offered in August and January of each year. Before taking the exam, the student is required to have passed the qualifying exams and chosen his/her major professor.

The exam consists of two parts: Part one covering STAT 9710 and STAT 9720 and part two covering STAT 9310. Students have two attempts to pass each part. Students must take the preliminary exam at the earliest possible time after passing the qualifying exam and completing the courses required for the preliminary exam, normally the start of the third year of study.

## Required Course Work

Before taking the comprehensive examination, students should complete six courses taken at MU or at comparable institutions.

Select six of the following:

STAT 9100	Recent Developments in Statistics
STAT 9250	Statistical Computation and Simulation
STAT 9320	Advanced Linear Models
STAT 9370	Multivariate Analysis
STAT 9410	Survival Analysis
STAT 9510	Theory of Nonparametric Statistics
STAT 9530	Data Mining and Machine Learning Methods
STAT 9640	Bayesian Analysis II
STAT 9810	Advanced Probability
STAT 9820	Stochastic Processes

(Different 9100s can be counted more than once.) Other courses may be substituted at the discretion of the student's doctoral program committee.

## Comprehensive Examination

After successfully completing the preliminary exam and the required coursework, the student is eligible to take the comprehensive examination. This examination consists of a written and oral section as specified in the Graduate Studies catalog. This examination must be completed at least seven months prior to the final defense of the dissertation.

## Dissertation

A dissertation, prepared under the direction of a dissertation supervisor, is required. The dissertation should be presented in an open seminar as part of the final examination, which is to be conducted by the final examination committee. The dissertation should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

## Additional Requirements

Additional requirements for the PhD in statistics are determined by the student's program committee and the director of graduate studies.

## Graduate Minor in Statistics

### Master's Minor

To receive a designated minor in statistics for a master's degree, at least 12 credit hours of course work at the 7000 level or higher must be completed from the Department of Statistics at MU. The courses should

be unified in theme and must be approved by the Director of Graduate Studies of the Department of Statistics.

The courses must be completed with an average grade of B (3.0) or higher.

The courses may not include:

STAT 7002	Topics in Statistics-Biological/Physical/Mathematics
STAT 7070	Statistical Methods for Research
STAT 7085	Problems in Statistics for Non-majors
STAT 8085	Problems in Statistics for Majors - Masters
STAT 9085	Problems in Statistics for Majors - PhD

The courses may not include more than one course from:

STAT 7710	Introduction to Mathematical Statistics
STAT 7750	Introduction to Probability Theory

## PhD Minor

To receive a designated minor in statistics for a PhD degree, at least 15 credit hours of course work at the 7000 level or higher must be completed from the Department of Statistics at MU.

Courses may not include:

STAT 7002	Topics in Statistics-Biological/Physical/Mathematics
STAT 7020	Statistical Methods in the Health Sciences
STAT 7050	Connecting Statistics to Middle and Secondary Schools
STAT 7070	Statistical Methods for Research
STAT 7085	Problems in Statistics for Non-majors
STAT 7530	Analysis of Variance
STAT 8085	Problems in Statistics for Majors - Masters
STAT 8090	Master's Thesis Research in Statistics
STAT 9085	Problems in Statistics for Majors - PhD

Students must have at least one course in calculus-based statistics and the equivalent of at least two courses in an applied statistics sequence. The calculus-based statistics requirement can be met by STAT 7710 or STAT 7760 or above, but no more than 6 hours of STAT 7710, STAT 7750, and STAT 7760 can be counted towards the 15 hours. The applied sequence requirement can be satisfied by either STAT 7510/STAT 8220 or STAT 8310/STAT 8320. At most one course from STAT 7510 and STAT 8310 can be counted and at most one course from STAT 8220 and STAT 8320 can be counted towards the 15 hours.

The plan of study must be approved by the Director of Graduate Studies of the Statistics Department and be completed with an average grade of B (3.0) or higher. Each student is encouraged to seek approval of his/her plan of study as soon as possible.

## Theatre

Dr. Heather Carver, Chair  
 College of Arts and Science  
 Rhynsburger Theatre  
 129 Fine Arts Center  
 (573) 882-2021  
<http://theatre.missouri.edu>

The Department of Theatre offers students an appreciation of theatre as a fine art, sharpens the talents of those who seek careers in theatre and

provides students with methods of stimulating and using their imagination and intensifying their communication skills.

The department offers BA, MA and PhD degrees with a major in Theatre. A minor is also available.

## Faculty

**Professor** C. Black\*\*, S. Burgoyne\*, H. Carver\*, D. A. Crespy\*\*,

**Associate Professor** K. Brown\*\*

**Assistant Professor** B. Carlson\*, C. Syler\*\*

**Assistant Teaching Professor** J. A. Drtina, C. Gleason\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Theatre (p. 303)
  - with emphasis in Design/Technical (p. 303)
  - with emphasis in Performance (p. 304)
  - with emphasis in Writing for Performance (p. 304)
- Minor in Theatre (p. 305)

## Departmental Honors

To graduate with honors in theatre, a student must earn a minimum overall MU GPA of 3.3 and earn a minimum GPA of 3.5 in courses in theatre completed at the University of Missouri.

## Double Majors

Many students in theatre choose either a double major or a minor in another area. In either case, the student must see a theatre advisor for approval.

## Graduate

- MA in Theatre (p. 305)
- PhD in Theatre (p. 307)

Theatre Graduate Programs  
College of Arts and Science  
129 Fine Arts Center  
(573) 882-2021  
<http://theatre.missouri.edu/>

**Director of Graduate Studies:** Cheryl Black

## About the Department of Theatre

The MU Department of Theatre has a distinguished history that began shortly after 1900 when a small group of aspiring thespians resolved to enhance the cultural life of the campus by producing plays in an abandoned dining room in Lathrop Hall. In 1925, Professor Donovan Rhynsburger joined the MU faculty and established the Missouri Workshop Theatre. For over 85 years, the department has sustained a national and international reputation as a major center for theatre and performance scholarship and dramatic art production. In 2007 "Academic Analytics" ranked MU Department of Theatre #4 nationally for scholarly productivity in Theatre Literature, History, and Criticism (reported in

Chronicle of Higher Education, November 11, 2007). MU Theatre offers graduate and undergraduate programs.

A professional faculty comprises internationally recognized scholars and artists who develop the talents, skills and knowledge of students by teaching them to combine scholarship with artistry. MU has consistently produced fine theatre and notable alumni, including Tennessee Williams, George C. Scott, Tom Berenger, Chris Cooper, Jon Hamm, Ethel Pitts Walker, and Barbara Molette. MU students have won the prestigious David Library Award seven times, several nationally coveted awards like the Mark Twain Comedy Prize, and departmental productions have been cited for national awards by the Kennedy Center American College Theater Festival, the National Communication Association, and the Association of Theatre in Higher Education. Graduate students in the department have won numerous campus, professional and national awards, fellowships and research grants for their scholarship and artistry. The department is proud of its legacy of artistic excellence and the enrichment it brings to the cultural life of the campus and community.

## Facilities

Rhynsburger Theatre. Named after Donovan Rhynsburger, MU's principal theatre for dramatic productions is in the Fine Arts Building, which also houses the music and art departments. The 278-seat proscenium theatre has a large stage and fly system with well-equipped costume and scenic shops located adjacent to the stage. The theatre houses faculty offices, classrooms, shops, dressing rooms and other production support spaces. Students interested in lighting and sound production will find a variety of equipment and modern control systems on which to learn their craft. We're also thrilled to announce the addition of a new, state-of-the-art professional computer graphics lab in 2012.

Corner Playhouse. The Corner Playhouse provides an opportunity for students and faculty to present smaller, often more experimental productions in a flexible space. Seating up to 125, the theatre is designed to accommodate any stage configuration. Across the street from the Rhynsburger Theatre, the Corner Playhouse also houses dressing rooms, graduate student offices and classrooms.

## Satisfactory Progress: General Guidelines for MA and PhD in Theatre

### Probationary Status

The following constitute grounds for placing a student on departmental probation:

Earning a grade of C or below in any departmental course taken for graduate credit will result in probationary status. A grade of incomplete in any course will result in probationary status for the subsequent semester. Incomplete grades must be changed to a grade of A or B by the end of the probationary semester (dissertation research incompletes are evaluated as S/U until the dissertation is defended). Failure to comply in a satisfactory manner with all responsibilities related to graduate assistantships. Graduate students in our department are expected to conduct themselves in a manner reflecting the university's commitment to professional integrity, collegiality, and good citizenship. Students who consistently fail to conduct themselves in this manner may be subject to probation or dismissal. In the case of each student on departmental probation, the director of graduate studies will confer with the advisor (in the case of an MA student), or the members of the program committee (in the case of a PhD student) to determine the grounds for removal of probation, and will communicate this decision to the student.

## Annual Review

Each Fall semester the director of graduate studies convenes the Graduate Studies Committee to review the progress and performance of all graduate students.

Each graduate student in residence should meet with his or her advisor within the first two weeks of each semester to determine whether satisfactory progress has been maintained, and the advisor shall report the results of this meeting to the director of graduate studies.

## Losing & Regaining Financial Support

Termination of departmental financial support will result if the student is considered to be making unsatisfactory progress and the student's program may be terminated. Departmental financial support may be restored when the student has made satisfactory progress toward a graduate degree for one semester, has made an A or a B in all incomplete courses, and is judged to be off probation by the director of graduate studies.

## BA in Theatre

### Degree Program Description

The study of Theatre focuses upon the produced play, past, present, and future. The BA in Theatre offers students an appreciation of theatre as a fine art, sharpens the talents of those who seek careers in theatre and provides students with methods of stimulating and using their imagination and intensifying their communication skills. Students must choose from one of three emphasis areas: Design/Technical, Performance, and Writing for Performance. The curriculum includes: examining the heritage of theatre through dramatic literature and theatre history, exercises in theatrical skills, artistic training in design and performance, and theory and criticism of theatre. The Rhynsburger Theatre, the Corner Playhouse, and outreach programs serve as laboratories for ongoing examination of theatre in society, responsive to social issues. Working with faculty and staff of professionally trained actors, directors, and designers, students focus on performance, writing for performance, and theatre design and technology. MU undergraduate theatre students have taken their work to the Kennedy Center American College Theatre Festival, winning awards in acting, playwriting, design, and dramaturgy. After graduation, many of our students find work in film, television, and the professional theatre as actors, directors, designers, stage managers, artists, and technicians, or go on to graduate school to further their theatre education.

### Major Program Requirements

The major in Theatre consists of core courses and an emphasis area. In addition, all students must complete all College of Arts and Sciences and University graduation requirements, including University General Education (p. 33). All courses used to satisfy requirements for the major must be completed with a grade of C or higher.

Major core requirements		15
THEATR 1320	Beginning Scenic Construction	3
or THEATR 1340	Beginning Costume Construction	
THEATR 2300	Production Workshop I	1
THEATR 2710	Introduction to Theatre History	3
THEATR 2800	Principles of Script Analysis	3
THEATR 3300	Production Workshop II	1

THEATR 4990	Capstone in Theatre	1
<b>Select 3 hours from:</b>		
THEATR 1720	African-American Theatre History	3
THEATR 3700	World Dramatic Literature	3
THEATR 3750	New American Theatre	3
THEATR 3770	The Theatre Experience: From Page to Stage and Screen	3
THEATR 4700	Studies in Theatre History	3
THEATR 4720	American Musicals	3
THEATR 4800	Studies in Dramatic Theory	3
THEATR 4820	Studies in Dramatic Literature	3
THEATR 4830	Studies in Dramatic Criticism	3

## Emphasis Areas

Theatre students must also complete an emphasis area in Performance (p. 304), Design/Technical (p. 303) or Writing for Performance (p. 304).

## Semester Plan

Refer to the semester plan for the Performance emphasis (p. 304), or contact the academic departments for assistance with academic planning.

## BA in Theatre with Emphasis in Design/Technical

### Degree Program Description

Students in the BA in Theatre with emphasis in Design/Technical study scene design, lighting design, costume design, sound design, theatre technology, and stage management. They further their studies with additional classes in beginning and advanced scenic and costume construction, makeup, stagecraft, costume crafts, pattern making, scene painting, and theatre architecture. Theatre design students sketch design ideas with pencil and paper, and render those design ideas in 3-D in our computer labs, combine traditional stagecraft techniques with state of the art computer technology, digital image projection, and digital sound mixing. Students participate behind the scenes in a variety of productions -- from main stage faculty-directed musicals and plays, to student-directed shows, ensembles and workshops, take on major roles in our production program as scenic designers, lighting designers, costume designers, sound designers, projection designers, and makeup designers, work as stage managers, carpenters, electricians, riggers, stitchers, cutters, drapers, wardrobe supervisors, props supervisors, lighting and sound board operators, followspot operators, stagehands, and crew members. Graduates work in all areas of the entertainment industry as designers, technicians, directors, teachers, Broadway producers and stage managers, theatre managers, casting agents, box office managers, and scenic artists. We have a strong network of alumni who support one another as they design and build scenery, props, and costumes, mix sound, renovate historic theatres, and work professionally backstage, behind the scenes, and behind the camera in theatre, film, and television in New York, Chicago, Los Angeles, and across the country.

### Major Program Requirements

Design/technical classes chosen from		16
THEATR 1360	Stage Makeup	1



THEATR 2330	Stage Management	3
THEATR 2360	Stagecraft	3
THEATR 2510	Introduction to Theatre Design	3
THEATR 3310	Costume Crafts	3
THEATR 3320	Theatrical Patternmaking	3
THEATR 3330	Advanced Costume Construction	3
THEATR 3340	Scene Painting	2
THEATR 3530	Computer Graphics in Theatre Design	3
THEATR 3540	Advanced Stage Makeup	2
THEATR 3550	Sound Design	3
THEATR 3560	Scene Design	3
THEATR 4530	Stage Lighting Design	3
THEATR 4570	Theatrical Costume Design	3
Performance classes		3

## Semester Plan

See the Performance (p. 304) emphasis for a sample semester plan.

# BA in Theatre with Emphasis in Performance

## Degree Program Description

Students in the BA in Theatre with emphasis in Performance are offered a curriculum that includes a sequence of acting and performance classes, emphasizing scene study in comedy and drama, contemporary and period styles, stage movement, vocal performance, and musical theatre performance. But it's more than just acting, singing, and dancing – our performance students take introductory and advanced classes in theatre history, script analysis, directing, stage combat, improvisation, American musicals, stage makeup, storytelling, folklore, performance art, performance of literature, and theatre of the oppressed. Students have the opportunity to put into practice what they learn in the classroom by performing in a variety of productions -- from main stage faculty-directed musicals and plays, to student-directed shows, ensembles and workshops. College credit can be earned during the academic year for performing in MU Theatre productions, as well as those of the World Theatre Workshop, the MU Center for Applied Theatre and Drama Research, the Missouri Playwrights Workshop, the Larry Clark Actor's Workshop, and the Troubling Violence Performance Project, and during the summer as a member of our our professional Summer Repertory Theatre company. MU Theatre alumni are involved in theatre, film, and television in New York, Chicago, Los Angeles, and across the country. They are actors, singers, dancers, directors, stage managers, musicians, storytellers, and teachers, who share their love of theatre and the performing arts by entertaining and enlightening audiences everywhere.

## Major Program Requirements

THEATR 4570	Theatrical Costume Design	3
Performance classes chosen from		14
THEATR 1250	World Theatre Workshop	2
THEATR 1360	Stage Makeup	1
THEATR 1420	Stage Movement for the Actor	2
THEATR 2200	Introduction to Performance Studies	3
THEATR 2410	Performance Workshop	1
THEATR 3200	Performance of Literature	3

THEATR 3230	Vocal Performance Technique	3
THEATR 3420	Acting I	3
THEATR 3430	Acting II	3
THEATR 3600	Theatrical Directing	3
THEATR 4220	Acting III	3
THEATR 4240	Theory and Practice of Theatre of the Oppressed	3
THEATR 4460	Musical Theatre Performance	3
THEATR 4600	Advanced Directing	3
Design / technical classes		2-3

## Semester Plan

See also Technical Theatre and Writing for Performance emphasis areas.

First Year		
Fall	CR Spring	CR
ENGLISH 1000	3 MATH 1100	3
Behavioral Science	3 Am. Government or History	3
Foreign Language I	5 Foreign Language II	5
THEATR 1320 or 1340	3 THEATR 2800	3
THEATR 2710	3	
		17
		14

Second Year		
Fall	CR Spring	CR
Humanities*	3 Foreign Language III	3
Biological/Physical/Math Science <sup>+</sup>	3 Biological/Physical/Math Science	4-5
Social Science	3 General Elective	3
THEATR 2300	1 Theatre Performance Electives	6
Theatre Design/Tech Elective	3	
		13
		16-17

Third Year		
Fall	CR Spring	CR
Humanities	6 Social Science <sup>++</sup>	3
Behavioral Science <sup>++</sup>	3 General Electives	6
Theatre Performance Electives	6 THEATR 3300	1
THEATR 4570	3 Electives	3
		18
		13

Fourth Year		
Fall	CR Spring	CR
Biological/Physical/Math Science	3 Humanities <sup>++</sup>	3
Theatre Performance Elective	6 THEATR 3700	3
THEATR 4990	1 Upper Division WI Course	3
General Electives	9 3000+-level Elective	3
		19
		12

Total Credits: 122-123

\* Writing Intensive

+ Math Reasoning Proficiency

++ Course numbered 2000 or above

# BA in Theatre with Emphasis in Writing for Performance

## Degree Program Description

Student in the BA in Theatre with emphasis in Writing for Performance are offered a curriculum that includes a sequence of creative writing and literature classes, emphasizing the art and craft of writing as it applies to theatre and performance. MU student playwrights tell their stories through the words and actions of the characters they create. Students take a series of introductory and advanced classes in playwriting, acting, directing, dramaturgy, theatre history, script analysis, performance studies, world dramatic literature, adaptation of literature for stage and film, and screenwriting for film and television. They study dramatic structure, plot and story structure, complex character development, and special playwriting problems and techniques. Students participate in our annual Life and Literature Performance Series which is a celebration of original student plays, stories, poetry, and adaptations of literature, devised theatre, ethnography, performance art, music, and dance. Student playwrights have their new plays performed every week at our Missouri Playwrights Workshop, presented as concert readings during our annual Mizzou New Play Series and summer Comedies-in-Concert Series, and fully produced during our Academic Season as MU Theatre mainstage productions. Students are regularly invited to share their ten-minute plays, one-act plays, and full-length plays at local, regional, and national theatre events, including the annual Kennedy Center American College Theatre Festival. Graduates are involved in theatre, film, and television productions in New York, Chicago, Los Angeles, and across the country. They are playwrights, screenwriters, dramaturgs, editors, storytellers, and teachers, who share their imagery, creativity, and theatrical imagination with audiences everywhere.

## Major Program Requirements

THEATR 2510	Introduction to Theatre Design	3
THEATR 2920	Beginning Playwriting	3
THEATR 3200	Performance of Literature	3
THEATR 3920	Intermediate Playwriting	3
Two courses chosen from		6
THEATR 3600	Theatrical Directing	3
THEATR 3700	World Dramatic Literature	3
THEATR 3930	Screenwriting for Television and Film	3
THEATR 4920	Advanced Playwriting: Problems	3
THEATR 4220	Acting III	3
THEATR 4460	Musical Theatre Performance	3
THEATR 4600	Advanced Directing	3
THEATR 4930	Adaptation of Literature for the Stage	3
THEATR 4935	Adaptation of Literature for Film	3

## Semester Plan

See the Performance (p. 304) emphasis for a sample semester plan.

## Minor in Theatre

A minor in theatre consists of two core courses and 12 additional credits in theatre.

<b>Two Core Courses</b>		<b>6</b>
THEATR 1320	Beginning Scenic Construction	3
or THEATR 1340	Beginning Costume Construction	
THEATR 2800	Principles of Script Analysis	3
<b>Additional Theatre credits (at least 6 must be 3000 or above)</b>		<b>12</b>

## MA in Theatre

Graduate Contact/Event Assistant Sr  
 Jabarbara Jennings (jenningsjaba@missouri.edu)  
 129 Fine Arts Building; Columbia, MO 65211  
 (573) 882-2021  
<http://theatre.missouri.edu/gradprogram/index.html>

Director of Graduate Studies  
 Dr. Cheryl Black  
 129 Fine Arts Building; Columbia, MO 65211  
 (573) 882-0530  
[blackc@missouri.edu](mailto:blackc@missouri.edu)

### Admission Criteria

<http://theatre.missouri.edu/gradprogram/index.html>

Deadline: January 15 for the following fall semester admission. We only admit once a year, barring extraordinary circumstances.

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
112	650

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	600	500	4.0
On or After August 1, 2011	160	146	4.0

- Minimum GPA: 3.0 in the last 60 hours

Probationary admission is possible. The director of graduate studies will advise the student in writing of what must be done to change the probationary admission to regular admission.

## Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Studies documents

*To the Theater Program:*

- 3 letters of recommendation
- GRE score report
- Statement of purpose
- Scholarly writing sample

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Curriculum Requirements

The degree of Master of Arts in Theatre will be awarded upon completion of the curriculum outlined below with a GPA of 3.0 or better.

## Completed Undergraduate Curriculum

Most students have completed this course of study before seeking admission to MU. However, applicants holding undergraduate degrees in disciplines other than theatre will be asked to complete those courses, which were not part of their undergraduate curriculum. In some cases professional theatre experience may substitute for certain courses. Twelve courses in the undergraduate curriculum should be distributed as follows:

Basic skills: at least one course in each of the following: voice and articulation, movement for the stage, script analysis, technical theatre; At least one upper-division course in each of the following: acting, directing, dramatic literature, theatre history; at least two upper-division courses in technical theatre; and two upper-division theatre electives.

## Graduate Curriculum

The student must complete at least 24 graduate hours while in residence as a graduate student at MU. The academic program should be established in consultation with an advisor not later than the end of the first full semester of residence. No more than six semester hours of graduate work may be transferred from another university. The student submits Form M-1, Application for Degree of Master of Arts to the Graduate Studies listing the courses to be taken to complete the graduate curriculum.

## Independent Project

Each candidate for the MA must complete an independent project, which should be specified on the M-1 form as part of the plan of study.

There are three options:

1. This may be a thesis, for which up to six semester hours of credit in Theatre Research may be earned.
2. Another option is to write an original performance/play, translate a play/performance, or complete a project in acting, design, adaptation/devising, dramaturgy, solo performance or directing. Credit of up to three semester hours may be earned in a graduate problems course.
3. A student may create and successfully execute a research project to earn three semester hours in a graduate course in independent research.

## Satisfactory Progress: General Guidelines for MA in Theatre

### Probationary Status

The following constitute grounds for placing a student on departmental probation:

Earning a grade of C or below in any departmental course taken for graduate credit will result in probationary status. A grade of incomplete in any course will result in probationary status for the subsequent semester. Incomplete grades must be changed to a grade of A or B by the end of the probationary semester (dissertation research incompletes are evaluated as S/U until the dissertation is defended). Failure to comply in a satisfactory manner with all responsibilities related to graduate assistantships. Graduate students in our department are expected to conduct themselves in a manner reflecting the university's commitment to professional integrity, collegiality, and good citizenship. Students who consistently fail to conduct themselves in this manner may be subject to probation or dismissal. In the case of each student on departmental

probation, the director of graduate studies will confer with the advisor (in the case of an MA student), or the members of the program committee (in the case of a PhD student) to determine the grounds for removal of probation, and will communicate this decision to the student.

## Annual Review

Each Fall semester the director of graduate studies convenes the Graduate Studies Committee to review the progress and performance of all graduate students.

Each graduate student in residence should meet with his or her advisor within the first two weeks of each semester to determine whether satisfactory progress has been maintained, and the advisor shall report the results of this meeting to the director of graduate studies.

## Losing & Regaining Financial Support

Termination of departmental financial support will result if the student is considered to be making unsatisfactory progress and the student's program may be terminated. Departmental financial support may be restored when the student has made satisfactory progress toward a graduate degree for one semester, has made an A or a B in all incomplete courses, and is judged to be off probation by the director of graduate studies.

## Master's Final Examination

Master's degree students who have been maintaining satisfactory progress toward a degree for a period of 24 months are expected, barring unusual and extenuating circumstances, to be prepared to write the master's final examination.

Each candidate for the MA is required to pass a final examination to demonstrate mastery of the fundamental principles of the work included in the course of study. An examining board consisting of at least three members of the faculty shall administer the examination.

In consultation with his or her advisor the student selects four areas for examination from among those listed below:

At least two but no more than three areas may be selected from among:

Theatre History and Historiography  
Dramatic Literature and Criticism  
Dramatic and Performance Theory  
Performance Studies and Writing for Performance

At least one but no more than two areas must be selected from among:

History, Theory or Pedagogy of Acting or Directing  
History, Theory or Pedagogy of Dramaturgy  
History, Theory or Pedagogy of Theatrical Design  
History, Theory or Pedagogy of Performance Studies  
History, Theory or Pedagogy of Playwriting/Writing for Performance

## Length of Exam

Two hours are allotted for answering the question(s) for each area, making a total of eight hours for the examination.

## Notifying the Graduate School of Results

As soon as the performance on the Master's Final Examination has been evaluated, the student's advisor informs the Graduate School, using the appropriate M-form.

If one area examination is unsatisfactory, the examining board will give the student an oral examination on that area, with special emphasis on the questions or questions missed. If two area examinations are unsatisfactory, the student is failed.

## PhD in Theatre

### Admission Contact Information

Graduate Contact/Event Assistant Sr  
 Jabarbara Jennings (jenningsjaba@missouri.edu)  
 129 Fine Arts Building; Columbia, MO 65211  
 (573) 882-2021  
<http://theatre.missouri.edu/gradprogram/index.html>

Director of Graduate Studies  
 Dr. Cheryl Black  
 129 Fine Arts Building; Columbia, MO 65211  
 (573) 882-0530  
 blackc@missouri.edu

### Admission Criteria

Deadline: January 15. We only admit once a year, barring extraordinary circumstances.

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
112	650

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	600	550	5.0
On or After August 1, 2011	160	146	4.0

- Minimum GPA: 3.0 in the last 60 hours
- GPA of 3.5 or better in master's program

### Required Application Materials

To the Office of Graduate Studies:

All required Graduate Studies documents

To the Program:

- 3 letters of recommendation
- GRE score report
- Statement of purpose
- Scholarly writing sample
- Professional résumé or portfolio
- Creative (dramatic) writing samples

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Careers

The doctorate in theatre at MU aims to provide knowledge and research skills necessary to launch the successful student on a career of scholarly and artistic investigation of theatre history, performance theory and criticism, performance studies, playwriting and other modes of writing for performance (such as adaptation and translation), dramaturgy, performance and theatre pedagogy.

### Qualifying Examination

During the first semester of residence, the student completes a qualifying examination. The Graduate Affairs Committee of the Department of Theatre meets with the student to discuss the student's academic background, career goals and research interests for an oral review and discussion of their proposed course of study. The advisor submits the D-1 form, Qualifying Process/Confirmation of Advisor, reporting on the departmental qualifying process.

### Advisory Committee: Form D-1

Doctoral Program Committee asks the graduate dean to approve a committee of four graduate faculty members to help the student plan and carry out a program. One member of the Doctoral Program Committee must come from outside the Department of Theatre.

### Program Planning

As early as is practical, usually in the student's second semester on campus, the student should meet with the Doctoral Program Committee to plan a doctoral program. The student should prepare a trial plan in consultation with the faculty advisor who serves as chair of the Doctoral Program Committee and reports the approved plan of study to the graduate dean on Form D-2: Doctoral Plan of Study.

### Theatre Department Course Work

Although the Graduate School requires no specific number of hours of class work, the Department of Theatre typically requires students entering the program with a master's degree to complete about 40 semester hours of graduate level course work in the theatre department, including three semester hours of Dissertation Research, devoted to writing a dissertation prospectus. For more specific information regarding required coursework, see <http://theatre.missouri.edu/gradprogram/index.html>.

### Doctoral Minor

The department also requires the student to complete a doctoral minor, a nine-semester-hour unified area of study outside the Department of Theatre.

### Research Tool Options

The PhD in Theatre also includes a research tool requirement that may be satisfied in several ways:

1. Option One: Present evidence of translation ability in each of two foreign languages in one of the following ways: by receiving an acceptable score on a GFSLT Humanities examination if the language is French, German or Spanish (Acceptable scores at this time are: French 570, German 560 and Spanish 540) by receiving certification of competence from a qualified examiner if other languages are presented by showing on one's transcript a grade of B or better on a literature course at MU. (This course must require reading of works in the foreign language. The course may be taken

during the doctoral program or within the five years prior to beginning the program.)

2. Option Two: Demonstrate a high degree of fluency in one foreign language by individual examination conducted by the appropriate language department at MU.
3. Option Three: Choose one language and one block of courses. Demonstrate translation ability for one language as in Option One. Complete with grades of B or better six semester hours in graduate courses taken outside of the department that represent a coherent unit of study, providing a research tool applicable to the candidate's dissertation research.
4. Option Four: Choose two blocks of courses. Complete with grades of B or better two blocks of course work of six hours each in graduate level courses taken outside of the department that must represent to the candidate's advisory committee a coherent unit of study. One or both blocks should provide a research tool for the candidate's dissertation.

## Participation in Productions

The doctoral student is encouraged to participate in University Theatre and studio theatre productions and may, in some cases, be required to do so. Academic credit is available.

## Satisfactory Progress Guidelines for the PhD in Theatre

### Probationary Status

The following constitute grounds for placing a student on departmental probation:

- Earning a grade of C or below in any departmental course taken for graduate credit will result in probationary status.
- A grade of incomplete in any course will result in probationary status for the subsequent semester. Incomplete grades must be changed to a grade of A or B by the end of the probationary semester (dissertation research incompletes are evaluated as S/U until the dissertation is defended).
- Failure to comply in a satisfactory manner with all responsibilities related to graduate assistantships. Graduate students in our department are expected to conduct themselves in a manner reflecting the university's commitment to professional integrity, collegiality, and good citizenship.
- Students who consistently fail to conduct themselves in this manner may be subject to probation or dismissal. In the case of each student on departmental probation, the director of graduate studies will confer with the advisor (in the case of an MA student), or the members of the program committee (in the case of a PhD student) to determine the grounds for removal of probation, and will communicate this decision to the student.

### Annual Review

Each Fall semester the director of graduate studies convenes the Graduate Studies Committee to review the progress and performance of all graduate students.

Each graduate student in residence should meet with his or her advisor within the first two weeks of each semester to determine whether satisfactory progress has been maintained, and the advisor shall report the results of this meeting to the director of graduate studies.

## Losing & Regaining Financial Support

Termination of departmental financial support will result if the student is considered to be making unsatisfactory progress and the student's program may be terminated. Departmental financial support may be restored when the student has made satisfactory progress toward a graduate degree for one semester, has made an A or a B in all incomplete courses, and is judged to be off probation by the director of graduate studies.

## Satisfactory Progress Before the Comprehensive Exam

Each semester prior to the semester in which comprehensive examinations are taken, satisfactory progress is maintained when a student completes nine semester hours of graduate level work with a grade of B or above. Incomplete grades are given only under extraordinary circumstances and with the approval of the graduate faculty. Doctoral students who have been maintaining satisfactory progress toward a degree for a period of 36 months are expected, barring unusual and extenuating circumstances, to be prepared to write comprehensive examinations.

## Satisfactory Progress During and After Comps

For the semester in which comprehensive examinations are taken and in semesters after comprehensive exams and orals are passed, satisfactory progress is maintained when, in the judgment of the student's dissertation advisor, the student is making satisfactory progress toward completion of the dissertation.

Students who leave MU having completed all but the dissertation must maintain continuous enrollment by registering for two semester hours of Dissertation Research each fall and spring term and one hour in the summer term. Failure to register negates a student's candidacy.

## Graduate Studies Regulations on Satisfactory Progress

The Graduate Studies regulations regarding a reasonable rate of progress for doctoral students enrolled during or after Fall 2000: Effective for students beginning their doctoral studies during or after Fall Semester 2000, a PhD student must successfully complete the comprehensive exam within a period of five years beginning with the first semester of enrollment as a PhD student. For an extension of this time limit, the student must petition the Office of Graduate Studies by submitting a request to the advisor, who, in turn, submits, via the departmental director of graduate studies, a written recommendation to the Office of Graduate Studies. The Theatre Department recommends taking comprehensive exams no later than the third year of consecutive full enrollment. Only students who have taken and passed their exams by May of their third year of assistantship will be considered for a fourth year of assistantship with the department.

All requests for extensions should be endorsed by the departmental director of graduate studies and should be accompanied by a description of the process whereby currency in the discipline is certified, if required by the department.

## Dissertation Proposal/Prospectus

Before comprehensive exams may be scheduled, students will be required to complete a 5-page Dissertation Proposal, concisely but clearly

expressing the purpose, justification, method and general organizational plan for the dissertation. A bibliography is also required (bibliography is not included in 5 pp. minimum). The theatre department faculty members on student's doctoral committee must approve this proposal. After successful completion of comprehensive exams, the student will expand the dissertation proposal into a Dissertation Prospectus — a more detailed and thorough description of the dissertation project. The prospectus should provide a clear statement of the purpose of the dissertation, describe the need for the knowledge the dissertation report will supply, outline the research questions and demonstrate the procedures by which the scholar will answer these questions. The candidate will present the prospectus to the Doctoral Program Committee and will be prepared to defend it.

## Comprehensive Examination

After completing the research tool option, a substantial amount of the course work and after obtaining the approval of the 5-page proposal from the Doctoral Program Committee, the student takes the comprehensive examination. The comprehensive examination provides an opportunity for the student to demonstrate a thorough grasp of the history and principles of theatre. The examination provides the Doctoral Program Committee with a window looking back upon the student's training as well as a chance to estimate the student's potential as a problem solving scholar of theatre. Readers of the examination look for more than a reiteration of the content of standard sources of information about dramatic art. The examinee should demonstrate an ability to analyze problems and data, to formulate theses or points of view, and to locate, evaluate and organize evidence to support a contention—the essential skills of scholarship. The comprehensive examination in theatre allows candidates not only to tell what they know but also to demonstrate what they can do with information. Comprehensive exams are scheduled once each semester, during the first third of the current semester.

## Stages of the Comprehensive Exam

The examination is given in two stages.

- Stage One consists of a written examination, over the history of theatre, dramatic theory, criticism, writing for performance, performance studies, and theatre pedagogy, and an additional (written) examination consisting of one or two questions posed by the outside member of the Doctoral Program Committee. The examination is evaluated by the student's Doctoral Program Committee, which decides whether or not the student should be advanced to the oral examination.
- Stage Two is the oral examination administered by the Doctoral Program Committee. This examination provides an opportunity for the student to correct, amend, or defend assertions made in the written examination, although the oral examination is not bound by any limits established by the written examination. Ordinarily of two hours duration, the oral is also an opportunity for the student to demonstrate skill in oral explanation and argument.

## Criteria for Passage of the Comprehensive Exam

The result of the comprehensive examination shall be marked pass if all of the Doctoral Program Committee members recommend a pass on the entire examination, both written and oral sections. Should the examination be marked fail, the committee may recommend that the candidate retake the examination after a minimum period of 12 weeks. A report of the committee's decision (Form D-3), carrying the signatures of

all members of the committee, is sent to the Graduate School and to the student no later than two weeks after the comprehensive examination is terminated.

If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student's work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination. If at any time the student believes that the advice given by the committee is inadequate, the student may send a written request for clarification to the committee. A copy of this request should be sent to the Graduate School. The committee must respond to this request in writing within two weeks with a copy to the Graduate School. Failure to pass two comprehensive examinations automatically prevents candidacy for the doctorate in theatre at MU.

## Completing the Dissertation

The final step is completion and approval of the doctoral dissertation. The director of graduate studies can provide the student a copy of Guidelines for Preparing Theses and Dissertations.

## Formatting

Dissertations in the Department of Theatre should be formatted according to the latest edition of *A Manual for Writers of Term Papers, Theses, and Dissertations*, ed. Kate L. Turabian or the *MLA Handbook*; the chosen format must meet with the dissertation advisor's approval.

## Graduate School Paperwork

Form D-4, Report of the Doctoral Dissertation Defense, indicates that the student has defended the dissertation at an oral examination.

## Advisory and Committee Approval of the Dissertation

No draft of the dissertation can be considered a final draft until the advisor (First Reader) has approved it. All dissertation committee members must have at least 10 days to read the dissertation before the last date for oral examination as published by the Office of Graduate Studies. Unanimous approval of the dissertation by four committee members constitutes satisfactory completion of this examination.

## Additional Minors and Certificates - A&S

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### Undergraduate Certificates

- Certificate in American Constitutional Democracy (p. 310)
- Certificate in Jazz Studies (p. 311)
- Certificate in Multicultural Studies (p. 311)
- Certificate in Music Entrepreneurship (p. 311)

### Undergraduate Minors

- Minor in Aerospace Studies (p. 312)
- Minor in Afro-Romance Literatures in Translation (p. 312)
- Minor in American Constitutional Democracy (p. 312)
- Minor in Astronomy (p. 313)
- Minor in Black Studies (p. 313)
- Minor in Canadian Studies (p. 313)
- Minor in Chinese Studies (p. 314)

- Minor in East Asian Studies (p. 314)
- Minor in French (p. 315)
- Minor in Italian Area Studies (p. 315)
- Minor in Japanese Studies (p. 315)
- Minor in Jazz Studies (p. 315)
- Minor in Korean Studies (p. 316)
- Minor in Latin American Studies (p. 316)
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### Graduate Certificates

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- Certificate in Jazz Studies (p. 320)
- Certificate in Lifespan Development (p. 320)
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### Graduate Minors

- Minor in Black Studies (p. 322)
- Minor in Medieval and Renaissance Studies (p. 323)
- Minor in Museum Studies (p. 323)
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## Certificate in American Constitutional Democracy

For general questions about the certificate, contact:

Justin Dyer, Program Director  
 (573) 882-3777  
 dyerjb@missouri.edu

Political Science Academic Advisor  
 (573) 882-2580  
 politicalscience@missouri.edu

The certificate in American Constitutional Democracy recognizes students who have completed twelve (12) hours of coursework on the history, theory, and practice of American constitutional self-government. In contrast to the minor, students pursuing the certificate are not required to complete a study abroad course or internship. Note: courses used to satisfy a major requirement may also count toward a certificate. However, students may not receive credit for both the certificate and the minor in American Constitutional Democracy.

Students must maintain a "B" average (3.0 GPA) in all certificate coursework. All coursework must be completed at MU.

Must complete 12 hours from the following courses:

CL_HUM 3100	The Age of Pericles	3
CL_HUM 4800	Political Thought in Classical and Christian Antiquity	3
ECONOM 4004	Topics in Economics- Social Science (American Political Economics)	1-3
ECONOM 4320	History of Economic Thought	3
ECONOM 4367	Law and Economics	3
GN_HON 2010H	Honors Tutorial (The Affordable Care Act & the Constitutional Order)	1-3
GN_HON 2010H	Honors Tutorial (Arbitration and Liberty of Contract)	1-3
GN_HON 2010H	Honors Tutorial (Constitutional Interpretation)	1-3
GN_HON 2010H	Honors Tutorial (Crisis and Constitutional Government)	1-3
GN_HON 2010H	Honors Tutorial (Give Me Liberty or Give Me Arbitration)	1-3
GN_HON 2010H	Honors Tutorial (Hamilton and the Constitutional Foreign Affairs Powers)	1-3
GN_HON 2010H	Honors Tutorial (The Idea of Human Rights)	1-3
GN_HON 2010H	Honors Tutorial (The Impeachment Power & American Constitutional Balance)	1-3
GN_HON 2010H	Honors Tutorial (The Inalienable Right to the Pursuit of Happiness)	1-3
GN_HON 2010H	Honors Tutorial (Justice)	1-3
GN_HON 2010H	Honors Tutorial (Liberal Democratic Theory and Practice)	1-3
GN_HON 2010H	Honors Tutorial (An Overview of Liberal Democratic Theory and Practice)	1-3
GN_HON 2010H	Honors Tutorial (Whitman's Democratic Legacy)	1-3
GN_HON 2230H	Honors Social Science Colloquium (Race and Nationalism in American Political History)	2-3
HIST 1500	Foundations of Western Civilization	3
HIST 1540	England Before the Glorious Revolution	3
HIST 2004	Topics in History-Social Science (Gender and the Law)	1-99
HIST 2100H	The Revolutionary Transformation of America - Honors	3
HIST 2120H	The Young Republic - Honors	3
HIST 2430	History of American Religion	3
HIST 2445	American Constitutional Democracy	3
HIST 3000	History of Religion in America to the Civil War	3
HIST 3210	History of Religion in Post-Civil War America	3
HIST 3220	U.S. Women's Political History, 1880-Present	3
HIST 4000	Age of Jefferson	3
HIST 4040	Slavery and the Crisis of the Union: The American Civil War Era	3
HIST 4060	The Period of the American Revolution, 1760-1789	3
HIST 4080	American Foreign Policy from Colonial Times to 1898	3
HIST 4100	American Cultural and Intellectual History to 1865	3
HIST 4200	American Cultural and Intellectual History Since 1865	3

HIST 4400	History of American Law	3
HIST 4510	Crime and Punishment: Law in Classical Athens	3
HIST 4515	Power and Oratory in Ancient Greece	3
HIST 4900	Beltway History: American Constitutional Democracy in Theory and Practice	3
HIST 4940	Internship in History	3
HIST 4975	Journal on Constitutional Democracy	1-3
PHIL 4600	Political and Social Philosophy	3
PHIL 4610	Philosophy of Law	3
POL_SC 2445	American Constitutional Democracy	3
POL_SC 2800	Liberty, Justice and the Common Good	3
POL_SC 2860	American Political Thought	3
POL_SC 4004	Topics in Political Science - Social Science (The Constitutional Debates)	1-99
POL_SC 4004	Topics in Political Science - Social Science (The Politics of Emergency)	1-99
POL_SC 4130	African-American Politics	3
POL_SC 4140	Congress and Legislative Policy	3
POL_SC 4150	The American Presidency	3
POL_SC 4170	Politics of the American South	3
POL_SC 4200	The American Constitution	3
POL_SC 4210	Constitutional Rights	3
POL_SC 4220	The United States Supreme Court	3
POL_SC 4370	The Administrative State, Public Policy and Constitutional Democracy	3
POL_SC 4780	Dictatorship and Democracy	3
POL_SC 4790	The Age of Democratization?	3
POL_SC 4800	Classical Political Theory	3
POL_SC 4810	Modern Political Theory	3
POL_SC 4830	Democracy in America (and Elsewhere)	3
POL_SC 4840	Developing Dynamics of Democracy	3
POL_SC 4850	Scots and the Making of America	3
POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice	3
POL_SC 4940	Political Science Internship	3-6
POL_SC 4975	Journal on Constitutional Democracy	1-3

Note: Students may petition the director of the certificate to include a maximum of three (3) hours from a related course outside the Departments of Political Science and History. Outside courses may have additional prerequisites.

## Certificate in Jazz Studies

Music Majors (BM, BA Music) and Music Education majors (BSEd) may earn a Certificate in Jazz Studies by completing this core of courses in jazz. Approval for admission into the Certificate program must be received from the Director of Jazz Studies.

A minimum of 12 credits is required, including the following:

MUS_THRY 4210	Jazz Harmony and Arranging I	2
MUS_THRY 4211	Jazz Harmony and Arranging II	2
MUS_I_VT 1620	Jazz Piano Class	1
MUS_I_VT 4645	Jazz Improvisation	2
MUS_H_LI 4317	Historical Studies in Jazz and Popular Music	3

MUS_ENS 1841	Instrumental Ensemble	2
Total Credits		12

## Certificate in Multicultural Studies

The College of Arts and Sciences offers a Certificate in Multicultural Studies. Students earning the certificate will become familiar with multicultural and diversity issues. In an increasingly global environment, students earning this certificate will be better prepared to understand and to facilitate cross-cultural interactions in their future careers, as well as in their general life experiences.

### Requirements

Students are required to complete a coherent program of 15 credit hours from a list of approved courses\*. Approved courses for the certificate critically evaluate and examine issues of social inequality and social stratification (e.g., gender, race, ethnicity, religion, region, sexuality, and/or class inequality) globally and in the United States. Courses must be chosen from at least 2 different departments/programs. At least 6 credits must be completed at the 3000 level or above. One course (up to 3 credit hours minimum and 6 credit hours maximum) may include an applied experience of cultural difference\*. Approved research-based undergraduate courses, transcribed Study Abroad and other experiences approved through the Center for International Programs and Studies, and transcript-designated "Service Learning" coursework are among the possibilities. Only coursework in foreign languages that is numbered above 2100 is applicable, and the maximum number of such credit hours is 6. A grade of C- or higher must be earned in each course, and students must maintain a cumulative GPA of 2.0 for overall coursework counting towards the certificate. Consistent with MU policy on certificates, an undergraduate degree and certificate must be awarded simultaneously.

\* Contact the Multicultural Certificate Program office, 58 McReynolds, for full details and an updated course list, or go to <http://multicultural.missouri.edu/>

## Certificate in Music Entrepreneurship

The Undergraduate Music Entrepreneurship Certificate offers MU students an officially recognized core of courses dealing with the development, business, and publicity aspects of a musical career. In today's fine arts economy, an increasingly viable and popular model is the "portfolio career," in which a person incorporates multiple roles (e.g. performer, teacher, advocate, manager, publicist, composer/arranger, etc.) rather than pursuing one narrowly defined career path. Contextualizing the vision, skills, and networking activities needed to achieve a viable arts career, while offering a combination of theoretical and practical career preparation for Mizzou students, is the overarching aim of the Certificate.

**Availability:** Aimed primarily at degree-seeking students in music and music education, this certificate is also available to students in other majors with a commitment to pursuing a career in the music industries. All students who wish to declare the certificate must receive approval from our certificate director, Prof. Jonathan Kuuskoski ([kuuskoskij@missouri.edu](mailto:kuuskoskij@missouri.edu)).

### Required Courses

MUS_GENL 4510	Career Development for Musicians	2
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MUS_GENL 4512	Principles of Entrepreneurship for Musicians	1
MUS_GENL 4514	Arts Marketing for Musicians	1
MUS_GENL 4516	Grant Writing for Musicians	1
MUS_GENL 4518	Music Industry Survey	1
MUS_GENL 4520	Non-Profit Management in the Arts	1
MUS_GENL 4522	Community Engagement in the Arts	1
MUS_GENL 4530	Entrepreneurship, Leadership and Advocacy in the Arts	2
MUS_GENL 4540	Music Entrepreneurship Practicum	2
Total Credits		12

## Minor in Aerospace Studies

A minor in Aerospace Studies is available upon the completion of 15 semester hours, of which 12 hours are taught by Aerospace Studies. The additional 3 hours must be approved by the Department of Aerospace Studies and be in the academic area of history, political science, sociology, military science disciplines, or peace studies.

## Minor in Afro-Romance Literatures in Translation

Students may obtain a minor in Afro-Romance literatures in translation by completing the courses listed below.

SPAN 1100 & SPAN 1200 & SPAN 2100	Elementary Spanish I and Elementary Spanish II and Elementary Spanish III	12
ITAL 1100 & ITAL 1200 or PORT 1100 & PORT 1200	Elementary Italian I and Elementary Italian II Elementary Portuguese I and Elementary Portuguese II	8-12

Three 2000-level literature-in-translation courses chosen from the following list (at least two language groupings must be represented):

FRENCH 2350	New World Francophone Literature in Translation	3
RM_LAN 2310	Literature of the African Diaspora	3
SPAN 2340	Hispanic Minority Literature	3

Two 3000-level or 4000-level courses chosen from the following list:

FRENCH 3710 or SPAN 3710	Survey of Minority and Creole Languages of the U.S. and the Caribbean Survey of Minority and Creole Languages of the U.S. and the Caribbean	3
PORT 3001 or PORT 3005	Topics in Portuguese-General Topics in Portuguese-Humanities/Fine Arts	1-3
RM_LAN 4310	Literature of the African Diaspora	3

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

## Minor in American Constitutional Democracy

For general questions about the minor, contact:

Justin Dyer, Program Director  
(573) 882-3777  
dyerjb@missouri.edu

Political Science Academic Advisor  
(573) 882-2580  
politicalscience@missouri.edu

The minor in American Constitutional Democracy is designed for those students who wish to delve more deeply into the American experience with self government, exploring the development of the American state and the intellectual, political, historical, and cultural forces that contributed to this development. The minor is appropriate for students in many majors, particularly political science, economics, history, and journalism.

The minor affords students a unique opportunity to gain a broad perspective on issues of American political development, allowing focus on areas where they may have additional educational requirements not offered in their chosen major field of study. In addition, it contains an "experiential" component that permits students to consider constitutional issues in practice and/or in comparative perspective.

### Minor Requirements

A minimum of fifteen (15) credits are required for the minor. Students in the minor must maintain a B average (3.0 GPA) for courses in the minor.

A minimum of twelve (12) credits must come from the following courses. At least nine (9) hours must be completed at MU.

Additionally, a minimum of three (3) credits must come from an experiential component. The experiential component may be satisfied through participation in either an internship or study abroad program associated with the minor or approved by the director of the minor.

The minor must be completed with courses from at least two (2) subject areas.

CL_HUM 3100	The Age of Pericles	3
CL_HUM 4800	Political Thought in Classical and Christian Antiquity	3
ECONOM 4004	Topics in Economics- Social Science (American Political Economics)	1-3
ECONOM 4320	History of Economic Thought	3
ECONOM 4367	Law and Economics	3
GN_HON 2010H	Honors Tutorial (The Affordable Care Act & the Constitutional Order)	1-3
GN_HON 2010H	Honors Tutorial (Arbitration and Liberty of Contract)	1-3
GN_HON 2010H	Honors Tutorial (Constitutional Interpretation)	1-3
GN_HON 2010H	Honors Tutorial (Crisis and Constitutional Government)	1-3
GN_HON 2010H	Honors Tutorial (Give Me Liberty or Give Me Arbitration)	1-3
GN_HON 2010H	Honors Tutorial (Hamilton and the Constitutional Foreign Affairs Powers)	1-3
GN_HON 2010H	Honors Tutorial (The Idea of Human Rights)	1-3
GN_HON 2010H	Honors Tutorial (The Impeachment Power & American Constitutional Balance)	1-3
GN_HON 2010H	Honors Tutorial (The Inalienable Right to the Pursuit of Happiness)	1-3
GN_HON 2010H	Honors Tutorial (Justice)	1-3
GN_HON 2010H	Honors Tutorial (Liberal Democratic Legacy)	1-3
GN_HON 2010H	Honors Tutorial (An Overview of Liberal Democratic Theory and Practice)	1-3

GN_HON 2010H	Honors Tutorial (Whitman's Democratic Legacy)	1-3
GN_HON 2230H	Honors Social Science Colloquium (Race and Nationalism in American Political History)	2-3
HIST 1500	Foundations of Western Civilization	3
HIST 1540	England Before the Glorious Revolution	3
HIST 2004	Topics in History-Social Science (Gender and the Law)	3
HIST 2100H	The Revolutionary Transformation of America - Honors	3
HIST 2120H	The Young Republic - Honors	3
HIST 2430	History of American Religion	3
HIST 2445	American Constitutional Democracy	3
HIST 3000	History of Religion in America to the Civil War	3
HIST 3210	History of Religion in Post-Civil War America	3
HIST 3220	U.S. Women's Political History, 1880-Present	3
HIST 4000	Age of Jefferson	3
HIST 4040	Slavery and the Crisis of the Union: The American Civil War Era	3
HIST 4060	The Period of the American Revolution, 1760-1789	3
HIST 4080	American Foreign Policy from Colonial Times to 1898	3
HIST 4100	American Cultural and Intellectual History to 1865	3
HIST 4200	American Cultural and Intellectual History Since 1865	3
HIST 4400	History of American Law	3
HIST 4510	Crime and Punishment: Law in Classical Athens	3
HIST 4515	Power and Oratory in Ancient Greece	3
HIST 4900	Beltway History: American Constitutional Democracy in Theory and Practice	3
HIST 4940	Internship in History	3
HIST 4975	Journal on Constitutional Democracy	1-3
PHIL 4600	Political and Social Philosophy	3
PHIL 4610	Philosophy of Law	3
POL_SC 2445	American Constitutional Democracy	3
POL_SC 2800	Liberty, Justice and the Common Good	3
POL_SC 2860	American Political Thought	3
POL_SC 4004	Topics in Political Science - Social Science (The Constitutional Debates)	3
POL_SC 4004	Topics in Political Science - Social Science (The Politics of Emergency)	3
POL_SC 4130	African-American Politics	3
POL_SC 4140	Congress and Legislative Policy	3
POL_SC 4150	The American Presidency	3
POL_SC 4170	Politics of the American South	3
POL_SC 4200	The American Constitution	3
POL_SC 4210	Constitutional Rights	3
POL_SC 4220	The United States Supreme Court	3
POL_SC 4370	The Administrative State, Public Policy and Constitutional Democracy	3
POL_SC 4780	Dictatorship and Democracy	3
POL_SC 4790	The Age of Democratization?	3
POL_SC 4800	Classical Political Theory	3
POL_SC 4810	Modern Political Theory	3

POL_SC 4830	Democracy in America (and Elsewhere)	3
POL_SC 4840	Developing Dynamics of Democracy	3
POL_SC 4850	Scots and the Making of America	3
POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice	3
POL_SC 4940	Political Science Internship	3-6
POL_SC 4975	Journal on Constitutional Democracy	1-3

Note: Students may petition the director of the minor to include a maximum of three (3) hours from a related course outside the Departments of Political Science and History. Outside courses may have additional prerequisites.

## Minor in Astronomy

A student whose major is in another department may receive a minor in astronomy with the completion of the following courses with grades of C- or better: PHYSCS 2750 University Physics I, PHYSCS 2760 University Physics II (10 credit hours), PHYSCS 3010 Introduction to Modern Astrophysics (3 credit hours), plus two additional astronomy courses at the 3000/4000 level or above.

A student must have a total of 19 credit hours to receive a minor in astronomy. At least nine of the 19 credit hours must be completed on-campus. A course in which a grade of D+ or below was received will not count towards the minor. To receive your minor in astronomy, you must print and fill out the minor form (<https://physics.missouri.edu/sites/default/files/undergrad-files/fileastronomyminorform.pdf>), have it signed by the Director of Undergraduate Studies in the Physics and Astronomy Department, and then take it to 107 Lowry Hall.

## Minor in Black Studies

Students seeking a minor in Black Studies must complete 15 credits, including those listed below.

BL_STU 2000	Black Studies	3
One course in each of three content areas (one must focus on gender)		9
Social Science (includes History, Political Science, etc.)		
Behavioral Science (includes Sociology, Psychology, etc.)		
Humanities (includes English, Music, Religious Studies, etc.)		
One additional course in any of the three content areas		3
Total Credits		15

- Students are also encouraged to take a course in three regional areas of study: Africa, African America, and the Black Diaspora.
- A minimum of 6 credits numbered 2000 or above and at least one 3000-level course must be taken.
- At least 9 credits must be in courses other than readings, methods, techniques or problems.
- A maximum of 3 credits of the minor may be taken in Black Studies courses outside the College of Arts & Science.

## Minor in Canadian Studies

For general questions about the minor, contact:

James Endersby, Program Director  
(573) 882-4238

endersby@missouri.edu

Political Science Academic Advisor  
(573) 882-2580  
politicalscience@missouri.edu

A Minor in Canadian Studies allows you to

- participate in Study Abroad programs in Canada
- enhance your degree and career options
- learn about the culture, history, and politics of Canada

With a minor in Canadian Studies, students will be better equipped to deal with political, economic, social and even cultural issues that will arise vis-a-vis Canada, a close military ally and trading partner. In an era that features the internet, Free Trade, and most importantly, issues of border security and national defense, knowledge of Canada is particularly useful in a number of careers. The Canadian Studies Program is an interdisciplinary program which includes Political Science, Geography, Anthropology, Romance Languages, and Public Affairs. The minor concentration in Canadian Studies will require 15 hours of credits. Courses may be selected from at least two of the disciplines listed below. Any course qualifies for the Minor in Canadian Studies as long as it contains at least one-third content on Canada.

#### Courses in Political Science

POL_SC 2600	Canadian Politics and Government	3
POL_SC 4660	Canada in North America	3
POL_SC 4986	Special Readings in Political Science ( (consult with professor if interested))	1-99

Canadian Politics: Fundamentals and Selected Topics

#### Courses in Geography

GEOG 2120	United States and Canada	3
GEOG 1100	Regions and Nations of the World I	3
GEOG 3780	World Political Geography: Patterns and Processes	3

#### Courses in Anthropology

ANTHRO 3610	Peoples of Canada	3
ANTHRO 2030	Cultural Anthropology	3
ANTHRO 1300	Multiculturalism: An Introduction	3
ANTHRO 4600	Ethnographic Studies of Selected Cultures	3

#### Courses in Romance Languages and Literatures

FRENCH 2370	French Women Writers (in translation)	3
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The French Novel of Quebec

#### Courses in English

ENGLSH 4129	Ethnic Literature, 1890 to Present	3
ENGLSH 3855	Documentary Film	3

## Minor in Chinese Studies

Students may obtain a minor in Chinese Studies by completing at least 15 credits of Chinese courses. At least nine of these hours must be completed on campus, or as part of an MU faculty-led study abroad program. At least nine of these credit hours must be earned in Chinese language courses beyond the elementary level. The remaining six hours can be earned in non-language Chinese culture courses, or courses from other departments that relate to China.

CHINSE 2160	Intermediate Chinese I Conversation and Composition	3
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CHINSE 3160	Intermediate Chinese II Conversation and Composition	3
CHINSE 3180	Advanced Chinese I	3
CHINSE 3085	Problems in Chinese	1-3
CHINSE 2310	Chinese Civilization I	3
CHINSE 3320	Modern and Contemporary Chinese Fiction (in translation)	3
CHINSE 3880	Contemporary Chinese Film	3
CHINSE 3400	Negotiating Chinese Culture	3
CHINSE 2100	Everyday Spoken Chinese Level I	3
CHINSE 2330	Chinese Language and Culture	3
CHINSE 3170	Everyday Spoken Chinese Level II	3
CHINSE 3300	Chinese Traditions and Global Integration	3
CHINSE 3300H	Chinese Traditions and Global Integration - Honors	3
REL_ST 2310	Religions of China and Japan	3
HIST 1870	Imperial China: China to 1600	3
HIST 1871	History of China in Modern Times	3
HIST 1872	Mao's China and Beyond: China Since 1949	3
HIST 3830	Chinese Women's History	3
HIST 4800	Modern China and Japan: War, Imperialism and Memory	3
HIST 4880	Chinese Migration: From Yellow Peril to Model Minority	3
POL_SC 4680	Chinese Politics and Foreign Policy	3
REL_ST 3250	Buddhism in East Asia	3
REL_ST 3280	Chinese Popular Religion	3
REL_ST 4310	The Confucian Tradition: Past and Present	3
REL_ST 4320	Introduction to Daoism	3

## Minor in East Asian Studies

Office of Multidisciplinary Degrees

114 Switzler Hall

(573) 882-6060

<https://omd.missouri.edu/?q=eas-minor/index>

## Requirements

- Complete 9 hours related to one cultural group and 6 hours related to a second cultural group. For example, a student can complete 9 hours related to Chinese studies and 6 hours related to Japanese studies. The cultural group options are Chinese, Japanese, and Korean.
- At least 6 credits must be numbered 2000 level or above.
- Nine of the required credits must be completed at MU.
- The elementary levels of language (Japanese, Chinese, and/or Korean) may NOT be used to fulfill minor requirements.
- Intermediate-level language courses may be used to meet minor requirements.

## Policies

- Courses used to fulfill major requirements may NOT also fulfill minor requirements, or vice versa.
- Courses outside the major department, but required for the major, may be used to fulfill minor requirements.

- Courses required for the minor may also be used to meet the College of Arts & Science Foundation requirements.
- Minors are only awarded to undergraduate students who are simultaneous recipients of a Bachelor degree.
- Students may not earn a major and a minor in the same field.

For course options see <https://omd.missouri.edu/?q=eas-minor/index>.

## Faculty for East Asian Studies

### Chinese

**Assistant Teaching Professor** Michael Volz

**Lecturer** Huichung Liang

### Japanese

**Assistant Teaching Professor** J. Martin Holman

**Lecturer** Chieko Kellar

### Korean

**Associate Teaching Professor** Seungkwon You

## Minor in French

Students may obtain a French minor by completing a minimum of 15 credits beyond FRENCH 2100, of which at least 6 credits must be in literature. Courses taught in English and cross-listed courses taught in English do not count toward the minor. The courses listed below are the most likely choice.

FRENCH 2160	Intermediate French Composition and Conversation	3
FRENCH 3160	Advanced French Composition and Conversation I	3
or FRENCH 3280	Commercial French	
FRENCH 3410	Introduction to Literary Analysis	3
FRENCH 3420	Introduction to French Literature I	3
FRENCH 3430	Introduction to French Literature II	3

Students beginning at a level higher than FRENCH 2160 due to placement testing must still complete the minimum of 15 additional credits in order to receive the minor. A minimum of 9 credits, including 3 in literature, must be taken in residence.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

## Minor in Italian Area Studies

Students may obtain a minor in Italian area studies by completing at least 9 credits in Italian language beyond ITAL 1200, e.g.: ITAL 2160, ITAL 3150 or ITAL 3160. An additional 6 credits must be chosen from the list below:

ITAL 2001/2005	Undergraduate Topics in Italian-General	1-3
ITAL 2310	Italian Civilization	3
ITAL 3001/3005	Topics in Italian-General	1-3
ITAL 3310	20th Century Italian Fiction in Translation	3

Italian culture/topics emphasis courses offered by other programs/ departments (e.g., History, Art History, Music or International Studies).

Normally, 9 credits must be completed in residence at MU. However, students are permitted to count 6 credits toward the minor from an officially sanctioned semester or year-long foreign study program in Italy. Six credits toward the minor can also be earned in summer programs abroad, such as the summer intensive language program offered by the University of Bergamo (near Milan) or by the Centro Fiorenza in Florence or on the Island of Elba.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

## Minor in Japanese Studies

Students may obtain a minor in Japanese Studies by completing at least 15 credits of Japanese courses. At least nine of these hours must be completed on campus. At least nine of these credit hours must be earned in Japanese language courses beyond the elementary level. The remaining six hours can be earned in non-language Japanese culture courses, or courses from other departments that relate to Japan.

JAPNSE 2160	Japanese Conversation and Composition	3
JAPNSE 3160	Intermediate Japanese Composition and Conversation	3
JAPNSE 3370	Intermediate Readings in Japanese	3
JAPNSE 3380	Intermediate Japanese II	3
JAPNSE 3085	Problems in Japanese	1-3
JAPNSE 4160	Advanced Japanese I	3
JAPNSE 4180	Advanced Japanese II	3
JAPNSE 2310	Japanese Civilization I	3
JAPNSE 2320	Japanese Civilization II	3
JAPNSE 2330	The World of Japanese Business	3
JAPNSE 3320	Classical Japanese Literature (in translation)	3
JAPNSE 3360	Modern Japanese Literature (in Translation)	3
JAPNSE 3850	Traditional Japanese Theatre	3
JAPNSE 3880	Japan and its Cinema	3
JAPNSE 4005	Topics in Japanese - Humanities	1-3
JAPNSE 4005H	Topics in Japanese - Humanities - Honors	1-3
HIST 1830	Survey of East Asian History	3
REL_ST 2310	Religions of China and Japan	3

## Minor in Jazz Studies

Students who have chosen a major in a non-music field may complete a minor in jazz. The Minor is not intended for beginners, but for students with basic musical knowledge. Hence the prerequisites (MUSIC\_NM 1211 or MUS\_THRY 1220) for three of the required courses (MUS\_I\_VT 1620, MUS\_I\_VT 4645, and MUS\_THRY 4210) and auditions required for Jazz Ensembles. Approval for declaration of the Jazz Minor must be received from the Director of Jazz Studies.

A minimum of 15 credits is required, including the following:

MUS_THRY 4210	Jazz Harmony and Arranging I	2
MUS_THRY 4211	Jazz Harmony and Arranging II	2
MUS_I_VT 1620	Jazz Piano Class	1
MUS_I_VT 4645	Jazz Improvisation	2
MUSIC_NM 1311	Jazz, Pop, and Rock	3

MUS_ENS 1841 & MUS_ENS 1846	Instrumental Ensemble and Chamber Music (Large Jazz Ensemble & Small Jazz Ensemble)	2
MUSIC_NM 2445	Studio Instruction for Non-Majors (Or additional hours in Jazz Ensembles)	3
Total Credits		15

## Minor in Korean Studies

Students may obtain a minor in Korean Studies by completing at least 15 credits of Korean courses. At least nine of these hours must be completed on campus, or as part of an MU faculty-led study abroad program. At least six of these credit hours must be earned in Korean language courses beyond the elementary level. The remaining nine credit hours can be earned in non-language Korean culture courses, or courses from other departments that relate to Korea.

KOREAN 2160	Intermediate Korean Language I	3
KOREAN 3160	Intermediate Korean Language II	3
KOREAN 2310	Korean Civilization I	3
KOREAN 2320	Korean Civilization II	3
KOREAN 3800	Korean Economic Development and US- Korean Free Trade Agreement	3
KOREAN 3850	Religion and Culture in Modern Korea	3
KOREAN 3890	Korean Society Through Cinema	3
KOREAN 4220	Korean Unification	3
KOREAN 4260	The Korean Diaspora in the U.S., Japan and China	3
KOREAN 3001	Topics in Korean-General	1-3
KOREAN 3005	Topics in Korean - Humanities	3
KOREAN 4001	Topics in Korean-General	1-3
KOREAN 4005	Topics in Korean - Humanities	1-3
KOREAN 2330	Study Tour of Korea	3
HIST 1830	Survey of East Asian History	3
HIST 2810	History of Korea: Premodern to Hypermodern	3

## Minor in Latin American Studies

Office of Multidisciplinary Degrees

114 Switzler Hall

(573) 882-6060

<https://omd.missouri.edu/?q=las-minor/index>

This is an interdisciplinary minor which allows students to take courses about Latin America from various departments. Find course options at the link above.

### Requirements

- Complete 15 credit hours from at least two departments.
- At least 6 credits must be numbered 2000 level or above.
- Nine of the required credits must be completed at MU.
- The elementary levels of language may NOT be used to fulfill minor requirements.
- Intermediate-level language courses may be used to meet minor requirements.

## Minor in Leadership and Public Service

The Minor in Leadership and Public Service combines an academic component of courses in leadership, public policy, ethics, and social issues with a strong focus on service-learning, community service, and public service internships.

Consider this minor if you are:

- Interested in a self-crafted minor that provides a framework for your own leadership goals
- Set on developing the skills needed to succeed in both the non-profit sector and government
- Determined to give back on a local, national, and international level
- Looking for an opportunity to set yourself apart from the applicant pool for both graduate and professional school

For more information, contact:

Kirsten Pape

MU Office of Service Learning

208 Lowry Hall

Columbia, MO 65211

(573) 882-0227

[servicelearning@missouri.edu](mailto:servicelearning@missouri.edu)

## Minor in Luso-Brazilian Area Studies

Students may obtain a minor in Luso-Brazilian Area Studies by completing at least 9 credits in the Portuguese language beyond Portuguese 1200, e.g. PORT 2160, PORT 3160, and PORT 4960.

An additional 6 credits may be chosen from the following list:

PORT 2310	Brazilian Civilization	3
PORT 3001/3005	Topics in Portuguese-General	1-3
PORT 3420	Survey of Brazilian Literature	3
PORT 3875	Brazilian Cinema	3
SPAN 2330	Latin American Civilization	3

Luso-Brazilian culture/topics emphasis courses offered by other programs/departments (e.g. Anthropology, History, Music, Political Science).

Normally 9 credits must be completed in residence at MU. However, students are permitted to count 6 credits toward the minor from an officially sanctioned semester or year-long foreign study program in Brazil or Portugal. These include the MU in Rio de Janeiro program at the Pontificia Universidade Catolica and the CIEE Universidade Nova de Lisboa program.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a minimum GPA of 2.0 in the minor.

## Minor in Medieval and Renaissance Studies

Think dead languages, medieval literature, and old castles are cool? Love your Shakespeare or Art History class and interested in learning

more about the Middle Ages or the Renaissance? Then explore the possibility of a MARS undergraduate minor, in which students do coursework on medieval and Renaissance topics, receiving outstanding instruction from faculty in up to eleven different academic departments. For students interested in medieval and Renaissance history, art, literatures, religion, music, languages, and culture, the MARS minor offers the possibility of furthering interests while studying more broadly towards your major. Meet others interested in the same things as you, incorporate classwork you've already done, and learn new things about the Middle Ages and Renaissance, all while showing prospective employers or graduate schools the depth of your study with an official minor in MARS!

### Requirements

- A minimum of fifteen (15) hours of approved coursework (see list below) in two different departments outside the student's major department.
- At least nine (9) hours of the fifteen must be in courses numbered 2000 or above.
- At least three (3) hours of the fifteen must be taken in a course numbered 3000 or above.
- A minimum of nine (9) hours must be taken in residence.
- A minimum GPA of 2.0 is required in all courses in the minor.
- Only one course from Classics may count towards the minor
- Students may specialize in either medieval or Renaissance, but must take at least one course in both.
- Students and their advisors may petition the Chair of MARS (Dr. Emma Lipton, English) to have coursework with relevant content counted. Students may count courses toward the minor that are also used to fulfill general education requirements in the College of Arts and Science. Many upper-level courses in European languages and literatures may be used to fulfill the minor requirements.

Departments keep a list of courses approved for the MARS minor on file for advisors. For a full description of the minor, including a list of all courses currently counted toward the minor, go to Medieval and Renaissance Studies (<http://medren.missouri.edu/undergrad.shtml>).

## Minor in Middle East Studies

The minor in Middle East Studies is designed for those students who want to explore the art, history, politics, cultures, and religions of the Middle East in greater detail. For those looking beyond graduation, the minor provides a solid inter-disciplinary foundation and credential with which to pursue graduate work or careers in fields related to the Middle East. Students have the opportunity to take a variety of courses from eleven different departments in the College of Arts and Science. Furthermore, the minor allows students engaged in different disciplines and on different career tracks to engage with and learn from each other and a broad range of faculty. The courses that count toward the minor emphasize and promote critical historical thinking by providing students with the conceptual and analytical tools to think about the often overlooked religious, ethnic, and political diversity of the peoples of the Middle East, past and present.

### Minor Requirements

The minor requires a minimum of fifteen (15) credit hours from at least three (3) different departments within the College. Students in the minor must maintain a 2.0 GPA for courses in the minor.

At least six (6) of the fifteen (15) required credits must be taken at the level of 2000 or above.

At least nine (9) hours must be completed at MU.

There are no prerequisites.

### Course List

AR_H_A 2230	Introduction to the Arts of Islam	3
AR_H_A 3210	Near Eastern and Egyptian Art and Archaeology	3
AR_H_A 3510	Byzantine and Islamic Art and Archaeology	3
AR_H_A 4490	Late Antique Art and Archaeology	3
AR_H_A 4510	Byzantine Art and Archaeology	3
CL_HUM 4650	The World of Late Antiquity	3
ENGLSH 4150	World Literatures (Provided the literature is related to the ME)	3
GEOG 3270	Geography of the Middle East	3
FILM_S 3845	Modern Israeli Film	3
HEBREW 3310	Introduction to Israeli Culture	3
HEBREW 3845	Modern Israeli Film	3
HIST 1520	The Ancient World	3
HIST 3485	The United States and the Middle East	3
HIST 3850	Islam and the West	3
HIST 4560	The Crusades	3
PEA_ST 2100	The Vietnam and Iraq Wars: Lessons for the Future	3
PEA_ST 2110	Perspectives on Peace in the Middle East	3
PEA_ST 2255	Youth, Islam, and Global Cultures	3
PEA_ST 3850	Islam and the West	3
POL_SC 4411	Genocide, Terrorism and Civil War	3
POL_SC 4430	Global Human Rights	3
POL_SC 4780	Dictatorship and Democracy	3
REL_ST 2400	Judaism	3
REL_ST 2600	Early Christianity	3
REL_ST 2700	Islam	3
REL_ST 3005	Topics in Religious Studies-Humanities (Introduction to the Qur'an)	3
REL_ST 3300	The Prophets	3
REL_ST 3310	The Problem of Evil: Theodicy in the Ancient Near East	3
REL_ST 3410	Cities and Letters of Paul: an Archaeological Investigation	3
REL_ST 3500	Judaism in the Time of Jesus	3
REL_ST 4550	The Historical Jesus	3
SOCIOL 2255	Youth, Islam, and Global Cultures	3
WGST 3370	Themes in Gender and Religion (Women and Islam)	3

### Advising and Support

For information, questions, and advising for the minor, contact:

Nathan Hofer (<http://religiousstudies.missouri.edu/people/faculty/hofern.shtml>), Assistant Professor of Religious Studies and Director of the Minor in Middle East Studies

221G Arts and Science Building

hofern@missouri.edu

## Minor in Military Science

With departmental approval, students may earn a minor in military science and leadership by successfully completing the following courses:

MIL_SC 3230	Leadership and Problem Solving	3
MIL_SC 3240	Leadership and Ethics	3
MIL_SC 3260	Officership	3
MIL_SC 3250W	Leadership and Management	3

Additionally, students must complete an approved course in American military history.

## Minor in Peace Studies

A minor in peace studies requires a minimum of 15 credits. PEA\_ST 1050 Introduction to Peace Studies is required, plus 12 additional credits. Online writing intensive versions of 1050 are available. It is recommended that the credits be distributed among the five areas on the following list:

### Area 1: International and Civil War and Peace

PEA_ST 2200	Nuclear Weapons: Environmental, Health and Social Effects (Section 2 is writing intensive, section 1 not)
PEA_ST 2286	Technological Futures, National Security, and Civil Liberties
PEA_ST 2410	Philosophies of War and Peace
PEA_ST 2550	Human Rights, Law, War and Peace
PEA_ST 3230H	Terrorism and Conflict Resolution - Honors
PEA_ST 3610	Ireland, 1100s to 1850
PEA_ST 3611	Ireland, 1850-1923
PEA_ST 3612	Ireland, 1920-Present
PEA_ST 4331	Nonproliferation Issues for Weapons of Mass Destruction

### Area 2: Global Social and Environmental Justice

PEA_ST 1120	Population and Ecology
PEA_ST 2000	Exploration in Social and Economic Justice
PEA_ST 2284	Critical Dialogs: Global Environmental Policy Conflicts
PEA_ST 2285	Large Corporations, Economic Crisis, Social Responsibility
PEA_ST 3401	Global Public Health and Health Care Systems
PEA_ST 3600	Criminology
PEA_ST 3870	Social Revolution in Latin America
PEA_ST 4230	Women, Development and Globalization
PEA_ST 4520	Political Sociology

### Area 3: Nonviolent Social Movements, Process, and Change

PEA_ST 2182	Critical Dialogues: Nonviolence in Peace/Democracy Movements (Section 2 is writing intensive, section 1 not)
PEA_ST 3520	Collective Behavior
PEA_ST 3521	Group Decision Making Processes
PEA_ST 3522	New Media, Conflict and Control
PEA_ST 4341	Building Communities from the Grassroots

### Area 4: Cultures, Intellectuals, And Global Migration

PEA_ST 2255	Youth, Islam, and Global Cultures
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PEA_ST 2280	Race, Democracy, and Violence in Cuba and Haiti (Section 2 is writing intensive, section 1 not)
PEA_ST 2320	Literature of Spanish Civil War
PEA_ST 2810	Think Global: Fundamentals of Globalization and Digital Technologies
PEA_ST 3140	Art of War and Peace
PEA_ST 3400	Politics of the Media
PEA_ST 3780	World Political Geography
PEA_ST 3850	Islam and the West
PEA_ST 4600	Political and Social Philosophy
PEA_ST 4830	Journalism and Conflict

### Area 5: Indigenous Peoples, Human Rights, and The Imperial State

REL_ST 2100	Indigenous Religions
ENGLISH 2490	Introduction to Native Studies
ENGLISH 3490	Native Writing and Representation
PEA_ST 3496	Digital Indigenous Studies
PEA_ST 3496H	Digital Indigenous Studies - Honors
GEOG 3560	Native American Geographies
PEA_ST 4550	Gender and Human Rights in Cross Cultural Perspective

## Minor in Romance Literatures in Translation

To obtain a minor in Romance Literatures in Translation, students must complete the basic language sequence shown below.

SPAN 1100 & SPAN 1200 & SPAN 2100	Elementary Spanish I and Elementary Spanish II and Elementary Spanish III	12
or FRENCH 1100 & FRENCH 1200 & FRENCH 2100	Elementary French I and Elementary French II and Elementary French III	
ITAL 1100 & ITAL 1200	Elementary Italian I and Elementary Italian II	8-12
or PORT 1100 & PORT 1200	Elementary Portuguese I and Elementary Portuguese II	

Students must also complete three 2000-level literature-in-translation courses and two 3000-level literature-in-translation courses (one of which must be either ITAL 3310 or PORT 3001) chosen from the list below:

FRENCH 2320	French Literature and Thought in English Translation I	3
FRENCH 2330	French Literature in Translation II	3
FRENCH 2350	New World Francophone Literature in Translation	3
FRENCH 2370	French Women Writers (in translation)	3
ITAL 2850	Italian Cinema	3
ITAL 3310	20th Century Italian Fiction in Translation	3
ITAL 3820	Films of Federico Fellini	3
PORT 3001/3005	Topics in Portuguese-General	1-3
SPAN 2320	Literature of Spanish Civil War	3
SPAN 2340	Hispanic Minority Literature	3

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

## Minor in South Asian Studies

The South Asian Studies minor is a course of study that allows a student to acquire specialized knowledge about South Asia in a variety of disciplines, e.g., anthropology, history, philosophy, religious studies, political science, sociology, women and gender studies and language studies.

To obtain a minor in South Asian Studies, a student must:

- Complete 15 hours of coursework relating to South Asia. The courses approved for the South Asian Studies minor are listed at <http://southasia.missouri.edu/minor.html>.
- At least nine of the 15 hours must be at the 2000 level or above.
- A student is required to take courses in two or more departments.
- A minimum of six hours must be taken in residence.
- A grade of C or better is required for all courses counting toward the South Asian Studies minor.

A minor in South Asian studies can easily be combined with a major in anthropology, philosophy, history, religious studies, political science, geography, journalism, sociology, women & gender studies, etc.

## Minor in Spanish

Students may obtain a Spanish minor by completing a minimum of 15 credits beyond SPAN 2100, of which at least 6 credits must be in literature. Courses taught in English and cross-listed courses taught in English do not count toward the minor. The courses listed below are the most likely choice.

SPAN 2160	Intermediate Spanish Composition and Conversation	3
SPAN 3150 or SPAN 3721	Advanced Spanish Conversation Spanish Phonetics	3
SPAN 3160 or SPAN 3280	Advanced Spanish Composition Commercial Spanish	3
SPAN 3420	Introduction to Hispanic Literature I	3
SPAN 3430	Introduction to Hispanic Literature II	3

Students beginning at a level higher than SPAN 2160 due to placement testing must still complete the minimum of 15 additional credits to receive the minor. A minimum of 9 credits, including 3 in literature, must be taken in residence.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

## Minor in Strategic Studies

For general questions about the minor, contact:

Stephen Quackenbush, Program Director  
(573) 882-2082  
[quackenbushs@missouri.edu](mailto:quackenbushs@missouri.edu)

Political Science Academic Advisor  
(573) 882-2580  
[politicalscience@missouri.edu](mailto:politicalscience@missouri.edu)

The minor in Strategic Studies is designed for those students who wish to acquire the knowledge and analytical skills that are critical for working

in a career field related to national security. The minor is appropriate for students of almost any major, particularly political science, economics, history, geography, journalism, and engineering. The program is also well suited for students in Army, Navy, or Air Force ROTC, providing a solid background for officers encountering the changing strategic environment of the twenty-first century.

The program affords students a unique opportunity to gain a broad perspective on security issues, allowing focus on areas where they may have additional educational requirements not offered in their chosen major field of study. Students may work for the defense department, national intelligence agencies, or other federal agencies, or any number of jobs related to security in the private and non-profit sectors.

Fifteen (15) credits are required for the minor in strategic studies, selected from the list below. Of these, six hours must be from political science. Students in the minor must maintain a B average (3.0 GPA) for courses in the minor.

### Select from the courses below

POL_SC 4410	Politics and War	3
POL_SC 4411	Genocide, Terrorism and Civil War	3
POL_SC 4412	Strategy and Warfare	3
POL_SC 4415	Peacekeeping and Intervention	3
POL_SC 4430	Global Human Rights	3
POL_SC 4540	American Foreign Policies	3
POL_SC 4700	America's Wars in Asia/War and Peace in Asia	3
MIL_SC 3160	Death by a Thousand Cuts: Counterinsurgency/Insurgency the American Experience	3
MIL_SC 3161	The American Experience in Vietnam	3
MIL_SC 3162	Counterinsurgency in Asia	3
MIL_SC 3163	U.S. Military History in the Western Tradition	3
HIST 4080	American Foreign Policy from Colonial Times to 1898	3
HIST 4250	U.S. Foreign Relations, 1898-1945	3
HIST 4260	The Age of Ascendancy: U.S. Foreign Relations, 1945 - Present	3

## Minor in Women's and Gender Studies

A Women's and Gender Studies minor can be a component of any undergraduate degree granted at MU.

The curriculum includes women's and gender studies core courses as well as cross-listed courses from several departments throughout the University. These courses assume that knowledge cannot be separated from the study of women and gender, and that gender and sexuality are fundamental categories of analysis in all disciplines. The department stresses interdisciplinary scholarship and teaching that are broadly comparative and range across multiple cultures, national and transnational contexts, and historical periods. Its faculty employ a broad range of theoretical approaches and methods.

When students graduate with a Women's and Gender Studies minor they should be able to:

- Apply cross-cultural and global awareness to "big questions" about women and gender



- Have a comprehensive grasp of intersectionality and matrices of domination
- Think critically: i.e. consider an issue from multiple perspectives; locate, evaluate and interpret diverse sources, including statistics; engage in critical self-reflection
- Construct arguments with evidence obtained from research
- Work collaboratively
- Recognize sexist/racist writing and thinking
- Connect knowledge and experience, theory and activism, Women's and Gender Studies materials with other courses
- Communicate effectively in writing and speech
- Apply knowledge for social transformation, citizenship
- Use gender (and other identity categories) as a category/ies for analysis

A student minoring in Women's and Gender Studies is required to fulfill all requirements for their major degree program, and in addition complete at least 15 credits of Women's and Gender Studies courses, including:

WGST 1120	Introduction to Women's and Gender Studies	3
WGST 2010	Gender and Identity: Understanding Intersectionality	3
Additional WGST credits numbered 2000-level or above		6
Additional WGST elective credits		3

## Graduate Certificate in Geospatial Intelligence

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/geospatial-intelligence-certificate>) and the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Graduate Certificate in Jazz Studies

The Graduate Certificate in Jazz Studies is a one-year program that provides opportunities for continued development of skills in jazz-specific areas, such as improvisation, pedagogy, and arranging. The certificate is available to degree-seeking and non-degree seeking students alike, non-music as well as music majors, and is designed as an intensive introduction to jazz performance. The program will deepen the student's preparation for a career in jazz performance or prepare the student for further study in jazz.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/jazz-studies-certificate/jazz-studies-ge/Gedt.html>

### Prerequisites:

Entrance into the Graduate Certificate program requires a live audition (see below), though video-recorded auditions will be acceptable in rare cases, by permission of the Director of Jazz Studies. Entrance into the program also requires completion of a Bachelor of Music degree (or demonstrated equivalent), with a GPA of 3.0 in the last 60 credit hours. In the event that a candidate does not meet the required prerequisites for a specific curriculum, appropriate course(s) may be added as additional requirements.

### Requirements:

MUS_THRY 7210	Advanced Jazz Harmony and Arranging I	2
MUS_THRY 7211	Advanced Jazz Harmony and Arranging II	2
MUS_H_LI 7317	Historical Studies in Jazz and Popular Music	3
MUS_I_VT 7645	Graduate Jazz Improvisation	2
MUS_ENS 8841	Instrumental Ensemble	2
& MUS_ENS 8846	and Advanced Chamber Ensemble	
MUS_APMS 7435	Studio Instruction	2
& MUS_APMS 7455	and Studio Instruction	
or MUS_ENS 8841	Instrumental Ensemble	
& MUS_ENS 8846	and Advanced Chamber Ensemble	
Total Credits		13

### Audition Information

Audition requirements can be found at <https://music.missouri.edu/grad/graduate-program?q=grad/audition>, under MM in Jazz Performance and Pedagogy, Graduate Jazz Certificate

## Graduate Certificate in Lifespan Development

Dr. Nicole Campione-Barr, Coordinator  
 Lifespan Development Graduate Certificate Program  
 204D McAlester Hall  
 email: [campionebarr@missouri.edu](mailto:campionebarr@missouri.edu)  
 phone: (573) 884-1681

### About the Certificate (Educational Objective)

Developmental psychology and lifespan developmental studies include the scientific study of psychological changes that occur over the life course. Therefore, developmental studies are inherently interested in many of the same questions of other areas of psychology, education, family studies, etc., but by investigating the ways in which particular psychological processes change and develop from infancy to adolescence, and through to adulthood. The purpose of the graduate certificate in lifespan development is to provide students in other areas of psychological study, or human behavior broadly defined, a better understanding of the ways in which psychological functions change with age, as well as the challenges and special considerations that are a part of research with children and adolescents and how they may be different from those of working with adults.

## Plan of Study

The requirements for acceptance and completion of work for the certificate are as follows:

1. The student must be enrolled and in good standing in a doctoral-level program at MU (available to degree-seeking students only).
2. A request to be included in the certificate program must be made in advance of final completion of courses to Nicole Campione-Barr, PhD. This can be done via e-mail or hard copy, however, the request must also be approved by the student's major advisor.
3. A formal plan of study must be submitted to the Office of Graduate Studies no later than the *semester prior to graduation*. This must be signed by the certificate coordinator (Nicole Campione-Barr) and the director of graduate studies of the student's major department.
4. Students must complete a minimum of 15 credit hours to be awarded the certificate, following the below guidelines:

### Core Courses: students are required to take 3 core courses

PSYCH 8410	Psychology of Development	3
or H_D_FS 8210	Theories of Human Development	
PSYCH 8420	Cognitive Development	3
or H_D_FS 8420	Cognitive Development	
PSYCH 8440	Social and Emotional Development	3
or H_D_FS 8440	Social and Emotional Development	

### Electives\* 6

Options within the Department of Psychological Sciences, and Human Development and Family Studies are listed below. Other pre-approved options are listed and include courses in Communication Sciences and Disorders, Educational School and Counseling Psychology, Social Work, and Special Education. Courses other than those listed may be appropriate, but should be approved prior to registration.

Developmental psychology such as PSYCH 7420		
PSYCH 9440	Studies in Developmental Psychology	
PSYCH 8050	Research in Psychology - Non-Thesis	
PSYCH 9050	Research in Psychology - Non-Dissertation	
H_D_FS 8012	Family Dynamics and Intervention	
H_D_FS 8110	Developmental Perspectives on Health and Illness	
H_D_FS 8220	Family Theories	
H_D_FS 8300	Advanced Seminar on Multicultural Families	
H_D_FS 8450	Adolescence and Emerging Adulthood	
H_D_FS 8460	Life Course Perspective	
H_D_FS 8470	Identity Development	
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention	
H_D_FS 8630	Gendered Relations in Families	
H_D_FS 8640	Family Interaction	
H_D_FS 8710	Children, Families and Public Policy	
H_D_FS 8770	Poverty	
H_D_FS 8085	Problems in Human Development and Family Science	
H_D_FS 8090	Research in Human Development and Family Science	
ESC_PS 7160	Developmental Aspects of Human Learning	
ESC_PS 8015	Child and Adolescent Development	
ESC_PS 8580	Social and Cultural Identity Development	
ESC_PS 8135	Foundations of Career Psychology	
C_S_D 7810	Psycholinguistics	

C_S_D 7830	Individual Differences in Language Processing
C_S_D 7840	Language and Development in Infancy
SOC_WK 7390	Helping Strategies With Children and Adolescents
SPC_ED 7325	Language Development of Exceptional Students
SPC_ED 8340	Advanced Studies in Developmental Disabilities

When needed, advising will be provided to students by lifespan development certificate coordinator (Nicole Campione-Barr), in conjunction with the student's major advisor.

## Need for Certificate Program

For students within the child clinical psychology Ph.D. program of study there is a need for some students to gain greater exposure to developmental studies. Currently, the department of Psychological Sciences offers a dual child clinical and developmental psychology degree program. This program is extremely rigorous, however, and students and faculty within the Department of Psychological Sciences have identified a need for more in-depth study in developmental science without the commitment of a second degree. In creating the certificate program, however, it was determined that graduate students in other related fields may also wish to pursue further study in lifespan development. In particular, students in education, social work, communication science and disorders, and additional areas within psychology may benefit from greater understanding of developmental processes which could be gained through the required and elective course work outlined in this certificate program.

## Impact on Current Programs of Study

The impact to current programs of study is expected to be relatively minimal other than the inclusion of potentially a few more students enrolled in the aforementioned classes.

## Advisory Committee Members

Debi Bell, Psychological Sciences  
 Nicole Campione-Barr, Psychological Sciences  
 Marilyn Coleman, Human Development & Family Studies  
 Larry Ganong, Human Development & Family Studies  
 Jean Ispa, Human Development & Family Studies  
 Amanda Rose, Psychological Sciences

## Participating/Affiliated Faculty - Various faculty from the following departments:

Psychological Sciences  
 Human Development and Family Studies  
 Communication Science and Disorders  
 Educational, School, and Counseling Psychology  
 Special Education  
 Social Work

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/lifespan-development-graduate-certificate/lifespan-dev-ge/Gedt.html>

## Graduate Certificate in Music Entrepreneurship

The Graduate Music Entrepreneurship Certificate offers MU graduate students, as well as post-baccalaureate students in the MU community, an officially recognized core of courses dealing with the development, business, and publicity aspects of a musical career. In today's fine arts economy, an increasingly viable and popular model is the "portfolio career," in which a person incorporates multiple roles (e.g. performer, teacher, advocate, manager, publicist, composer/arranger, etc.) rather than pursuing one narrowly defined career path. Contextualizing the vision, skills, and networking activities needed to achieve a viable arts career, while offering a combination of theoretical and practical career preparation for Mizzou students, is the overarching aim of the Certificate.

**Availability:** Aimed primarily at degree-seeking students in music and music education, this certificate would be also be available to students as an add-on to a degree or as a stand-alone certificate. All students who wish to declare the certificate must receive approval from our certificate director, Prof. Jonathan Kuuskoski (kuuskoskij@missouri.edu).

### Required Courses

MUS_GENL 7510	Career Development for Musicians	2
MUS_GENL 7512	Principles of Entrepreneurship for Musicians	1
MUS_GENL 7514	Arts Marketing for Musicians	1
MUS_GENL 7516	Grant Writing for Musicians	1
MUS_GENL 7518	Music Industry Survey	1
MUS_GENL 7520	Non-Profit Management in the Arts	1
MUS_GENL 7522	Community Engagement in the Arts	1
MUS_GENL 7530	Entrepreneurship, Leadership and Advocacy in the Arts	2
MUS_GENL 7540	Music Entrepreneurship Practicum	2

## Graduate Certificate in Science Outreach

The educational objectives of the Certificate in Science Outreach Program are to teach students how to integrate research and outreach, and how to facilitate a dialogue with the lay public. Course work will concentrate on increasing the ability of students to communicate science to broad audiences of different ages and different levels of education. Practice and application of outreach will develop the "broader impacts" component of the research, and will emphasize actual interaction with audiences, to promote understanding and appreciation of science, and support for scientific research.

### Required Courses:

BIO_SC/AN_SCI 8725/PHYSICS 8350/ LTC 8725	Science Outreach: Public Understanding of Science	1-2
LTC/BIO_SC 8726	Integrating Science with Outreach	1-6
LTC/BIO_SC 8724	College Science Teaching	3

For more information, contact the certificate Co-Directors:

Anna Waldron  
(573) 882-2737  
waldrona@missouri.edu

Gavin King

(573) 882-3217  
kinggm@missouri.edu

## Graduate Minor in Black Studies

### Contact Information

Department of Black Studies  
313 Gentry Hall  
(573) 882-6229  
<http://blackstudies.missouri.edu/>

### About the Department of Black Studies

The central mission of Black Studies is to prepare students to critically understand, conduct research, and interpret the complex histories, societies, and cultures of people of African descent in the United States, Africa and the Diaspora.

The Department's interdisciplinary design encourages specialization within the University of Missouri's broad liberal arts curriculum. As a result, students and faculty may conduct research that develops new or builds upon existing concepts, theories, and approaches to the study of the evolving experiences and contributions of the African Diaspora. In so doing, Black Studies prepares students to participate competently in diverse and competitive global societies where they may contribute viable practical solutions to critical challenges on multiple levels.

### Affiliates of the Black Studies

The Department of Black Studies encourages the use of diverse curricular offerings throughout many different departments. Faculty members and affiliates of the department design new ways to incorporate topics of Black Studies in their courses. Departments affiliating with Black Studies include art, educational leadership and policy analysis, English, history, human development and family studies, journalism, law, music, political science, religious studies, romance languages, sociology, theatre, and women and gender studies.

### Resources

The Walter Daniel Resource Center is supported by an endowment set up by the estate of the late Dr. Walter C. Daniel. Dr. Daniel came to the University of Missouri in 1973 as its first vice chancellor. He was instrumental in helping to reorganize the University's administration. However, his success as an administrator never overshadowed his love of teaching and working with students. Located in 328 Gentry Hall, the books, periodicals, reference materials and media resources in this center will supplement and complement existing university resources on the histories, cultures, and societies of people of African descent in Africa, the U.S., and throughout the Diaspora available to the University community. Additionally, the center houses Dr. Daniel's extensive private library of African American literature, as well as an extensive collection of primary and secondary sources including numerous periodicals and scholarly journals. The library also offers a small video collection which can be viewed on site. At the present time the library is a read-only research facility.

### Plan of Study

An individual program of specialization in Black Studies may be arranged within the framework of a conventional graduate degree in any one of several fields. The options within a regular degree program are employed to include maximum exposure to courses emphasizing the diverse

histories, cultures, and societies of people of African descent in Africa, the U.S., and throughout the Black Diaspora. Courses outside the major department, but in related fields, are incorporated into the student's study plan. Students interested in pursuing a Black Studies specialty within their chosen fields should consult a departmental advisor, who is an affiliate of the Department of Black Studies, to assist in course selection. Lacking such an advisor, students should contact the Chair of the Department of Black Studies for assistance or send an email to Mary Beth Brown (bromary@missouri.edu) in the Department of Black Studies.

## Graduate Minor in Medieval and Renaissance Studies

**Considering a graduate MARS minor?** While most students still choose to study in a traditional disciplinary framework, a MARS minor allows students to expand the breadth of their studies and research by taking coursework in over 11 different departments on campus. So much of the research on the Middle Ages and the Renaissance is interdisciplinary in nature, and the MARS minor helps students gain expertise in areas outside of their home discipline while simultaneously offering a quick and comprehensive way for prospective employers to understand their specialization and background.

**Requirements:** Courses that may be applied toward this minor are taught by faculty members from the departments of Art History and Archaeology, Classical Studies, English, Germanic and Russian Studies, History, Music, Philosophy, Religious Studies, and Romance Languages and Literatures. Under certain circumstances, a minor in Medieval or Renaissance studies may also be arranged for MA programs. A student must be accepted for advisement by the major department. Then, in consultation with the major advisor, who must be a specialist in the medieval or Renaissance period, an interdisciplinary curriculum for the minor is prepared and submitted to the Medieval and Renaissance Studies Committee for approval.

- A doctoral candidate in one of these departments offering a PhD may elect a minor concentration in interdisciplinary Medieval or Renaissance Studies by taking at least three appropriate courses outside the department, as well as all appropriate ones within it. Thus one earns, for example, a PhD in Art History and Archaeology with specialization in Medieval Studies, or a PhD in History with specialization in Renaissance Studies.
- At least nine (9) hours in relevant 7000 or 8000 level courses outside the major department are required to constitute the minor.
- Because the program places considerable emphasis on foreign languages, all doctoral candidates must study at least two languages.

**Perks:**

- The Newberry Library Center for Renaissance Studies consortium
- MU graduate Association for Medieval and Renaissance studies
- Renaissance reading group
- A listserv announcing campus-related activities for MARS members

For more information contact:

Dr. Emma Lipton  
 Chair of MARS  
 liptone@missouri.edu

## Graduate Minor in Museum Studies

This minor, offered by the Museum of Art and Archaeology and the Department of Art History and Archaeology, provides students with a systematic introduction to the history, philosophy, and role of museums. The program blends academic theory with practical experience to provide students with an opportunity to build a foundation applicable for work in either university or public museums.

**Curriculum:** The program comprises six courses designed to introduce students to the history and role of museums in society; to the philosophical, legal and administrative issues that face the modern museum; and to the exhibition and preservation skills required of a museum curator. The emphasis of the program is on museum management, curatorial responsibilities (collections management and exhibition) and educational interpretation. Internships and field trips to local museums provide additional insight into the world of museum professionals.

- Individual courses are listed under the Department of Art History and Archaeology. Successful completion of the program is accomplished through 12 credit hours of required course work, including AR\_H\_A 7130, AR\_H\_A 8130 and AR\_H\_A 7980, and is recognized when the student successfully completes an M.A. in his or her academic field of study. An individual's course of study will be arranged with the program director.
- The minimum period required to complete the minor is four semesters, or three semesters and one summer. Courses are open to advanced undergraduate students, but admission to the program is open only to those who have completed a BA degree.

**Admissions:** Students who undertake the museum studies minor are normally already enrolled as graduate students in degree-granting academic departments. Students should apply at the beginning of the fall semester to the Director of Graduate Studies, 109 Pickard Hall, for admission to the program.

## Graduate Minor in Psychological Statistics and Methods

The Minor in Psychological Statistics and Methods is a joint program between the Department of Psychological Sciences and the Department of Statistics.

A total of seven courses at the 7000 level or above in statistics and methods is required. The course options are dependent on the doctoral program in which the student is admitted. More detailed specification of the courses required in the plan of study may be stipulated by the student's major department and the student should consult with them in this regard.

**Doctoral students in the Department of Psychological Sciences or Statistics** must take at least two of the seven required courses outside their major department.

**A grade of B or better is required in the following courses:**

PSYCH 9710	Multivariate Statistics in Psychology	3
PSYCH 9720	Latent Variable Models in Statistical Analysis	3
PSYCH 9715	Multilevel Modeling	3

**Quantitative Psychology - one of the following is required:**

PSYCH 9520	Psychometrics	3
PSYCH 9725	The Literature Review	3
PSYCH 9750	Advanced Structural Equation Modeling	3
PSYCH 9760	Categorical Data Analysis	3
PSYCH 9735	Psychological Process Models	3

Two approved courses at the 7000 level or above in the Department of Statistics, Mathematics, or in other departments provided those courses are primarily statistics-oriented or methods-oriented. \*

\* The following courses **cannot** be used to fulfill minor requirements: STAT 7050, STAT 7510, STAT 7530, STAT 7560, STAT 4970, STAT 7020, STAT 7070, STAT 8220, STAT 8370.

Doctoral students in other departments must take five courses within the Department of Psychological Sciences or the Department of Statistics, at least two of which are in statistics and two of which are in psychology.

Questions regarding the minor in Psychological Statistics and Methods should be directed to:

Phil Woods  
 Training Area Director  
 philipkwood@gmail.com

## Graduate Minor in Women's and Gender Studies

### Contact Information:

Joan Hermesen, Chair  
 Mary Jo Neitz, Director of Graduate Studies  
 325 Strickland Hall  
 (573) 882-2703

### Eligibility for Minor

The Women's and Gender Studies Graduate Minor is available to all students pursuing a graduate degree at MU.

### Plan of Study

15 credit hours will be chosen to complement the student's main area of graduate study. Students may take up to six hours in their home department. Students will gain expertise in the methodologies and theories in Women's and Gender Studies.

The minor requires the following six credit hours:

WGST 8020	Graduate Feminist Theory	3
WGST 8040	Seminar: Problems and Issues in Feminist Scholarship	3

For lists of permanent courses and current offerings, the Women and Genders Studies (<http://wgst.missouri.edu>) website.

## Robert J Trulaske, Sr. College of Business

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### Administration

Ajay Vinzé, Dean  
Stephen Ferris, Sr. Associate Dean  
Mary Beth Marrs, Associate Dean  
C. Tad Brinkerhoff, Assistant Dean, MBA Programs  
Jeff Wiese, Assistant Dean  
Vairam Arunachalam, Director, School of Accountancy  
John Howe, Chair, Finance Department  
Rhonda Reger, Chair, Management Department  
Murali Mantrala, Chair, Marketing Department

### Contact Information

111 Cornell Hall  
(573) 882-7073

The Robert J. Trulaske Sr., College of Business, established in 1914, educates students for professional opportunities and responsibilities in the private and public sectors. The college includes the School of Accountancy (the first established at a major public university) and the departments of Finance, Management and Marketing. The college offers an undergraduate degree in business administration, a combined bachelor's and master's degree program in accountancy, master's degrees in business administration, and doctoral degrees in accountancy and business.

Students' educational experiences are enhanced through the scholarly activities of the faculty, who conduct research on significant, timely issues. Students in the college are exposed to relevant theories and concepts applied to real-world operations of private and public enterprises. Students gain added practical insights through internships, field projects, guest speakers, and executives-in-residence. The college's agencies provide information, research, continuing education, and managerial assistance to practitioners and organizations throughout Missouri and in other states.

The Trulaske College of Business accepts CLEP subject examinations, departmental exams, and Advanced Placement (College Board) credit. More information may be obtained from academic advisors in the Trulaske College of Business Undergraduate Advising Office and the Credit by Examination section in the beginning of this catalog.

### Department of Finance

Through the study of finance, students learn to independently analyze security markets, understand basic valuation techniques and use their knowledge to make investment decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions. Coursework focuses on the areas of investments, portfolio management, real estate appraisal, financial institutions and corporate finance.

### Department of Management

Management is defined by the Academy of Management as including "all processes, structures, and behaviors that are related to the work of organizations, as well as the dynamics of industries, economies, cultures, and other environmental forces that affect organizations and their employees." Management coursework at MU is quite

diverse, covering the areas of human resource management, human behavior in organizations, organization theory, strategic management, entrepreneurship, information systems, e-commerce, operations management, and business law.

### Department of Marketing

Marketing focuses on creating and managing customers. It deals with the strategies, tactics, and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide, and then assembling the products, services, people and partner firms needed to build, communicate and deliver that value.

### Exploratory Course

Students wanting to explore business administration as a major should take BUS\_AD 1500.

### Double Emphasis

Students may have a dual emphasis of Finance and Real Estate, or may add on an economics emphasis to any other BSBA emphasis program.

### Undergraduate

- Admissions (p. 325)
- Degree core Requirements (p. 326)
- Academic Regulations (p. 326)
- Enrolling in Other Institutions (p. 327)
- Advising (p. 327)
- Business Career Services (p. 327)
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### Admissions

#### Freshmen

Freshman applicants to the Robert J. Trulaske Sr., College of Business (students applying to MU from high school) will be admitted to the lower division if they meet campus admission requirements. Admission to the lower division does not guarantee admission to the BSBA degree program and emphasis areas or the Accountancy program. Admission to an upper-division emphasis area is based on the UM cumulative grade of record (minimum 2.6 GPA), successful completion of the business and professional core courses, and completion of the Professional Development Program requirements.

#### Transfer Students

Students in good standing in another school or college at MU must submit a Transfer of Division form to the Trulaske College of Business. Such students may be admitted to the lower division if they can complete degree-program admission requirements by the completion of 60 credits for Accountancy or Business students.

External transfer students who request admission to the Trulaske College of Business will be admitted to the lower division if they can complete degree-program admission requirements by the completion of 60 credits. Students are encouraged to have their transcripts evaluated by an academic advisor in the Trulaske College of Business prior to their enrollment at MU.

Coursework completed with a grade of D- or better at an accredited two- or four-year institution will be accepted if the courses are appropriate

equivalents of the required MU courses, and if the equivalent MU courses do not require a grade in the C range. Only six hours of business coursework at the 3000-level or above can be transferred for the degree requirements. The college does not accept developmental or vocational/technical coursework.

Credits transferred from accredited community or junior colleges usually include general education, upper division or pre-accountancy admission requirements and unrestricted elective courses. The Trulaske College of Business accepts a maximum of 64 credits from a community or junior college toward the bachelor's degree. When more than 64 credits have been completed, the additional courses are evaluated on a course-by-course basis for applicability to lower-division requirements.

A student holding an associate of arts degree from an accredited Missouri Community College will have fulfilled general education requirements (p. 33). However, this does not exempt the student from satisfying the specialized degree, major or emphasis prerequisites of the college in the areas of accounting, economics, math, and statistics.

Students transferring to the college without an associate of arts degree will have their transcripts evaluated on a course-by-course basis and must meet the entrance requirements of the college in the same way as other MU students. Students transferring to the Trulaske College of Business will be required to meet the Professional Development requirements based on the earliest semester of continuous enrollment in college after high school graduation.

## Probationary Admissions

Students are placed on academic probation if they are admitted to the college without fully meeting the good-standing requirements of the school. (See the section on Probation Suspension and Dismissal (p. 326) for these requirements.)

## Degree Core Requirements

### Credit Hour Requirements

In addition to University general education (p. 33) and graduation requirements, students must meet the following requirements:

- Students must complete a minimum of 120 credits from accredited colleges or universities for all BSBA emphasis areas except International Business, which requires 141-158 credits. (See separate section for international business major requirements.) Additionally, the joint BSACC and the MAcc degree program requires students to complete a minimum of 150 credit hours.
- In completing the 120 credits for graduation, students may count no more than 30 credits within their emphasis area.

A student who has a degree in another curricular area may receive a Bachelor of Science in Business Administration degree upon completion of all requirements for the degree.

## Professional Development Program

In addition to completing required coursework to earn a Bachelor of Science, Business Administration degree, students must fulfill the requirements of the Professional Development Program (PDP). The goal of the PDP is to offer opportunities to all BSBA and Accountancy students to develop core competencies and values necessary for success in their professional careers.

As a graduation requirement, the program is comprised of the following:

- Completion of designated professional activities to acquire points for admission to the upper division. Once admitted to the upper division, students will continue to earn points to meet the graduation requirements. Specific activities may be required.
- Completion of BUS\_AD 3500 the semester immediately following admission to the upper division. This course is a pre-requisite to the completion of the required BUS\_AD 4500. These two courses may not be taken out of sequence without prior approval. BUS\_AD 3500 must be completed in residence.
- Completion of BUS\_AD 4500 once admitted to the upper division. This will include completion of a professional level internship/practicum experience. Practicums can be completed over a summer or semester-long period of time (intersession assignments will not meet the PDP requirement). Students must seek final approval of their internship/practicum experience from the PDP Office before beginning the course. BUS\_AD 4500 must be completed in residence.

If a student fails to meet the requirements of the PDP at either the lower or upper division, the student will not be allowed to continue in or graduate from the Trulaske College of Business.

## Professional Development Graduation Requirement

- The student must earn a minimum of 70 PDP points (maximum of 100) at the lower division for official admittance to the upper division. Once admitted, students must earn a total of 200 PDP points to meet the requirement. Specific activities and workshops may be required.
- The student must earn a C- (or higher) in BUS\_AD 3500 to satisfy the requirement.
- BUS\_AD 4500 is graded as Satisfactory/Unsatisfactory. Students must complete practicum course to a satisfactory level of 70% or greater to receive a passing grade for the course

## Capstone

Students must complete MANGMT 4970 Strategic Management to meet the capstone requirement. Students must earn a C- or better to earn credit for this course in order to graduate.

## Required Work in Residence

Students must complete 30 of the last 36 hours of courses in residence at MU, enrolled in the Trulaske College of Business.

## Latin Honors

Graduation with Latin Honors is determined by grade point average from either the last 50 undergraduate credits in the UM system or overall UM System undergraduate credits, whichever is higher. Grade point average requirements for Latin Honors are 3.5 for *cum laude*; 3.7 for *magna cum laude* and 3.9 for *summa cum laude*.

## Academic Assessment

Students are required to complete a college-wide assessment exam in addition to a University assessment exam during their capstone course.

## Academic Regulations

### Credits by Examination

The Trulaske College of Business accepts CLEP subject examinations, departmental exams and advanced placement (College Board) credit.

More information may be obtained from academic advisors in the Trulaske College of Business and the Credit by Examinations section (p. 760).

## Maximum Credits Enrolled

A student may register for more than 18 credits for a fall or spring term, with permission of their academic advisor in the Trulaske College of Business.

## Probation, Suspension and Dismissal

### Grade Point Average Requirements

Minimum GPAs must be maintained in the following categories to remain in good standing with the Trulaske College of Business:

- Students in the Upper Division for Business must maintain a 2.50 GPA in all MU accounting and business courses in order to graduate. Students in the Upper Division Accountancy, must maintain a 3.0 GPA in order to graduate.
- All students must earn a 2.00 term and cumulative GPA on courses completed in the UM System.

### Probation

See the Academic Standing (p. 760) section of this catalog.

- A student in good academic standing whose term GPA subsequently falls below 2.0 but is 1.0 or above is placed on academic probation.
- A student whose cumulative GPA for courses offered by the Trulaske College of Business is below a 2.0 is placed on probation. (Courses offered by the college are those with the curricular designations of ACCTCY, BUS AD, ECONOM, FINANC, MANGMT and MRKTNG.) This only applies to students admitted to an upper division BSBA emphasis.
- A student placed on academic probation must establish a 2.0 term GPA, a 2.0 UM System cumulative GPA, and a 2.0 MU Trulaske College of Business cumulative GPA within two successive terms of enrollment; otherwise, the student is ineligible to enroll.
- Students placed on probation may become ineligible to enroll in the Trulaske College of Business at the end of the first term of probation if they become subject to one or more of the first three dismissal provisions below.

### Dismissal

See University requirements outlined in the Academic Standing (p. 760) section of this catalog.

Students become ineligible (dismissed) to enroll in the Trulaske College of Business if one or more of the following occurs:

- The fall or spring term GPA falls below 1.0.
- For a student who has been admitted to upper division, the cumulative GPA for courses offered by the Trulaske College of Business is below a 2.0 GPA. This includes all MU accountancy and business courses regardless of whether the courses are completed before or after admission to a BSBA emphasis area.
- The student fails to remove probationary status at the completion of the second successive term on probation (summer terms excluded).

A student who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the Director of Undergraduate Advising. As a condition of readmission, the director may set forth stipulations about minimum standards of academic work that must

be maintained by the student. After readmission, if the student again becomes ineligible to enroll, his or her ineligibility is considered permanent.

## Satisfactory/Unsatisfactory Grades

The S/U grading system is limited to unrestricted elective courses or courses only offered with a S/U grade.

## Enrolling in Other Institutions

The Trulaske College of Business has no restrictions on a student enrolling in another institution simultaneously as long as university residency requirements are met.

A student may take no more than six credit hours of transfer business coursework at the 3000-level or higher.

## Advising

Undergraduate Advising Office  
111 Cornell Hall  
(573) 882-7073  
umcbusadvisingdesk@missouri.edu

Students admitted to a degree program in the college are assigned an academic advisor. The academic advisor works with students in determining coursework needed to complete a degree. In addition, students are assigned a faculty advisor in their emphasis area who can assist with career planning and selection of professional electives and emphasis support courses. Students are responsible for determining an appropriate schedule of courses each semester and are encouraged to meet with their academic advisor for assistance.

## Business Career Services

Business Career Services (BCS) is a valuable resource for all levels of TCoB students. BCS provides students individual career coaching, guidance and advice in areas such as résumé and cover letter construction/revision, mock interviews, interview preparation, salary negotiations, and much more. Business Career Services partners with numerous companies serving as a liaison to bridge employer with employee. BCS-sponsored events such as Corporate Visit Days and Emphasis Panels (Accountancy, Finance & Banking, Management, Marketing, Real Estate, Sales, Entrepreneurial, Consulting, Government, Health Care, and Human Resources) provide students with firsthand knowledge of what is required to be competitive in the job market upon graduation from the Trulaske College of Business. All students are encouraged to register with BCS and begin utilizing these services as early as freshman year. BCS hosts three career fairs annually.

## Professional Development Program

The mission of the Professional Development Program is to provide every BSBA and lower division Accounting student with substantive professional development experiences during their degree program. Professional Development refers to activities, both inside and outside of the classroom, that provide students with the opportunity to develop and practice skills that are needed to perform successfully in professional roles after graduation. Students who graduate with a BSBA degree from the Robert J. Trulaske Sr., College of Business will have content knowledge and advanced professional competencies that are necessary for success in the business world.



## Graduate

Founded in 1914, the Robert J. Trulaske, Sr. College of Business enrolls about 350 graduate students as well as 4,000 undergraduates. The primary mission of the college is to prepare students to succeed in the world of business and to advance the body of knowledge about the world of business. The college has four academic units – Accountancy, Finance, Management, and Marketing – with 64 full-time faculty members.

The Trulaske College offers PhD degrees in both accountancy and business administration, an MBA degree, a 150-hour program that confers both undergraduate and master's degrees in accountancy, and an undergraduate degree in business administration. Over time, the college's degree programs and faculty research productivity have earned national acclaim.

The college takes great pride in its graduates. More than 31,000 alumni are contributing their expertise to the public and private sectors in every state in the U.S. and in a host of foreign countries. The Trulaske College's graduate-level degree programs, dual degrees, and certificates are described below.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Office of Graduate Studies. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Accountancy

Vairam Arunachalam, Director, School of Accountancy and PwC/Silvoso Distinguished Professor

Koni J. Daws, Director, 150-hour and Master of Accountancy Programs  
Shannon Ferguson, Assistant Director, 150-Hour and Master of Accountancy Programs

Robert J. Trulaske, Sr. College of Business  
303 Cornell Hall  
(573) 882-4463

### Academic Advising Contact

Koni J. Daws  
303 Cornell Hall  
(573) 882-4463

### Scholarship Contact

Shannon Ferguson  
Robert J. Trulaske, Sr. College of Business  
303 Cornell Hall  
(573) 882-4463

The accountancy program at the University of Missouri has long been nationally recognized for its excellence. MU accountancy faculty have published leading textbooks and research articles and have served at high levels in numerous professional accounting associations. The school offers a combined BSACC and MAcc degrees.

Students wanting to explore accountancy as a major should take ACCTCY 2036.

## Admissions

Accountancy prepares students for the competitive field of accounting with a combination of classroom study, practical experience, and

student organizations, all in a degree that is nationally recognized for its excellence. The bachelor of science and master of accountancy degree programs are merged into an integrated 150-hour curriculum to be entered into as a junior. A limited number of students may also be accepted into the MAcc-only program.

Admission decisions will be made at the end of the spring semester for *fall admissions only*. Meeting the minimum requirements does not guarantee admission. Admission cutoffs will be revised each year in order to control accountancy undergraduate enrollment at a limit that can be served with current authorized faculty staffing and still maintain program quality and meet accreditation guidelines. Students meeting the minimum requirements will be selected for admission based on their UM cumulative grade point average until the enrollment for that year is reached. A limited number of students may be selected by considering grades and other criteria such as demonstrated commitment, experience, leadership and other exceptional circumstances.

Students not admitted to the 150 credit hour degree program in the School of Accountancy may meet Trulaske College of Business admission requirements and transfer into a business administration emphasis area, depending on available space.

A student may take no more than six credit hours of 3000 or higher business courses through non-MU courses off campus, excluding ACCTCY 4940 and ACCTCY 7940. Study abroad courses are also excluded from this requirement.

## Faculty

**Professor** V. Arunachalam\*\*, J. R. Francis\*\*, I. K. Khurana\*\*, E. G. Mauldin\*\*, R. Pereira\*\*

**Associate Professor** K. W. Shaw\*\*

**Assistant Professor** B. Christensen\*\*, W. Demere, M. Glendening\*\*, S. Neuman\*\*, N. Newton\*\*, A. Pawliczek, R. Schmardebeck\*\*

**Associate Teaching Professor** K. Hockman\*, C. Prestigiacomo\*

**Assistant Teaching Professor** E. Bartley, K. Gingrich, R. Wilson\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSACC in Accountancy (p. 329)

## Undergraduate Level

Information on students who are admitted to MU and who indicate an interest in becoming accountancy or business majors is subsequently forwarded to the Undergraduate Programs Office of the College of Business (111 Cornell Hall, 573-882-7073). Qualified applicants with less than 54 semester hours of college courses completed will be admitted to the lower (pre-professional) level of the Trulaske College of Business. Applicants with more than 54 semester hours of college credit may be admitted to a specific upper (professional) level college of business program, e.g., the 150-Hour Accountancy Program, if they meet the program's admission requirements. Students who transfer into the Trulaske College of Business' upper or lower levels from another Mizzou school or college must submit a Transfer of Division form in order to be considered for admission.

The combined BSAcc/MAcc (150-hour) program is open to qualified undergraduate students at Mizzou as well as qualified undergraduates who transfer to MU from other colleges and universities. Interested students not already admitted to Mizzou should visit the Office of Admissions website (<http://admissions.missouri.edu/apply>). Undergraduate students are also responsible for completing all Trulaske College of Business requirements. These requirements can be found here (p. 325).

## Admission to the Joint BSAcc and MAcc Degree Program

In the School of Accountancy, the bachelor's and master's degree programs are merged into a 150-credit program. Students should be admitted to the BSAcc/MAcc degree program by the time they have completed 60 hours. Refer to the list of Pre-Accountancy (p. 329) courses in the BSAcc (p. 329) information which are required for admission.

Students must also complete the Professional Development Program (PDP) point requirement for admission to the School of Accountancy and for graduation. Students must earn a minimum of 70 PDP points (maximum of 100) at the lower division for official admittance to the upper division. Once admitted, students must earn a total of 200 PDP points for graduation.

## Academic Standing - School of Accountancy

Accountancy students are in good academic standing if they maintain a cumulative UM grade point average of 3.0 or higher for all coursework subsequent to admission to the 150-hour Accountancy program. Failure to meet this requirement will result in a probationary semester, and if not rectified, dismissal from the program. Accountancy students are subject to the probation and dismissal policies (p. 325) set by the Trulaske College of Business. An undergraduate who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the director of the 150-hour program in accountancy. As a condition of readmission, the director may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. After readmission, if the student again becomes ineligible to enroll, his or her ineligibility is considered permanent. Accountancy students entering the graduate portion of the 150-hour program should consult the Office of Graduate Studies (<http://gradstudies.missouri.edu>) for academic standing policies for graduate students.

## Graduate

- MAcc in Accountancy (p. 331)
- PhD in Accountancy (p. 332)

Robert J. Trulaske, Sr. College of Business  
School of Accountancy  
303 Cornell Hall  
573-882-4463

**School of Accountancy Director:** Vairam Arunachalam  
**Director of 150 Hour and Master of Accountancy Programs:** Koni J. Daws  
**Director of PhD Program:** Jere Francis

## About Accountancy Graduate Programs

The School of Accountancy offers graduate work leading to the master of accountancy and doctor of philosophy degrees. Graduate programs in accountancy prepare students for advanced professional careers in public, private and governmental accounting, and for careers in teaching and research.

Alert to change and recognizing that accounting education at the graduate level should be ahead of current practice, the School's programs require course work stressing advanced knowledge in accounting theory and practice, quantitative methods, economics and business. Opportunities exist on and off campus for exchanging ideas with practicing accountants and for participating in the solution of their professional problems.

Among the school's special facilities are a comprehensive collection of accounting and investment services, computer databases, technical journals and microfilm copies of annual reports, government documents and doctoral dissertations.

## Funding

Fellowships, scholarships and teaching and research assistantships are available to qualified graduate students.

## BSAcc in Accountancy

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### Degree Program Description

Students in the School of Accountancy acquire practical experience in the field of accounting. The curriculum provides students with a strong technical accountancy background, a broad advanced business background and professional skills such as public speaking and information systems skills. Accountants engage in a wide variety of activities including preparing financial statements, reconciling business transactions, performing audits of public companies, and developing and using information systems to track financial performance and strategy. The field is competitive and challenging, but worth it. Typical careers in accountancy include auditor, tax advisor, wealth manager, forensic accountant, corporate finance officer, and consultant. The undergraduate and master's degree programs with a major in accountancy are merged into an integrated 150-credit curriculum to provide high-quality preparation for a career as a professional accountant in public accounting, business or government. Admission is competitive; students are required to have a minimum 3.000 GPA of record and at least 45 credit hours earned to apply during the Spring semester.

### Major Program Requirements

The undergraduate and master's degree programs with a major in accountancy are merged into an integrated 150-credit curriculum to provide high-quality preparation for a career as a professional accountant in public accounting, business or government.

The Bachelor of Science with a major in Accountancy is awarded along with the Master of Accountancy degree upon satisfactory completion of the 150-credit, integrated curriculum. In this integrated program, a minimum of 24 credits in accountancy courses at the 3000-level or above must be completed at MU.

## Major Core Requirements

The following courses are degree specific major requirements for the 150-credit program in the School of Accountancy. Courses that satisfy University general education (p. 33) and core program prerequisite requirements are recommended for the freshman and sophomore years.

### Accountancy Foundation Courses

PHIL 1000	General Introduction to Philosophy (fulfills humanistic studies requirement)	3
or PHIL 1100	Introduction to Ethics	
or PHIL 1200	Logic and Reasoning	
COMMUN 1200	Public Speaking	3
3 hours of Psychology or 3 hours of Sociology		3
International Component (See your academic advisor about completion of this requirement.)		

### Pre-Accountancy Courses

ACCTCY 2036	Accounting I * 1 2 (for all courses)	3
or ACCTCY 2136H	Honors Accounting I	
or ACCTCY 2026	Accounting I	
ACCTCY 2037	Accounting II * 1 2 (for all courses)	3
or ACCTCY 2137H	Honors Accounting II	
or ACCTCY 2027	Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2
ECONOM 1014	Principles of Microeconomics ** 2	3
or ECONOM 1024	Fundamentals of Microeconomics	
ECONOM 1015	Principles of Macroeconomics ** 2	3
ENGLSH 1000	Exposition and Argumentation *** 2	3
MATH 1100	College Algebra ***	3
MATH 1300	Finite Mathematics 2 3	3
MATH 1400	Calculus for Social and Life Sciences I 2 3	3
STAT 2500	Introduction to Probability and Statistics I *** 2	3

### Required Core Courses

ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 3251	Theory of the Firm	3
or ECONOM 4351	Intermediate Microeconomics	
FINANC 3000	Corporate Finance	3
MANGMT 3000	Principles of Management	3
MANGMT 3300	Introduction to Business Processes and Technologies	3
MANGMT 3200HW	Business and Society - Honors/Writing Intensive	3
or MANGMT 4140W	Business Communication - Writing Intensive	
MANGMT 3540	Introduction to Business Law	3
MRKTNG 3000	Principles of Marketing	3
STAT 3500	Introduction to Probability and Statistics II	3

### Required Accountancy Courses

ACCTCY 3326	Financial Accounting Theory and Practice I	3
ACCTCY 3328	Accounting Information Systems	3
ACCTCY 3346	Financial Accounting Theory and Practice II	3
ACCTCY 3347	Cost and Managerial Accounting	3
ACCTCY 4353	Introduction to Taxation	3
ACCTCY 4384	Auditing Theory and Practice I	3

Accountancy Elective		3
<b>Professional Electives</b>		
Eight credits must be taken as 2000-level or higher University non-business electives or 3000-level business electives		8
<b>Senior Capstone</b>		
MANGMT 4970	Strategic Management	3
<b>Graduate Level Coursework</b>		30
Total Credits		132

- \* Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.
- \*\* ECONOM 1051H may be taken in place of ECONOM 1014/ECONOM 1024 and ECONOM 1015.
- \*\*\* Requires a grade of C- or better.
- 1 Requires a grade of B- or better for ACCTCY 2036 and ACCTCY 2037, ACCTCY 2136H or ACCTCY 2026, ACCTCY 2137H or ACCTCY 2027 (including grades from other institutions).
- 2 Requires minimum 3.0 GPA (including grades from other institutions) for these Pre-Accountancy courses.
- 3 Need grade of C- or better in MATH 1300 or MATH 1400.

## School of Accountancy Graduation Requirements

Course requirements ensure that at least 40 percent of a student's course work is earned in divisions other than business. The merged BSACC and MAcc degrees require 150 total credits.

General Education *	18
Pre-Accountancy Courses	34
Accountancy Foundation Courses	9
Required Core Courses	27
Required Accountancy Courses	21
Professional Electives	8
Senior Capstone	3
Graduate Level Coursework	30
<b>Total Minimum</b>	<b>150</b>

- \* Additional 3 hours of humanities fulfilled in Accountancy foundation courses. Students also need to fulfill an International Studies Component (3 hours) to be selected with your advisor. These classes can be taken at the undergraduate or graduate level.

## Semester Plan - Bachelor of Science in Accountancy and Master of Accountancy

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year	CR Spring	CR
Fall		
MATH 1300 or 1400 *	3 MATH 1300 or 1400 *	3
State Requirement	3 ENGLSH 1000 (grade of C- or better)	3
BUS_AD 1500	2 Humanities	3
PSYCH 1000 or SOCIOL 1000	3 Physical/Biological Science	3
PHIL 1000, 1100, or 1200	3 ECONOM 1014	3

Second Year		
Fall	CR Spring	CR
Physical/Biological Science	3 STAT 3500	3
BUS_AD 2500	2 Physical/Biological Science	3
STAT 2500	3 ACCTCY 2037 or 2137H	3
ACCTCY 2036 or 2136H	3	
ECONOM 1015	3 ACCTCY 2258	3
	COMMUN 1200	3
	14	15

Third Year		
Fall	CR Spring	CR
Humanities	3 FINANC 3000	3
ACCTCY 3326 (FS only)	3 ACCTCY 3346 (SP only)	3
ACCTCY 3328	3 MRKTNG 3000	3
MANGMT 3000	3 ACCTCY 4353	3
ECONOM 3229	3 MANGMT 3200HW or 4140W (Writing Intensive)**	3
	Professional Elective	2
	15	17

Fourth Year		
Fall	CR Spring	CR
Professional Elective	3 Non Internship (for Internship plan-see below) <sup>#</sup> MANGMT 4970	3
MANGMT 3300	3 Non Business Elective	3
ECONOM 3251 or 4351	3 ACCTCY 4384	3
MANGMT 3540	3 ACCTCY/BUS Elective	3
ACCTCY 3347	3 Professional Elective	3
	15	15

Fifth Year		
Fall	CR Spring	CR
Accountancy Elective	3 ACCTCY 8450	3
Accountancy Elective	3 MANGMT 7010	3
Accountancy Elective	3 Accountancy Elective	3
Accountancy/Business Elective	3 Accountancy Elective	3
Accountancy/Business Elective	3 Accountancy/Business Elective	3
	15	15

Total Credits: 150

# Internship		
ACCTCY 4940	Professional Accounting Internship	3
ACCTCY 4384	Auditing Theory and Practice I	3
Accountancy Elective		3
Total Credits		9

# Some students get an opportunity to do a spring internship for 3 hours during the 8th semester. Internships are normally the 1st 8 weeks and students take 6 hours during 2nd 8 weeks for a total of 9 hours. If students do a winter internship, they can normally only complete 12 hours by taking an independent study course. Students would need to complete the additional 3 hours prior to or during the summer following the internship.

\* MATH 1300 must be taken. A grade of C- or better is required in MATH 1100 (counts in place of non-business elective), MATH 1300 or MATH 1400 and STAT 2500.

\*\* Need grade of C- or better to fulfill requirement.

## Note:

MANGMT 3200HW OR MANGMT 4140W is a required course.  
ECONOM 1051H satisfies both ECONOM 1014 or ECONOM 1024 and ECONOM 1015 requirement.  
One humanity or science must be 2000-level or above.  
Professional electives can be non-business electives (2000+ courses) or Business electives (3000+ courses) approved by academic advisor.  
Electives must be approved by advisor so that international studies component is met.

## MAcc in Accountancy

### Admission Contact Information

Koni J. Daws, dawsk@missouri.edu  
303 Cornell Hall; Columbia, MO 65211  
573-882-4463

The growing scope and diversity of functions being performed by professional accountants has created a strong demand for individuals who have both a broader base of general and business education as well as more in-depth technical accounting education than can be obtained in a four-year.

### Requirements for Master's Degree Only

A student who has a degree in a different curricular area or a bachelor's degree in accountancy from another college or university may earn a master's degree from the School of Accountancy upon completion of the requirements for the degree. The student's program must include a minimum of 30 credits beyond the bachelor's degree (or its equivalent) selected from courses carrying graduate credit. In addition, the student must meet the following stipulations:

- At least 15 of the 30 credits must be completed in 8000-9000-level courses.
- A minimum of 24 credits of advanced study must be completed under MU faculty.
- A maximum of 6 graduate credits may be transferred from another college or university.
- All requirements must be completed within eight years from the time of initial enrollment.

MU's MAcc program is designed especially to provide the additional breadth and depth of knowledge and skills required for success in contemporary accounting practice.

#### Core Business Education

Business electives: 9 hours

#### Professional Accountancy Education

ACCTCY 7384	Auditing Theory and Practice I	3
ACCTCY 8450	Accounting and Strategic Business Analysis	3
Accounting Electives: 15 hours		

### Admission Criteria to the MAcc

- Fall deadline: March 15
- Minimum Test of English as a Foreign Language (TOEFL) scores:

Internet-based test (iBT)	Paper-based test (PBT)
112	630

- Competitive GMAT score
- Minimum GPA: at least 3.5 for last 60 hours
- Bachelor's degree from an accredited college or university, with a major in accountancy or equivalent
- A prior record of outstanding academic performance
- Strong letters of recommendation
- Work experience may be considered
- Interview may be required for admission
- A limited number of students may be selected by considering grades and other criteria such as demonstrated commitment, experience, leadership and other exceptional circumstances.

Note: Meeting the minimum requirements does not guarantee admission. Admission is competitive and based on space availability.

## Required Application Materials

### To the Office of Graduate Studies

All required Graduate Studies documents - online application, unofficial transcripts (official transcript required if accepted by the program) Statement of objectives, no more than 500 words (upload to the online Graduate Application) TOEFL score (if native language is not English)

### To the MAcc Program

GMAT score  
2 Recommendation letters, upload to the online Graduate Application

## Prerequisites for the MAcc

The master of accountancy (MAcc) program encompasses the last 30 hours of MU's 150-hour accountancy program and presumes students have completed the undergraduate portion of the program, or the equivalent. Students whose undergraduate education is not equivalent to the first 120 hours of the 150-hour program may overcome important deficiencies by taking additional courses approved by the program director.

To be considered for acceptance in the MAcc program candidates must have completed the first 120 hours of MU's 150-hour program or received a baccalaureate degree from an accredited college or university with a major in accountancy or the equivalent (students with bachelor's degrees in non-accounting areas may enter the MAcc program after completing an appropriate set of "prerequisite" courses).

In addition to the requirements listed above, other factors such as the student's statement of objectives and recommendation letters also may be considered to the extent that they provide indications of a student's ability to be successful in the MAcc program.

## The MAcc Admission Process

Generally, admission decisions for the MAcc program are made in the late spring and summer for fall admissions only, **and this is on a highly competitive basis.**

## Graduation Requirements for the MAcc

The basic 30-hour MAcc curriculum requires a minimum of 15 hours of accountancy courses and a minimum of 15 hours of courses reserved exclusively for graduate students. A maximum of 6 semester hours of graduate level course work may be transferred from another accredited master's program.

Through careful selection of electives, the MAcc program provides great flexibility to enable customized programs of study in specialty areas of particular interest to students. A couple of the most popular areas of specialization are taxation and assurance (where a "tax or assurance track" are available. Go the following link for more information about graduate accounting certificates: <http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/additionalminorsandcertificates/>.

### Accountancy Electives:

ACCTCY 7365	Governmental Accounting and Budgeting	3
ACCTCY 7940	Professional Accounting Internship	3-6
ACCTCY 8363	Multi-Jurisdictional Tax	3
ACCTCY 8373	Taxation of Corporations and Shareholders	3
ACCTCY 8404	Internal Auditing	3
ACCTCY 8414	Audit of Internal Controls	3
ACCTCY 8419	International Accounting	3
ACCTCY 8423	Tax Research and Planning	3
ACCTCY 8424	Fraud Examination	3
ACCTCY 8433	Mergers and Acquisitions Taxation	3
ACCTCY 8436	Advanced Accounting	3
ACCTCY 8438	Forensic Accounting	3
ACCTCY 8444	Advanced Audit	
ACCTCY 8453	Taxes and Business Strategies	3
ACCTCY 8456	Corporate Governance	3
ACCTCY 8463	Partnership Taxation	3

### MBA Courses

MBA courses may be used to fulfill business electives at the graduate level. Please see the Director of the 150-Hour Program during pre-registration to get a list of courses that are available for accountancy students.

## PhD in Accountancy

### Admission Contact Information

Rhonda Blythe (blyther@missouri.edu)  
Columbia, MO 65211  
573-882-4463

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Admission Criteria

Fall deadline: February 1

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GMAT scores:

Minimum	Verbal	Quantitative	Analytical	TOTAL
Minimum Score				700

- A prior record of outstanding academic performance

- Strong letters of recommendation

## Required Application Materials

*To the Office of Graduate Studies*

All required Graduate Studies documents

*To the Accountancy PhD Program*

Departmental Application

\*3 Recommendation letters

\*Statement of Purpose

\*Résumé

Official GMAT scores

\*Upload electronically through the Office of Graduate Studies application

## Prerequisites for the Doctoral Degree in Accountancy

International students should note that we rarely admit a student directly from outside the United States unless they have studied/worked in an English-language setting.

Prerequisites to undertaking doctoral course work include one, and preferably two, semesters of calculus; an introductory statistics course; and intermediate-level microeconomic theory. An undergraduate accounting major (or equivalent) is desirable but required. Prior graduate work is not required for admission to the program, but most successful applicants do have a master's degree.

## Graduation Requirements for the Doctoral Degree in Accountancy

The University requires 72 total hours beyond a baccalaureate degree for a PhD. In order to meet this requirement, the School of Accountancy requires the following program of course work and dissertation research:

Doctoral-level Accounting Research courses	15
Course Work in supporting theoretical fields (e.g. economics, finance, organizational theory and behavior)	15
Statistics and other research methods courses	18
Weekly Research Seminar (meeting one hour per semester for four years)	8
Dissertation Research	12-16
<b>Total Credits</b>	<b>68-72</b>

Course work is designed to be completed in five semesters (two and one-half years). Written and oral comprehensive examinations are then taken after completion of course work, and the remainder of years three and four is devoted to the completion of the research dissertation. Specializations are available in areas of faculty research interests.

## More Information about the Doctoral Degree in Accountancy

For information about the doctoral degree in accountancy, visit our website or write to:

Dr. Jere Francis, Director of the doctoral program in Accountancy  
 School of Accountancy  
 Robert J. Trulaske, Sr. College of Business  
 303 Cornell Hall  
 University of Missouri  
 Columbia, MO 65211

## Business Administration

John S. Howe, Chair, Finance Department

401 Cornell Hall

(573) 882-6272

Doug D. Moesel, Chair, Management Department

403 Cornell Hall

(573) 882-6556

Murali Mantrala, Chair, Marketing Department

402 Cornell Hall

(573) 882-3282

### On Campus Advising Contact

Undergraduate Advising Office

111 Cornell Hall

(573) 882-7073

businessadvising@missouri.edu

### Online Advising Contact

(573)884-2004

BSBAonline@missouri.edu

### Scholarship Information

111 Cornell Hall

(573) 882-7073

## Department of Finance

Through the study of finance, students learn to independently analyze security markets, understand the basic valuation techniques, and use their knowledge to make investment decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions. Coursework focuses on the areas of investments, portfolio management, real estate appraisal, financial institutions, and corporate finance.

## Department of Management

Management is defined by the Academy of Management as including "all processes, structures, and behaviors that are related to the work of organizations, as well as the dynamics of industries, economies, cultures, and other environmental forces that affect organizations and their employees." Management coursework at MU is quite diverse, covering the areas of human resource management, human behavior in organizations, organization theory, strategic management, entrepreneurship, information systems, e-commerce, operations management, and business law.

## Department of Marketing

Marketing focuses on creating and managing customers. It deals with the strategies, tactics, and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide, and then assembling the products, services, people, and partner firms needed to build, communicate, and deliver that value.

## Exploratory Course

Students wanting to explore business administration as a major should take BUS\_AD 1500.

## Double Emphasis

Students in the on campus program may have a dual emphasis of Finance and Real Estate, or may add on an Economics emphasis to any other BSBA emphasis program.

## Preprofessional Information

To apply to the upper-level BSBA (and a related emphasis area program, if an on campus student), a student must have completed a minimum of 45 credits, have at least a UM Cumulative GPA of a 2.6 (minimum requirement and does not guarantee admission to Upper Level) and met the Professional Development Program requirements. A Trulaske College of Business student must be admitted by the semester after the 60th credit hour is earned. The following courses must be among the credits completed or in process at the time of application:

ACCTCY 2036	Accounting I *	3
or ACCTCY 2136H	Honors Accounting I	
ACCTCY 2037	Accounting II *	3
or ACCTCY 2137H	Honors Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3
or INFOTC 1040	Introduction to Problem Solving and Programming	
or CMP_SC 2050	Algorithm Design and Programming II	
ECONOM 1014	Principles of Microeconomics ^	3-5
or ECONOM 1024	Fundamentals of Microeconomics	
or ECONOM 1000	General Economics	
ECONOM 1015	Principles of Macroeconomics ^	3
ENGLISH 1000	Exposition and Argumentation +	3
MATH 1100	College Algebra +	3
MATH 1300	Finite Mathematics #	3
MATH 1400	Calculus for Social and Life Sciences I #	3
STAT 2500	Introduction to Probability and Statistics I +	3
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2

\* Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

^ ECONOM 1051H may be taken in place of ECONOM 1014/ECONOM 1024 and ECONOM 1015.

# Needs grade of C- or better in MATH 1300 or MATH 1400.

+ Needs grade of C- or better in ENGLISH 1000, MATH 1100, and STAT 2500.

## Faculty

### Finance

**Professor** S. Ferris \*\*, D. French \*\*, J. Howe \*\*, X. Yan \*\*

**Associate Professor** M. O'Doherty \*\*, K. Pukthuanthong \*

**Assistant Professor** D. Badoer \*, M. Souther \*, A. Yore \*

**Associate Teaching Professor** J. Stansfield \*

**Assistant Teaching Professor** J. Hegger, A. Kern, B. Kevin-Myers, G. McCormick, M. Qiu, F. Travis

### Management

**Professor** A. G. Jago \*, R. Johnson \*, D. Turban \*\*, J. Wall \*

**Associate Professor** T. Chiles \*\*, D. Moesel \*, C. Robert \*\*, K. Schnatterly \*\*

**Assistant Professor** L. Jiang \*\*, D. Yin \*\*

**Associate Teaching Professor** G. Bier \*, S. Crews \*, M. B. Marrs \*, T. Waid \*

**Assistant Teaching Professor** G. Albright \*, J. Christianson \*, A. Gangloff \*, S. Mariea \*, D. Smith \*

## Marketing

**Professor** P. Bloch \*\*, S. Gopalakrishna \*\*, M. Mantrala \*\*, M. Richins \*\*, L. Scheer \*\*, S. Zou \*\*

**Associate Professor** D. Marinova \*\*, N. Syam \*\*

**Assistant Professor** A. Patil \*\*

**Associate Teaching Professor** J. Poor \*, C. W. Keene \*

**Assistant Teaching Professor** C. Cothren \*, D. Meyer \*

## Business Administration

**Professor** G. Albright, A. Gangloff \*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSBA in Business Administration (p. 336)
  - with emphasis in Economics (p. 338)
  - with emphasis in Finance and Banking (p. 339)
  - with emphasis in Management (p. 345)
  - with emphasis in Marketing (p. 347)
  - with emphasis in Real Estate (p. 349)
  - with emphasis in International Business - Economics (p. 340)
  - with emphasis in International Business - Finance (p. 341)
  - with emphasis in International Business - Management (p. 343)
  - with emphasis in International Business - Marketing (p. 344)
- Minor in Business (p. 350)

## Professional Development Program

In addition to completing required coursework to earn a Bachelor of Science, Business Administration degree, students must fulfill the requirements of the Professional Development Program (PDP). The goal of the PDP is to offer opportunities to all BS BA and Accounting students to develop core competencies and values necessary for success in their professional careers.

As a graduation requirement, the program is comprised of the following:

- Completion of designated professional activities to acquire points for admission to the upper division. Once admitted to the upper division, students will continue to earn points to meet the graduation requirements. Specific activities may be required.
- Completion of BUS\_AD 3500 the semester immediately following admission to the upper division. This course is a pre-requisite to the completion of the required BUS\_AD 4500. These two courses may not be taken out of sequence without prior approval. BUS\_AD 3500 must be completed in residence.
- Completion of BUS\_AD 4500 once admitted to the upper division. This will include completion of a professional level internship/

practicum experience. Practicums can be completed over a summer or semester-long period of time (intersession assignments will not meet the PDP requirement). Students must seek final approval of their internship/practicum experience from the PDP Office before beginning the assignment. BUS\_AD 4500 must be completed in residence.

If a student fails to meet the requirements of the PDP at either the lower or upper division, the student will not be allowed to continue in or graduate from the Trulaske College of Business.

## Professional Development Graduation Requirement

- The student must earn a minimum of 70 PDP points (maximum of 100) at the lower division for official admittance to the upper division. Once admitted, students must earn a total of 200 PDP points to meet the requirement. Specific activities and workshops may be required.
- The student must earn a C- (or higher) in BUS\_AD 3500 to satisfy the requirement.
- BUS\_AD 4500 is graded as Satisfactory/Unsatisfactory. Students must complete practicum course to a satisfactory level of 70% or greater to receive a passing grade for the course.

## Admission to the Business Administration Program

### Capacity Limitations (On Campus Program Only)

Admission into the upper-level Bachelor of Science in Business Administration (BSBA), or International Business (BSBA) degree program is highly competitive, because enrollment is limited. Each of the individual emphasis areas (Economics, Finance and Banking, Management, Marketing or Real Estate) has its own capacity limitation. Students who have earned a 3.4 minimum UM cumulative GPA or higher will be guaranteed admission to the upper level emphasis area of their choice. Other students with at least a 2.6 minimum UM cumulative GPA will be admitted on a space available basis.

## Preprofessional Information

To apply to the upper-level BSBA (and a related emphasis area program, if an on campus student), a student must have completed a minimum of 45 credits and met the Professional Development Program requirements.

A TCOB student must be admitted by the semester after the 60th credit hour is earned. The following courses must be among the credits completed or in process at the time of application.

ACCTCY 2036 or ACCTCY 2136H	Accounting I <sup>*</sup> Honors Accounting I	3
ACCTCY 2037 or ACCTCY 2137H	Accounting II <sup>*</sup> Honors Accounting II	3
ACCTCY 2258	Computer-Based Data Systems	3
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2
ECONOM 1014 or ECONOM 1024 or ECONOM 1000	Principles of Microeconomics <sup>^</sup> Fundamentals of Microeconomics General Economics	3-5
ECONOM 1015	Principles of Macroeconomics <sup>^</sup>	3

ENGLISH 1000	Exposition and Argumentation <sup>+</sup>	3
MATH 1100	College Algebra <sup>+</sup>	3
MATH 1300	Finite Mathematics <sup>#</sup>	3
MATH 1400	Calculus for Social and Life Sciences I <sup>#</sup>	3
STAT 2500	Introduction to Probability and Statistics I <sup>+</sup>	3

<sup>\*</sup> Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

<sup>^</sup> ECONOM 1051H may be taken in place of ECONOM 1014/ECONOM 1024 and ECONOM 1015.

<sup>#</sup> Needs grade of C- or better in MATH 1300 or MATH 1400

<sup>+</sup> Needs grade of C- or better in ENGLISH 1000, MATH 1100, and STAT 2500.

## Admission to BSBA Degree and Emphasis Areas

In addition to meeting the previous requirements, students are admitted to an upper-level BSBA emphasis area based on UM cumulative grade point average. Students with exceptional circumstances may ask to be considered for admission based on both grades and other factors.

On Campus students request an emphasis area when applying to the upper-division BSBA degree program. If the requested emphasis area is at capacity, students who qualify for admission to the upper-division BSBA degree program are given the opportunity to choose another emphasis area. Online students do not select an emphasis area. Students are notified by email when they are eligible to apply for upper-level status. Students are admitted to upper level in February and September of each year.

Students who complete 60 credits without gaining admission to an upper-level BSBA emphasis area will not be eligible to re-enroll in the Trulaske College of Business, and should meet with an Academic Advisor in the Undergraduate Advising Office to discuss their options.

A student may take no more than six credit hours of 3000 or higher business courses off campus. University of Missouri sponsored study abroad courses are excluded from this requirement.

## Graduate

- MBA in Business Administration (p. 350)
- PhD in Business Administration with emphasis in Business (p. 352)

## About the Crosby MBA (traditional full-time program)

Crosby MBA candidates come from all backgrounds, including science, engineering, liberal arts, journalism, business and health-related fields. There are no prerequisite courses. Our admission standards are high and the curriculum is rigorous. The Crosby MBA program is AACSB accredited, nationally recognized and highly ranked by U.S. News America's Best Graduate Schools, Forbes, Princeton Review, and The Wall Street Journal. Students attend full-time, although part-time is an option if the student is able to attend daytime classes.

Through the Crosby MBA program, highly capable graduate students gain real-world experience that prepares them for a wide variety of career paths. The program teaches skills necessary to compete in the global business environment, and helps you achieve a career path that will bring both personal fulfillment and professional success. We offer individual career counseling, an executive mentoring program, employer site visits,



and workshops focused on résumé writing, presentation skills, negotiation skills and business etiquette. Students obtain employment in fields such as financial analysis, investments, banking, human resources, project management, strategy, operations and logistics, marketing, marketing analytics, consulting, and non-profit management.

Factors considered in the admissions decision include post-graduation work experience, professional internships and/or co-ops, leadership, community involvement and service, quality of undergraduate work (GPA) and rigor of coursework, competitive score on the GMAT (<http://www.mba.com/us>) or the GRE (<http://www.ets.org/gre>), interview required for competitive applicants, career focus and self-awareness demonstrated in question responses and interview. A baccalaureate degree in any discipline from an accredited school is required. See the Crosby MBA website (<https://business.missouri.edu/programs-and-admissions/crosby-mba/admissions/apply-now-crosby-mba-program>) to apply.

### Cooperative Dual Degrees with the Crosby MBA Program

- MBA and Bachelor of Science in Industrial Engineering (BSIE)
- MBA and Bachelor of Science in Information Technology (BS)
- MBA and Master of Health Administration (MHA)
- MBA and Master of Science in Industrial Engineering (MS)
- MBA and Juris Doctor (JD)

### About the execMBA Program (for working professionals)

This innovative executive MBA is specifically designed for high achieving professionals seeking a first-rate MBA program that provides flexibility around their work schedules. This is the same renowned degree and the same renowned faculty offered with the Crosby MBA, but is specially designed for executives. Combining face-to-face class time with online delivery for professionals with substantive experience, the 21-month execMBA program will connect you with peers, challenge you in relevant ways, and develop the mind- and skill-set to match today's marketplace.

All applicants to the MU execMBA must have a minimum of 5-7 years of professional work experience, as well as a letter of endorsement from their employer to participate in the program. Other factors considered in admission include undergraduate GPA (a bachelor's degree in any discipline from an accredited school is required), demonstrated leadership experience and a personal statement addressing criteria outlined on the exec MBA website. Interviews by invitation will also be conducted.

### About the PhD Program

The PhD program (p. 352) is designed to prepare graduates for careers as effective university researchers and teachers or for senior research positions in business or government. Course work involves research activities such as literature review and critique, theoretical modeling, research design, computer-assisted empirical analysis and preparation of proposals and research papers. PhD candidates are provided the opportunity to teach undergraduate courses in their specialty area. In addition, students are expected to participate in national and regional academic conferences and are encouraged to work with faculty in developing individual research and teaching skills.

### Program Location: Cornell Hall

Cornell Hall, a state-of-the-art building, houses the Robert J. Trulaske, Sr. College of Business. It contains labs with over 230 computers with a variety of up-to-date software. The College subscribes to the following online services, databases and software packages: Wharton Research Data Services, Audit Analytics Compustat, CRSP, Datastream/Worldscope, Eventus, I/B/E/S, IRRC, ISSM, Mergent FISD, Mutual Fund Links, SDC Platinum, Thomson Reuters, Stock Trak, and Qualtrics (an online survey system).

## BSBA in Business Administration

### Degree Program Description

In the Trulaske College of Business students are in either the lower level (undeclared) or the upper level (admitted to an emphasis area). Students entering the Trulaske College of Business usually enter the lower level while they take University general education and business preparation courses. The first two years of all business programs (except international business and accounting) involve the same course sequences. A student typically applies to the upper level at the end of the sophomore year or the beginning of the junior year.

### On Campus - Major Program Requirements

A student may count a maximum of 30 credits in their emphasis area to meet the 120-credit requirement for the undergraduate degree.

Requirements above and beyond general education requirements are listed under upper level admission courses.

Students must complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

### On-Campus - Major Core Requirements

Course requirements ensure that 40 percent of a student's course work is earned in divisions other than business.

General Education (see University General Education Requirements)	27
Upper Level Admission Courses	34
Required Core Courses	26
Emphasis Support Courses	30
Required Emphasis Courses	
Additional Emphasis Courses	
Emphasis Support Courses	
Senior Capstone	3
<b>Total minimum</b>	<b>120</b>

### On Campus - Upper Level Admission Courses

ACCTCY 2036	Accounting I *	3
or ACCTCY 2136H	Honors Accounting I	
ACCTCY 2037	Accounting II *	3
or ACCTCY 2137H	Honors Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3
or INFOTC 1040	Introduction to Problem Solving and Programming	
or CMP_SC 2050	Algorithm Design and Programming II	
BUS_AD 1500	Foundations of Business and Professional Development Principles	2

BUS_AD 2500	Intermediate Professional Development Principles	2
ECONOM 1014 or ECONOM 1000 or ECONOM 1024 or ECONOM 1051H	Principles of Microeconomics General Economics Fundamentals of Microeconomics General Economics - Honors	3-5
ECONOM 1015	Principles of Macroeconomics	3
ENGLISH 1000	Exposition and Argumentation <sup>+</sup>	3
MATH 1100	College Algebra <sup>+</sup>	3
MATH 1300	Finite Mathematics <sup>&gt;</sup>	3
MATH 1400	Calculus for Social and Life Sciences I <sup>&gt;</sup>	3
STAT 2500	Introduction to Probability and Statistics I <sup>+</sup>	3
<b>Total Credits</b>		<b>34-36</b>

\* Both ACCTCY 2036 and ACCTCY 2037 must be taken in residence or both must be taken at another campus.

+ Needs a C- or above in ENGLISH 1000, MATH 1100, STAT 2500.

> Must have either a C- in MATH 1300 or MATH 1400.

## Emphasis Areas

General Education Requirement	27
Upper Level Admissions Courses	34
Required Courses	26

## On Campus - Semester Plan

Refer to the Semester Plans for the emphasis areas.

## Online - Major Program Requirements

The online BSBA program provides students flexible access to a highly competitive degree. Coursework provides students with the tools to be successful in careers in Banking and Finance, Business Management, Human Resources, Insurance or Marketing and Sales. The Online BSBA program is designed to be a degree completion program. Students must secure a minimum of 54 credit hours outside of this program to satisfy the 120 credit graduation requirement.

Students must complete all university requirements, including general education (p. 32), and Department Level Requirements (p. 334), in addition to the degree requirements below.

## Online - Major Program Requirements

General Education (see University General Education Requirements)	27 hrs
Upper Level Admission Courses	34 hrs
Required Core Business Courses	26 hrs
Additional Business Courses	30 hrs
Senior Capstone	3 hrs
<b>Total</b>	<b>120 hrs</b>

### Online - Upper Level Admission Courses (completed outside of program)

ECONOM 1014	Principles of Microeconomics	3
ECONOM 1015	Principles of Macroeconomics	3
ENGLISH 1000	Exposition and Argumentation <sup>+</sup>	3
MATH 1100	College Algebra <sup>+</sup>	3
MATH 1300	Finite Mathematics <sup>#</sup>	3
MATH 1400	Calculus for Social and Life Sciences I <sup>#</sup>	3
STAT 2500	Introduction to Probability and Statistics I <sup>+</sup>	3

### Online - Upper Level Admission Courses (completed within the program)

ACCTCY 2026	Accounting I	3
ACCTCY 2027	Accounting II	3
ACCTCY 2258	Computer-Based Data Systems	3
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2

### Online - Required Business Core Courses (completed outside of program)

ECONOM 3229	Money, Banking and Financial Markets	3
STAT 3500	Introduction to Probability and Statistics II	3

### Online - Required Business Core Courses (completed within the program)

BUS_AD 3500	Advanced Professional Development Principles <sup>+</sup>	3
BUS_AD 4500	Professional Development Program - Internship	3
FINANC 3000	Corporate Finance	3
MANGMT 3000	Principles of Management	3
MANGMT 3300	Introduction to Business Processes and Technologies	3
MANGMT 3540	Introduction to Business Law	3
MRKTNG 3000	Principles of Marketing	3

### Online - Additional Business Courses (completed within the program)

FINANC 4500	Principles of Real Estate	3
FINANC 4630	Introduction to Risk Management and Insurance	3
MANGMT 3200	Business and Society	3
MANGMT 4010	Operations Management	3
MANGMT 4020	Human Resource Management	3
MANGMT 4030	Organizational Behavior	3
MANGMT 4140W	Business Communication - Writing Intensive <sup>+</sup>	3
MANGMT 4700	Principles of Entrepreneurship	3
MRKTNG 4000	Marketing Management	3
MRKTNG 4220	Consumer Behavior	3

### Online - Capstone Course (completed within the program)

MANGMT 4970	Strategic Management <sup>+</sup>	3
<b>Total</b>		<b>120 hours</b>

+ Needs a C- or higher

# Needs a C- or higher in MATH 1300 or MATH 1400

## Online - Semester Plan

Below is a sample plan of study, semester by semester. This plan reflects coursework a student will complete within the BSBA online program. All degree requirements not listed in this plan are completed outside of the BSBA online program. A student's actual plan may vary based on course choices and where options are available. Work with your academic advisor on questions specific to your plan of study.

First Year			
Fall	CR Spring	CR Summer	CR
BUS_AD 1500	2 BUS_AD 2500	2 FINANC 3000	3
ACCTCY 2026	3 ACCTCY 2027	3 MANGMT 4010	3

ACCTCY 2258	3 MRKTNG 4420	3	
MRKTNG 3000	3 MANGMT 4020	3	
MANGMT 3000	3 MANGMT 3300	3	
		14	14
			6

**Second Year**

Fall	CR Spring	CR Summer	CR
MANGMT 4030	3 FINANC 4630	3 BUS_AD 4500	3
BUS_AD 3500	3 MANGMT 4970	3	
MANGMT 3200	3 MANGMT 3540	3	
FINANC 4500	3 MANGMT 4140	3	
MRKTNG 4000	3 MANGMT 4700	3	
		15	15
			3

Total Credits: 67

## BSBA in Business Administration with Emphasis in Economics

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. By choosing to study business administration with an emphasis in Economics, students ready themselves for business careers from the broad perspective of economics, developing expertise in topics such as economic forecasting, analysis of interest rates and financial markets, labor economics and international economics. Students typically prepare for careers in a range of industrial, commercial, and financial organizations as well as government agencies and political institutions. Typical careers include business economist, financial analyst, risk manager, or economic research analyst.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>General Education Requirements</b>	27
<b>Upper Level Admission Courses</b>	34
<b>Required Core Courses</b>	26
ECONOM 3229	Money, Banking and Financial Markets
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
<b>Required Economics Courses</b>	6
ECONOM 4351	Intermediate Microeconomics
ECONOM 4353	Intermediate Macroeconomics
<b>Additional Economic Courses</b>	
Courses selected from the following:	9-12
ECONOM 3224	Introduction to International Economics

ECONOM 3271	Introduction to Applied Econometric Practice
ECONOM 3323	Capitalism, Democracy and Society
ECONOM 4004	Topics in Economics- Social Science
ECONOM 4311	Labor Economics
ECONOM 4315	Public Economics
ECONOM 4320	History of Economic Thought
ECONOM 4322	Economics of Regulation and Antitrust
ECONOM 4325	The International Monetary System
ECONOM 4326	Economics of International Trade
ECONOM 4329	The Banking System and the Money Market
ECONOM 4357	Health Economics
ECONOM 4340	Introduction to Game Theory
ECONOM 4345	Economics of Education
ECONOM 4355	Industrial Organization and Competitive Strategy
ECONOM 4360	Economic Development
ECONOM 4361	Comparative Economic Systems
ECONOM 4370	Quantitative Economics
ECONOM 4371	Introductory Econometrics
ECONOM 4367	Law and Economics
ECONOM 4384	Structural Change in Economic History
ECONOM 4385	Problems in Economics
ECONOM 4775	Dynamic Optimization and its Applications to the Natural Sciences and Economics
ECONOM 4970	Senior Seminar in Economics
ECONOM 4995	Honors Thesis
Any 4000+ Level Economics Course	

**Emphasis Support Courses \***

Courses to be selected from:		12-15
Accountancy	Any 3000 or 4000 level class	
COMMUN 1200	Public Speaking	
Economics	Any 4000 level class not used as an Economics elective	
ENGLISH 2030	Professional Writing	
Finance	Any 3000 or 4000 level class	
Management	Any 3000 or 4000 level class	
Marketing	Any 3000 or 4000 level class	
Psychology	Any 3000 or 4000 level class	
Sociology	Any 3000 or 4000 level class	
Statistics	Any 3000 or 4000 level class	

**Capstone Course - Senior year (on campus) Minimum grade of C- required**

MANGMT 4970	Strategic Management	3
<b>Total</b>		<b>120</b>

\* 12 credits Emphasis Support Courses required if 12 credits in economics are taken (from required economics courses section); 15 credit emphasis support courses required if 9 credits in economics are taken (from required economics courses section).

A student may count a maximum of 30 credits in economics to meet the 120-credit requirement for the undergraduate degree.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year		
Fall	CR Spring	CR
MATH 1100	3 MATH 1400	3
State requirement	3 ECONOM 1014	3
Humanities	3 Humanities	3
Biological Science	3 Elective	3
Elective	2 ENGLISH 1000	3
BUS_AD 1500	2	
<hr/>		
		16

Second Year		
Fall	CR Spring	CR
ACCTCY 2036	3 ACCTCY 2037	3
BUS_AD 2500	2 ACCTCY 2258	3
ECONOM 1015	3 STAT 2500	3
MATH 1300	3 Biological or Physical Science with Lab	3
Physical Science	3 Humanities 2000 level (writing intensive)	3
Elective	1	
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		15

Third Year		
Fall	CR Spring	CR
BUS_AD 3500	3 ECONOM 4351	3
MRKTNG 3000	3 MANGMT 3540	3
STAT 3500	3 Emphasis Support course	3
ECONOM 3229	3 FINANC 3000	3
MANGMT 3300	3 Business Writing Intensive/ Emphasis Support	3
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		15

Fourth Year		
Fall	CR Spring	CR
MANGMT 3000	3 MANGMT 4970	3
ECONOM 4353	3 Additional Economics course	3
Additional Economics course	3 Emphasis Support course	3
Additional Economics course	3 Emphasis Support course	3
Emphasis Support course	3 Emphasis Support course	
	BUS_AD 4500	3
<hr/>		
		15

Total Credits: 121

## BSBA in Business Administration with Emphasis in Finance and Banking

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. An emphasis in Finance and Banking prepares students for careers in commercial banking, corporate finance, financial planning, insurance, investment banking, or money management. Students learn how to independently analyze security markets, understand the basic valuation techniques and use their knowledge to make investment decisions. In addition, students learn

basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below

<b>General Education Requirements</b>	27
<b>Upper Level Admission Courses</b>	34
<b>Required Core Courses</b>	26

ECONOM 3229	Money, Banking and Financial Markets
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship

<b>Required Finance &amp; Banking Courses</b>	15
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FINANC 4010	Financial Management
FINANC 4020	Investments
ECONOM 3251	Theory of the Firm or ECONOM 4351 Intermediate Microeconomics
ACCTCY 4356	Financial Accounting Concepts
MANGMT 4010	Operations Management

<b>Additional Finance &amp; Banking Courses</b>	9
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Select 3 of the following

FINANC 3300	Personal Risk Management and Insurance
FINANC 4030	Financial Intermediaries and Markets
FINANC 4110	Financial Management Policy
FINANC 4120	Security Analysis
FINANC 4130	Management of Financial Institutions
FINANC 4185	Problems in Finance
FINANC 4201	Topics in Finance (with academic advisor consent)
FINANC 4220	Portfolio Management
FINANC 4310	Financial Modeling and Databases
FINANC 4320	Financial Futures and Options
FINANC 4450	Financial Ethics and Professional Standards
FINANC 4500	Principles of Real Estate
FINANC 4510	Real Estate Appraisal
FINANC 4520	Real Estate Finance and Investment
FINANC 4530	Real Estate Portfolio Analysis and REITs
FINANC 4620	Investment Strategy of Warren Buffett
FINANC 4630	Introduction to Risk Management and Insurance
FINANC 4632	Principles of Commercial Property and Liability Insurance
FINANC 4640	Enterprise Risk Management
FINANC 4710	Topics in International Finance
FINANC 4720	International Finance
FINANC 4820	Investment Fund Management

FINANC 4830	Chartered Financial Analyst Exam Review Course	
FINANC 4840	Angel Capital Education Program	
FINANC 4940	Professional Finance Internship	
<b>Emphasis Support Courses</b>		
Select two of the following:		6
Accountancy: Any 3000 or 4000 level class		
COMMUN 1200	Public Speaking	
CMP_SC 1050	Algorithm Design and Programming I (if not used in required core courses)	
Economics: Any 4000 level class (if not used in required core courses)		
CMP_SC 2050	Algorithm Design and Programming II	3
ENGLISH 2030	Professional Writing	
Finance: Any 3000 or 4000 level class (if not used in required core courses)		
FINPLN 4189	Financial Planning: Applied Tax Law	
Management: Any 3000 or 4000 level class (if not used in required core courses)		
Marketing: Any 3000 or 4000 level class (if not used in required core courses)		
<b>Capstone course - Senior year (on campus) Minimum grade of C-required</b>		3
MANGMT 4970	Strategic Management (3)	
Total Credits		123

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
BUS_AD 1500	2 ECONOM 1014	3
MATH 1100	3 MATH 1400	3
State Requirement	3 Humanities	3
Humanities	3 Elective	3
Biological Science	3 ENGLISH 1000	3
Elective	1	
		15
Second Year		
Fall	CR Spring	CR
BUS_AD 2500	2 ACCTCY 2037	3
ACCTCY 2036	3 ACCTCY 2258	3
MATH 1300	3 STAT 2500	3
ECONOM 1015	3 Biological or Physical Science with Lab	3
Physical Science	3 Humanities (2000 level) Writing Intensive	3
Elective	2	
		16
Third Year		
Fall	CR Spring	CR
BUS_AD 3500	3 FINANC 4010	3
FINANC 3000	3 FINANC 4020	3
MANGMT 3000	3 MANGMT 3300	3
ECONOM 3229	3 MANGMT 3540	3

STAT 3500	3 Business Writing Intensive/Emphasis Support	3
		15
<b>Fourth Year</b>		
Fall	CR Spring	CR
ACCTCY 4356	3 MANGMT 4970 (Capstone)	3
BUS_AD 4500	3 Additional Finance Course	3
MANGMT 4010	3 ECONOM 3251 or 4351	3
MRKTNG 3000	3 Additional Finance Course	3
Additional Finance Course	3 Emphasis Support	3
		15

Total Credits: 121

## BSBA in Business Administration with Emphasis in International Business - Economics

### Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 141-149 credits depending on emphasis.

### Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>Social Sciences</b>		6
GEOG 1100	Regions and Nations of the World I	
or GEOG 1200	Regions and Nations of the World II	
POL_SC 1400	International Relations	
or POL_SC 2700	Comparative Political Systems	
<b>State Requirement</b>		3
<b>Behavioral Sciences</b>		6
ANTHRO 2030	Cultural Anthropology	
The additional 3 hours can be any general education approved Behavioral Science from the list.		
<b>Humanities</b>		12
Civilization course in language studied		
Literature course in language studied		
Select one of the following:		
ARCHST 1600	Fundamentals of Environmental Design	
AR_H_A 1110	Ancient and Medieval Art	
AR_H_A 1120	Renaissance through Modern Art	
ENGLISH 2155	Introduction to World Literatures	
ENGLISH 2156	Introduction to World Literatures, Beginnings to 1603	
ENGLISH 2157	Introduction to World Literatures, 1603 to 1789	

ENGLISH 2158	Introduction to World Literatures, 1789 to 1890	
ENGLISH 2159	Introduction to World Literatures, 1890 to Present	
FILM_S 2820	Trends in World Cinema	
GN_HON 2112H	The Middle Ages and the Renaissance	
GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment	
GN_HON 2114H	The Modern Era	
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society	
MUSIC_NM 1310	Masterpieces of Western Music	
MUSIC_NM 1313	Introduction to World Music	
PEA_ST 2810	Think Global: Fundamentals of Globalization and Digital Technologies	
PHIL 2100	Philosophy: East and West	
PHIL 2410	Philosophies of War and Peace	
PHIL 2430	Contemporary Moral Issues	
REL_ST 1100	Introduction to Religion	
REL_ST 2100	Indigenous Religions	
REL_ST 2110	Religions of the World	
REL_ST 2310	Religions of China and Japan	
WGST 2080	Perspectives on Sexual and Gender Diversity	
Additional Humanities		
<b>Biological &amp; Physical Sciences</b>		6-7
One course must include a lab		
<b>Foreign Language</b>		18-20
All in the same language		
<b>Area Support</b>		9
To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.		
<b>Upper Level Admission Courses</b>		34
<b>Required Business Core Courses</b>		26
ECONOM 3229	Money, Banking and Financial Markets	
FINANC 3000	Corporate Finance	
MANGMT 3000	Principles of Management	
MANGMT 3300	Introduction to Business Processes and Technologies	
MANGMT 3540	Introduction to Business Law	
MRKTNG 3000	Principles of Marketing	
STAT 3500	Introduction to Probability and Statistics II	
BUS_AD 3500	Advanced Professional Development Principles	
BUS_AD 4500	Professional Development Program - Internship	
College of Business WI Course		3
<b>Business Area</b>		15-18
to be selected with Business advisor, depending on emphasis area.		
<b>Capstone Course - senior year (on campus) Minimum grade of C- required</b>		
MANGMT 4970	Strategic Management	3
<b>Total Credits</b>		141-147

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
BUS_AD 1500	2 ECONOM 1015	3
MATH 1100	3 ENGLISH 1000	3
State Requirement	3 MATH 1400	3
ECONOM 1014	3 Foreign Language	4
Foreign Language	4 Humanity	3
		15
		16
Second Year		
Fall	CR Spring	CR
ACCTCY 2036	3 ACCTCY 2037	3
BUS_AD 2500	2 ACCTCY 2258	3
MATH 1300	3 STAT 2500	3
Foreign Language	3 Physical Science	4
Foreign Literature	4 Foreign Language	3
Behavioral Science	3	
		18
		16
Third Year		
Fall	CR Spring	CR
MRKTNG 3000	3 FINANC 3000	3
MANGMT 3540	3 POL_SC 1400 or 2700	3
GEOG 1100 or 1200	3 ECONOM 3229	3
Foreign Language	3 MANGMT 3000	3
Foreign Civilization	3 BUS_AD 3500	3
STAT 3500	3	
		18
		15
Fourth Year		
Fall	CR Spring	CR
ANTHRO 2030	3 MANGMT 3300	3
Business Writing Intensive	3 Business Area	3
BUS_AD 4500	3 Business Area	3
Humanity- Global Core	3 A&S Area Support	3
Biological Science	3 A&S Area Support	3
		15
		15
Fifth Year		
Fall	CR	
MANGMT 4970	3	
Business Area	3	
Business Area	3	
Business Area	3	
A&S Area Support	3	
		15

Total Credits: 143

## BSBA in Business Administration with Emphasis in International Business - Finance

## Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 144-149 credits depending on emphasis.

## Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>Social Sciences</b>	6
GEOG 1100 Regions and Nations of the World I or GEOG 1200 Regions and Nations of the World II	
POL_SC 1400 International Relations or POL_SC 2700 Comparative Political Systems	
<b>State Requirement</b>	3
<b>Behavior Sciences</b>	6
ANTHRO 2030 Cultural Anthropology	
The additional 3 hours can be any general education approved Behavioral Science from the list.	
<b>Humanities</b>	12
Civilization course in language studied	
Literature course in language studied	
Select one of the following:	
ARCHST 1600 Fundamentals of Environmental Design	
AR_H_A 1110 Ancient and Medieval Art	
AR_H_A 1120 Renaissance through Modern Art	
ENGLSH 2155 Introduction to World Literatures	
ENGLSH 2156 Introduction to World Literatures, Beginnings to 1603	
ENGLSH 2157 Introduction to World Literatures, 1603 to 1789	
ENGLSH 2158 Introduction to World Literatures, 1789 to 1890	
ENGLSH 2159 Introduction to World Literatures, 1890 to Present	
FILM_S 2820 Trends in World Cinema	
GN_HON 2112H The Middle Ages and the Renaissance	
GN_HON 2113H The Early Modern World: The 17th-19th Centuries Enlightenment	
GN_HON 2114H The Modern Era	
JOURN 1000 The News Media: Journalism and Advertising in a Democratic Society	
MUSIC_NM 1310 Masterpieces of Western Music	
MUSIC_NM 1313 Introduction to World Music	
PEA_ST 2810 Think Global: Fundamentals of Globalization and Digital Technologies	
PHIL 2100 Philosophy: East and West	
PHIL 2410 Philosophies of War and Peace	
REL_ST 1100 Introduction to Religion	
REL_ST 2100 Indigenous Religions	

REL_ST 2110 Religions of the World	
REL_ST 2310 Religions of China and Japan	
Additional Humanities	
<b>Biological &amp; Physical Sciences</b>	6-7
One course must include a lab	
<b>Foreign Language</b>	18-20
All in the same language	
<b>Area Support</b>	9
To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.	
<b>Upper Level Admission Courses</b>	34
<b>Required Business Core Courses</b>	26
ECONOM 3229 Money, Banking and Financial Markets	
FINANC 3000 Corporate Finance	
MANGMT 3000 Principles of Management	
MANGMT 3300 Introduction to Business Processes and Technologies	
MANGMT 3540 Introduction to Business Law	
MRKTNG 3000 Principles of Marketing	
STAT 3500 Introduction to Probability and Statistics II	
BUS_AD 3500 Advanced Professional Development Principles	
BUS_AD 4500 Professional Development Program - Internship	
College of Business WI Course	3
<b>Business Area</b>	18-21
to be selected with Business advisor, depending on emphasis area.	
<b>Capstone Course - senior year (on campus) Minimum grade of C- required</b>	
MANGMT 4970 Strategic Management	3
<b>Total Credits</b>	<b>144-150</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1100	3 ECONOM 1015	3
BUS_AD 1500	2 ENGLSH 1000	3
State Requirement	3 Foreign Language	4
ECONOM 1014	3 Foreign Literature	3
Foreign Language	4 MATH 1400	3
	15	16
Second Year		
Fall	CR Spring	CR
ACCTCY 2036	3 ACCTCY 2037	3
BUS_AD 2500	2 ACCTCY 2258	3
MATH 1300	3 STAT 2500	3
Behavioral Science	3 Physical Science	4
Foreign Language	4 Foreign Language	3
Humanities	3	
	18	16

Third Year		
Fall	CR Spring	CR
MRKTNG 3000	3 BUS_AD 3500	3
GEOG 1100 or 1200	3 FINANC 3000	3
Foreign Language	3 POL_SC 1400 or 2700	3
Foreign Civilization	3 ECONOM 3229 or 3251	3
STAT 3500	3 MANGMT 3000	3
MANGMT 3540	3	3
		18

Fourth Year		
Fall	CR Spring	CR
Humanity- Global Core	3 MANGMT 3300	3
Inside TCoB Writing Intensive	3 Business Area	3
Biological Science	3 Business Area	3
ANTHRO 2030	3 A&S Area Support	3
BUS_AD 4500	3 A&S Area Support	3
Business Area	3	3
		18

Fifth Year		
Fall	CR	
MANGMT 4970	3	
Business Area	3	
Business Area	3	
Business Area	3	
Business Area	3	
A&S Area Support	3	
		18

Total Credits: 149

## BSBA in Business Administration with Emphasis in International Business - Management

### Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 144-149 credits depending on emphasis.

### Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

Social Sciences		6
GEOG 1100 or GEOG 1200	Regions and Nations of the World I or Regions and Nations of the World II	
POL_SC 1400 or POL_SC 2700	International Relations or Comparative Political Systems	
<b>State Requirement</b>		3

Behavioral Sciences		6
ANTHRO 2030	Cultural Anthropology	
The additional 3 hours can be any general education approved Behavioral Science from the list.		

Humanities		12
Civilization course in language studied		
Literature course in language studied		

Select one of the following:

ARCHST 1600	Fundamentals of Environmental Design
AR_H_A 1110	Ancient and Medieval Art
AR_H_A 1120	Renaissance through Modern Art
ENGLISH 2155	Introduction to World Literatures
ENGLISH 2156	Introduction to World Literatures, Beginnings to 1603
ENGLISH 2157	Introduction to World Literatures, 1603 to 1789
ENGLISH 2158	Introduction to World Literatures, 1789 to 1890
ENGLISH 2159	Introduction to World Literatures, 1890 to Present
FILM_S 2820	Trends in World Cinema
GN_HON 2112H	The Middle Ages and the Renaissance
GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment
GN_HON 2114H	The Modern Era
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society
MUSIC_NM 1310	Masterpieces of Western Music
MUSIC_NM 1313	Introduction to World Music
PEA_ST 2810	Think Global: Fundamentals of Globalization and Digital Technologies
PHIL 2100	Philosophy: East and West
PHIL 2410	Philosophies of War and Peace
PHIL 2430	Contemporary Moral Issues
REL_ST 1100	Introduction to Religion
REL_ST 2100	Indigenous Religions
REL_ST 2110	Religions of the World
REL_ST 2310	Religions of China and Japan
WGST 2080	Perspectives on Sexual and Gender Diversity

Additional Humanities

Biological & Physical Sciences		6-7
One course must include a lab		

Foreign Language		18-20
All in the same language		

Area Support		9
To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.		

Upper Level Admission Courses		34
Required Business Core Courses		26

ECONOM 3229 or ECONOM 3251	Money, Banking and Financial Markets or Theory of the Firm
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law



MRKTNG 3000	Principles of Marketing	
STAT 3500	Introduction to Probability and Statistics II	
BUS_AD 3500	Advanced Professional Development Principles	
BUS_AD 4500	Professional Development Program - Internship	
College of Business WI Course		3
<b>Business Area</b>		18-21
to be selected with Business advisor, depending on emphasis area.		
MANGMT 4970	Strategic Management (minimum C- GPA requirement)	3
Total Credits		144-150

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
BUS_AD 1500	2 MATH 1400	3
MATH 1100	3 ECONOM 1015	3
State Requirement	3 ENGLISH 1000	3
ECONOM 1014	3 Foreign Language	4
Foreign Language	4 Humanity- Global Core	3
		15
		16
Second Year		
Fall	CR Spring	CR
ACCTCY 2036	3 ACCTCY 2037	3
BUS_AD 2500	2 ACCTCY 2258	3
Foreign Language	4 STAT 2500	3
Humanities	3 Physical Science	4
Behavioral Science	3 Foreign Language	3
MATH 1300	3	
		18
		16
Third Year		
Fall	CR Spring	CR
MRKTNG 3000	3 BUS_AD 3500	3
GEOG 1100 or 1200	3 FINANC 3000	3
Foreign Language	3 POL_SC 1400 or 2700	3
Foreign Civilization	3 ECONOM 3229 or 3251	3
STAT 3500	3 MANGMT 3000	3
		MANGMT 3540
		3
		15
		18
Fourth Year		
Fall	CR Spring	CR
Foreign Literature	3 Business Area	3
Biological Science	3 Business Area	3
Business Writing Intensive	3 A&S Area Support	3
ANTHRO 2030	3 A&S Area Support	3
BUS_AD 4500	3 MANGMT 3300	3
		15
		15
Fifth Year		
Fall	CR	
MANGMT 4970	3	
Business Area	3	

Business Area	3
Business Area	3
Business Area	3
A&S Area Support	3
<hr/>	
	18

Total Credits: 146

## BSBA in Business Administration with Emphasis in International Business - Marketing

### Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 141-158 credits depending on emphasis.

### Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>Social Sciences</b>		6
GEOG 1100	Regions and Nations of the World I	
or GEOG 1200	Regions and Nations of the World II	
POL_SC 1400	International Relations	
or POL_SC 2700	Comparative Political Systems	
<b>State Requirement</b>		
<b>Behavioral Sciences</b>		6
ANTHRO 2030	Cultural Anthropology	
The additional 3 hours can be any general education approved Behavioral Science from the list.		
<b>Humanities</b>		12
Civilization course in language studied		
Literature course in language studied		
Select one of the following:		
ARCHST 1600	Fundamentals of Environmental Design	
AR_H_A 1110	Ancient and Medieval Art	
AR_H_A 1120	Renaissance through Modern Art	
ENGLISH 2155	Introduction to World Literatures	
ENGLISH 2156	Introduction to World Literatures, Beginnings to 1603	
ENGLISH 2157	Introduction to World Literatures, 1603 to 1789	
ENGLISH 2158	Introduction to World Literatures, 1789 to 1890	
ENGLISH 2159	Introduction to World Literatures, 1890 to Present	
FILM_S 2820	Trends in World Cinema	
GN_HON 2112H	The Middle Ages and the Renaissance	

GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment	
GN_HON 2114H	The Modern Era	
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society	
MUSIC_NM 1310	Masterpieces of Western Music	
MUSIC_NM 1313	Introduction to World Music	
PEA_ST 2810	Think Global: Fundamentals of Globalization and Digital Technologies	
PHIL 2100	Philosophy: East and West	
PHIL 2410	Philosophies of War and Peace	
REL_ST 1100	Introduction to Religion	
REL_ST 2100	Indigenous Religions	
REL_ST 2110	Religions of the World	
REL_ST 2310	Religions of China and Japan	
WGST 2080	Perspectives on Sexual and Gender Diversity	
Additional Humanities		
<b>Biological &amp; Physical Sciences</b>		6-7
One course must include a lab		
<b>Foreign Language</b>		18-20
All in the same language		
<b>Area Support</b>		9
To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.		
<b>Upper Level Admission Courses</b>		34
<b>Required Business Core Courses</b>		26
ECONOM 3229	Money, Banking and Financial Markets or ECONOM 3251 Theory of the Firm	
FINANC 3000	Corporate Finance	
MANGMT 3000	Principles of Management	
MANGMT 3300	Introduction to Business Processes and Technologies	
MANGMT 3540	Introduction to Business Law	
MRKTNG 3000	Principles of Marketing	
STAT 3500	Introduction to Probability and Statistics II	
BUS_AD 3500	Advanced Professional Development Principles	
BUS_AD 4500	Professional Development Program - Internship	
College of Business WI Course		
<b>Business Area</b>		18
to be selected with Business advisor, depending on emphasis area.		
<b>Capstone Course - senior year (on campus) Minimum grade of C- required</b>		
MANGMT 4970	Strategic Management	3
Total Credits		138-141

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500		2 ECONOM 1015	3
MATH 1100		3 Foreign Language	4

State Requirement	3 Humanity	3
Foreign Language	4 ENGLISH 1000	3
ECONOM 1014	3 MATH 1400	3
		15
		16

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
BUS_AD 2500		2 ACCTCY 2258	3
Foreign Language		4 STAT 2500	3
Humanities (Global Core)		3 Foreign Language	3
Behavioral Science		3 MANGMT 3540	3
MATH 1300		3	
		18	15

Third Year			
Fall	CR	Spring	CR
MRKTNG 3000		3 BUS_AD 3500	3
GEOG 1100 or 1200		3 FINANC 3000	3
Foreign Language		3 ECONOM 3229 or 3251	3
Foreign Civilization		3 MANGMT 3000	3
STAT 3500		3 POL_SC 1400 or 2700	3
		Physical Science	3
		15	18

Fourth Year			
Fall	CR	Spring	CR
Foreign Literature		3 MANGMT 3300	3
Business Writing Intensive		3 Business Area	3
Biological Science		3 Business Area	3
ANTHRO 2030		3 A&S Area Support	3
BUS_AD 4500		3 A&S Area Support	3
		15	15

Fifth Year			
Fall	CR	Spring	CR
MANGMT 4970		3	
Business Area		3	
Business Area		3	
Business Area		3	
Business Area		3	
A&S Area Support		3	
		18	

Total Credits: 145

## BSBA in Business Administration with Emphasis in Management

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. By selecting an emphasis in management students will learn the tools needed for planning, organizing, staffing, motivating, and directing a business, project, or department. Management coursework is diverse, covering entrepreneurial strategy, human resource management, human behavior in organizations, information systems and analytics, operations management, business law, diversity and inclusion, and leadership and ethics. Careers in management include human resource director,

hospital administrator, bank manager, industrial relations director, quality control analyst, systems analyst, and manager of diversity and inclusion.

## Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>General Education Requirements</b>	27
<b>Upper Level Admission Courses</b>	34
<b>Required Core Courses</b>	26
ECONOM 3229 Money, Banking and Financial Markets or ECONOM 3251 Theory of the Firm	
FINANC 3000 Corporate Finance	
MANGMT 3000 Principles of Management	
MANGMT 3300 Introduction to Business Processes and Technologies	
MANGMT 3540 Introduction to Business Law	
MRKTNG 3000 Principles of Marketing	
STAT 3500 Introduction to Probability and Statistics II	
BUS_AD 3500 Advanced Professional Development Principles	
BUS_AD 4500 Professional Development Program - Internship	
<b>Required Management Courses</b>	9
MANGMT 4010 Operations Management	
MANGMT 4020 Human Resource Management	
MANGMT 4030 Organizational Behavior	
<b>Additional Management Courses</b>	
Select three of the following:	9
MANGMT 3200 Business and Society	
MANGMT 3700 Diversity and Inclusion in Management	
MANGMT 3901 Special Topics in Management	
MANGMT 3910 Managing Across Cultures	
MANGMT 3920 Managing People in the Global Enterprise	
MANGMT 3975 Current Issues in International Management	
MANGMT 4050 Management of Service Operations	
MANGMT 4060 Project Management Fundamentals	
MANGMT 4110 Total Quality Management	
MANGMT 4120 Human Resource Management Law	
MANGMT 4130 Advanced Organizational Behavior	
MANGMT 4185 Problems in Management	
MANGMT 4201 Topics in Management	
MANGMT 4220 Compensation Theory and Practice	
MANGMT 4310 Modern Manufacturing	
MANGMT 4320 Selected Problems in Human Resource Management	
MANGMT 4330 Organizational Theory	
MANGMT 4340 Crisis Management	
MANGMT 4350 Leadership Development	
MANGMT 4420 Collective Bargaining	
MANGMT 4450 Management of Electronic Commerce	
MANGMT 4460 Electronic Commerce Security	
MANGMT 4480 Business Data Communication and Networking	
MANGMT 4520 Change Management in Business	
MANGMT 4540 Legal Aspects of Business Organization and Operation	

MANGMT 4560	The Law of Commercial Credit Transactions
MANGMT 4610	Database Management
MANGMT 4620	Web Development Fundamentals
MANGMT 4700	Principles of Entrepreneurship
MANGMT 4710	The Entrepreneurial Process
MANGMT 4720	Experiential Entrepreneurship
MANGMT 4730	New Business Planning and Management
MANGMT 4750	Entrepreneurial Innovation Management: Enterprise Conception
MANGMT 4760	Entrepreneurial Innovation Management: Enterprise Design
MANGMT 4770	Entrepreneurial Innovation Management: Enterprise Operation
MANGMT 4940	Professional Management Internship
<b>Emphasis Support Courses</b>	12
Courses approved by the student's management advisor selected from:	
Accountancy	Courses 3000+
ANTHRO 3700	Cultures of Europe
Chinese, French, German, Hebrew, Italian, Japanese, Korean, Portuguese, Romance Lang, Russian, Spanish 2300+	
COMMUN 1200	Public Speaking
COMMUN 3575	Business and Professional Communication
COMMUN 4476	Organizational Communication
CMP_SC 1050	Algorithm Design and Programming I
2000+ Computer Science Courses	
3000+ Economics courses (if not used in required courses)	
2000+ Electrical & Computer Engineering Courses	
ENGLISH 2030	Professional Writing
Finance Courses 3000+	
GEOG 2710	Economic Geography
HIST 4420	American Urban History
2000+ Industrial and Manufacturing Systems Courses	
INFOTC 2610	Audio/Video I
INFOTC 2810	Fundamentals of Network Technology
3000+ Management Course (if not used in required courses)	
3000+ Marketing Courses (if not used in required courses)	
PHIL 2400	Ethics and the Professions
PHIL 2420	Ethical Issues in Business
PHIL 4500	Theories of Ethics
POL_SC 2700	Comparative Political Systems
POL_SC 4420	Politics of International Economic Relations
POL_SC 4540	American Foreign Policies
POL_SC 4600	Latin American Politics
POL_SC 4610	European Political Systems
POL_SC 4720	Politics of Development
PSYCH 2310	Social Psychology
PSYCH 3010	Research Methods in Psychology I
PSYCH 3110	Theories of Learning
PSYCH 3130	Decisions, Values and Choice
PSYCH 4340	Attitude Change
PSYCH 4830	Psychology of Women
SOCIOL 3310	Social Psychology
SOCIOL 3320	Sociology of Gender
SOCIOL 3400	Politics of the Media
SOCIOL 3520	Collective Behavior

SOCIOL 3700	Institutions and Society	
SOCIOL 3710	The Sociology of Work	
SOCIOL 4315	Social Demography	
<b>Capstone Course - senior year (on campus) Minimum grade of C-required</b>		<b>3</b>
MANGMT 4970	Strategic Management	
Total Credits		120

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
BUS_AD 1500	2 MATH 1400	3
MATH 1100	3 ECONOM 1014	3
Biological Science	3 Humanities	3
Humanities	3 Elective	3
Elective	1 ENGLISH 1000	3
State Requirement	3	
		15

Second Year		
Fall	CR Spring	CR
ACCTCY 2036	3 STAT 2500	3
BUS_AD 2500	2 ACCTCY 2037	3
ECONOM 1015	3 ACCTCY 2258	3
MATH 1300	3 Biological or Physical Science with Lab	3
Physical Science	3 Elective	1
Elective	1 Humanities (2000 level) Writing Intensive	3
		15

Third Year		
Fall	CR Spring	CR
BUS_AD 3500	3 FINANC 3000	3
STAT 3500	3 MANGMT 3540	3
ECONOM 3229	3 MANGMT 4020	3
MANGMT 3000	3 MRKTNG 3000	3
MANGMT 3300	3 Business Writing Intensive/Emphasis Support	3
		15

Fourth Year		
Fall	CR Spring	CR
MANGMT 4010	3 MANGMT 4970	3
MANGMT 4030	3 Additional Management Course	3
Additional Management course	3 Emphasis Support Course	3
Emphasis Support Course	3 Emphasis Support Course	3
BUS_AD 4500	3 Additional Management Course	3
		15

Total Credits: 121

## BSBA in Business Administration with Emphasis in Marketing

## Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. An emphasis in Marketing focuses on creating and managing customers by studying business activities that connect consumers with goods. The degree deals with the strategies, tactics and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide and then assembling the products, services, people and partner firms needed to build, communicate and deliver that value. Specializations in this area include sales, advertising, sales promotion, retail, brand management and distribution. The marketing major is designed for those students who are seeking an in-depth knowledge of the tools, concepts and practice of modern marketing. This program prepares students for a career in marketing, sales or distribution. It focuses on activities that direct the flow of goods and services to the consumer or user. Courses include marketing management, promotion, sales management and logistics management.

## Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>General Education Requirements</b>	27
<b>Upper Level Admission Courses</b>	34
<b>Required Core Courses</b>	26
ECONOM 3229 Money, Banking and Financial Markets or ECONOM 3251 Theory of the Firm	
FINANC 3000 Corporate Finance	
MANGMT 3000 Principles of Management	
MANGMT 3300 Introduction to Business Processes and Technologies	
MANGMT 3540 Introduction to Business Law	
MRKTNG 3000 Principles of Marketing	
STAT 3500 Introduction to Probability and Statistics II	
BUS_AD 3500 Advanced Professional Development Principles	
BUS_AD 4500 Professional Development Program - Internship	
<b>Required Marketing Courses</b>	6
MRKTNG 4000 Marketing Management	
MRKTNG 4050 Marketing Research	
<b>Additional Marketing Courses</b>	12
Select from the following:	
MRKTNG 3901 Special Topics in Marketing *	
MRKTNG 3942 International Business Internship *	
MRKTNG 3975 Current Issues in International Marketing *	
MRKTNG 3985 Problems in International Business *	
MRKTNG 4185 Problems in Marketing *	
MRKTNG 4201 Topics in Marketing	
MRKTNG 4220 Consumer Behavior	
MRKTNG 4250 Retail Marketing	
MRKTNG 4350 Business-to-Business Relationships	
MRKTNG 4380 Buying and Supply Chain Management	
MRKTNG 4410 Personal Selling	
MRKTNG 4420 Sales Management	
MRKTNG 4440 Services Marketing	

MRKTNG 4450	Marketing Channels
MRKTNG 4550	Integrated Marketing Communications
MRKTNG 4650	e-Marketing
MRKTNG 4720	Global Marketing
MRKTNG 4880	Contemporary Issues in Marketing
MRKTNG 4940	Marketing Practicum *

**Emphasis Support Courses** 12

A list of suggested emphasis support courses for marketing majors is available at the College of Business undergraduate advising office. Pre-approved emphasis support courses include: \*\*

Any 2000+ course in: Astronomy, Biochemistry, Biological Engineering, Biological Science, Chemical Engineering, Chemistry, Civil & Environmental Engineering, Computer Science, Electrical & Computer Engineering, Geography, Industrial & Manufacturing Systems Engineering, Mathematics, Mechanical & Aerospace Engineering, Physics

Any 2300+ course in: Chinese, French, German, Hebrew, Italian, Japanese, Korean, Portuguese, Romance Languages, Russian, Spanish

Any 3000+ course in: Accountancy, Agricultural Economics, Anthropology, Communication, Economics, Food Science, Hospitality Management, Management, Philosophy, Psychology, Rural Sociology, Sociology, Statistics

Any 4000+ course in: Architectural Studies, Atmospheric Sciences, Black Studies, English, Environmental Studies, Finance, Fisheries & Wildlife, Forestry, History, Information Technology, IS\_LT, Interdisciplinary Studies, International Studies, Journalism, Linguistics, Natural Resources, Parks Recreation & Tourism, Political Science, Religious Studies, Soil Science, Textile & Apparel Management, Women's & Gender Studies

Other 3000+ level courses taken in fulfillment of requirements for an official minor or dual major

Any of the specific courses listed below \*\*\*

CHINSE 2160	Intermediate Chinese I Conversation and Composition
COMMUN 1200	Public Speaking
ENGLISH 2030	Professional Writing
FRENCH 2100	Elementary French III
FRENCH 2160	Intermediate French Composition and Conversation
GERMAN 2100	Intermediate German I
HIST 3820	Twentieth Century China
ITAL 2160	Intermediate Italian
JAPNSE 2160	Japanese Conversation and Composition
MATH 1360	Geometric Concepts
MATH 1700	Calculus II
MATH 1800	Introduction to Analysis I
MRKTNG 3901	Special Topics in Marketing
MRKTNG 3942	International Business Internship
MRKTNG 3975	Current Issues in International Marketing
MRKTNG 3985	Problems in International Business
MRKTNG 4185	Problems in Marketing
MRKTNG 4940	Marketing Practicum
PHIL 2420	Ethical Issues in Business
PHIL 2600	Rational Decisions
PHIL 2700	Elementary Logic
PORT 2160	Intermediate Portuguese
POL_SC 2700	Comparative Political Systems
POL_SC 2800	Liberty, Justice and the Common Good

PSYCH 2310	Social Psychology
PSYCH 2320	Introduction to Personality
RUSS 2130	Second-Year Russian I
RUSS 2160	Second-Year Russian II
S_A_ST 3130	Advanced Hindi Readings I
S_A_ST 3160	Advanced Hindi Readings II in South Asian Studies
SPAN 2100	Elementary Spanish III
SPAN 2160	Intermediate Spanish Composition and Conversation

**Capstone course - senior year (on campus) Minimum grade of C- required** 3

MANGMT 4970	Strategic Management
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Total Credits 120

- \* Only one may be used to fulfill additional marketing course requirement.
- \*\* NOTE: Only courses not used to fulfill other Marketing, Trulaske College of Business, or University General Education (p. 33) requirement (except some WI) qualify as emphasis support electives. Check the *Undergraduate Course Catalog* for prerequisites.
- \*\*\* Note: A maximum of 6 credits from MRKTNG 3901, MRKTNG 3942, MRKTNG 3975, MRKTNG 3985, MRKTNG 4185, and MRKTNG 4940 can be counted towards emphasis support courses.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500	2	MATH 1400	3
MATH 1100	3	ECONOM 1014	3
State Requirement	3	ENGLISH 1000	3
Humanities	3	Humanities	3
Biological Science	3	Elective	3
Elective	1		
			15

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036	3	ACCTCY 2037	3
BUS_AD 2500	2	ACCTCY 2258	3
ECONOM 1015	3	STAT 2500	3
MATH 1300	3	Biological or Physical Science with Lab	3
Physical Science	3	Humanity (Writing Intensive, 2000+)	3
Elective	2		
			16
			15

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500	3	FINANC 3000	3
ECONOM 3229	3	MANGMT 3540	3
MANGMT 3000	3	MRKTNG 4050	3
MRKTNG 3000	3	MANGMT 3300	3

STAT 3500	3 Business Writing Intensive/ Emphasis Support	3
		15
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
MRKTNG 4000	3 MANGMT 4970 (Capstone)	3
Additional Marketing Course	3 Additional Marketing Course	3
Additional Marketing Course	3 Emphasis Support Course	3
Emphasis Support Course	3 Emphasis Support Course	3
BUS_AD 4500	3 Additional Marketing Course	3
		15

Total Credits: 121

## BSBA in Business Administration with Emphasis in Real Estate

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. Students who pursue an emphasis in Finance and Banking can add on an emphasis in Real Estate. Real estate is an ideal field for those with an entrepreneurial spirit who seek career options around the globe. The Real Estate emphasis is for students contemplating a career in real estate investment, property management, mortgage banking, or associated field. Related careers include real estate investment analyst, property manager, mortgage banking officer, REIT (real estate investment fund) manager, and real estate valuation specialist.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the degree requirements below.

<b>General Education Requirements</b>	27
<b>Upper Level Admissions Courses</b>	34
<b>Required Core Courses</b>	26
ECONOM 3229	Money, Banking and Financial Markets
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
<b>Real Estate Required Courses</b>	
FINANC 4010	Financial Management
FINANC 4020	Investments
MANGMT 4010	Operations Management
ECONOM 4351	Intermediate Microeconomics or ECONOM 3251 Theory of the Firm
ACCTCY 4356	Financial Accounting Concepts
FINANC 4500	Principles of Real Estate

<b>Additional Real Estate Courses</b>		6
Select two of the following:		
FINANC 4510	Real Estate Appraisal	
FINANC 4520	Real Estate Finance and Investment	
FINANC 4530	Real Estate Portfolio Analysis and REITs	
<b>Emphasis Support Courses</b>		6
Select two of the following		
Accountancy	Any 3000 or 4000 level class (if not used in required core courses)	
ACCTCY 2258	Computer-Based Data Systems (if not used in UL requirements)	
COMMUN 1200	Public Speaking	
CMP_SC 1050	Algorithm Design and Programming I	
CMP_SC 2050	Algorithm Design and Programming II	
Economics	Any 4000 level class (if not used in required core courses)	
ENGLISH 2030	Professional Writing	
FINPLN 4189	Financial Planning: Applied Tax Law	
Management	Any 3000 or 4000 level class (if not used in required core courses)	
Marketing	Any 3000 or 4000 level class (if not used in required core courses)	
Finance	Any 3000 or 4000 level class (if not used in required core courses)	
<b>Capstone course - senior year (on campus) minimum grade of C- required</b>		3
MANGMT 4970	Strategic Management	
Total Credits		102

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
MATH 1100	3 MATH 1400	3
State Requirement	3 ECONOM 1014	3
Humanities	3 Humanities	3
Biological/Physical Science	3 Elective	3
Elective	1 ENGLISH 1000	3
BUS_AD 1500	2	
		15
<b>Second Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
MATH 1300	3 STAT 2500	3
ECONOM 1015	3 Elective	2
ACCTCY 2036	3 ECONOM 3229	3
Biological/Physical Science	3 ACCTCY 2037	3
BUS_AD 2500	2 ACCTCY 2258	3
		Biological/Physical Science with Lab
		3
		14
<b>Third Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
FINANC 3000	3 MANGMT 3540	3
STAT 3500	3 FINANC 4010	3

MANGMT 3000	3 FINANC 4020	3
MANGMT 3300	3 MRKTNG 3000	3
BUS_AD 3500	3 Business Writing Intensive/ Emphasis Support	3
15		15

Fourth Year		
Fall	CR Spring	CR
MANGMT 4010	3 MANGMT 4970 (Capstone)	3
ACCTCY 4356	3 Additional Real Estate Course	3
Additional Real Estate Course	3 ECONOM 3251 or 4351	3
Emphasis Support Course	3 Additional Real Estate Course	3
BUS_AD 4500	3 Humanity (Writing Intensive, 2000+)	3
15		15

Total Credits: 121

## Minor in Business

The business minor has the same rigor and content as the fundamental courses taken by business students. It provides flexibility in undergraduate studies and better prepares students for jobs and for graduate school. The business minor includes courses that are highly complementary. For most students, the requirements for the business minor are far more valuable than a similar number of courses in one or two areas.

15 of the 18 hours must be taken in residence and a 2.0 GPA in all business courses and those required for the business minor is required. See a business advisor for questions regarding the business minor.

ACCTCY 2010	Introduction to Accounting	3
or ACCTCY 2036	Accounting I	
or ACCTCY 2026	Accounting I	
ECONOM 1014	Principles of Microeconomics (3)	3-5
or AG_EC 1041	Applied Microeconomics	
or ECONOM 1051H	General Economics - Honors	
or ECONOM 1000	General Economics	
MANGMT 3000	Principles of Management	3
FINANC 2000	Survey of Business Finance	3
or FINANC 3000	Corporate Finance	
MRKTNG 3000	Principles of Marketing	3
Business Elective (any Trulaske College of Business courses above 3000 level)		3
Total Credits		18-20

## MBA in Business Administration

### Crosby MBA

Office of Admissions  
213 Cornell Hall  
Columbia, MO 65211  
573-882-2750  
mba@missouri.edu  
<http://mba.missouri.edu>

## Degree Requirements (Crosby MBA)

Total graduate course work necessary to qualify for the Crosby MBA degree is 57 credit hours; however, students who meet the criteria for waiving certain beginning level courses may substitute those courses with electives. For graduation, MBA students must earn a cumulative grade point average of 3.0 or better in the hours completed in the designated MBA plan of study and a minimum 3.0 cumulative MU graduate grade point average.

Required course work in Quantitative Analysis, Finance, Management, Marketing and Professional Development and Experiential Learning provides a comprehensive business education for Crosby MBA students. Our curriculum assures that graduates enter the 21st century business world with tools that will enable them to be successful. The program consists of 34.5 required credits, including foundational and advanced coursework, plus 22.5 elective credits.

The structure of the MU Crosby MBA allows students to concentrate in a specific area of business, develop a broad managerial focus, or complement business training with course work from other areas on campus. Areas of concentration are offered within the departments of finance, management, and marketing, including the marketing analytics certificate, or another field related to a student's individual interests. The delivery format includes 1.5 credit hour, 8-week modules, to allow for more focused attention to a particular topic, as well as to provide a wider array of choices. 3 credit, 16 week courses are also available.

### REQUIRED COURSES

ACCTCY 7310	Accounting for Managers	3
BUS_AD 7050	MBA Communications Practice	1.5
BUS_AD 7340	Business Ethics and Leadership	1.5
BUS_AD 8010	MBA Seminar	1
BUS_AD 8020	MBA Seminar	1
BUS_AD 8030	MBA Seminar	1
BUS_AD 8500	Business Problem Analysis: Field Project	3
FINANC 7210	Microeconomics for Business	1.5
FINANC 7440	Managerial Finance	3
FINANC 8350	Financial Statement Analysis I	1.5
MANGMT 7380	Organizational Behavior and Management: The Individual	1.5
MANGMT 7390	Organizational Behavior and Management: Dyadic, Group and Organizational Processes	1.5
MANGMT 7410	Management Information Systems	1.5
MANGMT 7420	Managerial Statistics	1.5
MANGMT 7430	Operations Strategy	1.5
MANGMT 7470	Data Analysis for Managers	1.5
MANGMT 7480	Managerial Analytics	1.5
MANGMT 7970	Introduction to Strategic Management	1.5
MANGMT 8970	Strategy and Global Competitiveness	1.5
MRKTNG 7460	Managerial Marketing	1.5
MRKTNG 7470	Advanced Marketing Management	1.5

### ELECTIVES (offerings vary semester by semester)

Accounting Electives		
ACCTCY 8453	Taxes and Business Strategies	3
Business Administration Electives		
BUS_AD 8001	Topics in Business Administration	1.5-3.0
BUS_AD 8600	Business Consulting	3
BUS_AD 8730	International Study Abroad	3-6

Finance Electives		
FINANC 7620	Investment Strategy of Warren Buffett	3
FINANC 7820	Investment Fund Management	3
FINANC 7830	Chartered Financial Analyst Exam Review Course	3
FINANC 7840	Angel Capital Education Program	1-3
FINANC 8001	Topics in Finance	1-3
FINANC 8320	Financial Markets	1.5
FINANC 8330	Investment Policy and Portfolio Management	1.5
FINANC 8340	Derivative Financial Securities	3
FINANC 8352	Financial Statement Analysis II	1.5
FINANC 8360	Equity Securities Analysis	1.5
FINANC 8370	Fixed-Income Securities Analysis	1-3
FINANC 8410	Advanced Financial Management	3
FINANC 8440	Financing Multinational Business	1.5
FINANC 8450	Ethics and Standards of Financial Practice	1.5
FINANC 8510	Management of Financial Institutions	3
FINANC 8520	Real Estate Investment I	1.5-3
FINANC 8530	Real Estate Portfolio Analysis	1.5
FINANC 8560	Real Estate Securities Analysis	1.5
FINANC 8620	Investment Strategy of Warren Buffett	3
FINANC 8630	Corporate Risk Management	1.5
Management Electives		
MANGMT 8001	Topics in Management	1-6
MANGMT 8054	Entrepreneurship and Media of the Future	3
MANGMT 8100	Exploring the Digital Globe	3
MANGMT 8310	Strategic Human Resource Management	3
MANGMT 8330	Current Issues in Human Resource Management	3
MANGMT 8360	Negotiations	3
MANGMT 8400	Management Science Modeling	1.5
MANGMT 8410	Decision Making and Risk	1.5
MANGMT 8420	Decision Support Systems	3
MANGMT 8510	Project Management	1.5
MANGMT 8540	Entrepreneurial Ventures	3
MANGMT 8550	Launching a High-Growth Venture	3
MANGMT 8560	Legal Strategies for Entrepreneurs	3
Marketing Electives		
MRKTNG 8001	MBA Topics in Marketing	1-3
MRKTNG 8060	Competitive Marketing Strategy	1.5
MRKTNG 8070	Marketing Business Models	1.5
MRKTNG 8180	Applied Statistics in Marketing Analytics	1.5
MRKTNG 8280	Research for Marketing Decisions	3
MRKTNG 8350	Business-to-Business Marketing	1.5
MRKTNG 8420	Sales Force Management	1-3
MRKTNG 8520	Services Marketing	3
MRKTNG 8580	Product Management	1-3
MRKTNG 8680	Database Marketing	3
MRKTNG 8720	International Marketing	3
MRKTNG 8750	Brand Management	1.5
MRKTNG 8760	Marketing Engineering	3
MRKTNG 8770	Marketing Databases and SQL	3
MRKTNG 8780	Advanced Marketing Analytics	3

## Sample Plan of Study (Crosby MBA)

The plan of study below, while it is a sample, is truly representative of the majority of full time students.

First Year		
Fall	CR Spring	CR
1st 8-week session	1st 8-week session	
MANGMT 7420	1.5 MANGMT 7380	1.5
MANGMT 7470	1.5 MANGMT 7410	1.5
MANGMT 7970	1.5 2nd 8-week session	
MRKTNG 7460	1.5 MANGMT 7390	1.5
2nd 8-week session	MANGMT 7430	1.5
BUS_AD 7050	1.5 Regular session (16 weeks)*	
FINANC 7210	1.5 BUS_AD 8020	1
MANGMT 7480	1.5 FINANC 7440	3
MRKTNG 7470	1.5 Electives*	3
Regular session (16 weeks)		
ACCTCY 7310	3	
BUS_AD 8010	1	
	16	13
Second Year		
Fall	CR Spring	CR
8-week session	8-week session	
BUS_AD 7340	1.5 MANGMT 8970	1.5
FINANC 8350	1.5 Electives*	10.5
Regular session (16 weeks)		
BUS_AD 8030	1	
BUS_AD 8500	3	
Electives*	9	
	16	12

Total Credits: 57

\* Students are required to complete a minimum of 3 credit hours of Marketing electives and a minimum of 3 credit hours of Finance electives in addition to required coursework.

## execMBA

Office of Admissions  
 306 Cornell Hall  
 Columbia, MO 65211  
 573-882-8266  
[execmba@missouri.edu](mailto:execmba@missouri.edu)  
<http://execmba.missouri.edu>

## Degree Requirements (execMBA)

Total graduate course work necessary to qualify for the execMBA degree is 48 credit hours. For graduation, execMBA students must earn a cumulative grade point average of 3.0 or better.

The program curriculum, designed with executives in mind, is inventive, practical and market-facing. Students will build skills that increase self- and global-awareness, develop strategic risk-taking, and heighten influence. Delivery is a blend of approximately 75% online and 25% in-class coursework. Students will amplify global expertise and value in the marketplace with an 8- to 10-day international residency. This lock-step,



cohort program – meaning students will take the same classes together in the same order – is conducive to personal interactions with the other high-level professionals.

#### Required Courses

ACCTCY 7310	Accounting for Managers	3
BUS_AD 8001	Topics in Business Administration	6
MANGMT 8001	Topics in Management	3
BUS_AD 8730	International Study Abroad	6
BUS_AD 8010	MBA Seminar	1
BUS_AD 8020	MBA Seminar	1
BUS_AD 8030	MBA Seminar	1
FINANC 7210	Microeconomics for Business	3
FINANC 7440	Managerial Finance	3
FINANC 8350	Financial Statement Analysis I	3
MANGMT 7430	Operations Strategy	3
MANGMT 7030	Organizational Behavior	3
MANGMT 8970	Strategy and Global Competitiveness	3
MANGMT 7450	Business Analytics	3
MRKTNG 7460	Managerial Marketing	3
MRKTNG 8060	Competitive Marketing Strategy	3
Total Credits		48

### Plan of Study (execMBA)

First Year			
Fall	CR Spring	CR Summer	CR
1st 8-week session	1st 8-week session	8-10 days in June	
MANGMT 7030	3 FINANC 7210	3 BUS_AD 8730	6
MANGMT 7450	3 MANGMT 8001	3	
2nd 8-week session	2nd 8-week session		
ACCTCY 7310	3 FINANC 7410	3	
MRKTNG 7460	3 BUS_AD 8010	1	
	12	10	6
Second Year			
Fall	CR Spring	CR	
1st 8-week session	1st 8-week session		
MANGMT 7430	3 FINANC 8350	3	
BUS_AD 8001	3 MRKTNG 8060	3	
2nd 8-week session	2nd 8-week session		
BUS_AD 8020	1 MANGMT 8970	3	
BUS_AD 8001	3 BUS_AD 8030	1	
	10	10	
Total Credits: 48			

### International Residency (execMBA)

The international residency is an 8-10 day immersion in a foreign culture and its business practices during the summer between the first and second year in the program. It serves as an opportunity to apply classroom education to an international setting. Students will consult with businesses on strategic issues, network with local businesses and government officials, and explore international culture.

## PhD in Business Administration with Emphasis in Business

### About the Doctorate in Business Administration

The PhD program is designed to prepare graduates for careers as effective university researchers and teachers or for senior research positions in business or government. A primary objective of the program is to train PhD candidates to become proficient researchers. Therefore, course work involves research activities such as literature review and critique, theoretical modeling, research design, computer-assisted empirical analysis and preparation of proposals and research papers. Another objective is to train students to become high-quality teachers. PhD candidates are provided the opportunity to teach undergraduate courses in their specialty area. In addition, students are expected to participate in national and regional academic conferences and are encouraged to work with faculty in developing individual research and teaching skills. The PhD in Business Administration offers three concentration areas: Finance (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-finance>), Management (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-management>) and Marketing (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-marketing>) (Concentrations will not appear on diplomas or transcripts.)

### Degree Requirements - all PhD students

1. Before enrolling in concentration area courses, all PhD students in Business Administration must take (or be able to have waived) the below general courses. Students with an MBA typically will have these requirements waived.

ACCTCY 7310	Accounting for Managers	3
FINANC 7440	Managerial Finance	3
MRKTNG 7460	Managerial Marketing	3
ECONOM 7332	Microeconomics for Managers	3
And one of the following:		3
MANGMT 7380	Organizational Behavior and Management: The Individual	
MANGMT 8310	Strategic Human Resource Management	
MANGMT 8340	Organizational Design	
Total Credits		15

2. An in-depth major concentration in the area of finance, management (organizational sciences) or marketing (minimum of 15 hours of 8000/9000-level courses).

3. Two support areas of at least nine credit hours each, one of which must be taken outside the School of Business, or one support area of at least 12 credit hours. These supporting areas offer the student considerable latitude in identifying a course of study that can be tailored to the individual's interests and goals. If two support areas are selected, the student must also satisfy a 12-hour analytical tool requirement; if one support area is selected, the analytical tool requirement is 18 hours.

4. Collateral requirements emphasizing analytical tools (proficiency in a foreign language does not fulfill the collateral requirements). This is a research methods and analyses sequence of at least 12 hours (at least

18 if only one support area), including appropriate courses in economics, mathematics, psychology, sociology, statistics or other areas deemed appropriate by the program committee.

5. An ongoing seminar experience (each semester until successful completion of comprehensive examinations) that acquaints the student with current literature and research in his/her major area of interest. This seminar is in addition to other seminars offered departmentally (4 hours minimum).

6. Dissertation (minimum 12 hours of 9090 credit).

These requirements are independent of one another; courses taken to satisfy one requirement may not be used to satisfy any other requirement. Previous graduate work taken before admission to the PhD program may be used to satisfy these requirements if it is deemed appropriate by the student's program committee.

## Concentration in Finance

The PhD program with a concentration in Finance emphasizes university level research and teaching skills. The program of study is flexible to meet individual needs and interests, but all students take advanced classes in Finance, Economics, and Statistics. Students are only admitted on a full-time basis and normally work as research or teaching assistants. Students must complete an on campus interview before any decision can be made regarding their ultimate admission. The GMAT is strongly preferred with the GRE only considered in special circumstances.

## Degree Requirements - Finance Concentration

### Prerequisites typically needed for Finance program of study:

ECONOM 7351	Intermediate Microeconomics	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
STAT 2500	Introduction to Probability and Statistics I	3

### Required courses:

FINANC 9100	Seminar in Corporate Finance	3
FINANC 9200	Research in Corporate Finance	3
FINANC 9300	Financial Economics	3
FINANC 9400	Seminar in Investment Analysis	3
FINANC 9001	Advanced Topics in Finance	3
FINANC 9101	Topics Seminar in Finance (taken for 1 credit hour each semester while taking other course work)	1-3
ECONOM 7370	Quantitative Economics	3
ECONOM 8451	Microeconomic Theory	3
ECONOM 8472	Econometric Methods I	3
ECONOM 9473	Econometric Theory II	3
ECONOM 9452	Advanced Microeconomic Theory II	3
STAT 7510	Applied Statistical Models I	3
or MATH 7140	Matrix Theory	
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3

## Support Areas - Finance Concentration

PhD students must complete either two 9-hour Support Areas or one 12-hour Support Area to complement advanced training in Finance.

Successful completion of a Support Area may require a written examination covering course work applied to the Support Area. At least one Support Area must come from outside the College of Business. Most students choose Support Areas in Microeconomics and Statistics resembling the following examples:

### Example support area in Microeconomics:

ECONOM 7370	Quantitative Economics	3
ECONOM 8451	Microeconomic Theory	3
ECONOM 9452	Advanced Microeconomic Theory II	3

### Example support area in Statistics:

STAT 7510	Applied Statistical Models I	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3

## Collateral Area - Finance Concentration

PhD students must complete a 12-hour Collateral Area (if completing two 9-hour Support Areas) or an 18-hour Collateral Area (if completing one 12-hour Support Area) selected in cooperation with a student's program committee. Coursework applied to a Support Area cannot be applied to a Collateral Area. Recommended is a Collateral Area in Accounting, Econometrics, Economics, Mathematics, Statistics, or Corporate Law. The purpose of the collateral area for finance students is to provide them with the necessary quantitative skills to undertake original empirical research. Some representative examples include:

### Example collateral area in Econometrics:

ECONOM 8472	Econometric Methods I	3
ECONOM 9473	Econometric Theory II	3
ECONOM 9476	Advanced Topics in Econometrics II	3

### Example collateral area in Economics:

ECONOM 8451	Microeconomic Theory	3
ECONOM 9452	Advanced Microeconomic Theory II	3

### Example collateral area in Corporate Law:

LAW 5395	Business Organizations	1-4
LAW 5365	Bankruptcy	1-3
LAW 5470	Criminal Clinic	1-5

### Example collateral area in Statistics:

STAT 7210	Applied Nonparametric Methods	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 7850	Introduction to Stochastic Processes	3

## Concentration in Management

PhD students with a concentration in Management emphasize university level research and teaching skills. The program of study is flexible to allow students to focus on their personal interests. The program includes a business core of at least 15 hours, at least 15 hours of doctoral seminars in management, one 12-hour or two 9-hour support areas, and a minimum of 12 hours in research methods and statistics (18 hours with one 12-hour support area). Students typically work as research or teaching assistants and receive direct support, which includes a full tuition waiver. The PhD program in management is designed to provide students with a sound foundation for a productive career as an academic at a research-oriented university.

The Department of Management welcomes applications for entry into the PhD program for the fall semester (beginning in August). The application deadline for full consideration is February 1, but applications that arrive

after that date may be considered. We encourage all applicants to consider making a visit to campus to meet departmental faculty and current management doctoral students. Please contact Dr. Karen Schnatterly (<http://business.missouri.edu/people-directory/karen-schnatterly>), PhD Coordinator, if you have any questions.

## Degree Requirements - Management Concentration

### Management Seminars

PhD students in the management track are required to take four core seminars, and 3 credits of additional seminars that will be offered to match the needs and interests of current students. The four core seminars are:

MANGMT 9040	Seminar in Human Resource Management	3
MANGMT 9080	Seminar in Entrepreneurship	3
MANGMT 9020	Seminar in Micro Organizational Behavior	3
MANGMT 9060	Seminar in Corporate Strategy	3

While pursuing required course work, all students participate in MGMT 9101 Topics Seminar in Management (1 hour per semester), which is taken on a Pass/Fail basis.

### Support Areas - Management Concentration

PhD students must complete either two 9-hour Support Areas or one 12-hour Support Area. Support Areas are tailored to the research and teaching goals of the PhD candidate. Programs are highly individualized to reflect student interests and desired focus. The combination of courses in any Support Area and in the concentration core is flexible, with numerous combinations possible. Program design is subject to the approval of the student's program committee. Typical Support Areas include psychology, economics, research methods and statistics, career development, sociology, marketing, and communication. Listed below are examples of Support Areas that could be selected:

#### Example Area 1: Psychology:

PSYCH 7340	Attitude Change	3
PSYCH 8310	Survey of Social Psychology	3
PSYCH 8610	Motivation	3
PSYCH 8620	Personality Psychology	3
ESC_PS 7200	Positive Psychology	3
PSYCH 9350	Studies in Social Psychology	1-99

#### Example area II: Economics

AG_EC 8050	Economics of Institutions and Organizations	3
AG_EC 9001	Advanced Topics in Economics II	3
FINANC 9001	Advanced Topics in Finance	3
ECONOM 7355	Industrial Organization and Competitive Strategy	3
ECONOM 8451	Microeconomic Theory	3

#### Example Area III: Research Methods and Statistics:

MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
PSYCH 8710	General Linear Models in Psychology I	4
PSYCH 8730	Statistical Software Packages	1
PSYCH 9510	Studies in Clinical Psychology	1-99
ESC_PS 9650	Application of Multivariate Analysis in Educational Research	3
ESC_PS 9710	Structural Equation Modeling	3
ESC_PS 9720	Hierarchical Linear Modeling	3

SOCIOL 8120	The Logic of Social Research	3
ECONOM 7370	Quantitative Economics	3
ECONOM 8472	Econometric Methods I	3
ECONOM 8473	Applied Econometrics	3
SOCIOL 9288	Ethnographic Fieldwork	3
COMMUN 8130	Topics in Qualitative Research Methods	3
STAT 7110	Statistical Software and Data Analysis	3
STAT 7710	Introduction to Mathematical Statistics	3
STAT 7510	Applied Statistical Models I	3

### Research Methods & Analysis (RM&A) Area - Management Concentration

PhD students must complete a 12-hour RM&A Area (if completing two 9-hour Support Areas) or an 18-hour RM&A Area (if completing one 12-hour Support Area). These courses, selected in cooperation with a student's program committee, will provide students with the tools and techniques necessary for conducting empirical research. Sample courses include those listed above in Support Area III. Coursework applied to a Support Area cannot be applied to a Collateral Area.

### PhD Thesis Credit (MANGMT 9090)

Students enroll in MANGMT 9090 while they are working on their dissertation, typically in their last two years in the program. We require a minimum of 12 credit hours of MANGMT 9090.

### Sample Plan of Study - Management Concentration

First Year			
Fall	CR Spring	CR Summer	CR
MANGMT Seminar	3 MANGMT Seminar	3 Support Area Course #2	3
Research Methods #1	3 Research Methods #3	3	
Research Methods #2	3 Support Area Course #1	3	
MANGMT 9101	1 MANGMT 9101	1	
	10	10	3
Second Year			
Fall	CR Spring	CR Summer	CR
MANGMT Seminar	3 MANGMT Seminar	3 Research Experience	
Support Area Course #3	3 Support Area Course #4	3 Comprehensive Exam Preparation	
Research Methods #4	3 Research Methods #6	3	
Research Methods #5	3 MANGMT Seminar	3	
MANGMT 9101	1 MANGMT 9101	1	
	13	13	0
Third Year			
Fall	CR Spring	CR	
Comprehensive Examination	MANGMT 9090 (Dissertation)	1-99	
MANGMT 9090 (Dissertation)	1-99		
	1-99	1-99	

Fourth Year		
Fall	CR Spring	CR
MANGMT 9090 (Dissertation)	1-99 MANGMT 9090 (Dissertation)	1-99
	1-99	1-99

Total Credits: 53-445

## By the numbers

Academic Year	Enrollment	Graduated	Placed
2010-2011	9	1	1
2011-2012	10	2	2
2012-2013	8	3	3
2013-2014	8	1	1
2014-2015	9	0	0
2015-2016	9	3	3
2016-2017	6	2	2

## Concentration in Marketing

Students with an interest in behavioral, strategic, or methodological issues marketing are a great fit for this program. It emphasizes the development of research and teaching skills needed to pursue career placement at a research-oriented university. The program is flexible to meet individual needs and interests and graduates annually well-situated professionals prepared for the market. In addition, the program offers small class sizes, a set of doctoral specific seminars, and a collaborative environment. Students develop research skills by working with faculty on research projects and from faculty mentoring. Students also gain valuable experience by teaching undergraduate courses.

## Degree Requirements - Marketing Concentration

### Prerequisites typically needed for Marketing Concentration

MATH 1320	Elements of Calculus	3
STAT 1400	Elementary Statistics for Life Sciences	3

### Required courses:

MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
MRKTNG 9020	Seminar in Advanced Research Methods in Marketing	3
MRKTNG 9030	Seminar in Applied Multivariate Analysis in Marketing	1-3
MRKTNG 9210	Seminar in Marketing Strategy	3
MRKTNG 9220	Seminar Marketing Models	3
MRKTNG 9230	Seminar in Consumer Behavior	3

### Electives (minimum of 3 credits):

MRKTNG 9185	Doctoral Independent Study in Marketing	3
MRKTNG 9101	Current Topics Seminar in Marketing (taken each fall and spring while in residence at MU)	1
MRKTNG 9090	Research in Marketing (Dissertation - minimum of 12 hours with at least 2 hours each fall and spring and 1 hour each summer semester)	12

## Support Areas - Marketing Concentration

PhD students must complete either two 9-hour Support Areas or one 12-hour Support Area. Support Areas should be selected to provide depth in theory and research appropriate for the particular research interests of the student. Typical Support Areas for students concentrating in marketing are social psychology, organizational behavior, economics, and statistics, but other areas may be appropriate. Below are examples:

### Example support area in Psychology/Social Psychology:

PSYCH 7340	Attitude Change	3
PSYCH 8310	Survey of Social Psychology	3
PSYCH 8610	Motivation	3
PSYCH 9310	Theories of Social Psychology	3
PSYCH 9360	Seminar in Social Psychology	1

### Example support area in Organizational Behavior:

MANGMT 9087	Seminar in Management (Human Resource Management)	1-99
MANGMT 9087	Seminar in Management (Organizational Behavior I)	1-99
MANGMT 9087	Seminar in Management (Organizational Behavior II)	1-99
MANGMT 9087	Seminar in Management (Strategic Management I)	1-99
MANGMT 9087	Seminar in Management (Organizational Theory)	1-99

### Example support area in Economics:

ECONOM 7340	Introduction to Game Theory	3
ECONOM 7351	Intermediate Microeconomics	3
ECONOM 8451	Microeconomic Theory	3
ECONOM 8470	Dynamic Optimization	3
ECONOM 8472	Econometric Methods I	3
ECONOM 9452	Advanced Microeconomic Theory II	3
ECONOM 9471	Advanced Game Theory	3
ECONOM 9473	Econometric Theory II	3

### Example support area in Statistics:

STAT 7530	Analysis of Variance	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 7830	Categorical Data Analysis	3
STAT 7850	Introduction to Stochastic Processes	3
STAT 8640	Bayesian Analysis I	3
STAT 9710	Advanced Mathematical Statistics I	3
STAT 9720	Advanced Mathematical Statistics II	3
ECONOM 8472	Econometric Methods I	3
ECONOM 9473	Econometric Theory II	3

## Analytical Tools - Marketing Concentration

Courses in research methods and statistics are required to provide each doctoral student with a sound foundation in research skills. Two marketing seminars that focus on research methods are required, with additional courses chosen as appropriate for the student's specific research emphasis. This includes a minimum of 12 hours for students with two support areas, or 18 hours for students with one support area. Students often take additional analytical tool courses to further develop the depth of knowledge in tools required for their specific research interests. Coursework in multiple regression, analysis of variance, and multivariate statistics is required.

**Example analytical tools courses:**

MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
MRKTNG 9030	Seminar in Applied Multivariate Analysis in Marketing	1-3
ECONOM 7340	Introduction to Game Theory	3
ECONOM 7351	Intermediate Microeconomics	3
ECONOM 8470	Dynamic Optimization	3
ECONOM 8472	Econometric Methods I	3
ECONOM 9473	Econometric Theory II	3
PSYCH 8710	General Linear Models in Psychology I	4
PSYCH 8720	General Linear Models in Psychology II	4
PSYCH 9320	Social Psychology Methodology	3
PSYCH 9330	Field Research Methods	3
PSYCH 9520	Psychometrics	3
PSYCH 9710	Multivariate Statistics in Psychology	3
PSYCH 9725	The Literature Review	3
SOCIOL 7120	Social Statistics	3
SOCIOL 8130	Advanced Social Statistics	3
SOCIOL 8120	The Logic of Social Research	3
SOCIOL 9287	Seminar in Qualitative Methods in Sociology	3
SOCIOL 9837	Seminar in Multivariate Analysis Techniques	3
STAT 7210	Applied Nonparametric Methods	3
STAT 7310	Sampling Techniques	3
STAT 7510	Applied Statistical Models I	3
STAT 7530	Analysis of Variance	3
STAT 7540	Experimental Design	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 7830	Categorical Data Analysis	3
STAT 7850	Introduction to Stochastic Processes	3
STAT 8640	Bayesian Analysis I	3
STAT 9710	Advanced Mathematical Statistics I	3
STAT 9720	Advanced Mathematical Statistics II	3

**Marketing PhD Seminars**

MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
MRKTNG 9020	Seminar in Advanced Research Methods in Marketing	1-3
MRKTNG 9030	Seminar in Applied Multivariate Analysis in Marketing	1-3
MRKTNG 9210	Seminar in Marketing Strategy	1-3
MRKTNG 9220	Seminar Marketing Models	1-3
MRKTNG 9230	Seminar in Consumer Behavior	1-3

**All Concentrations**

**Qualifying Process**

**Program Committee**

During the first semester of course work, the PhD Coordinator, a member of the doctoral faculty from the major area of study (finance, management or marketing), serves as the student’s faculty advisor.

By the end of the first year of course work, a student should make formal application for the doctoral degree and, after consultation with faculty, request appointment of a Doctoral Program Committee. This committee

consists of at least three members from the student’s major area of study and at least one member from each supporting area of study.

The Doctoral Program Committee conducts the qualifying examination and works with the student to design a plan of study.

**Residency Requirement**

In compliance with University regulations, the doctor of philosophy degree requires the completion of 72 semester hours of graduate work beyond the baccalaureate degree. Within the credit-hour requirement is the residency requirement. To satisfy the residency requirement, a student must complete at least 2 9-hour semesters or 3 6-hour semesters in an 18-month period at MU. All courses taken to satisfy the residency requirement must be MU courses approved for graduate credit and approved by the student’s doctoral program committee. Correspondence and off-campus courses may not be counted toward the residency requirement. This program is designed for full-time students and typically requires a 4-year on-campus commitment.

**Qualifying Examination and First-Year Project**

Every marketing doctoral student is required to pass the qualifying exam consisting of two major components. The first component is a comprehensive evaluation of overall performance in coursework and RA assignments and participation in formal and informal doctoral program elements. The second component is a first-year project addressing a scholarly research topic in marketing consisting of three major parts: a written outline, presentation, and paper suitable for submission to a conference or journal. The goal of this project is to promote early research engagement, interaction with faculty, and the development of communication and presentation skills that will enhance the overall experience of the student throughout the doctoral program.

**Comprehensive Examination Process**

Typically, after completion of the course work specified on the plan of study, the student’s doctoral program committee determines the student’s readiness to undertake the comprehensive examination. The student must be enrolled at MU the semester s/he takes this examination.

The comprehensive examination consists of written and oral sections. Both sections must be completed within one month of each other, and at least seven months before a final dissertation defense. Successful completion of the comprehensive examination requires that the student’s doctoral program committee vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote. The student who fails this exam may not take a second comprehensive examination for at least 12 weeks. Failure to pass two successive comprehensive examinations automatically prevents candidacy.

**Dissertation Requirements**

A dissertation is required to complete the doctoral program. Each student, working under the supervision of the doctoral program committee chair, must propose an original scholarly research project. The dissertation proposal is normally defended at the end of the third year of the program in an oral presentation. The proposal must be approved formally by the student’s program committee. Following completion of the research, the written dissertation must be orally defended and approved by the student’s program committee.

## Admissions

grad@missouri.edu  
 213 Cornell Hall  
 Columbia, MO 65211  
 573-882-2750  
<http://business.missouri.edu/programs-and-admissions/phd>

## Additional Minors and Certificates - Business

### Undergraduate Certificates

- Certificate in Human Resource Management (p. 357)
- Certificate in Risk Management and Insurance (p. 357)
- Certificate in Sales and Consumer Development (p. 357)

### Graduate Certificates

- Certificate in Accounting Information Systems (p. 358)
- Certificate in Assurance (p. 358)
- Certificate in Marketing Analytics (p. 358)
- Certificate in Taxation (p. 358)

## Certificate in Human Resource Management

Human Resource Management (HRM) Certificate

<b>Required Courses</b>	<b>9</b>
MANGMT 4020 Human Resource Management	
MANGMT 4030 Organizational Behavior	
BUS_AD 4500 Professional Development Program - Internship	
<b>Elective Course (choose any 6 hours below)</b>	<b>6</b>
MANGMT 3920 Managing People in the Global Enterprise	
MANGMT 4120 Human Resource Management Law	
MANGMT 4130 Advanced Organizational Behavior	
MANGMT 4320 Selected Problems in Human Resource Management	
MANGMT 4350 Leadership Development	
MANGMT 4420 Collective Bargaining	
MANGMT 4520 Change Management in Business	

**Required GPA: 3.0 or higher for these 15 credit hours**

Note: for the purposes of this Certificate, a student can transfer in credit from another institution only for MANGMT 3000. Management 3000 is a prerequisite for all other Management courses.

**Total hours:** 15

## Certificate in Risk Management and Insurance

Organizations that manage risk well are more likely to be successful than those that do not. Effective risk management requires a solid understanding of the sources, dimensions and qualities of risk, as well as the development and implementation of efficient techniques to mitigate, control or avoid those risks. Gain these skills and become competitive in

the field of risk management and insurance. Students must have a 3.0 overall GPA.

<b>Certificate Requirements and Curriculum</b>	<b>13-15</b>
<b>Required Courses</b>	
FINANC 3000 Corporate Finance or FINANC 2000 Survey of Business Finance	
FINANC 4630 Introduction to Risk Management and Insurance	
FINANC 4632 Principles of Commercial Property and Liability Insurance	
FINANC 4640 Enterprise Risk Management	
<b>Internship Requirement (Minimum 1 credit hour)</b>	
BUS_AD 4500 Professional Development Program - Internship or FINANC 4185 Problems in Finance	

## Certificate in Sales and Customer Development

The Certificate in Sales and Customer Development prepares undergraduate students for careers in the highly professional and dynamic field of sales. Through the Certificate's required practices in the sales profession and sales management.

Students who finish the 13 credit-hour curriculum will receive the Certificate in Sales and Customer Development upon completion of their bachelor's degree, thereby offering to employers tangible evidence of a strong background in sales. To earn the Certificate in Sales and Customer Development students are required to maintain a 3.0 grade point average in all courses taken in fulfillment of the Certificate.

Required Courses - A minimum 3.20 GPA is needed in these three courses 9

MRKTNG 4410 Personal Selling	
MRKTNG 4430: Advanced Professional Selling (course pending approval)	
MRKTNG 4420 Sales Management	
<b>Elective Course - Choose one</b>	<b>3</b>
MRKTNG 4220 Consumer Behavior	
MRKTNG 4250 Retail Marketing	
MRKTNG 4440 Services Marketing	
MRKTNG 4550 Integrated Marketing Communications	

Note: MRKTNG 3000 is prerequisite course for all other Marketing classes

**Internship Requirement (Minimum 1 credit hour) \*** 1  
**Certificate Requirements and Curriculum** 13

\* Satisfactory completion of at least one credit hours for a supervised internship (summer or regular semester), with significant customer contract and a minimum of 120 hours on-the-job experience. This credit hour can be earned in any College at MU. Internships that qualify for this Certificate will need to be approved by the Program Coordinator as a part of the Certificate application process.

**Note:** Many Trulaske College of Business students will be able to satisfy the internship requirement by completing a suitable internship under the College's BUS\_AD 4500 requirement. But if a student has already completed BUS\_AD 4500 with an internship that does not meet the requirements of this Certificate program, that individual would be advised

to register for one credit hour under MRKTNG 4185 for an internship that would qualify.

Non-business majors should contact the Program Coordinator, salescertificate@missouri.edu, regarding the internship component.

## Graduate Certificate in Accounting Information Systems

The College of Business is not currently accepting applications for the Graduate Certificate in Accounting Information Systems.

## Graduate Certificate in Assurance

The Assurance Certificate program will provide students with advanced skills necessary to succeed in Assurance Services-related careers. Through completion of the required coursework, students will be able to:

- Assess business and financial reporting risks
- Understand and apply auditing concepts and procedures
- Design and implement internal controls
- Understand the role of corporate governance in risk management
- Implement fraud prevention and detection procedures
- Understand how corporate taxes can impact a corporation's financial statements
- Understand the basis of corporate taxation and book-to-tax differences (ASC 740)

School of Accountancy graduates with an Assurance Certificate will be prepared for a variety of careers including: external and internal auditor, risk management, fraud examination, and consulting on risk, assurance, and fraud prevention.

Students must be admitted to the MAcc program to pursue the Assurance Certificate. Courses will count towards the degree programs for School of Accountancy. Additional credit hours beyond those needed for the MAcc will not be required in most cases. Students must achieve an average of 3.0 GPA in the required courses.

### Required:

ACCTCY 4384/7384	Auditing Theory and Practice I	3
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### Elective:

ACCTCY 8373	Taxation of Corporations and Shareholders	3
ACCTCY 8404	Internal Auditing	3
ACCTCY 8414	Audit of Internal Controls	3
ACCTCY 8424	Fraud Examination	3
or ACCTCY 8438	Forensic Accounting	
ACCTCY 8436	Advanced Accounting	3
ACCTCY 8444	Advanced Audit	3
ACCTCY 8456	Corporate Governance	3

**Total Hours: (12 of 15 credit hours must be graduate credit)** 15

Below is a sample semester plan. Please consult with your advisor.

First Year		
Fall	CR Spring	CR
ACCTCY 4384 or 7384	3 ACCTCY 7940	3
ACCTCY 8373	3 ACCTCY 8404	3
Accounting and/or Business Electives	6 ACCTCY 8456	3
		9

Second Year	
Fall	CR
ACCTCY 8436	3
ACCTCY 8444	3
ACCTCY 8450	3
9	

Total Credits: 30

## Graduate Certificate in Marketing Analytics

The Graduate Certificate in Marketing Analytics is available to students in the Crosby MBA Program. Students must already be admitted to the Crosby MBA program. The certificate is designed to enhance the value of the MBA by providing students with the necessary knowledge and skills needed for entry-level as well as leadership positions in the fast-growing area of marketing analytics. The curriculum focuses on the development, implementation, and delivery of data-driven analytical solutions that assist in marketing strategies, tasks, and decisions.

To earn the Graduate Certificate in Marketing Analytics, students must fulfill the course requirements listed below. Students must also complete the SAS Base Programming Certification. A minimum GPA of 3.3 must be earned in the four Marketing Analytics courses.

Marketing Analytics *		12
MRKTNG 8680	Database Marketing	
MRKTNG 8770	Marketing Databases and SQL	
MRKTNG 8780	Advanced Marketing Analytics	
MRKTNG 8280	Research for Marketing Decisions	
Electives **		3
MRKTNG 8060	Competitive Marketing Strategy	
MRKTNG 8070	Marketing Business Models	
MRKTNG 8760	Marketing Engineering	
STAT 7110	Statistical Software and Data Analysis	
MANGMT 8410	Decision Making and Risk	
MANGMT 8420	Decision Support Systems	

Total Credits 15

\* The Department of Marketing may approve course substitution if prior equivalence is determined.

\*\* Or other elective courses approved by the Department of Marketing.

## Graduate Certificate in Taxation

School of Accountancy  
303 Cornell Hall  
573-882-4463

For more information, contact Koni Daws (dawsk@missouri.edu).

### About the Certificate

Depending on the course configuration in the program, completion of the Certificate in Taxation indicates that a student has developed expertise in tax planning and preparation in regard to international, federal, state, or estate issues for corporations, partnerships, or individuals.

## Eligibility

Students must be enrolled in the MAcc graduate degree program in the School of Accountancy at MU to be eligible for the certificate.

## Plan of Study

Students are required to complete 15 credit hours to receive the certificate. Course options are listed below for the tax certificate.

ACCTCY 4353	Introduction to Taxation	3
or ACCTCY 7353	Introduction to Taxation	
ACCTCY 8363	Multi-Jurisdictional Tax	3
ACCTCY 8373	Taxation of Corporations and Shareholders	3
ACCTCY 8423	Tax Research and Planning	3
ACCTCY 8433	Mergers and Acquisitions Taxation	3
ACCTCY 8453	Taxes and Business Strategies	3
ACCTCY 8463	Partnership Taxation	3



## College of Education

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### Administration

Kathryn Chval, Dean and Joanne H. Hook Dean's Chair in Educational Renewal

John Lannin, Interim Associate Dean, Academic Affairs

Matt Burns, Associate Dean, Research  
(573) 882-7832

education.missouri.edu

MizzouEdCertification@missouri.edu

MizzouEdAdvising@missouri.edu (mizzouedadvising@missouri.edu)

The College of Education, established in 1868, is the oldest teacher preparation program west of the Mississippi River. Today's graduates of the college are employed in a variety of educational institutions and non-school settings. The college serves the educational community through research-based professional practice and a variety of learning constructs applied to real-world experiences. The college is a member of the American Association of Colleges for Teacher Education and a candidate member of the Teacher Education Accreditation Council. All programs are fully accredited by the North Central Association of Secondary Schools and Colleges.

All programs that lead to earning a certificate by the Missouri Department of Elementary and Secondary Education (DESE) are fully approved by the State Board of Education. DESE accredits all teacher certification programs at MU. The Office of Educator Quality at DESE is working with representative stakeholder groups to redesign the standards for educator preparation including certification requirements. These changes and implementation schedule will be communicated to students through individual advising sessions, meetings, and/or other university communications.

### Undergraduate

- Admissions (p. 360)
- Academic Regulations (p. 361)
- Academic Affairs (p. 361)
- Teacher Education (p. 362)
- Academic Programs (p. 362)
- Teacher Certification (p. 363)

The Bachelor of Science in Education (BSEd) degree offers programs with the following certification levels:

- Early Childhood Education (Birth-Grade 3)
- Elementary Education (Grades 1-6)
- Middle School Education (Grades 5 - 9)
- Secondary Education (Grades 9-12)
- Special Education (Grades K-12)

### Admissions

Even for students meeting selective admission criteria, admission to program areas is dependent on capacity, resulting in the selection of the best-qualified applicants. In addition to meeting minimum Phase II criteria, the faculty may exercise professional judgment in the selection of students through personal interviews and program specific essays.

Admission to a specific program is a prerequisite to many upper-level education courses and associated field experiences (including the teaching internship). A student admitted to a professional program (Phase II) must maintain the standards met at the time of admission. Continued assessment will be made of the characteristics associated with effective performance in the role of a professional at each level and in the program. See specific requirements for admission to each of the three phases of the chosen major.

### Freshmen

Undergraduate students may enter the College of Education as first-year students at MU.

### Transfer Students

The College of Education accepts transfer students consistent with the transfer/articulation policy of the Missouri Department of Higher Education. The transfer policy does not waive or alter any course requirements for the Bachelor of Science in Education or the Bachelor of Educational Studies degrees. Grades received from other accredited institutions are recorded on the MU transcript as they were earned (A = A, etc.). Courses from other University of Missouri institutions are calculated into the UM GPA of Record and grades received from other accredited institutions are calculated into the overall grade point average for admission to the College of Education.

Students transferring to the College of Education with a completed Associate of Arts (AA) degree from a Missouri institution will be considered to have completed the first two years of university general education requirements. Students transferring with a completed Associate of Arts in Teaching (AAT) degree from a Missouri institution will be considered to have completed the first two years of university general education and lower division (Phase I) professional education coursework. Additional course work may be needed to satisfy prerequisites or degree requirements for Phase II and Phase III of the chosen program.

### International Students

International students enrolled in the BSEd program must have earned a score of 600 (paper-based) or 100 (internet-based) on the TOEFL exam. International students enrolled in the BES program must have a score of 550 (paper-based) or 79 (internet-based) on the TOEFL exam.

### Exploratory Courses

Students wishing to explore Teacher Education may enroll in LTC 11XX for 1 credit hour in the emphasis area of interest.

### Preprofessional Information

Many of the program areas contain preprofessional course work that must be completed with specific course grades prior to the selective admission process for Phase II of the program or the teaching internship (Phase III). Contact the Academic Advising Services Office for the specific course work required for the area of interest.

### Grade Point Average

The College of Education uses the UM GPA of record to assess students' academic standing and progress. Both the UM GPA of record and overall grade point average at the level required are used to determine eligibility for admittance and progression. (see Calculation of Grade Point Averages below for levels)

## Time Limits on Credits Earned

The Office of Admissions evaluates transfer credit. All course work must meet the current state minimum requirements for teacher certification. Course work completed in the discipline must be evaluated by faculty within that area to be applicable.

## Academic Regulations

### Calculation of Grade Point Averages (GPA)

To remain in good standing with the college, a student must earn a minimum UM term and cumulative GPA of record, as described below:

Credits	BSEd GPA	BES GPA (Non-Certificate)
0-29	2.600	2.500
30-59	2.700	2.500
60 credits and above	2.750	2.500

### Satisfactory/Unsatisfactory Grades

In addition to University policies on S/U grading, professional education courses, excluding field experiences and orientation, may not be completed under the S/U grading system.

### Advanced Standing

In addition to University standards for advanced-standing credit, content courses, as defined by teacher certification, must be completed with a UM cumulative GPA of record of 3.000 or better to satisfy Missouri requirements for certification. Advanced-standing credit includes course work used to satisfy degree requirements, including any elective portion of the degree program.

Courses taken from other institutions after students have matriculated to UM must have prior approval.

### Probation, Suspension and Dismissal

A student in good standing (see Calculation of Grade Point Averages above) whose MU GPA of record and/or cumulative grade point average falls below the level outlined is placed on scholastic probation. In addition, any student admitted to the College of Education who does not meet the minimum entrance standards (e.g., admission due to extenuating circumstances or admission of a returning student) will enter on scholastic probation.

A student on scholastic probation whose MU term grade point average for a subsequent enrollment semester is at or above the level specified, but whose UM cumulative grade point average is below the level required for good standing is placed on conditional scholastic probation. A student may be on conditional scholastic probation for two enrollment semesters only. If the MU cumulative grade point average is not at the level required for the student's classification at the conclusion of the period of conditional scholastic probation, the student is ineligible for continued enrollment in the College of Education.

A student whose MU term and cumulative GPA of record falls below 2.000 is ineligible for enrollment at MU. (Exception: a first-semester freshman whose UM term GPA is below 1.000 may, at the discretion of the associate/assistant dean for academic programs, be placed on conditional scholastic probation instead of being declared ineligible.)

## Capstone Options

All students graduating from the College of Education are required to complete a capstone experience. For students completing a BSEd, the internship experience (Phase III) serves as the capstone. For the BES degree, a minimum two hour capstone is required in collaboration with a faculty member in the College of Education.

## Graduation Requirements

University requirements state that students must earn 30 of the last 36 credits applicable to their degree in MU courses. For the BSEd, these courses must include the student teaching internship. For the BES, they must include an approved capstone course for a minimum of two semester hours.

## Graduation with Departmental Honors

The College of Education maintains a Dean's List that includes all College of Education undergraduates who are enrolled in 12 or more credits of graded (A-F) course work, and who have a 3.500 or higher UM term GPA.

The College of Education awards Latin Honors designations will be based on the Spring graduates each year, and those GPAs will determine the levels that will be applied to Summer and Fall graduates during that calendar year. The top 5% will receive Summa Cum Laude distinction, the next 10% Magna Cum Laude, and the remaining 15% Cum Laude for each of the program area categories (Early Childhood and Elementary, Middle School, Secondary/K12, and Special Education).

Students must earn a minimum of 60 credits on the MU campus to be eligible for Latin Honors designation. Determination of eligibility is will be based on either the cumulative MU GPA of record, or the MU GPA for the last 60 hours of credits, whichever is greater.

In no case will a Latin Honors designation be conferred for an individual whose overall MU GPA is less than 3.6.

In addition, College of Education students may participate in a University Honors Program. (See the Honors College (p. 733) information on this site).

## Academic Affairs

The College of Education offers services to assist undergraduate students interested in pursuing a degree in Education.

## Academic Advising

101/102 Hill Hall  
573-882-5659  
MizzouEdAdvising@missouri.edu

Academic Advising, located in 101/102 Hill Hall, is dedicated to the academic, professional and personal success of all students. The office is committed to building a one-on-one professional collaborative relationship that empowers students to explore opportunities and develop and implement individual academic and life goals. Meeting with a professional advisor early and regularly is a necessary component of this relationship. Degree choice and requirements, campus involvement, academic struggles, study abroad options, graduate school program and the certification process are just a few of the many topics that can be explored in working with a professional advisor.

## Career Services

105 Hill Hall  
573-882-5069  
MizzouEdCareers@missouri.edu

The Education Career Services Office, located in 105 Hill Hall, specializes in the development of cover letters and résumés, preparation for interviews, and implementation of an effective job search. Students will find considerable support in building a professional, self-managed credential file needed for the field of education. In addition, this office provides information about job openings, school district contacts, and career fairs, as well as hosts on-campus interviews with potential employers.

Students will find additional assistance at [www.hiremizzoutigers.com](http://www.hiremizzoutigers.com) (<http://www.hiremizzoutigers.com>), but also the Education Career Services website at <http://caps.missouri.edu>, which contains extensive resources exclusively for the job seeker in the field of education.

## Assessment and Certification

2 Hill Hall  
573-884-9556  
MizzouEdCertification@missouri.edu

Multiple data points will be collected throughout a student's time in the College of Education to ensure University of Missouri and DESE certification standards are upheld. Assessment and Certification, located in 2 Hill Hall, will be the primary collection and reporting resource for this data. Assessment and Certification work very closely with the Office of Teacher Education, Academic Advising and the MU Registrar.

## Recruitment and Retention Initiatives

104 Hill Hall  
573-882-7772  
MizzouEdRecruit@missouri.edu

The Office of Recruitment and Retention, located in 104 Hill Hall, serves as a welcome center for prospective and current students as well as their families. Through student tours and recruitment events, the staff showcase the College of Education and highlight opportunities and services provided to our students. The staff advise and assist prospective students in understanding College of Education degree programs, admission requirements, and financial assistance options. In addition, the office provides programs and initiatives tailored towards the recruitment, retention, and matriculation of underrepresented and/or first-generation student populations.

## International and Intercultural Initiatives

218 Townsend Hall  
573-882-0732

The Office of International and Intercultural Initiatives, located in 218 Townsend Hall, designs initiatives and supports undergraduates as they develop cultural competence and intercultural understanding through foreign and domestic experiences. These experiences include on campus multicultural events and activities, as well as study/teach abroad opportunities in Italy, Ghana, Tanzania, Australia/New Zealand, South Korea, India, South Africa, Jakarta, Thailand; and service learning opportunities in organizations such as Centro Latino, Columbia Public Schools and Granny's House.

## Office of Scholarship Services

121E Townsend Hall  
573-884-7848  
MizzouEdScholarships@missouri.edu

The Office of Scholarships helps students pursue scholarships and fellowships. This office disseminates information about scholarship opportunities and deadlines to current and potential students. Incoming Freshmen become eligible for College of Education scholarships when they submit their MU Annual Scholarship Application, due December 1st of each year. Returning and Transfer Students become eligible for College of Education scholarships when they submit their MU Annual Scholarship Application, due by February 1st each year. Students with renewable scholarships must reapply each year and continue to meet criteria to be eligible for renewable scholarships

The Scholarship Coordinator then assists the Financial Awards Committee, which consists of College of Education faculty members, as they determine recipients based on the criteria for each scholarship. More information can be found on the College of Education website.

## Teacher Education

### Office of Teacher Education

202 Townsend Hall  
573-882-0560  
TeacherEducation@missouri.edu

The Office of Teacher Education is committed to supporting students as they progress through the phases of their academic career including answering general questions about all aspects of the program and making sure that you are enrolled in the appropriate education courses. This office works in conjunction with all MizzouEd departments in Academic Affairs, to provide the best educational experience for our students.

## Field Experience

202 Townsend Hall  
573-882-4364  
MizzouEdFieldExp@missouri.edu

The Office of Field Experience supports students in all phases leading up to and including the student teaching internship. The professional staff makes regular contact with school district faculty and administrators in Columbia and around the state to assure that students encounter high-quality field experiences where they gain knowledge and assume progressive responsibilities within classroom settings. In addition, the office provides guidance to any student who requests additional help to prepare for student teaching.

## Academic Programs

### College of Education Requirements - BSED

**As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

## College of Education Requirements - BES

In addition to the University general education (p. 33) and graduation requirements (p. 32), students must complete the following degree requirements and additional major requirements:

- 24 hours of education coursework with a 2.500 cumulative and overall UM GPA
- Twenty-four hours of coursework focusing on a particular concentration
- Completion of a graduation check in collaboration with a professional advisor once 60 credit hours of coursework are completed
- Multicultural studies requirement; students address this requirement by demonstrating competence on diversity standards in their education coursework.
- Students will complete a two hour minimum capstone course in collaboration with a faculty member in the College of Education.

## Professional Education

The College of Education professional education requirements include those that are common to all majors as well as requirements that are specific to each major. Students must meet the following requirements:

- Course GPA of 2.000 or better with an overall professional education GPA of at least 3.000 (required for Missouri Teacher Certification)
- UM GPA of record and overall GPA of 2.750
- GPA of 3.000 in the content area for students majoring in a degree leading to certification in a subject (K-12, 9-12, 5-9 or PK-3)

## Teacher Education Courses

Students proceed through three phases as they complete the baccalaureate program. Each phase includes training in technology as well as clinical experience. University general education and content requirements are completed each semester in addition to the required program area courses.

### Phase I

This phase provides students with an immersion into the discipline and culture of teaching and learning before focusing on a teaching specialty. It includes up to eight courses: LTC 11XX, ESC\_PS 2010 and ESC\_PS 2014, LTC 2040, LTC 2044, LTC 2200 and IS\_LT 4467. Experiences in this phase incorporate the teacher's roles in facilitating learning at all levels of development. Students also focus on how problems of schools, family, community and society affect educators. The emphasis in Phase I is on career exploration and oral and written communication. All students in the BSEd degree program complete these courses regardless of major. Students majoring in Special Education complete an additional course in Phase I, SPC\_ED 4300, for a total of 12 hours in Phase I. All College of Education students must complete ESC\_PS 2000 Experiencing Cultural Diversity in the United States.

### Phase II

This phase occurs over a three-semester sequence and focuses increasingly on a chosen teaching emphasis and on interdisciplinary teaching. Experiences in this phase focus on instructional strategies, human development, classroom and behavior management and educational measurement. This phase provides students with experience in the methods of teaching in a specific subject area as well as emerging problems and practices within the field of education. Certain degree programs have limited enrollments. The number of credits is dependent

on the selected program. See specific majors for courses required in Phase II.

Application to Phase II is required. Students become eligible for consideration for admittance to Phase II in a specific program after meeting the following criteria:

- Current enrollment in the College of Education
- Minimum 2.750 UM GPA of record and overall GPA (on a 4.000 scale)
- Passing score on the Missouri General Education Assessment
- Completion of the Missouri Educator Profile
- ENGLSH 1000 with a "C" range grade or higher
- MATH 1100 with a "C" range grade or higher
- Demonstration of competence of Phase I learning markers as demonstrated by satisfactory completion of Phase I courses (LTC 11XX, grade of "S"; ESC\_PS 2014 and LTC 2044, grade of "S" in each course; ESC\_PS 2010 and LTC 2040, grade of "C" (2.00) or higher in each course)
- Demonstrated competence of Phase I mid-preparation benchmarks (as documented by Phase I instructors)
- Additional requirements as designated by the faculty
- Possession of characteristics associated with effective performance in a professional role at the level(s) and in the major(s) selected
- Completion of application for progression

Decisions regarding Phase II admission are made by program faculty. Meeting minimum requirements for admission to Phase II does not guarantee admission to Phase II.

### Phase III

Phase III occurs during the last semester (or last year) with student placement in a public school district for the entire semester, for approximately 16 weeks (14 credit hours).

Application for Phase III is required. To qualify for the teaching internship, applicants must meet the following requirements:

- Admission to Phase III in the program area
- Successful completion of Phase II
- A minimum of 90 completed credit hours
- Completion of at least the preceding semester in residence
- A minimum 2.750 UM GPA of record and an overall GPA of 2.750 (on a 4.000 scale)
- Completion of specific prerequisite professional education and subject area course requirements for the level at which the teaching internship is to be accomplished

Teaching internship placements are available in several districts across the State of Missouri. Applications are accepted approximately a year preceding internship. More information concerning student teaching internships may be obtained from Field Experience Office, 202 Townsend Hall, in the College of Education.

## Teacher Certification

### Licensures

Completion of the BSEd and any additional requirements for certification must be completed before the graduate is eligible for an Initial

Professional Certificate from the Department of Elementary and Secondary Education in the State of Missouri.

Recommendation for initial certification after graduation requires:

- Passing score on the Content Area Exam for each major (the examination should be taken during the last year of the program and official scores submitted to the University of Missouri)
- Passing score on the Missouri Pre-Service Teacher Assessment
- Official transcripts with the degree posted submitted to Office of Assessment in 2 Hill Hall.
- Submission of an IPC application from the DESE web application website (<https://k12apps.dese.mo.gov/webLogin/login.aspx>) to MU
- The Department of Elementary and Secondary Education also requires that students seeking additional certification in other teaching subjects take the Content Area Exam in those additional subjects in order to be considered a Highly Qualified Teacher.

A student recommended for teacher certification must meet the following criteria:

- Cumulative UM GPA of record of 2.750
- Overall GPA of 2.750 for all college course work completed
- Cumulative GPA of 3.000 in all content area course work
- 2.000 in each professional education course with overall 3.000 GPA on all professional education course work
- Satisfactory score on the Missouri Pre-Service Teacher Assessment
- Satisfactory score on the Content Area Exam required by the State of Missouri
- An official copy of the student's transcript with baccalaureate degree posted submitted to the Office of Assessment in 2 Hill Hall.
- Complete online application for an Initial Professional Certificate through the Department of Elementary and Secondary Education (DESE) web application

## Graduate

Now is an exciting time to pursue graduate studies in the College of Education. A range of professional and continuing education degrees are available, many with specializations.

Our faculty mentors create a rich environment as they are not only involved in teaching, but also heavily invested in research programs and centers. Faculty members balance their research efforts with student coordination and guidance. Choosing the right college for graduate studies is not an easy or simple decision. We welcome you to visit the MU Columbia campus and meet with our faculty and current students to find out more about life in the College of Education.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the Office of Graduate Studies. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Career and Technical Education

Career and Technical Education (CTE) is for people interested in a wide variety of possible careers related to education for employment. CTE programs are intended to prepare students to be effective instructors and workforce development professionals at community colleges, area vocational-technical career centers, or corporate training centers.

Program coursework emphasizes a foundation in curriculum design, teaching methods, student assessment, instructional program design and management, educational philosophy, learner psychology, and educational technology.

For undergraduate students, the online Bachelor of Educational Studies degree program has numerous options that allow students to focus on any one of a variety of areas such as strategic human resource development, instructional design, health professions education, and youth development professions.

For individuals interested in graduate education, there are two emphasis options in the Master of Education in CTE:

The Business & Marketing Education option is for those interested in teaching subjects such as Business Administration, Computer Information Systems, Administrative Office Systems, Personal Financial Planning, Advertising & Marketing, Retail Management & Sales, Accounting & Business Finance, and International Business.

The Vocational Technical Education emphasis is designed for careers teaching in fields such as Allied Health Professions, Telecommunications and Electronic Technology, Construction Trades, Culinary Arts and Food Science, Automotive Technology, Small and Marine Engine Repair, and Industrial and Manufacturing Processes.

## Faculty

**Associate Teaching Professor** Anthony "Tony" Barbis \*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

The University does not offer an undergraduate degree in Career and Technical Education. Students interested in this field might want to consider the online Bachelor of Educational Studies (BES) degree program coordinated by the LTC program area is the undergraduate option for individuals who want to teach or work in workforce education. The degree program is designed for people who plan to work with adult learners at community colleges, workforce development programs, and continuing professional education programs. It is intended to prepare students to become effective educational professionals by providing not only the traditional broad-based education of a 4-year degree, but also a foundation in curriculum design, teaching methods, and other aspects of the field of adult education.

For information about the online BES program, contact the College of Education Advising Office:

Phone: 573-882-5659

Address: 101 Hill Hall

email: [education\\_advising@missouri.edu](mailto:education_advising@missouri.edu)

## Graduate

- MEd in Career and Technical Education (p. 365)
  - with emphasis in Business and Marketing Education (p. 366)
  - with emphasis in Vocational Technical Education (p. 366)
- EdSp in Career and Technical Education (p. 365)

- with emphasis in Business and Marketing Education (p. 365)
- with emphasis in Vocational Technical Education (p. 365)
- EdD in Career and Technical Education (p. 365)
  - with emphasis in Business and Marketing Education (p. 365)
  - with emphasis in Human Resources Education (p. 365)
  - with emphasis in Vocational Technical Education (p. 365)
- PhD in Career and Technical Education (p. 367)
  - with emphasis in Business and Marketing (p. 367)
  - with emphasis in Human Resources Education (p. 367)
  - with emphasis in Vocational Technical Education (p. 367)

\* Applications are not currently being accepted for the EdSp, EdD or PhD in Career and Technical Education program.

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## EdD in Career and Technical Education

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The EdD in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## EdD in Career and Technical Education with Emphasis in Business and Marketing Education

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The EdD in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## EdD in Career and Technical Education with Emphasis in Human Resources Education

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The EdD in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## EdD in Career and Technical Education with Emphasis in Vocational Technical Education

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The EdD in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## EdSp in Career and Technical Education

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The EdSp in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## EdSp in Career and Technical Education with Emphasis in Business and Marketing Education

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The EdSp in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## EdSp in Career and Technical Education with Emphasis in Vocational Technical Education

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The EdSp in Career and Technical Education program has been suspended.

### Admissions

Applications for the program are not being accepted at this time.

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## MEd in Career and Technical Education

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The Master of Education in Career and Technical Education (CTE) is a 33 credit-hour online degree program designed for people interested in a wide variety of possible careers related to education for employment. This program is intended to prepare students to be effective instructors and workforce development professionals at community colleges, area vocational-technical career centers, or corporate training centers. Program coursework emphasizes a foundation in curriculum design, teaching methods, student assessment, instructional program design and management, educational philosophy, learner psychology, and educational technology. There are two emphasis options in the CTE program.

The Business & Marketing Education option is for those interested in teaching subjects such as Business Administration, Computer Information Systems, Administrative Office Systems, Personal Financial Planning, Advertising & Marketing, Retail Management & Sales, Accounting & Business Finance, and International Business.

The Vocational Technical Education emphasis is designed for careers teaching in fields such as Allied Health Professions, Telecommunications and Electronic Technology, Construction Trades, Culinary Arts and Food Science, Automotive Technology, Small and Marine Engine Repair, and Industrial and Manufacturing Processes.

## Admissions

### Admission Deadlines

- May 1 for fall admission (classes beginning in August)
- October 1 for spring admission (classes beginning in January)
- March 1 for summer admission (classes beginning in June)

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to expedite completely. Every reasonable effort will be made to process the application for the semester requested.

### Thesis/Non-Thesis Requirements

Students in the M.Ed. in CTE will create a portfolio that will serve as the summative capstone of the program of study in lieu of a thesis or comprehensive examination. Students build the portfolio as they progress through the program by adding material from the courses in the Plan of Study. Guidelines for the capstone portfolio project are provided to students early in the program.

### Admission Requirements

- Completed bachelor's degree (from a regionally accredited institution) in education or a subject related to the applicant's teaching interest
- Undergraduate GPA of 3.0 on a 4.0 scale in the last 60 hours of course work
- Statement of purpose
- Résumé or curriculum vitae
- Two letters of recommendation (Letters should attest to applicant's professional competence, academic preparation and potential for graduate work.)
- If applicant's native language is not English, the Test of English as a Foreign Language (<http://www.ets.org/toefl>) (TOEFL) administered within the last two years, with a score of at least 500, is required.

The Graduate Record Examination (<http://www.ets.org/gre>) (GRE) is not required for consideration for admission. However, applicants with competitive GRE scores whose GPA is below 3.0 will be considered for acceptance by the Special Admissions Committee.

Applicants are required to meet two sets of minimum qualifications for admissions: the requirements of the MEd in Career and Technical Education program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

## MEd in Career and Technical Education with Emphasis in Business and Marketing Education

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This online program is designed for certified secondary teachers, community college instructors, trade school facilitators, and corporate trainers. Courses in the degree program will support a graduate's ability

to be an effective teacher by providing a foundation in curriculum design, teaching methods, student assessment, instructional program design and management, learner psychology, and educational technology.

The Business and Marketing Education emphasis is for those who teach:

- Business administration
- Computer information systems
- Personal financial planning
- Advertising and marketing
- Retail management and sales
- Accounting and business finance

## Admissions

Applicants are required to meet two sets of minimum qualifications for admissions: the requirements of the MEd in Career and Technical Education program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Career and Technical Education with Emphasis in Vocational Technical Education

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This online program is designed for certified secondary teachers, community college instructors, trade school facilitators, and corporate trainers. Courses in the degree program will support a graduate's ability to be an effective teacher by providing a foundation in curriculum design, teaching methods, student assessment, instructional program design and management, learner psychology, and educational technology.

The Vocational Technical Instruction emphasis is for those who teach:

- Allied health science professions
- Telecommunications and electronic technology
- Construction trades
- Culinary arts and food science
- Automotive technology
- Small and marine engine repair

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Career and Technical Education program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Career and Technical Education

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Because limited faculty resources do not currently allow for adequate support of doctoral students, the PhD in Career and Technical Education program is not currently accepting applications.

### Admissions

Applications are not being accepted at this time.

## PhD in Career and Technical Education with Emphasis in Business and Marketing Education

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Because limited faculty resources do not currently allow for adequate support of doctoral students, the PhD in Career and Technical Education program is not currently accepting applications.

### Admissions

Applications are not being accepted at this time.

## PhD in Career and Technical Education with Emphasis in Human Resources Education

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Because limited faculty resources do not currently allow for adequate support of doctoral students, the PhD in Career and Technical Education program is not currently accepting applications.

### Admissions

Applications are not being accepted at this time.

## PhD in Career and Technical Education with Emphasis in Vocational Technical Education

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Because limited faculty resources do not currently allow for adequate support of doctoral students, the PhD in Career and Technical Education program is not currently accepting applications.

### Admissions

Applications are not being accepted at this time.

## Early Childhood Education

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Dr. Laurie Kingsley, Director of Teacher Education  
Department of Learning, Teaching and Curriculum  
202 Townsend Hall  
573-882-0560  
TeacherEducation@missouri.edu

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and

Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

## Faculty

**Professor** E. A. Baker\*\*, T. Sadler\*\*, J. E. Tarr\*\*

**Emeritus Professor** L. H. Barrow\*, J. Baumann\*\*, R. F. Fox\*\*, N. Knipping\*, S. Palonsky\*, R.E. Reys\*\*, R. D. Robinson\*, B. B. Reys\*

**Associate Professor** L. Bennett\*\*, T. Castro\*\*, K. B. Chval\*\*, P. J. Friedrichsen\*\*, C. Gilles\*\*, D. L. Hanuscin\*\*, J. Lannin\*\*, R. Pinnow\*\*, M. Siegel\*\*, B. Silvey\*\*, K. Unrath\*\*

**Associate Professor Emeritus** M. Volkmann\*

**Assistant Professor** Z. de Araujo\*\*, B. Hermann, L. King, C. Kuby\*\*, A. Lannin\*\*, M. Major\*, S. Otten, L. Sanchez\*\*, C. Webel\*\*, L. Zangori, A. Zapata\*\*

**Emeritus Research Professor** D. A. Grouws

**Associate Teaching Professor** A. Barbis\*, L. Kingsley\*, J. Ostrow\*

**Assistant Teaching Professor** A. Ashcraft\*, L. Neier\*, R. Jackson

**Assistant Clinical Professor** A. Waldron\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEd in Early Childhood Education (p. 367)

The requirements for the Bachelor of Science in Education are specified in three areas: University general education, professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

## Graduate

The Early Childhood Education Program at the University of Missouri includes degree programs that focus on preparing graduates to teach in grades Birth-3. The College of Education offers a Masters (M.Ed.) and a doctorate (Ph.D.) in Learning, Teaching and Curriculum with an emphasis in Early Childhood Education. You can find out more information about the graduate program at <https://education.missouri.edu/learning-teaching-curriculum/degrees-programs/>.

## BSEd in Early Childhood Education

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### Degree Program Description

The Bachelor of Science in Education in Early Childhood will prepare you to work with children from birth through third grade in public, private, and alternative school systems. Students consider a degree in education if they enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The



coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successful completion of the initial teacher certification process, the state grants you certification in early childhood education. Practical and rewarding clinical experience in schools and agencies, which will enhance your teaching abilities and confidence, begins during the sophomore year, and continues each semester, culminating in a senior-level teaching internship. Coursework within Early Childhood will challenge you to consider ways to support the development and learning of young children from birth through age eight.

## Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## Educational, School, and Counseling Psychology

ESCP provides a diverse, supportive, and caring environment for students. Our faculty members create rich and stimulating learning opportunities through their teaching, research, and service. Our faculty are more than academic advisors and teachers - they are mentors providing students with role models featuring the scientist-practitioner model.

## Faculty

**Professor** M. Burns\*\*, L. Flores\*\*, K. Herman\*\*, M. Martens\*\*, W. M. Reinke\*\*, T. Riley-Tillman\*\*

**Associate Professor** D. A. Bergin\*\*, C. Frisby\*\*, P. Rottinghaus\*\*, A. Waigandt\*\*, Z. Wang\*\*, S. Whitney\*\*

**Assistant Professor** W. Bonifay\*\*, N. Dong\*\*, K. Eklund\*\*, F. Huang\*\*, S. Kilgus\*\*, F. Sanchez\*\*, C. Slaten\*\*, W. Wiedermann\*\*

**Teaching Professor** R. J. Scholes\*\*

**Associate Teaching Professor** K. Boggs\*, C. A. Offutt\*\*

**Assistant Teaching Professor** S. Dhaliwal\*\*, M. Easter\*\*, B. Orr\*\*, K. Schieltz\*\*

**Associate Clinical Professor** A. J. Knoop\*\*

**Associate Research Professor** L. Newcomer\*

**Dean of Education** K. Chval

**Professor Emeritus** J. W. Alspaugh, R. B. Caple, R. Cox, R. A. English, N. Gysbers, M. Heppner, P. Heppner, J. A. Johnston Jr., J. R. Koller, J. T. Kunce, J. F. McGowan, S. J. Osterlind, M. J. Patton, R. W. Thoreson, R. R. Trimble, J. Wedman, R. L., F. E. Wellman, V. R. Wheeler, B. Williamson.

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in educational and counseling psychology, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MA in Educational, School, and Counseling Psychology (p. 373)
  - with emphasis in Counseling Psychology (p. 369)
  - with emphasis in Educational Psychology (p. 370)
  - with emphasis in Educational Research Methods and Analysis (p. 371)
  - with emphasis in Health Education and Promotion (p. 372)
  - with emphasis in School Psychology (p. 372)
- MEd in Educational, School, and Counseling Psychology (p. 374)
  - with emphasis in Career Counseling Psychology (p. 374)
  - with emphasis in Counseling Psychology (p. 375)
  - with emphasis in Educational Psychology (p. 376)
  - with emphasis in Educational Research Methods and Analysis (p. 377)
  - with emphasis in Health Education and Promotion (p. 378)
  - with emphasis in Mental Health Practices in Schools (p. 379)
  - with emphasis in Positive Coaching ([http://catalog.missouri.edu/undergraduategraduate/collegeofeducation/educational-school-and-counseling-psychology/med-educational-counseling-psychology-emphasis-positive-coach](http://catalog.missouri.edu/undergraduategraduate/collegeofeducation/educationalschoolandcounselingpsychology/med-educational-counseling-psychology-emphasis-positive-coach))
  - with emphasis in School Counselor, Elementary, Certification (<http://catalog.missouri.edu/undergraduategraduate/collegeofeducation/educational-school-and-counseling-psychology/med-educational-counseling-psychology-emphasis-school-counsel-elem-cert>)
  - with emphasis in School Counselor, Secondary, Certification (p. 381)
  - with emphasis in School Counselor, Elementary and Secondary, Certification (p. 380)
  - with emphasis in School Psychology (p. 383)
  - with emphasis in Sport Psychology (p. 383)
- EdSp in Educational, School, and Counseling Psychology (p. 384)
  - with emphasis in Counseling Psychology (p. 385)
  - with emphasis in Mental Health Practices in Schools (p. 385)
  - with emphasis in School Psychology, Certification (p. 387)
- PhD in Educational, School, and Counseling Psychology (p. 387)
  - with emphasis in Counseling Psychology (p. 388)
  - with emphasis in Educational Psychology (p. 389)

- with emphasis in Educational Research Methods and Analysis (p. 390)
- with emphasis in Health Education and Promotion (p. 391)
- with emphasis in School Psychology, Certification (p. 391)

College of Education  
 16 Hill Hall  
 573-882-7732  
<http://education.missouri.edu/ESCP/>

**Chair:** T. Chris Riley-Tillman, Ph.D.

## About the Program

The PhD programs in counseling psychology and school psychology is accredited by the American Psychological Association. The 2005 Faculty Scholarly Productivity Index ranked MU's graduate program in counseling psychology 4th in the nation and the 2018 U.S. News & World Report ranked it 3rd nationally.

Our faculty members create a rich and stimulating learning environment for students through their teaching, research, and service. ESCP has centers that provide students and faculty with many opportunities to collaborate on research and service-related projects while focusing on improving life for learners in all environments.

## Career Opportunities

Our graduates find employment in a wide range of settings, including colleges and universities, public schools, agencies, clinics, hospitals, business and industry, research laboratories and government service. Occupations include, but are not limited to, school counselors, licensed professional counselors, faculty members, school psychologists, psychometricians, health educators and educational researchers.

## Application Deadlines

- Fall Deadline: December 1st for Counseling and School Psychology
- Fall Deadline: January 15th for Educational Psychology and Educational Research Methods and Analysis
- M Ed in Ed Psych/Student Learning and Well-being focus (online degree) - rolling admission
- M Ed, EdSp in Mental Health Practices in Schools (online degrees) - rolling admission
- M Ed in Positive Coaching (online degree) - rolling admission
- Graduate Certificate in Multicultural Education - rolling admission
- Graduate Certificate in Positive Psychology - rolling admission

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

# MA in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

## Degree Requirements

The MU Masters program in Counseling Psychology provides students training and education in the scientist-practitioner philosophy that is consistent with most Counseling Psychology Ph.D. programs, including the one at MU. Students will complete core coursework in counseling psychology and receive clinical training in the form of practicum experience and research training through faculty labs, research teams, and other research projects. They will also be required to complete an independent research manuscript during their second year in the program. This program has more of a research focus than most counseling masters programs. The program is not designed for students interested exclusively in practicing at the masters level, and students who graduate from this program will not yet be license-eligible for a LPC in the state of Missouri (this would require additional coursework and training).

<b>GENERAL PSYCHOLOGY CORE</b>		27
The Helping Relationship		3
ESC_PS 8040	Counseling Methods and Practices	
Social and Cultural Foundations		3
ESC_PS 9000	Multicultural Issues in Counseling	
Counseling Theory		3
ESC_PS 7120	Foundations of Counseling Psychology	
Career Development		3
ESC_PS 8135	Foundations of Career Psychology	
Professional Orientation		3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
Group Dynamics		3
ESC_PS 8110	Methods in Group Counseling	
Appraisal		6
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8640	Interviewing, Diagnosis, and Assessment	
Statistics		3
ESC_PS 7170	Introduction to Applied Statistics	
<b>COUNSELING PSYCHOLOGY CORE</b>		21
Research Methods		9
ESC_PS 8020	Overview of Research Methods	
ED_LPA 8957	Qualitative Methods in Educational Research I	
ED_LPA 9620	Qualitative Methods in Educational Research II	
ESC_PS 8850	Quantitative Foundations in Educational Research	
Independent Research		3
ESC_PS 8095	Research in Educational, School, and Counseling Psychology	
Practicum		3-6
ESC_PS 8940	Counseling Psychology Practicum ((Practicum I and II))	

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 9000	3 ESC_PS 8040	3 ESC_PS 8070	3
ESC_PS 7120	3 ESC_PS 8640	3	
ESC_PS 8135	3 ESC_PS 7170	3	
ESC_PS 8082	3 ESC_PS 8020	3	
12		12	3
Second Year			
Fall	CR Spring	CR	
ESC_PS 8110	3 ESC_PS 8941	4	
ESC_PS 8940	3-9 ESC_PS 8095	1-6	
ED_LPA 8957	3 ESC_PS 8940	3-9	
9-15		8-19	

Total Credits: 44-61

## Thesis/Non-Thesis Requirements

The thesis/research manuscript is a project that the student completes with his or her advisor and receives advisor approval. This project will serve as the student's comprehensive examination. Two additional committee members will be required to approve the project. The project can be either a comprehensive literature review (i.e., modeled after a review article one would see in a scholarly journal) or an independent research study written in manuscript form (i.e., introduction, method, results, discussion) or traditional thesis format. The topic of the project should be selected by the beginning of the student's second year in the program. The project is to be completed by the deadline date for comprehensive examinations, dissertations, and thesis in April of the student's second year.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational and Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology

- Sample Plan of Study (p. 371)
- Thesis/Non-Thesis Requirements (p. 371)
- Admissions (p. 371)

## Degree Requirements

The Educational Psychology program is committed to the dissemination and development of knowledge and skills in human learning and cognition, development, and motivation. We use quantitative and qualitative methods to study how people's thinking, motivation, and behavior change across time. We study how different social settings like classroom, family, work, and peers affect people's well-being, learning and behavior. The study of educational psychology is relevant to teachers, coaches, athletes, nurses, counselors, software developers, trainers, social workers, program evaluators, and administrators.

Educational psychologists attempt to understand how:

- how to improve learning, academic achievement, and motivation to improve human performance
- development influences learning and well being
- society influences learning and behavior
- school influences students' development in other settings

The master's degree program requires at least 33 credit hours. Students enrolled in the MA do a thesis or research manuscript that demonstrates research competence and includes an oral defense of the paper. The MA is the preferred degree for students who intend to pursue a PhD.

Master's students must have completed or plan to complete 15 hours of *prerequisite* course work as listed below. The prerequisite coursework is over and above that required for the master's degree itself, and thus cannot be counted on the Program of Study for the master's degree. Many students will have completed these prerequisites in their undergraduate programs.

1. **Statistics:** A course in statistics covering descriptive statistics, correlation, t-tests, and chi-square. If undergraduate coursework does not include an introductory level course in statistics, ESC\_PS 4170/ESC\_PS 8850 must be taken to satisfy this prerequisite, but it then cannot count on the Program of Study.
2. **Psychological Theory:** Two courses in psychological theory (not including the introductory course in psychology), for example, personality, social, developmental, or learning.
3. **Additional courses:** Two additional courses in education, psychology, or sociology.

### Required Coursework

Research		9
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8850	Quantitative Foundations in Educational Research	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
Psychological Foundations		9
ESC_PS 8060	Lifespan Development	
ESC_PS 8320	Advanced Human Learning	
ESC_PS 8355	Cognition and Emotion	
ESC_PS 9450	Motivation	
Human Diversity (Relative Course)		3
Relevant Course		
General Electives		12

For MA with thesis or manuscript, 6 hours of these courses must be ESC\_PS 8090. Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Human Development and Family Studies, Psychological Sciences, or Information Science and Learning Technology.

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the advisor.

## Thesis/Non-Thesis Requirements

After working with the academic advisor on developing a thesis proposal, the student meets with the thesis committee to obtain approval. This happens before data collection begins. After the project is completed, the student submits a written thesis and defends the thesis to the committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational and Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

# MA in Educational, School, and Counseling Psychology with Emphasis in Educational Research Methods and Analysis

## Degree Requirements

The Educational Research Methods and Analysis program provides rigorous training in statistical methods, educational measurement, and research methodologies. We offer several courses in applied statistics, from the quantitative foundations of educational research to advanced methods such as multivariate statistics, multilevel modeling, and latent variable modeling. We also offer a number of courses in educational measurement, covering topics such as in classical test theory, item response theory, and generalizability theory. In addition, our students have the opportunity to take a wide range of advanced statistics and quantitative methods courses, from probability, sampling methodology, and categorical data analysis to stochastic theory, time series analysis, Bayesian statistics, and other cutting-edge quantitative techniques. We train our students in various statistical software programs including SPSS, SAS, R, Mplus, Amos, HLM, and BILOG-MG. Our students also take courses in learning theories, aspects of human development, and program evaluation. Graduates from our program are prepared to make scientific and systematic inquiries and to make data-driven decisions,

typically attaining employment positions at universities, research centers, and testing organizations.

I. General Core Courses		21
Statistics and Research		15
ESC_PS 7170	Introduction to Applied Statistics	
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8957	Qualitative Methods in Educational Research I	
ESC_PS 8850	Quantitative Foundations in Educational Research	
Human Diversity (Relevant Course)		3
II. Research Methods Emphasis Area		12
Courses in this area may vary. Possible courses include:		
ESC_PS 9650	Application of Multivariate Analysis in Educational Research	
ESC_PS 9710	Structural Equation Modeling	
ESC_PS 9720	Hierarchical Linear Modeling	
ESC_PS 8655	Item Response Theory	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology	
ESC_PS 8860	Statistical Data Management and Analysis in Educational Research (course pending approval)	
ESC_PS 8690	Educational Planning and Evaluation	
Selected graduate level courses in the Psychology Department with advisor approval (e.g. latent variable models in statistical analyses, categorical data analysis)		
Selected graduate level courses from the Statistics Department with advisor approval (e.g. Bayesian statistics, nonparametric statistics). NOTE: MA with thesis or manuscript, 6 hours of these courses must be ESC_PS 8090.		

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the Master's Committee.

## Thesis/Non-Thesis Requirements

The student will consult with the academic advisor and decide to complete a thesis or manuscript. After working with the academic advisor on developing a thesis or manuscript proposal, the student meets with the Master's program committee to obtain approval of the written thesis or manuscript proposal. This happens before data collection begins. After the project is completed, the student submits a written thesis or manuscript and defends the thesis or manuscript to the Master's program committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational and Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies. Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application

deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of the Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Apply online by submitting the following documents using the MU Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/apply>) application form by January 15<sup>th</sup> for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, statistics, or a related major.
- Statement of purpose addressing the following:
  - a. Describe interests and/or experiences engaging in research, working with statistics, using measurement techniques and how these experiences have prepared you for graduate study. (500 word maximum)
  - b. Describe (1) your research interests that you hope to pursue in graduate school; (2) how these interests match those of specific faculty; (3) your career objectives; and (4) how being accepted into MU's program will benefit your career aspirations. (Please limit to 500 words)
- Official Graduate Record Examination (GRE) scores (preferred combined Verbal and Quantitative score of 300 or higher)
- TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

## MA in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion

### Degree Requirements

Health Education is a strong graduate program within the Department of Educational and Counseling Psychology. The graduate program serves bachelors and masters degreed students from the state of Missouri as well as from other states. Many of our graduate students are professionals practicing in the field and come to MU for graduate training. A number of our graduate students cross train in health related fields like athletics, nursing, nutrition, physical training, physical therapy, occupational therapy, and psychology.

Students who earned a bachelor's degree in a health-related program of study are qualified to enter the masters program in health education. A minimum of 30 credit hours are required for the M.A. M.A. students are required to write a thesis. Students who earn a master's degree are encouraged to take the CHES (Certified Health Education Specialist) examination for certification.

#### Foundations Core Courses 6

ESC_PS 4185/7185	Health Behavior: Drug and Sexuality Education
ESC_PS 8185	Health Promotion

#### General Core Courses

Health Area Courses	
Statistics and Research Methodology	
ESC_PS 8020	Overview of Research Methods
ESC_PS 7170	Introduction to Applied Statistics
<b>Individual Studies</b>	<b>9</b>
Individual Studies are electives related to student's area of expertise.	

### Sample Plan of Study

Fall	CR Spring	CR
ESC_PS 4185	3 ESC_PS 8020	3
ESC_PS 8185	3 ESC_PS 7170	3
ESC_PS 8515	3 ESC_PS 8240	3
9		9

Total Credits: 18

### Thesis/Non-Thesis Requirements

All MA students are required to complete a Thesis in the last semester of the program.

### Admissions

This program is not accepting applications at this time.

## MA in Educational, School, and Counseling Psychology with Emphasis in School Psychology

### Degree Requirements

The Masters of Arts (M.A.) program in School Psychology is completed concurrently with the Doctoral (Ph.D.) program in School Psychology.

The M.A. program itself is not a terminal degree program. Students admitted to the Doctoral program in School Psychology (Ph.D.) who have already completed an advanced degree in School Psychology or a related field, including completion of a data-based graduate level research project, may not be required to complete a Masters of Education (M.A.) program in School Psychology. Students admitted to the Ph.D. degree program typically complete degree requirements (coursework and comprehensive examination) for the Masters of Arts by the end of their second year in the program. Students admitted to the M.A./Ph.D. programs in School Psychology are prepared to support the learning, behavior, and mental health of youth and their families as well as support the enhancement of the educational and mental health systems that serve those children and families. Through coursework as well as research, clinical, and teaching experiences, graduates are prepared to serve as leaders in clinical settings as well as researcher/scholars in higher education settings. Completion of the M.A. program alone does not lead to licensure as a Psychologist nor state certification as a School Psychologist, however graduates of both the M.A. and Ph.D. programs are eligible for licensure as a Psychologist and state certification as a School Psychologist, pending completion of additional examinations specified in their intended jurisdiction.

#### General Core 26

ESC_PS 8095	Research in Educational, School, and Counseling Psychology
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or ESC_PS 8090	Master's Thesis in Educational, School, and Counseling Psychology	
ESC_PS 8125	Professional Iss. in Sch. Psych. I:Hist., Trends & Ethical Pract.	
ESC_PS 8100	Psychological Assessment of Children and Adolescents: Cognitive Assessment	
ESC_PS 8140	Psychological Assessment in Childrent and Adolescents: Behavior and Social Emotional Assessment	
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention	
ESC_PS 8160	Psychological Interventions with Children and Adolescents: Educational Instruction	
ESC_PS 8250	School Psychology Practicum: Introduction to School Services	
ESC_PS 8850	Quantitative Foundations in Educational Research	
<b>Psychological Foundations (select from the following):</b>		<b>6</b>
ESC_PS 8060	Lifespan Development	
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Biological Bases of Behavior)	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Multicultural Issues in School Psychology)	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Social Bases of Behavior)	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Advanced History & Systems of Psychology)	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Applied Behavior Analysis)	
ESC_PS 8355	Cognition and Emotion	
ESC_PS 8530	Developmental Psychopathology and Exceptionality	

## Sample Plan of Study

First Year		
Fall	CR Spring	CR
ESC_PS 8125	3 ESC_PS 8087	3
ESC_PS 8140	3 ESC_PS 8100	3
ESC_PS 8250	1 ESC_PS 8145	3
ESC_PS 8087	3 ESC_PS 8250	1
10		10
Second Year		
Fall	CR Spring	CR
ESC_PS 8850	3 ESC_PS 8095	3
ESC_PS 8160	3	
ESC_PS 8095	3	
9		3

Total Credits: 32

## Thesis/Non-Thesis Requirements

Students are required to complete a data-based research project in order to earn their M.A. in School Psychology. Students have two options, the master's thesis or the master's manuscript, both requiring similar scholarly and scientific rigor to their project. The thesis option requires that students comply with the graduate school expectations for committee membership and formatting, while the manuscript option does not. Students taking the latter option often format their manuscript for publication in professional journals.

## Admissions

Students are admitted concurrently to the M.A. and Ph.D. programs in School Psychology based on the admissions criteria identified below in the Doctoral program.

## MA in Educational, School, and Counseling Psychology

### Admission Contact Information

Christina Edholm (EdholmC@missouri.edu)  
16 Hill Hall; Columbia, MO 65211  
573-882-7738

### Admission Criteria

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2012	300	4.0

### Application Deadlines

- Fall deadline: December 1st for all programs except Educational Psychology and Educational Research Methods and Analysis, which is January 15th.
- M Ed, EdSp track in Mental Health Practices in Schools (online degrees) - rolling deadline Deadlines

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

### Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application

- Personal statement and vitae via online application per departmental requirements

## MEd in Educational, School, and Counseling Psychology

### Admission Contact Information

Christina Edholm (EdholmC@missouri.edu)  
 16 Hill Hall; Columbia, MO 65211  
 573-882-7738

### Admission Criteria

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or after August 1, 2012	300	4.0

Recommended Analytic Writing score = 4

### Application Deadlines

- Fall deadline: December 1st for most programs except Educational Psychology and Educational Research Methods and Analysis, which is January 15th
- M Ed, EdSp in Mental Health Practices in Schools (online degrees) - rolling admission
- M Ed in Positive Coaching (online degree) - rolling admission

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

### Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application
- Personal statement and vitae via online application per departmental requirements

Note: Online programs do NOT require GRE scores. Check individual online programs for required application materials.

## MEd in Educational, School, and Counseling Psychology with Emphasis in Career Counseling Psychology

### Degree Requirements

Career Psychology provides the theoretical basis for this program. It prepares one to practice in a variety of settings, most notably college career or advising centers, other student affairs settings, or business settings where there may be opportunity for defining or developing career roles for students or employees. MU's Career Center is where students practice what is learned in classes making this a strong scientific-practitioner model of training. This program was designed to move one toward qualifying a student to meet most but not all of the State of Missouri's curricular requirements for Licensure as a Professional Counselor (LPC). In addition to completing course work beyond what is required for this degree, the graduate must also complete 3000 hours of supervised counseling and pass a licensure examination.

<b>General Psychology Core</b>	27
The Helping Relationship	3
ESC_PS 8040 Counseling Methods and Practices	
<b>Social and Cultural Foundations</b>	3
ESC_PS 9000 Multicultural Issues in Counseling	
<b>Counseling Theory</b>	3
ESC_PS 7120 Foundations of Counseling Psychology	
<b>Career Development</b>	3
ESC_PS 8135 Foundations of Career Psychology	
<b>Professional Orientation</b>	3
ESC_PS 8070 Ethical and Legal Issues in Psychological Practice	
<b>Group Dynamics</b>	3
ESC_PS 8110 Methods in Group Counseling	
<b>Appraisal</b>	6
ESC_PS 8082 Foundations of Educational and Psychological Measurement	
ESC_PS 8640 Interviewing, Diagnosis, and Assessment	
<b>Statistics</b>	3
ESC_PS 7170 Introduction to Applied Statistics	
<b>Counseling Psychology Core</b>	21
<b>Career &amp; Organizational</b>	9
ESC_PS 7087 Seminar in Educational, School, and Counseling Psychology	
ESC_PS 9570 Psychological Consultation: Organizations	
ESC_PS 8400 Analysis of Research in Career Psychology	
<b>Practicum</b>	3-6
ESC_PS 8940 Counseling Psychology Practicum	
ESC_PS 8940 Counseling Psychology Practicum	
<b>Electives</b>	6-9

### Sample Plan of Study

First Year				
Fall	CR Spring	CR Summer	CR	
ESC_PS 9000	3 ESC_PS 8040	3 ESC_PS 8070	3	

ESC_PS 7120	3 ESC_PS 8640	3
ESC_PS 8135	3 ESC_PS 7170	3
ESC_PS 8082	3 ESC_PS 7200	3
	12	12
		3

Second Year		
Fall	CR Spring	CR
ESC_PS 8110	3 ESC_PS 8940	3-9
ESC_PS 8940	3-9 ESC_PS 8400	3
	ESC_PS 9570	3
	6-12	9-15

Total Credits: 42-54

## Thesis/Non-Thesis Requirements

Students are required to pass the National Counselor Examination in Fall or Spring semester of the second year to demonstrate they have gained the requisite knowledge for the profession.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) application form by December 1st for the next Fall cohort.

1. Three letters of recommendation
2. Curriculum Vita
3. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe interests and experiences working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum).
  - b. Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - c. Describe (1) your previous experience serving in a helping or counseling role, (2) your interests and career objectives, (3) how these interests and career objectives have developed, (4) how these interests match those of specific program faculty, and (5) how being accepted into the program of your choice will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 1000 words)
5. Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

# MEd in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

## Degree Requirements

The MU Masters program in Counseling Psychology provides students training and education in the scientist-practitioner philosophy that is consistent with most Counseling Psychology Ph.D. programs, including the one at MU. Students will complete core coursework in counseling psychology and receive clinical training in the form of practicum experience and research training through faculty labs, research teams, and other research projects. They will also be required to complete an independent research manuscript during their second year in the program. This program has more of a research focus than most counseling masters programs. The program is not designed for students interested exclusively in practicing at the masters level, and students who graduate from this program will not yet be license-eligible for a LPC in the state of Missouri (this would require additional coursework and training).

<b>General Psychology Core</b>	27
<b>The Helping Relationship</b>	3
ESC_PS 8040	Counseling Methods and Practices
<b>Social and Cultural Foundations</b>	3
ESC_PS 9000	Multicultural Issues in Counseling
<b>Counseling Theory</b>	3
ESC_PS 7120	Foundations of Counseling Psychology
<b>Career Development</b>	3
ESC_PS 8135	Foundations of Career Psychology
<b>Professional Orientation</b>	3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice
<b>Group Dynamics</b>	3
ESC_PS 8110	Methods in Group Counseling
<b>Appraisal</b>	6
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8640	Interviewing, Diagnosis, and Assessment
<b>Statistics</b>	3
ESC_PS 7170	Introduction to Applied Statistics
<b>Counseling Psychology Core</b>	21
<b>Research Methods</b>	9
ESC_PS 8020	Overview of Research Methods
ED_LPA 8957	Qualitative Methods in Educational Research I
ESC_PS 8850	Quantitative Foundations in Educational Research



ED_LPA 9620	Qualitative Methods in Educational Research II	
Independent Research		3
ESC_PS 8095	Research in Educational, School, and Counseling Psychology	
Practicum		3-6
ESC_PS 8940	Counseling Psychology Practicum	
ESC_PS 8940	Counseling Psychology Practicum	
Electives		6-9

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 9000	3 ESC_PS 8040	3 ESC_PS 8070	3
ESC_PS 7120	3 ESC_PS 8640	3	
ESC_PS 8135	3 ESC_PS 7170	3	
ESC_PS 8082	3 ESC_PS 8020	3	
	12	12	3
Second Year			
Fall	CR Spring	CR	
ESC_PS 8110	3 ESC_PS 8095	3-6	
ESC_PS 8940	3-9 ESC_PS 8940	3-9	
ED_LPA 8957	3 Elective	3	
	9-15	9-18	

Total Credits: 45-60

## Thesis/Non-Thesis Requirements

Students are required to pass the National Counselor Examination in Fall or Spring semesters of the second year to demonstrate they have gained the requisite knowledge for the profession.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

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- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
- Statement of purpose addressing the following:
  - Describe interests and experiences working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum).

- Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - Describe (1) your previous experience serving in a helping or counseling role, (2) your interests and career objectives, (3) how these interests and career objectives have developed, (4) how these interests match those of specific program faculty, and (5) how being accepted into the program of your choice will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 1000 words)
- Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
  - TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

## MEd in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology

### Degree Requirements

The Educational Psychology program is committed to the dissemination and development of knowledge and skills in human learning and cognition, development, and motivation. We use quantitative and qualitative methods to study how people's thinking, motivation, and behavior change across time. We study how different social settings like classroom, family, work, and peers affect people's well-being, learning and behavior. The study of educational psychology is relevant to teachers, coaches, athletes, nurses, counselors, software developers, trainers, social workers, program evaluators, and administrators.

Educational psychologists attempt to understand:

- how to improve learning, academic achievement, and motivation to improve human performance
- development influences learning and well being
- society influences learning and behavior
- school influences students' development in other settings

The master's degree program requires at least 33 credit hours. Students enrolled in the MEd take a 4 hour comprehensive exam at the end of the program unless in the online program. Master's students must have completed or plan to complete 15 hours of *prerequisite* course work as listed below. The prerequisite coursework is over and above that required for the master's degree itself, and thus cannot be counted on the Program of Study for the master's degree. Many students will have completed these prerequisites in their undergraduate programs.

- Statistics:** A course in statistics covering descriptive statistics, correlation, t-tests, and chi-square. If undergraduate coursework

does not include an introductory level course in statistics, ESC\_PS 4170/ESC\_PS 8850 must be taken to satisfy this prerequisite, but it then cannot count on the Program of Study.

2. **Psychological Theory:** Two courses in psychological theory (not including the introductory course in psychology), for example, personality, social, developmental, or learning.
3. **Additional courses:** Two additional courses in education, psychology, or sociology.

#### Requirements

Research		9
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8850	Quantitative Foundations in Educational Research	
Psychological Foundations		9
ESC_PS 8355	Cognition and Emotion	
ESC_PS 8060	Lifespan Development	
ESC_PS 8320	Advanced Human Learning	
ESC_PS 9450	Motivation	
Human Diversity (Relevant Course)		3
General Electives		12

For MA with thesis or manuscript, 6 hours of these courses must be 8090. Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Human Development and Family Studies, Psychological Sciences, or Information Science and Learning Technology.

#### Student Learning and Well-being (online)

An online master's degree with a student learning and well-being focus is also available. The 33-hour program was developed with the working K-12 classroom teacher in mind. Course work is completely online and provides practical applications of learning theory, motivation, assessment of student well-being, mental health, issues of bullying, positive psychology and the development of a safe and supportive school environment.

No GRE is required.

Complete program details (e.g., how to apply, course planner) are available at the [Student Learning and Well-being](#) website.

#### Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the advisor.

#### Thesis/Non-Thesis Requirements

After working with the academic advisor on developing a thesis or project proposal, the student meets with his or her committee to obtain approval. This happens before data collection begins. After the project is completed, the student submits a written thesis and defends the thesis to the committee. The defense can occur only when MU is officially in session.

#### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/>

[ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php](http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php)) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) application form by January 15th for the next Fall cohort.

1. The three letters of recommendation
2. Curriculum Vita
3. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe experiences teaching, designing instruction, and engaging in research and how these experiences have prepared you for graduate study. (500 word maximum)
  - b. Describe (1) your research interests that you hope to pursue in graduate school (2) how these interests match those of specific faculty (3) your career objectives, and (4) how being accepted into MU's program will benefit your career aspirations. (Please limit to 500 words)
5. Official Graduate Record Examination (GRE) scores (preferred combined Verbal and Quantitative score of 1200 or higher)
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

## MEd in Educational, School, and Counseling Psychology with Emphasis in Educational Research Methods and Analysis

### Degree Requirements

The Educational Research Methods and Analysis program provides rigorous training in statistical methods, educational measurement, and research methodologies. We offer several courses in applied statistics, from the quantitative foundations of educational research to advanced methods such as multivariate statistics, multilevel modeling, and latent variable modeling. We also offer a number of courses in educational measurement, covering topics such as in classical test theory, item response theory, and generalizability theory. In addition, our students have the opportunity to take a wide range of advanced statistics and quantitative methods courses, from probability, sampling methodology, and categorical data analysis to stochastic theory, time series analysis, Bayesian statistics, and other cutting-edge quantitative techniques. We train our students in various statistical software programs including SPSS, SAS, R, Mplus, Amos, HLM, and BILOG-MG. Our students also

take courses in learning theories, aspects of human development, and program evaluation. Graduates from our program are prepared to make scientific and systematic inquiries and to make data-driven decisions, typically attaining employment positions at universities, research centers, and testing organizations.

<b>General Core Courses</b>	21
Statistics and Research	15
ESC_PS 7170	Introduction to Applied Statistics
ESC_PS 8020	Overview of Research Methods
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8850	Quantitative Foundations in Educational Research
ESC_PS 8957	Qualitative Methods in Educational Research

Human Diversity (Relevant Course) 3

**Research Methods** 12

Courses in this area may vary. Possible course selection includes:

ESC_PS 9650	Application of Multivariate Analysis in Educational Research
ESC_PS 9710	Structural Equation Modeling
ESC_PS 9720	Hierarchical Linear Modeling
ESC_PS 8655	Item Response Theory
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology
ESC_PS 8690	Educational Planning and Evaluation

Selected graduate level courses in the Psychology Department with advisor approval (e.g. latent variable models in statistical analyses, categorical data analysis).

Selected graduate level courses from the Statistics Department with advisor approval (e.g. Bayesian statistics, nonparametric statistics).

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the Master's Committee.

## Thesis/Non-Thesis Requirements

To complete the comprehensive exam, students must successfully complete a written comprehensive exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

1. Apply online by submitting the following documents using the MU Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) application form by January 15th for the next Fall cohort.
2. The three letters of recommendation
3. Curriculum Vita

4. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
5. Statement of purpose addressing the following:
  - a. Describe interests and experiences engaging in research, working with statistics, using measurement techniques and how these experiences have prepared you for graduate study. (500 word maximum)
  - b. Describe (1) your research interests that you hope to pursue in graduate school; (2) how these interests match those of specific faculty; (3) your career objectives; and (4) how being accepted into MU's program will benefit your career aspirations. (Please limit to 500 words)
6. Official Graduate Record Examination (GRE) scores for tests taken within the last 5 years should have a combined Verbal and Quantitative score of 305.
7. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

# MEd in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion

## Degree Requirements

Health Education is a strong graduate program within the Department of Educational and Counseling Psychology. The graduate program serves bachelors and masters degreed students from the state of Missouri as well as from other states. Many of our graduate students are professionals practicing in the field and come to MU for graduate training. A number of our graduate students cross train in health related fields like athletics, nursing, nutrition, physical training, physical therapy, occupational therapy, and psychology.

Students who earned a bachelor's degree in a health-related program of study are qualified to enter the masters program in health education. A minimum of 30 credit hours are required for the MEd Students who earn a master's degree are encouraged to take the CHES (Certified Health Education Specialist) examination for certification.

**Foundations Core Courses** 6

ESC_PS 4185	Health Behavior: Drug and Sexuality Education
or ESC_PS 7185	Health Behaviors: Drug and Sexuality Education
ESC_PS 8185	Health Promotion

**General Core Courses**

Health Area Courses	
Statistics and Research Methodology course	
ESC_PS 8020	Overview of Research Methods
ESC_PS 7170	Introduction to Applied Statistics

**Individual Studies** 9

(Individual Studies are electives related to student's area of expertise)

## Sample Plan of Study

A student's plan of study will vary depending on her/his program track and career goals and should be completed in consultation with her/his academic advisor.

## Thesis/Non-Thesis Requirements

The M.Ed. student is required to take a comprehensive examination during the last semester in the program.

## Admissions

This program is not accepting applications at this time.

# MEd in Educational, School, and Counseling Psychology with Emphasis in Mental Health Practices in Schools

The online Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/ed-mhinschools>) program is intended for school personnel, educators and other community mental health professionals who work with children and adolescents in schools and community agencies. This includes elementary and secondary teachers, special education professionals, school counselors, school nurses, administrators, at-risk coordinators and resource officers, safety coordinators, substance abuse coordinators, speech/language pathologists, itinerant and migrant educators, and private practitioners.

Courses are designed to offer practical applications of psychological concepts and are taught by experts in the field. The program identifies and deals with issues that promote positive mental health of children and adolescents. Courses in the program provide a solid base to increase awareness, knowledge and skills in areas such as:

- Identifying and assessing evidence-based prevention and intervention strategies and programs
- Communicating effectively with parents, children and school personnel
- Building resiliency and optimism in children and adolescents
- Increasing awareness of multicultural and diversity issues
- Understanding mental, emotional, and behavioral factors in youth
- Managing crisis interventions
- Applying wellness management for self and others
- Implementing positive behavior support and strategies in the classroom
- Collaborating with families and other school personnel

Note: This program does not provide school counselor certification, nor any professional counseling licensure.

Website: Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/ed-mhinschools>).

## Degree Requirements

This is a 34 credit hour program. Students take 25 hours of required course work and 9 hours of electives.

**Required courses** (25 credit hours)

ESC_PS 7160	Developmental Aspects of Human Learning	3
ESC_PS 7460	Foundations of School Mental Health	3
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8430	Mental, Emotional, and Behavioral Disorders in Youth	3
ESC_PS 8440	School Mental Health: Policy, Law and Ethics	3
ESC_PS 8450	Diversity Issues in School Mental Health	3
ESC_PS 8460	Communication and Collaboration with Children and Families	3
ESC_PS 8470	Preventions and Interventions in School Mental Health	3
ESC_PS 8490	Mental Health in Schools Capstone Paper	1
ESC_PS 8425	Effects of Maltreatment on Child and Adolescent Development	3
ESC_PS 8435	Wellness Management for School Personnel	3
ESC_PS 8445	Building Resiliency and Optimism in Youth	3
ESC_PS 8455	Bully and Youth Violence: Prevention and Reduction	3
ESC_PS 8465	Vital Issues in School Mental Health	3
ESC_PS 8475	Proactive Behavior Management	3

## Thesis/Non-Thesis Requirements

### Capstone paper

The program requires a capstone integrative paper allowing students to demonstrate the knowledge, skills, and competencies acquired through the program's course work.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (below) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

### Admission criteria (M Ed)

1. Successful completion of the baccalaureate degree at an accredited college/university.
2. 3.0 or better grade point average in the last 60 hours of baccalaureate coursework
3. TOEFL score: Minimum 580 (paper) or 92 (ibt). Applies to non-native English speaking applicants only. If the non-native English-speaking applicant has successfully completed one year of full-time post-secondary (college-level) study in a country where English is the native language within the past two years, then the TOEFL is waived .
4. GRE scores are NOT required.

### Application Process:

1. Complete the online Graduate Admissions application ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)).

2. As part of the submission process, applicants are **required to upload UNOFFICIAL** copies of all transcripts to the online application.

**NOTE:** If you are accepted by our academic program, you will then be asked to provide official copies of all transcripts to: Office of Graduate Studies, University of Missouri, 210 Jesse Hall, Columbia, Missouri 65211.

3. Three letters of recommendation will need to be submitted via the online application. Each recommender will receive directions on how to submit the recommendation once you have entered their contact information in the application system.

4. You must also provide the following supplementary materials: Personal Statement and Vita/Résumé via the online Graduate Admissions application ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)). In your statement describe:

- a. Your previous/current experience serving in a teaching, helping or counseling role,
- b. Your interests and career objectives,
- c. How these interests and career objectives have developed, and
- d. How being accepted into the program will benefit your career aspirations and help you act upon your beliefs, goals and philosophy. Include interests and experiences working with diverse groups (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation, grade levels, ages), leadership roles, or other skills or experiences (not previously mentioned) that you believe distinguish you as a candidate for graduate study. (Please limit to 1000 words).

5. If your native language is other than English, the Test of English as a Foreign Language (TOEFL (<http://www.toefl.org>)) is required. Please send this to the Office of Graduate Studies using school code 6875.

- Please be sure to upload all supplemental materials **BEFORE** you submit the application.

**For applicants currently enrolled as graduate students at MU:**

1. Complete the Change of Degree (<http://gradstudies.missouri.edu/forms-downloads/repository/change-degree.pdf>) form.
2. Provide **unofficial** copies of your University of Missouri transcripts.
3. Provide 3 letters of recommendation.
4. Provide supplementary materials: Personal statement and Vita/Resume.

Send application materials to Sandy Sites (SitesS@missouri.edu) or mail to the ESCP Dept., 16 Hill Hall, Columbia, MO 65211

**Application deadline: None - rolling admission.**

# MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Elementary and Secondary, Certification

## Degree Requirements

Students who select this specialty have an interest in working as elementary school, middle school, or high school counselors. The

curriculum of this specialty is based on the scientist-practitioner model of training as well as the comprehensive school guidance and counseling program model, both of which emphasize the best in counseling psychology theory, research, and practice. The missions of the MU School Counseling Masters and Specialist degree programs are to prepare individuals to practice successfully as entry-level multiculturally sensitive professional school counselors in socially and economically diverse work settings.

The specific courses that meet these requirements are as follows (42 credit hours):

<b>I. General Psychology Core</b>		<b>6</b>
ESC_PS 8060	Lifespan Development	
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
<b>II. Counseling Psychology Core</b>		<b>21</b>
ESC_PS 7120	Foundations of Counseling Psychology	
ESC_PS 8135	Foundations of Career Psychology	
ESC_PS 8110	Methods in Group Counseling	
ESC_PS 8040	Counseling Methods and Practices (Secondary)	
ESC_PS 8140	Psychological Assessment in Childrent and Adolescents: Behavior and Social Emotional Assessment	
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention (Elementary)	
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence- Based Therapies (Elementary)	
<b>III. Practicum</b>		<b>12</b>
Secondary school counseling students must complete two practicums in a secondary school setting for a total of 9 semester hours. Elementary school counseling students must complete two practicums in an elementary school setting for a total of 9 semester hours. Students wishing all level certification are required to complete an additional 3 hours of practicum in the setting in which they did not previously complete a practicum plus complete all of the other coursework in both elementary and secondary school counseling.		
ESC_PS 8940	Counseling Psychology Practicum (Elementary and Secondary School Counseling - Public Schools)	
<b>IV. Specialty Requirements</b>		<b>12</b>
ESC_PS 7130	Parent Counseling and Consultation	
ESC_PS 8410	School Guidance Programs	
ESC_PS 8415	Program Evaluation for School Counselors	
ESC_PS 9000	Multicultural Issues in Counseling	
<b>V. Required Teacher Education courses to fulfill the State of Missouri requirements for School Counselor candidates who are not Certified Teachers</b>		
ESC_PS 2010	Inquiry Into Learning I	
ESC_PS 2014	Inquiry into Learning I - Field Experience	
SPC_ED 7020	Teaching the Exceptional Learner	
SPC_ED 4310	Behavioral Management for Exceptional Students	
<b>VI. Credential Preparation</b>		

Candidates must apply for an official evaluation of their credentials in the Office of Certification, 102 Hill Hall prior to the completion of the last 15 hours of required course work.

#### VII. Licensure, Certification and Registry

The courses in this planner are designed to meet the requirements of the Department of Educational, School, and Counseling Psychology (42 hours), the College of Education, and the University of Missouri Graduate School. They also fulfill state certification requirements to become entry-level professional school counselors, but do not fulfill requirements for state licensure as a psychologist or counselor, for certification as a marriage and family therapist, alcoholism counselor or other specialties, or certification by the National Board of Certified Counselors. If you wish to fulfill the requirements for licensure, certification or registry, you will need to inform yourself accordingly and add to your M.Ed. degree planner the additional coursework necessary. Information about psychologist and counselor licensure, certification, and registry in Missouri is available in Room 16 Hill Hall.

#### VIII. Prerequisites to Master's Programs

In order to apply for any master's degree program in the Department of Educational, School, & Counseling Psychology, an applicant either must have completed or plan to complete 15 hours of prerequisite course work as indicated below:

Statistics. A course in statistics covering descriptive statistics, correlation, t-tests and Chi-square.

Psychological Theory. Two courses in psychological theory (not including the introductory course in psychology) for example: personality, social, developmental or learning.

Additional Courses. Two additional courses in education, psychology and/or sociology.

If you are deficient in one or more of these areas, you may still be admitted with the provision that you make up any prerequisites during your graduate enrollment. Such make-up work will not count toward the hours required for any degree.

#### IV. Policy on Non-degree Graduate Students (NGS) for School Counseling

If admitted to an ESCP program, a NGS may apply up to 12 hours. The ONLY courses a NGS may take to apply to the Elementary and Secondary School Counseling program are:

ESC_PS 8060	Lifespan Development
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8020	Overview of Research Methods
ESC_PS 8410	School Guidance Programs

### Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 7120	3 ESC_PS 8040	3 ESC_PS 8070	3
ESC_PS 8135	3 ESC_PS 8060	3 ESC_PS 8110	3
ESC_PS 8140	3 ESC_PS 8165	3 ESC_PS 8410	3
ESC_PS 8415	3 SPC_ED 4310	3 ESC_PS 2010	3
		ESC_PS 2014	1
	12	12	13
Second Year			
Fall	CR Spring	CR	
ESC_PS 8082	3 ESC_PS 7130	3	
ESC_PS 8415	3 ESC_PS 8145	3	
ESC_PS 8940	6 ESC_PS 8165	3	

ESC_PS 9000	3 ESC_PS 8940	6
	15	15

Total Credits: 67

### Thesis/Non-Thesis Requirements

Students will required to complete state requirements for licensure, including the Missouri State Performance Task Assessment for School counselors and the state licensure exam for school counselors.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Secondary, Certification

### Degree Requirements

Students who select this specialty have an interest in working as elementary school, middle school, or high school counselors. The curriculum of this specialty is based on the scientist-practitioner model of training as well as the comprehensive school guidance and counseling program model, both of which emphasize the best in counseling psychology theory, research, and practice. The missions of the MU School Counseling Masters and Specialist degree programs are to prepare individuals to practice successfully as entry-level multiculturally sensitive professional school counselors in socially and economically diverse work settings.

The specific courses that meet these requirements are as follows (42 credit hours):

<b>I. General Psychology Core</b>	<b>9</b>
ESC_PS 8060	Lifespan Development
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice
ESC_PS 8082	Foundations of Educational and Psychological Measurement
<b>II. Counseling Psychology Core</b>	<b>21</b>
ESC_PS 7120	Foundations of Counseling Psychology
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8110	Methods in Group Counseling
ESC_PS 8040	Counseling Methods and Practices (Secondary)

ESC_PS 8140	Psychological Assessment in Childrent and Adolescents: Behavior and Social Emotional Assessment
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention (Elementary)
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence- Based Therapies (Elementary)

### III. Practicum 12

Secondary school counseling students must complete two practicums in a secondary school setting for a total of 9 semester hours. Elementary school counseling students must complete two practicums in an elementary school setting for a total of 9 semester hours. Students wishing all level certification are required to complete an additional 3 hours of practicum in the setting in which they did not previously complete a practicum plus complete all of the other coursework in both elementary and secondary school counseling.

ESC_PS 8940	Counseling Psychology Practicum (Elementary and Secondary School Counseling - Public Schools)
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### IV. Specialty Requirements 12

ESC_PS 7130	Parent Counseling and Consultation
ESC_PS 8410	School Guidance Programs
ESC_PS 8415	Program Evaluation for School Counselors
ESC_PS 9000	Multicultural Issues in Counseling
or ESC_PS 8580	Social and Cultural Identity Development

### V. Required Teacher Education courses to fulfill the State of Missouri requirements for School Counselor candidates who are not Certified Teachers 13

ESC_PS 2010	Inquiry Into Learning I
ESC_PS 2014	Inquiry into Learning I - Field Experience
SPC_ED 7020	Teaching the Exceptional Learner
SPC_ED 4310	Behavioral Management for Exceptional Students

### VI. Credential Preparation

Candidates must apply for an official evaluation of their credentials in the Office of Certification, 102 Hill Hall prior to the completion of the last 15 hours of required course work.

### VIII. Licensure, Certification and Registry

The courses in this planner are designed to meet the requirements of the Department of Educational, School, and Counseling Psychology (42 hours), the College of Education, and the University of Missouri Graduate School. They also fulfill state certification requirements to become entry-level professional school counselors, but do not fulfill requirements for state licensure as a psychologist or counselor, for certification as a marriage and family therapist, alcoholism counselor or other specialties, or certification by the National Board of Certified Counselors. If you wish to fulfill the requirements for licensure, certification or registry, you will need to inform yourself accordingly and add to your M.Ed. degree planner the additional coursework necessary. Information about psychologist and counselor licensure, certification, and registry in Missouri is available in Room 16 Hill Hall.

### IX. Prerequisites to Master's Programs

In order to apply for any master's degree program in the Department of Educational, School, & Counseling Psychology, an applicant either must have completed or plan to complete 15 hours of prerequisite course work as indicated below:

Statistics. A course in statistics covering descriptive statistics, correlation, t-tests and Chi-square.
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Psychological Theory. Two courses in psychological theory (not including the introductory course in psychology) for example: personality, social, developmental or learning.

Additional Courses. Two additional courses in education, psychology and/or sociology.

If you are deficient in one or more of these areas, you may still be admitted with the provision that you make up any prerequisites during your graduate enrollment. Such make-up work will not count toward the hours required for any degree.

### X. Policy on Non-degree Graduate Students (NGS) for School Counseling

If admitted to an ESCP program, a NGS may apply up to 12 hours. The ONLY courses a NGS may take to apply to the Elementary and Secondary School Counseling program are:

ESC_PS 8060	Lifespan Development
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8410	School Guidance Programs

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 7120	3 ESC_PS 8040	3 ESC_PS 8070	3
ESC_PS 8135	3 ESC_PS 8060	3 ESC_PS 8110	3
ESC_PS 8140	3 ESC_PS 8165	3 ESC_PS 8410	3
ESC_PS 8415	3 SPC_ED 4310	3	
	12	12	9
Second Year			
Fall	CR Spring	CR	
ESC_PS 8940	6 ESC_PS 8940	6	
ESC_PS 8082	3 ESC_PS 7130	3	
ESC_PS 8415	3 ESC_PS 8145	3	
ESC_PS 9000	3		
	15	12	

Total Credits: 60

## Thesis/Non-Thesis Requirements

Students will required to complete state requirements for licensure, including the Missouri State Performance Task Assessment for School counselors and the state licensure exam for school counselors.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

# MEd in Educational, School, and Counseling Psychology with Emphasis in School Psychology

## Degree Requirements

The Masters of Education (M.Ed.) program in School Psychology is completed concurrently with the Educational Specialist (Ed.S.) program in School Psychology. The M.Ed. program itself is not a terminal degree program. Students admitted to the Educational Specialist degree program will complete degree requirements (coursework and comprehensive examination) for the Masters in Education by the end of the Winter semester of their second year in the program. Students admitted to the M.Ed./Ed.S. programs in School Psychology are prepared to work with children, youth, families, and educators to promote effective functioning in the areas of learning, behavior, and mental health in schools. Operating from a problem solving framework, our focus is on preparing data-based decision makers capable of intervening to address both individual- and systems-level challenges. Students develop professional competencies in assessment, intervention, consultation, and research/evaluation. Completion of the M.Ed. program alone does not lead to state certification as a School Psychologist, however graduates of both the M.Ed. and Ed.S. programs are eligible for state certification as a School Psychologist in Missouri and in most other states, though additional requirements may need to be fulfilled per each state's certification rules.

General Core		20
ESC_PS 8125	Professional Iss. in Sch. Psych. I:Hist., Trends & Ethical Pract.	
ESC_PS 8100	Psychological Assessment of Children and Adolescents: Cognitive Assessment	
ESC_PS 8140	Psychological Assessment in Childrent and Adolescents: Behavior and Social Emotional Assessment	
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention	
ESC_PS 8850	Quantitative Foundations in Educational Research	
ESC_PS 8250	School Psychology Practicum: Introduction to School Services	
ESC_PS 8160	Psychological Interventions with Children and Adolescents: Educational Instruction	
Psychological Foundations (selected from the following)		12
ESC_PS 8060	Lifespan Development	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Biological Bases of Behavior)	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Applied Behavior Analysis)	
ESC_PS 8355	Cognition and Emotion	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Multicultural Issues in School Psychology)	
ESC_PS 8530	Developmental Psychopathology and Exceptionality	

## Sample Plan of Study

First Year		
Fall	CR Spring	CR
ESC_PS 8125	3 ESC_PS 8087	3
ESC_PS 8140	3 ESC_PS 8100	3
ESC_PS 8250	1 ESC_PS 8145	3
ESC_PS 8087	3 ESC_PS 8250	1
		10
Second Year		
Fall	CR Spring	CR
ESC_PS 8530	3 ESC_PS 8850	3
ESC_PS 8160	3 ESC_PS 8087	3
		6

Total Credits: 32

## Thesis/Non-Thesis Requirements

No thesis is required from the Masters of Education program in school psychology.

## Admissions

Students are admitted concurrently to the M.Ed. and Ed.S. programs in School Psychology based on the admissions criteria identified below in the Educational Specialist program.

# MEd in Educational, School, and Counseling Psychology with Emphasis in Sport Psychology

## Degree Requirements

This degree program provides a strong, fortified (51 credit hours) Masters Degree that blends the two fields of Sport Psychology and Career Counseling. Students who choose this specialty area have an interest in working with the careers of individuals in the world of sports (sport coaches, strength and conditioning coaches, athletic trainers, athletic academic counselors, Life Skills coordinators, athletic administrators, career coaches, life coaches, and the like). The curriculum is based on a scientist-practitioner model of training as well as a holistic view of how sport, career choice, and personal adjustment provide one with both an engaging and rewarding career and personal life. There is a strong emphasis on learning thru experience, where the experiences derived in and with athletic teams and with a college career center.

The Counseling Sport Psychology program was designed to move one toward qualifying a student to meet most but not all of the State of Missouri's curricular requirements for Licensure as a Professional Counselor (LPC). In addition to required course work, the graduate must also complete 3000 hours of supervised counseling and pass a licensure examination. The Counseling Sport Psychology program was also designed to qualify a student to meet some of the Association for the Advancement of Applied Sport Psychology's (AAASP) curricular requirements to become a Certified AAASP Consultant. Additional courses/experiences necessary for AAASP Certification are included in a separate Sport Psychology electives section.

General Psychology Core		27
The Helping Relationship		3



ESC_PS 8040	Counseling Methods and Practices	
Social and Cultural Foundations		3
ESC_PS 9000	Multicultural Issues in Counseling	
Counseling Theory		3
ESC_PS 7120	Foundations of Counseling Psychology	
ESC_PS 8135	Foundations of Career Psychology	
Professional Orientation		3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
Group Dynamics		3
ESC_PS 8110	Methods in Group Counseling	
Appraisal		6
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8640	Interviewing, Diagnosis, and Assessment	
Statistics		3
ESC_PS 7170	Introduction to Applied Statistics	
<b>Counseling Psychology</b>		<b>21</b>
Sport		12
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Philosophy of Sport)	
ESC_PS 8515	Sport Psychology	
ESC_PS 7200	Positive Psychology	
ESC_PS 9610	Applied Sport Psychology	
ESC_PS 8240	Sport in America	
Internship in Sport Psychology		3
ESC_PS 8085	Problems in Educational, School, and Counseling Psychology	
Practicum		
ESC_PS 8940	Counseling Psychology Practicum	
Electives		3

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 9000	3 ESC_PS 8040	3 ESC_PS 8240	3
ESC_PS 7120	3 ESC_PS 8640	3	
ESC_PS 8515	3 ESC_PS 7170	3	
ESC_PS 8082	3 ESC_PS 8070	3	
	12	12	3
Second Year			
Fall	CR Spring	CR	
ESC_PS 8110	3 ESC_PS 8085	1-3	
ESC_PS 8940	3-9 ESC_PS 7087	1-3	
ESC_PS 9610	3 undefined	3	
ESC_PS 8135	3		
	12-18	5-9	

Total Credits: 44-54

## Thesis/Non-Thesis Requirements

Students are required to pass the National Counselor Examination in Fall or Spring semesters of the second year to demonstrate they have gained the requisite knowledge for the profession.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## EdSp in Educational, School, and Counseling Psychology

### Admission Contact Information

Christina Edholm (EdholmC@missouri.edu)  
16 Hill Hall; Columbia, MO 65211  
573-882-7738

### Admission Criteria

- Minimum GPA: 3.0
- Minimum TOEFL score:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE Score:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2012	300	4.0

### Application Deadlines

- Fall deadline: December 1st for most programs except Educational Psychology and Educational Research Methods and Analysis, which is January 15th
- M Ed, EdSp track in Mental Health Practices in Schools (online degrees) - rolling deadline Deadlines

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

### Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application

- Personal statement and vitae via online application per departmental requirements

## EdSp in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

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### Degree Requirements

The program of study outlined for the degree must contain a minimum of 30 semester hours of approved graduate credit beyond the master's degree. No more than 12 semester hours of non-degree seeking (NGS) course work may be used in a program. Evidence of proficiency in the areas of educational statistics and research methodology must be shown prior to the candidates' taking the final comprehensive examination. This will normally be provided through satisfactory completion of ESC\_PS 7170 Introduction to Applied Statistics and ESC\_PS 8020 Overview of Research Methods or equivalent. If not completed as part of the master's degree, the program must include a course in the behavioral, social, historical, or philosophic foundations of education. The program may consist entirely of courses in education or may be made up, in part, of courses from other disciplines selected to fit the candidate's professional needs. A minimum of 15 semester hours of the program must be courses offered in the College of Education. A minimum of 15 semester hours of the program must also be courses numbered 8000 or above. To adhere to the concept of a planned program, at least eight semester hours of the program must be completed after the Program of Study has been filed with the Office of Graduate Studies.

### Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the student's advisor.

### Comprehensive Examination Process

The Comprehensive Exam is administered once a year in July or August. The Comprehensive Exam is administered as a take-home exam and follows an essay/long answer response format. It is expected that responses will not exceed 10 pages (double-spaced; not including references) in length and will adequately provide both breadth and depth on the topic. Appropriate citations are expected. Attention should also be paid to grammar, APA style, and overall professional writing conventions. Students will have two consecutive weekends to complete the exam. Students schedule an oral exam after successfully passing the written portion of the comprehensive exam.

The Comprehensive Exam is designed as an integrative, culminating assessment of foundational knowledge of (1) counseling theories, assessment and practice, (2) research design, measurement, and statistics, (3) multicultural and professional issues, and (4) career development. Thus, the exam is designed to assess students' ability to (a) use counseling theories and appropriate assessment strategies to conceptualize clinical cases and to identify appropriate intervention strategies in clinical practice; (b) design research studies, including developing appropriate research questions, addressing issues related to a study's internal and external validity, applying appropriate methods for the research methodology, and identifying appropriate statistical

analyses; (c) understand multicultural, ethical and professional issues related to counseling psychology; and (d) apply appropriate vocational theories and assessment in practice.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## EdSp in Educational, School, and Counseling Psychology with Emphasis in Mental Health Practices in Schools

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The online Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/education/mental-health-practices-in-schools/education-specialist>) program is intended for school personnel, educators and other community mental health professionals who work with children and adolescents in schools and community agencies. This includes elementary and secondary teachers, special education professionals, school counselors, school nurses, administrators, at-risk coordinators and resource officers, safety coordinators, substance abuse coordinators, speech/language pathologists, itinerant and migrant educators, and private practitioners.

Courses are designed to offer practical applications of psychological concepts and are taught by experts in the field. The program identifies and deals with issues that promote positive mental health of children and adolescents. Courses in the program provide a solid base to increase awareness, knowledge and skills in areas such as:

- Identifying and assessing evidence-based prevention and intervention strategies and programs
- Communicating effectively with parents, children and school personnel
- Building resiliency and optimism in children and adolescents
- Increasing awareness of multicultural and diversity issues
- Understanding mental, emotional, and behavioral factors in youth
- Managing crisis interventions
- Applying wellness management for self and others
- Implementing positive behavior support and strategies in the classroom
- Collaborating with families and other school personnel

Note: This program does not provide school counselor certification, nor any professional counseling licensure.

Website: Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/education/mental-health-practices-in-schools/education-specialist>).

## Degree Requirements

The educational specialist degree is a 31-hour program of specialization built upon the master's degree. To earn the Mental Health Practices in Schools educational specialist degree, students complete 31 credit hours from among the courses listed below. The only required courses are the research methods (ESC\_PS 8020) and capstone (ESC\_PS 8490).

At least 5 courses must be at the 8000 level. Students can select the remaining courses that best fit their educational and professional experience and interests.

Required Courses		4
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8490	Mental Health in Schools Capstone Paper	1
Elective Courses		27
ESC_PS 7160	Developmental Aspects of Human Learning	3
ESC_PS 7460	Foundations of School Mental Health	3
ESC_PS 8425	Effects of Maltreatment on Child and Adolescent Development	3
ESC_PS 8430	Mental, Emotional, and Behavioral Disorders in Youth	3
ESC_PS 8435	Wellness Management for School Personnel	3
ESC_PS 8440	School Mental Health: Policy, Law and Ethics	3
ESC_PS 8445	Building Resiliency and Optimism in Youth	3
ESC_PS 8450	Diversity Issues in School Mental Health	3
ESC_PS 8455	Bully and Youth Violence: Prevention and Reduction	3
ESC_PS 8460	Communication and Collaboration with Children and Families	3
ESC_PS 8465	Vital Issues in School Mental Health	3
ESC_PS 8470	Preventions and Interventions in School Mental Health	3
ESC_PS 8475	Proactive Behavior Management	3

## Comprehensive Examination Process

### Capstone paper

The program requires a capstone integrative paper allowing students to demonstrate the knowledge, skills, and competencies acquired through the program's course work.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational and Counseling Psychology (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/ma,-m-ed-or-edsp-in-educational,-school--counseling-psychology.php>) program and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

### Admission criteria (EdSp)

1. Successful completion of the baccalaureate and master's degree at an accredited college/university.
2. 3.0 or better grade point average in the last 60 hours of baccalaureate coursework
3. TOEFL score: Minimum 580 (paper) or 92 (ibt). Applies to non-native English speaking applicants only. If the non-native English-speaking applicant has successfully completed one year of full-time post-secondary (college-level) study in a country where English is the native language within the past two years, then the TOEFL is waived .
4. GRE scores are NOT required.

### Application Process:

1. Complete the online Application to the Graduate School (<https://app.applyyourself.com/?id=umc-grad>).
2. As part of the submission process, applicants are **required to upload UNOFFICIAL** copies of all transcripts to the online application. **NOTE:** If you are accepted by our academic program, you will then be asked to provide official copies of all transcripts to: Office of Graduate Studies, University of Missouri, 210 Jesse Hall, Columbia, Missouri 65211.
3. Three letters of recommendation will need to be submitted via the online application. Each recommender will receive directions on how to submit the recommendation once you have entered their contact information in the application system.
4. You must also provide the following supplementary materials: Personal Statement and Vita/Résumé via the online Application to the Office of Graduate Studies (<https://app.applyyourself.com/?id=umc-grad>). In your statement describe:
  - a. Your previous/current experience serving in a teaching, helping or counseling role,
  - b. Your interests and career objectives,
  - c. How these interests and career objectives have developed, and
  - d. How being accepted into the program will benefit your career aspirations and help you act upon your beliefs, goals and philosophy. Include interests and experiences working with diverse groups (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation, grade levels, ages), leadership roles, or other skills or experiences (not previously mentioned) that you believe distinguish you as a candidate for graduate study. (Please limit to 1000 words).
5. If your native language is other than English, the Test of English as a Foreign Language (TOEFL (<http://www.toefl.org>)) is required. Please send this to the Office of Graduate Studies using school code 6875.
6. Please be sure to upload all supplemental materials **BEFORE** you submit the application.

### For applicants currently enrolled as graduate students at MU:

1. Complete the Change of Degree (<http://gradstudies.missouri.edu/forms-downloads/repository/change-degree.pdf>) form.
2. Provide **unofficial** copies of your University of Missouri transcripts.
3. Provide 3 letters of recommendation.
4. Provide supplementary materials: Personal statement and Vita/Resume.

Send application materials to Sandy Sites (SitesS@missouri.edu) or mail to the ESCP Dept., 16 Hill Hall, Columbia, MO 65211

**Application deadline: None - rolling admission.**

#### Admissions Contact

Sandy Sites (SitesS@missouri.edu)  
16 Hill Hall, Columbia, MO 65211  
573-882-3651

## EdSp in Educational, School, and Counseling Psychology with Emphasis in School Psychology, Certification

### Degree Requirements

Graduates of the Ed.S. program in School Psychology are prepared to work with children, youth, families, and educators to promote effective functioning in the areas of learning, behavior, and mental health in schools. Operating from a problem solving framework, our focus is on preparing data-based decision makers capable of intervening to address both individual - and systems-level challenges. Students develop professional competencies in assessment, intervention, consultation, and research/evaluation. Graduates of the Ed.S. program are eligible for state certification as a School Psychologist in Missouri and in most other states, though additional requirements may need to be fulfilled per each state's certification rules.

General Core		21
ESC_PS 7130	Parent Counseling and Consultation	3
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Crisis Prevention & Intervention in Schools)	3
ESC_PS 8120	Psychological Assessment of Children and Adolescents:Psychoeducational Assessment	3
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence- Based Therapies	3
ESC_PS 8260	School Psychology Practicum: School-Based	6
ESC_PS 9092	Internship in School Psychology	2
ESC_PS 9560	Psychological Consultation: Schools	3
Psychological Foundations		6
ESC_PS 8060	Lifespan Development	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Multicultural Issues in School Psychology)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Applied Behavior Analysis)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Biological Bases of Behavior)	3
ESC_PS 8355	Cognition and Emotion	3
ESC_PS 8530	Developmental Psychopathology and Exceptionality	3

### Sample Plan of Study

Below is a sample plan of study for completion of the coursework requirements for the Ed.S. in school psychology, however each individual student's plan of study varies depending on their pace in the program and individual choices when options are available. The Educational Specialist program in School Psychology is completed concurrently with the Masters in Education (M.Ed.) program in School Psychology. As a result, the first year after admission to the program is predominately focused on the M.Ed. coursework.

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 8355	3 ESC_PS 8060	3 ESC_PS 8120	3
	3	3	3
Second Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 8087	3 ESC_PS 7130	3 ESC_PS 8020	3
ESC_PS 8260	3 ESC_PS 8165	3	
ESC_PS 9560	3 ESC_PS 8260	3	
	9	9	3
Third Year			
Fall	CR Spring	CR	
ESC_PS 9092	1-6 ESC_PS 9092	1-6	
	1-6	1-6	

Total Credits: 32-42

### Comprehensive Examination Process

The comprehensive examination for the Ed.S. in School Psychology includes two components: a portfolio documenting specific clinical experiences completed during the internship year and the Praxis II national School Psychology exam (administered by the Educational Testing Service).

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

## PhD in Educational, School, and Counseling Psychology

### Admission Contact Information

Christina Edholm (EdholmC@missouri.edu)  
16 Hill Hall  
Columbia, MO 65211  
(573) 882-7738

### Admission Criteria

- Fall deadline: December 1st for most programs except Educational Psychology and Educational Research Methods and Analysis, which is January 15th

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2012	305	4.0

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application
- Personal statement and vitae via online application per departmental requirements

# PhD in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

## Degree Requirements

<b>I. GENERAL PSYCHOLOGY CORE*</b>	36
Statistics and Research Methodology	12
Psychological Foundations	24
<b>II. COUNSELING PSYCHOLOGY CORE</b>	80
(Exclusive of and in addition to the General Psychology Core)	
Historical and Research Foundations	6
Vocational Bases of Behavior	6
Human Diversity	5
Intervention Procedures	15
Assessment	9
Clinical	27
Dissertation	12

## Sample Plan of Study

A student's plan of study will vary depending on her/his program track and career goals and should be completed in consultation with her/his academic advisor.

## Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program. Acceptable performance on the Departmental Qualifying Examination is defined as achieving a grade of "B" or better in each of the courses comprising the "core" courses for each of four emphasis areas. These courses are:

- ESC\_PS 7120 Foundations of Counseling Psychology
- ESC\_PS 8040 Counseling Methods and Practices

ESC\_PS 8135 Foundations of Career Psychology

## Comprehensive Examination Process

The Comprehensive Exam is administered once a year in July or August. The Comprehensive Exam is administered as a take-home exam and follows an essay/long answer response format. It is expected that responses will not exceed 10 pages (double-spaced; not including references) in length and will adequately provide both breadth and depth on the topic. Appropriate citations are expected. Attention should also be paid to grammar, APA style, and overall professional writing conventions. Students will have two consecutive weekends to complete the exam. Students schedule an oral exam after successfully passing the written portion of the comprehensive exam.

The Comprehensive Exam is designed as an integrative, culminating assessment of foundational knowledge of (1) counseling theories, assessment and practice, (2) research design, measurement, and statistics, (3) multicultural and professional issues, and (4) career development. Thus, the exam is designed to assess students' ability to (a) use counseling theories and appropriate assessment strategies to conceptualize clinical cases and to identify appropriate intervention strategies in clinical practice; (b) design research studies, including developing appropriate research questions, addressing issues related to a study's internal and external validity, applying appropriate methods for the research methodology, and identifying appropriate statistical analyses; (c) understand multicultural, ethical and professional issues related to counseling psychology; and (d) apply appropriate vocational theories and assessment in practice.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with her/his doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student submits a written dissertation and defends her/his dissertation project to the doctoral program committee.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Office of Graduate Studies ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)) application form by December 1st for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
- Statement of purpose addressing the following:

- a. Describe interests and experiences working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum).
  - b. Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - c. Describe (1) your previous experience serving in a helping or counseling role, (2) your interests and career objectives, (3) how these interests and career objectives have developed, (4) how these interests match those of specific program faculty, and (5) how being accepted into the program of your choice will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 1000 words)
- Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
  - TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

## PhD in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology

### Degree Requirements

The Educational Psychology program is committed to the dissemination and development of knowledge and skills in human learning and cognition, development, and motivation. We use quantitative and qualitative methods to study how people's thinking, motivation, and behavior change across time. We study how different social settings like classroom, family, work, and peers affect people's well-being, learning, and behavior. The study of educational psychology is relevant to teachers, coaches, athletes, nurses, counselors, software developers, trainers, social workers, program evaluators, and administrators.

Educational psychologists attempt to understand:

- how to improve learning, academic achievement, and motivation
- developmental influences on learning and well-being
- how society influences learning and behavior
- school influences on students' development in other settings
- improving human performance

The Ph.D. program focuses on generating original research and consists of a minimum of 72 semester hours of graduate credit beyond the bachelor's degree. The plan of study provides additional details about requirements. The following is a synopsis.

#### I. Core Statistics and Research Courses

ESC_PS 8020	Overview of Research Methods	3
ED_LPA 8957	Qualitative Methods in Educational Research I	3
ESC_PS 8850	Quantitative Foundations in Educational Research (pending approval)	3
ESC_PS 8082	Foundations of Educational and Psychological Measurement	3
ESC_PS 9650	Application of Multivariate Analysis in Educational Research	3

Electives 6

#### II. Core Learning and Development 15

ESC_PS 8060	Lifespan Development	3
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 8355	Cognition and Emotion	3
ESC_PS 9450	Motivation	3
Human Diversity (Relevant Course)		3

#### III. Electives 27

Students can take more than 6 research hours if they wish to enroll in more electives. Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Human Development and Family Studies, Psychological Sciences, or Information Science and Learning Technology.

#### IV. Dissertation 6-18

### Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the Doctoral Dissertation Committee.

### Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program. Acceptable performance on the Departmental Qualifying Examination is defined as a achieving a grade of "B" or better in each of the courses comprising the "core" courses. For educational psychology, these courses are the following:

- ESC\_PS 8060 Lifespan Development
- ESC\_PS 8082 Foundations of Educational and Psychological Measurement
- ESC\_PS 8355 Cognition and Emotion

### Comprehensive Examination Process

To complete the comprehensive exam, students must complete evidence of professional activity, evidence of teaching, two assigned papers, and an oral exam. The two papers are administered as a take-home exam with one week for completion of each paper. The procedure is described in a separate document. The papers can be written during any semester. They must be scored as passing before the oral exam can be conducted. The oral exam must be scheduled during fall or spring semesters.

### Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with the doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student submits a written dissertation and defends the dissertation to the doctoral

program committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Apply online by submitting the following documents using the MU Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) application form by January 15th for the next Fall cohort.

1. The three letters of recommendation
2. Curriculum Vita
3. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe experiences teaching, designing instruction, and engaging in research and how these experiences have prepared you for graduate study. (500 word maximum)
  - b. Describe (1) your research interests that you hope to pursue in graduate school (2) how these interests match those of specific faculty (3) your career objectives, and (4) how being accepted into MU's program will benefit your career aspirations. (Please limit to 500 words)
5. Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

## PhD in Educational, School, and Counseling Psychology with Emphasis in Educational Research Methods and Analysis

### Degree Requirements

<b>I. General Core Courses</b>		<b>33</b>
Statistics and Research		<b>21</b>
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8655	Item Response Theory	
ESC_PS 8850	Quantitative Foundations in Educational Research	
ESC_PS 9650	Application of Multivariate Analysis in Educational Research	
ESC_PS 9710	Structural Equation Modeling	

ESC_PS 9720	Hierarchical Linear Modeling	
ED_LPA 8957	Qualitative Methods in Educational Research	
Human Learning		<b>6</b>
ESC_PS 8320	Advanced Human Learning	
ESC_PS 8355	Cognition and Emotion	
Other courses if approved by committee		
Human Diversity (relevant course)		<b>3</b>
<b>II. Advanced Courses</b>		<b>21</b>
Selected graduate level courses with advisor approval. They may be in the Statistics department or the Department of Psychological Sciences (e.g. latent variable models in statistical analyses, categorical data analysis, Bayesian statistics, nonparametric statistics).		
Advanced Measurement		
Advanced Statistics		
Program Evaluation		
Statistical Programming		
Research in statistics and/or measurement		
<b>III. General Electives</b>		<b>6</b>
Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Psychological Sciences, Statistics, or Information Science and Learning Technology.		<b>6</b>
<b>IV. Dissertation</b>		<b>6-18</b>

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the Doctoral Committee.

## Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program. Acceptable performance on the Departmental Qualifying Examination is defined as achieving a grade of "B" or better in each of the courses comprising the "core" courses. If a student receives lower than a "B" on a course, the student must retake the course. Failure to receive the appropriate grade a second time could result in dismissal from the program. For educational research methods and analysis, these courses are the following:

- ESC\_PS 8082 Foundations of Educational and Psychological Measurement
- ESC\_PS 8020 Overview of Research Methods
- ESC\_PS 8850 Quantitative Foundations in Educational Research

## Comprehensive Examination Process

To complete the comprehensive exam, students must complete evidence of professional activity (e.g. publication in a refereed journal, paper presentation at a national conference, development of a professionally published test or measure that is used nationally), evidence of teaching, and successful completion of a written comprehensive exam.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with the doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student submits a written dissertation and defends the dissertation to the doctoral

program committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

1. Apply online by submitting the following documents using the MU Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) application form by January 15th for the next Fall cohort.
2. The three letters of recommendation
3. Curriculum Vita
4. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
5. Statement of purpose addressing the following:
  - a. Describe (1) your research interests that you hope to pursue in graduate school, (2) your career objectives, and (3) how being accepted into MU's program will benefit your career aspirations.
  - b. Describe interests and or experience in designing empirical studies and/or analyzing empirical data. Briefly describe why you have chosen particular research designs to answer the research questions. (2500 words max.).
  - c. Describe interests and experience in analyzing empirical data. Briefly describe why you have chosen particular statistical models to answer the research questions. (250 words max.).
  - d. Describe interest or experiences that demonstrate your potential in applied, theoretical, and/or computational statistics, that you believe distinguish you as a candidate for graduate study (250 words max.).
6. Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
7. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher).

## PhD in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion

### Degree Requirements

<b>General Core Courses</b>	36
<b>Health Area Courses</b>	21
ESC_PS 4185 Health Behavior: Drug and Sexuality Education	
or ESC_PS 7185 Health Behaviors: Drug and Sexuality Education	
ESC_PS 8185 Health Promotion	

Statistics and Research Methodology	12-15
Measurement and Evaluation	3
<b>Individual Studies (Health Related Electives)</b>	12
	minimum
<b>General Electives</b>	12
<b>Dissertation</b>	12

### Sample Plan of Study

A student's plan of study will vary depending on her/his program track and career goals and should be completed in consultation with her/his academic advisor.

### Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program.

### Comprehensive Examination Process

The Comprehensive Exam is administered once a year.

### Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with her/his doctoral program committee to obtain approval of the written dissertation proposal. After the project is completed, the student submits a written dissertation and defends her/his dissertation project to the doctoral program committee.

### Admissions

This program is not accepting admissions at this time.

## PhD in Educational, School, and Counseling Psychology with Emphasis in School Psychology, Certification

### Degree Requirements

#### I. General Core (61 hours)

ESC_PS 7130	Parent Counseling and Consultation	3
ESC_PS 8120	Psychological Assessment of Children and Adolescents: Psychoeducational Assessment	3
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence- Based Therapies	3
ESC_PS 8260	School Psychology Practicum: School-Based	6
ESC_PS 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9090	Doctoral Dissertation Educational School & Counseling Psychology	12
ESC_PS 9093	Doctoral Internship in School Psychology	3
ESC_PS 9100	Advanced Psychological Measurement and Assessment	3
ESC_PS 9125	Professional Iss. in Sch. Psych. II: Rsrch. Design & Application	3
ESC_PS 9250	School Psychology Practicum: Community-Based	6
ESC_PS 9400	Theories and Practices in Supervision	3
ESC_PS 9560	Psychological Consultation: Schools	3



ESC_PS 9650	Application of Multivariate Analysis in Educational Research	3
1 additional Quantitative Methods/Statistics course		3
<b>II. Psychological Foundations (selected from the following):</b>		<b>21</b>
ESC_PS 8060	Lifespan Development	3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Applied Behavior Analysis)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Advanced History & Systems)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Biological Bases of Behavior)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Multicultural Issues in School Psychology)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Social Bases of Behavior)	3
ESC_PS 8355	Cognition and Emotion	3
ESC_PS 8530	Developmental Psychopathology and Exceptionality	3

## Sample Plan of Study

Below is a sample plan of study for completion of the coursework requirements for the Ph.D. in school psychology, however each individual student's plan of study varies depending on their pace in the program and individual choices when options are available.

First Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 9100	3 ESC_PS 9125	3 ESC_PS 8120	3
		ESC_PS 8070	3
	3	3	6
Second Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 9560	3 ESC_PS 8060	3 ESC_PS 8957	3
ESC_PS 8260	3 ESC_PS 8087	3	
ESC_PS 8530	3 ESC_PS 8165	3	
	ESC_PS 8260	3	
	9	12	3
Third Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 8355	3 ESC_PS 7130	3 ESC_PS 9090	3
ESC_PS 9250	3 ESC_PS 8087	3	
ESC_PS 9650	3 ESC_PS 8250	3	
	9	9	3
Fourth Year			
Fall	CR Spring	CR Summer	CR
ESC_PS 8087	3 ESC_PS 9400	3 ESC_PS 9090	1-12
ESC_PS 9090	6 ESC_PS 9090	6	
	9	9	1-12

Total Credits: 76-87

## Qualifying Process

The qualifying examination for the Ph.D. in School Psychology includes a take-home written examination. It is typically completed at the start of the Fall semester of year 2 in the program, presuming successful completion of ESC\_PS 8125, ESC\_PS 9125, and ESC\_PS 9100 (Clinical Methodology).

## Comprehensive Examination Process

The comprehensive examination for the Ph.D. in School Psychology includes a take-home written examination followed by an oral examination with the doctoral committee. This examination process is typically completed at the beginning of the winter semester in year 3 or the start of the fall semester in year 4. Students jointly enrolled in the Masters of Arts program in School Psychology must have completed their master's thesis/manuscript prior to sitting for their Doctoral Comprehensive exams.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with her/his doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student submits a written dissertation and defends her/his dissertation project to the doctoral program committee. The dissertation proposal must be approved by committee prior to applying for terminal internships.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<http://gradstudies.missouri.edu/academics/programs/educational,-school-and-counseling-psychology/doctorate-in-educational,-school--counseling-psychology.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) application form by December 1 for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
- Statement of purpose addressing the following:
  - Describe interests and experiences with working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum)
  - Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - Describe (1) your research interests that you hope to pursue in graduate school (2) how these interests match those of specific faculty. (Please limit to 500 words)

- d. Describe (1) your career objectives (2) how these career objectives have developed, and (3) how being accepted into MU's program will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 500 words)
- 5. Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
- 6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

## MA in Educational Leadership and Policy Analysis

### Contact Information

Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
 573-884-5714 (fax)  
 ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

For detailed information on degree requirements, refer to the pages under the Higher Education emphasis area (p. 393).

## MA in Educational Leadership and Policy Analysis with Emphasis in Higher Education

### Admissions

Contact Information:  
 College of Education  
 202 Hill Hall  
 573-882-8221  
 573-884-5714 (fax)  
 ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/masters-programs-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

In addition to 33 hours of coursework, to complete a Master of Arts (MA), students must complete a thesis.

## Degree Requirements for Concentration in Student Affairs Leadership

ED_LPA 9439	Applying Higher Education Research to Practice	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9452	Overview of Higher Education	3
ED_LPA 9445	College Student Development	3
ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9446	Student Affairs Administration	3
ED_LPA 9481	Internship in Educational Leadership and Policy Analysis	3
ED_LPA 9095	Problems in Educational Leadership and Policy Analysis	3
Research Methods 1		3
Research Methods 2		3
Elective		3

### Sample Plan of Study

First Year		
Fall	CR Spring	CR
ED_LPA 9439	3 Research Methods 2	3
Research Methods 1	3 Elective 1	3
ED_LPA 9452	3 ED_LPA 9445	3
	9	9
Second Year		
Fall	CR Spring	CR
ED_LPA 9095	3 ED_LPA 9446	3
ED_LPA 9447	3 ED_LPA 9481	3
ED_LPA 9440	3	
	9	6

Total Credits: 33

## Degree Requirements for Concentration in Higher Education Leadership

ED_LPA 9439	Applying Higher Education Research to Practice	3
ED_LPA 9449	History of Higher Education in the United States	3
ED_LPA 9450	Administration and Governance of Higher Education	3
ED_LPA 9451	Higher Education Finance	3
ED_LPA 9095	Problems in Educational Leadership and Policy Analysis	3
Research Methods 1		3
Research Methods 2		3
Electives (4)		12

### Sample Plan of Study

First Year		
Fall	CR Spring	CR
ED_LPA 9439	3 Research Methods 2	3
ED_LPA 9449	3 Elective 1	3
Research Methods 1	3 Elective 2	3
	9	9

Second Year		
Fall	CR Spring	CR
ED_LPA 9450	3 ED_LPA 9451	3
ED_LPA 9095	3 Elective 4	3
Elective 3	3	
9		6

Total Credits: 33

## MEd in Educational Leadership and Policy Analysis

### Contact Information

Educational Leadership and Policy Analysis

202 Hill Hall

573-882-8221

573-884-5714 (fax)

ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

For detailed information on degree requirements, refer to the emphasis area pages (p. 396).

## MEd in Educational Leadership and Policy Analysis with Emphasis in Higher Education

### Degree Requirements for concentration in Student Affairs Leadership

(Concentrations do not show on transcripts or diplomas.)

ED_LPA 9439	Applying Higher Education Research to Practice	3
ED_LPA 9452	Overview of Higher Education	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9445	College Student Development	3
ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9446	Student Affairs Administration	3
ED_LPA 9481	Internship in Educational Leadership and Policy Analysis	3
Electives (4)		12

### Degree Requirements for concentration in Higher Education Leadership

(Concentrations do not show on transcripts or diplomas.)

ED_LPA 9439	Applying Higher Education Research to Practice	3
ED_LPA 9449	History of Higher Education in the United States	3
ED_LPA 9450	Administration and Governance of Higher Education	3
ED_LPA 9451	Higher Education Finance	3
Electives (7)		21

## Sample Plan of Study

Below is a sample plan of study for students pursuing the Student Affairs Leadership concentration.

First Year		
Fall	CR Spring	CR
ED_LPA 9439	3 ED_LPA 9445	3
ED_LPA 9452	3 Elective 1	3
ED_LPA 9447	3 Elective 2	3
9		9

Second Year		
Fall	CR Spring	CR
ED_LPA 9440	3 ED_LPA 9446	3
ED_LPA 9481	3 Elective 4	3
Elective 3	3	
9		6

Total Credits: 33

Below is a Sample Plan of Study for students pursuing the Higher Education Leadership concentration.

First Year		
Fall	CR Spring	CR
ED_LPA 9439	3 Elective 2	3
ED_LPA 9449	3 Elective 3	3
Elective 1	3 Elective 4	3
9		9

Second Year		
Fall	CR Spring	CR
ED_LPA 9450	3 ED_LPA 9451	3
Elective 5	3 Elective 7	3
Elective 6	3	
9		6

Total Credits: 33

## Thesis/Non-Thesis Requirements

In addition to 33 hours of coursework, to complete a Master of Education (MEd), students must write a capstone reflection paper drawing on knowledge gained throughout the program.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/masters-programs-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/degree/higher-education-med/#apply>

## MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification

At this time we are not offering an MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, **Elementary Principal**, Certification.

You do have the option of getting both certifications – Elementary and Secondary. Please refer to MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 395).

## MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification

At this time we are not offering an MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, **Secondary Principal**, Certification.

You do have the option of getting both certifications – Elementary and Secondary. Please refer to MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 395).

## MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification

### Degree Requirements

ED_LPA 8409	Learning, Curriculum and Assessment for School Leaders	3
ED_LPA 8410	Learning Cultures	3
ED_LPA 8411	Professional Development for Learning	3
ED_LPA 8412	School Improvement	3
ED_LPA 8416	Foundations of School Leadership	3
ED_LPA 8418	Supervision for Learning Environments	3
ED_LPA 8430	School Law and Finance for Principal Leadership	3
ED_LPA 8431	Leadership for Data-Driven Change	3

ED_LPA 9407	Seminar in Educational Policy (Intro to Ethics & Policymaking)	3
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### Internship Requirement

Students may become eligible for both elementary and secondary level principal certifications by completing two internships, but in three semesters (a total of 6 graduate hours and while within the program). To be eligible for PK-12 building level certifications, 600 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

**A new cohort begins every summer.**

### Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8409	3 ED_LPA 8412	3 ED_LPA 8416	3
ED_LPA 8411	3 ED_LPA 8410	3 ED_LPA 8418	3
ED_LPA 9481	2 ED_LPA 9481	2 ED_LPA 8431	3
	8	8	9
Second Year			
		Summer	CR
		ED_LPA 8430	3
		ED_LPA 9481	2
		ED_LPA 9407	3
			8

Total Credits: 33

### Thesis/Non-Thesis Requirements

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/masters-programs-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## Educational Leadership & Policy Analysis

ELPA - Our mission is to create knowledge while preparing leaders to critically shape and transform educational issues, policies, and practices.

Consider ELPA if you:

- Want to improve your organizational leadership skills and knowledge in elementary, secondary, or postsecondary settings
- Are interested in principal or superintendent certification
- Want to work in student affairs or higher education administration
- Want to become a scholar or researcher in an academic setting
- Desire to shape policy through legislative or research activity

Department of Educational Leadership and Policy Analysis  
 202 Hill Hall  
 Columbia, MO 65211  
 phone: 573-882-8221  
 fax: 573-884-5714  
 email: elpagrad@missouri.edu  
 website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

## Faculty

**Professor S. Graham\*\***

**Associate Professor** B. Curs\*\*, S. Diem\*\*, L. Dorner\*\*, C. Harper Morris\*\*, J. Hart\*\*, P. Mendoza\*\*

**Assistant Professor** E. Crawford-Rossi\*\*, A. Dache-Gerbino\*\*, T. Douglas\*\*, S. W. Lee\*, J. Sebastian\*\*

**Associate Teaching Professor** G. Malfatti

**Assistant Teaching Professor** C. Belcher\*, J. Fellabaum-Toston\*, B. Whitaker\*

**Distinguished Adjunct Professor** T. Whitaker\*

**Adjunct Professor** M. Alden\*, M. Beglau\*, L. Blockus\*, D. Burns-Wallace\*, P. Corum\*, C. Cozette\*, M. Doss\*, M. Ehlert\*, M. Eimers\*, K. Schmidtke Felts\*, S. Goldammer\*, K. Hoffman\*, A. Hull\*, M. Laffey\*, T. Lorenz\*, R. Metro\*, T. Majerus\*, V. Mitchell\*, K. Morris\*, L. Nieuwenhuizen\*, T. Page\*, S. Preis\*, K. Quinn\*, C. Scroggs\*, B. Solomon\*, B. Tankersley-Bankhead\*, R. Walker\*, L. Wilcox\*, J. Hermesen Wood\*, D. Wren\*, J. Zeilenga\*

**Professor Emeritus** R. Andrews\*, I. Cockriel\*, J. Donaldson\*\*, J. Valentine\*\*

**Associate Professor Emerita** K. Cockrell\*, P. Placier\*, J. Simmons\*

**Clinical Associate Professor Emeritus** D. Cockrell\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in educational leadership and policy analysis, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MA in Educational Leadership and Policy Analysis (p. 393)
  - with emphasis in Higher Education (p. 393)
- MEd in Educational Leadership and Policy Analysis (p. 394)

- with emphasis in Higher Education (p. 394)
- with emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification (p. 395)
- with emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification (p. 395)
- with emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 395)

- EdSp in Educational Leadership and Policy Analysis (p. 398)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification (p. 398)
  - with emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification (p. 400)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 401)
  - with emphasis in PK-12 Educational Leadership and Administration, Superintendent, Certification (p. 399)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary Principal and Superintendent, Certification (p. 399)
  - with emphasis in PK-12 Educational Leadership and Administration, Secondary Principal and Superintendent, Certification (p. 402)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal and Superintendent, Certification (p. 401)
- EdD in Educational Leadership (p. 397)
- PhD in Educational Leadership and Policy Analysis (p. 403)
  - with emphasis in Educational Administration (p. 403)
  - with emphasis in Educational Policy Studies (p. 404)
  - with emphasis in Higher Education (p. 404)

202 Hill Hall  
 573-882-8221  
 573-884-5714 (fax)  
<http://elpa.missouri.edu/>

**Director of Graduate Studies:** Sarah Diem

## About ELPA's Graduate Programs

The graduate programs in the Department of Educational Leadership and Policy Analysis are designed to meet the specific educational needs of the student in a particular area of emphasis. Graduates find employment in a wide range of settings including colleges and universities, public schools, policy agencies, professional associations, government and business and industry.

**The PhD Program in ELPA** requires a minimum of 60 hours beyond the master's degree. The goal of the PhD program is the preparation of professional researchers and scholars who have high levels of competence in conducting research that adds to the knowledge base.

The program also has a goal of meeting the student's individual career goals and interests through the development of an appropriate plan of study. Each emphasis area has slightly different requirements and areas of focus; however, all 3 emphasis areas require a department-wide

core; emphasis area coursework; electives; a research core; and the completion of a minimum of 6 hours for the dissertation.

**The Statewide Cooperative EdD Program** in Educational Leadership is a cohort program designed for practicing educational leaders to enhance their knowledge and competencies so they provide optimal leadership in organizations that educate a wide range of learners from youth to adult. The program's curriculum is designed to prepare leaders who are inquiring, reflective practitioners who are competent in defining and solving complex problems in education.

The **Educational Specialist (EdSp) Program** is designed to enhance the knowledge and competencies of K-12 educational administrators and to lead to advanced principal certification and/or superintendent certification. The program has a thematic, integrated, problem-based curriculum intended to prepare school and district leaders who are inquiring, reflective practitioners. The curriculum is aligned with state standards for certification.

The department's **Master's Programs** are intended to provide initial preparation for leaders in a variety of educational contexts, including higher education and PK-12 schools. Programs vary according to emphasis area and are designed to meet student's individual career goals and interests — e.g., student affairs administration, initial principal certification and higher education administration.

A minimum of 33 credit hours is required for the M Ed or MA in Higher Education and a minimum of 30 hours is required for the M Ed in Educational Leadership.

**Note:** Per ELPA policy, students have 5 years to complete their MA or M Ed degree.

#### Graduate Certificates:

- Education Policy
- Higher and Continuing Education Administration

## Satisfactory Rate of Progress

All ELPA students are expected to make satisfactory progress toward their degrees. Satisfactory progress of students will be determined through an annual review by the director of graduate studies, graduate students' academic advisors and their committees. Judgments about satisfactory progress will include consideration of the following:

- University-wide time limits for degree completion
- GPA for departmental courses
- Continuous enrollment and active engagement in course work or research (EdD and PhD)
- Student performance in research credits
- Timely resolution of incomplete grades

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## EdD in Educational Leadership

### Admission Contact Information

Educational Leadership & Policy Analysis

202 Hill Hall  
 573-884-2163  
 573-884-5714 (fax)  
<http://edd.missouri.edu/>

## Admission Criteria

- Competitive GRE score
- GPA of 3.0 (4.0 scale) in the last 60 hours of undergraduate education
- GPA of 3.5 (4.0 scale) in Graduate School (Master's Degree)
- Competitive TOEFL or IELTS scores

Internet-based test (iBT)	Paper-based test (PBT)
80 (minimum score of 17 necessary in each subcategory)	550 (minimum score of 52 necessary in each subcategory)

IELTS minimum score of 6.5 (score of at least 6 necessary in each subcategory)

### EdD Application Information

This cohort program accepts applicants only during even-numbered years with a deadline of December 1.

<http://edd.missouri.edu/>

Candidates who are selected during initial screening are invited to the MU campus to participate in an on-campus interview, and a problem-solving activity and writing assessment.

**Note:** Admissions screening and decisions for all graduate programs are not made until all required materials have been submitted. Admissions recommendations are based on a profile developed from data that include undergraduate (last 60 hours) and graduate grade point averages, scores on the Graduate Record Examinations (GRE), recommendations, evidence of consistency between candidate and program goals, and relevant organizational or educational leadership experience.

## Degree Requirements

This educational doctorate program is known as **The Statewide Cooperative EdD Program**.

The EdD program requires a minimum of 76 credit hours beyond the baccalaureate degree. The program, offered in a cohort format, includes 34 hours of course work in 6 contiguous semesters, beginning in the summer of odd years and concluding in the spring semester 2 years later. In addition to course work credit, 12 credit hours of dissertation-in-practice research are required.

ED_LPA 9470	Organizational Analysis for Educational Leadership	4
ED_LPA 9471	Educational Leadership Inquiry I	2
ED_LPA 9480	Team Building and Group Dynamics	1
ED_LPA 9476	Leadership Theory and Practice	3
ED_LPA 9477	Leadership Theory and Practice Application	1
ED_LPA 9474	Professional Seminar I (offered over 2 semesters - 1 hour each)	
ED_LPA 9483	Qualitative Tools for Applied Research in Educational Leadership	3
ED_LPA 9472	Educational Leadership Inquiry II	1
ED_LPA 9478	Policy Analysis for Educational Leadership	4

ED_LPA 9482	Quantitative Tools for Applied Research in Educational Leadership	3
ED_LPA 9484	Program Evaluation and Planning for Educational Leaders	3
ED_LPA 9473	Educational Leadership Inquiry III	1
ED_LPA 9475	Professional Seminar II (offered over 2 semesters - 1 hour each)	1
ED_LPA 9479	Content and Context of Learning	3
ED_LPA 9469	Education Leadership Inquiry IV	1
ED_LPA 9090	Research in Educational Leadership and Policy Analysis	12

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 9476	3 ED_LPA 9483	3 ED_LPA 9470	4
ED_LPA 9477	1 ED_LPA 9472	1 ED_LPA 9471	2
ED_LPA 9474	1 ED_LPA 9474	1 ED_LPA 9480	1
	5	5	7
Second Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 9484	3 ED_LPA 9479	3 ED_LPA 9478	4
ED_LPA 9473	1 ED_LPA 9469	1 ED_LPA 9482	3
ED_LPA 9475	1 ED_LPA 9475	1	
	5	5	7

Total Credits: 34

## EdSp in Educational Leadership and Policy Analysis

### Contact Information

Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
 573-884-5714 (fax)  
 ELPA website: [education.missouri.edu/educational-leadership-policy-analysis/](http://education.missouri.edu/educational-leadership-policy-analysis/)

For detailed information on degree requirements, refer to the emphasis area pages (p. 396).

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3

ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for elementary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for elementary building level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	
ED_LPA 9481	4 ED_LPA 9424	3	
(Taken over several semesters)			
	13	12	6

Total Credits: 31

### Qualifying Process

Contact department for more information.

### Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis/education-specialist-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

# EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Superintendent, Certification

## Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over three semesters and two hours of coursework per semester (a total of 6 graduate hours). To be eligible for central office/superintendent certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	
ED_LPA 9481 (Taken over several semesters)	6 ED_LPA 9424	3	
			6
Total Credits: 33			

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis ([http://gradstudies.missouri.edu/academics/programs/educational-leadership-policy-analysis-education-specialist-program-](http://gradstudies.missouri.edu/academics/programs/educational-leadership-policy-analysis-education-specialist-program-in-elpa.php)

[in-elpa.php](http://gradstudies.missouri.edu/academics/programs/educational-leadership-policy-analysis-education-specialist-program-in-elpa.php)) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

# EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal and Superintendent, Certification

## Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for elementary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for elementary principal certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over three semesters and two hours of coursework per semester (a total of 6 graduate hours). To be eligible for central office/superintendent certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

The internships may be completed simultaneously, if the student's workday and class schedule allows. The total number of graduate hours required for both elementary principal and central office/superintendent certifications is 10.



## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	
ED_LPA 9481	10 ED_LPA 9424	3	
(Taken over several semesters)			
			6
19		12	6

Total Credits: 37

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/education-specialist-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3

ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for secondary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for secondary building level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	
ED_LPA 9481	4 ED_LPA 9424	3	
(Taken over several semesters)			
13		12	6

Total Credits: 31

## Qualifying

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/education-specialist-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

# EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal and Superintendent, Certification

## Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

Students may become eligible for both elementary and secondary level principal certifications by completing two internships, but in three semesters (a total of 6 graduate hours). To be eligible for PK-12 building level certifications, 600 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over three semesters and two hours of coursework per semester (a total of 6 graduate hours). To be eligible for central office/superintendent certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

All internships may be completed simultaneously, if the student's workday and class schedule allows. (For two building level internships and one central office internship, however, it is unlikely that a student would be able to complete all requirements.) The total number of graduate hours required for both elementary principal and central office/superintendent certifications is 12.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	

ED_LPA 9481 (Taken over several semesters)	12 ED_LPA 9424	3	
	21	12	6

Total Credits: 39

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis/education-specialist-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

# EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification

## Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

Students may become eligible for both elementary and secondary level principal certifications by completing two internships, but in three

semesters (a total of 6 graduate hours). To be eligible for PK-12 building level certifications, 600 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	
ED_LPA 9481 (Taken over several semesters)	6 ED_LPA 9424	3	
			6
15			12
			6

Total Credits: 33

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/education-specialist-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

# EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal and Superintendent, Certification

## Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3

ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9430	Superintendent: Fiscal, Legal Leadership	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for secondary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for secondary building level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over three semesters and two hours of coursework per semester (a total of 6 graduate hours). To be eligible for central office/superintendent level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

The internships may be completed simultaneously, if the student's workday and class schedule allows. The total number of graduate hours required for both secondary principal and central office/superintendent certifications is 10.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 8423	3 ED_LPA 8419	3 ED_LPA 8417	3
ED_LPA 9429	3 ED_LPA 8424	3 ED_LPA 9430	3
ED_LPA 9461	3 ED_LPA 8431	3	
ED_LPA 9481 (Taken over several semesters)	10 ED_LPA 9424	3	
			6
19			12
			6

Total Credits: 37

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/education-specialist-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application

process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## PhD in Educational Leadership and Policy Analysis

### Contact Information

Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
 573-884-5714 (fax)  
 ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

For detailed information on degree requirements, refer to the emphasis area pages (p. 396).

## PhD in Educational Leadership and Policy Analysis with Emphasis in Educational Administration

### Degree Requirements

<b>Core Requirements</b>	12
ED_LPA 9400 Social Theory in Education	
ED_LPA 9401 Educational Leadership	
ED_LPA 9403 Organizational Analysis	
ED_LPA 9402 Educational Policy Analysis	
<b>Research Requirements</b>	15
ED_LPA 9409 Introduction to Research Design	
ED_LPA 8957 Qualitative Methods in Educational Research I	
ED_LPA 9483 Qualitative Tools for Applied Research in Educational Leadership	
Qualitative or Quantitative II course	
ED_LPA 9405 Seminar in Educational Leadership and Policy Analysis ((PhD ProSem))	
<b>Emphasis Area (one of the areas below)</b>	18
PK-12	18
Educational Policy Studies	18
Higher Education	18
<b>Electives</b>	9
Electives selected with advisor and committee approval (may include additional research, ELPA, or outside ELPA courses)	
<b>Dissertation</b>	6 minimum

### Sample Plan of Study

First Year		
Fall	CR Spring	CR
ED_LPA 9400	3 ED_LPA 9409	3

ED_LPA 9405 (PHD Pro-Seminar)	3 ED_LPA 9401	3
ED_LPA 9402	3 Emphasis 1	3
		9

Second Year		
Fall	CR Spring	CR
Research Methods 1	3 Emphasis 3	3
ED_LPA 9403	3 Emphasis 4	3
Emphasis 2	3 Research Methods 2	3
		9

Third Year			
Fall	CR Spring	CR Summer	CR
Elective 1	3 Elective 2	3 ED_LPA 9090	1
Research Methods 3	3 Elective 3	3	
Emphasis 5	3 Emphasis 6	3	
		9	1

Fourth Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 9090	2 ED_LPA 9090	2 ED_LPA 9090	1
		2	1

Total Credits: 60

### Qualifying Process

Contact department for more information.

### Comprehensive Examination Process

Contact department for more information.

### Dissertation Requirements

Contact department for more information.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/doctorate-of-philosophy-phd-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/degree/educational-administration-phd/#apply>

# PhD in Educational Leadership and Policy Analysis with Emphasis in Educational Policy Studies

## Degree Requirements

<b>Core Requirements</b>	12
ED_LPA 9400 Social Theory in Education	
ED_LPA 9401 Educational Leadership	
ED_LPA 9403 Organizational Analysis	
ED_LPA 9402 Educational Policy Analysis	
<b>Research Requirements</b>	15
ED_LPA 9409 Introduction to Research Design	
ED_LPA 8957 Qualitative Methods in Educational Research I	
ED_LPA 9483 Qualitative Tools for Applied Research in Educational Leadership	
Qualitative or Quantitative II course	
ED_LPA 9405 Seminar in Educational Leadership and Policy Analysis ((PhD ProSem))	
<b>Emphasis Area (one of the areas below)</b>	18
PK-12	18
Educational Policy Studies	18
Higher Education	18
<b>Electives</b>	9
Electives selected with advisor and committee approval (may include additional research, ELPA, or outside ELPA courses)	
<b>Dissertation</b>	6 minimum

## Sample Plan of Study

First Year			
Fall	CR Spring	CR	
ED_LPA 9400	3 ED_LPA 9401	3	
ED_LPA 9402	3 ED_LPA 9409	3	
ED_LPA 9405 (PHD Pro-Seminar)	3 Emphasis 1	3	
	9	9	
Second Year			
Fall	CR Spring	CR	
ED_LPA 9403	3 Emphasis 3	3	
Research Methods 1	3 Emphasis 4	3	
Emphasis 2	3 Research Methods 2	3	
	9	9	
Third Year			
Fall	CR Spring	CR Summer	CR
Emphasis 5	3 Elective 2	3 ED_LPA 9090	1
Elective 1	3 Elective 3	3	
Research Methods 3	3 Emphasis 6	3	
	9	9	1

Fourth Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 9090	2 ED_LPA 9090	2 ED_LPA 9090	1
	2	2	1

Total Credits: 60

## Qualifying Process

Contact department for more information.

## Comprehensive Exam Process

Contact department for more information.

## Dissertation Requirements

Contact department for more information.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis-/doctorate-of-philosophy-phd-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

# PhD in Educational Leadership and Policy Analysis with Emphasis in Higher Education

## Degree Requirements

<b>Core Requirements</b>	12
ED_LPA 9400 Social Theory in Education	
ED_LPA 9401 Educational Leadership	
ED_LPA 9403 Organizational Analysis	
ED_LPA 9402 Educational Policy Analysis	
<b>Research Requirements</b>	15
ED_LPA 9409 Introduction to Research Design	
ED_LPA 8957 Qualitative Methods in Educational Research I	
ED_LPA 9483 Qualitative Tools for Applied Research in Educational Leadership	
Qualitative or Quantitative II course	
ED_LPA 9405 Seminar in Educational Leadership and Policy Analysis (PhD ProSem)	
<b>Emphasis Area (one of the areas below)</b>	18
PK-12	18
Educational Policy Studies	18
Higher Education	18
<b>Electives</b>	9
Electives selected with advisor and committee approval (may include additional research, ELPA, or outside ELPA courses)	

Dissertation 6 minimum

## Sample Plan of Study

First Year			
Fall	CR Spring	CR	
ED_LPA 9400	3 ED_LPA 9401	3	
ED_LPA 9405 (PhD Pro-Seminar)	3 ED_LPA 9409	3	
ED_LPA 9402	3 Emphasis 1	3	
		9	9
Second Year			
Fall	CR Spring	CR	
ED_LPA 9403	3 Emphasis 3	3	
Research Methods 1	3 Emphasis 4	3	
Emphasis 2	3 Research Methods 2	3	
		9	9
Third Year			
Fall	CR Spring	CR Summer	CR
Emphasis 5	3 Elective 2	3 ED_LPA 9090	1
Elective 1	3 Elective 3	3	
Research Methods 3	3 Emphasis 6	3	
		9	1
Fourth Year			
Fall	CR Spring	CR Summer	CR
ED_LPA 9090	2 ED_LPA 9090	2 ED_LPA 9090	1
		2	1

Total Credits: 60

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Contact department for more information.

## Dissertation Requirements

Contact department for more information.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational Leadership and Policy Analysis (<http://gradstudies.missouri.edu/academics/programs/educational-leadership--policy-analysis--doctorate-of-philosophy-phd-program-in-elpa.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## Educational Studies

Dr. Laurie Kingsley, Director of Teacher Education  
Department of Learning, Teaching and Curriculum  
202 Townsend Hall

573-882-0560

TeacherEducation@missouri.edu

The online Bachelor of Educational Studies (BES) degree program coordinated by the LTC program area is the undergraduate option for individuals who want to teach or work in workforce education. The degree program is designed for people who plan to work with adult learners at community colleges, workforce development programs, and continuing professional education programs. It is intended to prepare students to become effective educational professionals by providing not only the traditional broad-based education of a 4-year degree, but also a foundation in curriculum design, teaching methods, and other aspects of the field of adult education.

For information about the online BES program, contact the College of Education Advising Office:

Phone: 573-882-5659

Address: 101 Hill Hall

email: MizzouEdAdvising@missouri.edu

## Faculty

**Professor** E. A. Baker\*\*, S. Empson, K. B. Chval\*\*, J. Lannin\*\*, T. Sadler\*\*, J. E. Tarr\*\*

**Emeritus Professor** L. H. Barrow\*, J. Baumann\*, R. F. Fox\*\*, N. Knipping\*, S. Palonsky\*, B. B. Reys\*, R. E. Reys\*\*, R. D. Robinson\*

**Associate Professor** L. Bennett\*\*, T. Castro\*\*, P. J. Friedrichsen\*\*, C. Gilles\*\*, D. L. Hanuscin\*\*, R. Pinnow\*\*, M. Siegel\*\*, K. Unrath\*\*

**Associate Professor Emeritus** M. Volkmann\*

**Assistant Professor** Z. de Araujo \*\*, B. Hermann, L. King, C. Kuby\*\*, A. Lannin\*\*, S. Otten\*\*, L. Sanchez\*\*, C. Webel\*, L. Zangori\*\*, A. Zapata\*\*

**Emeritus Research Professor** D. A. Grouws

**Associate Teaching Professor** A. Barbis\*, L. Kingsley\*, J. Ostrow\*

**Assistant Teaching Professor** A. Ashcraft\*, L. Neier\*, H. Sanders\*

**Assistant Clinical Professor** A. Waldron\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BES in Educational Studies (p. 405)
  - with emphasis in Interdepartmental (p. 406)

## Graduate

For graduate degree programs related to educational studies, please see the Department of Educational Leadership and Policy Analysis (p. 396) or other College of Education (p. 360) programs. You might also browse the complete list of degree options (p. 17) at the University of Missouri.

## BES in Educational Studies

### Degree Program Description

The Bachelor of Educational Studies prepares students for education-related careers. This degree is to render the field of education available to students who wish to engage in the study of education as a scholarly

discipline without the requirement of preparing to engage in the professional practice of education in PK-12 schools. The Bachelor of Educational Studies is for students with interests in the scientific and scholarly study of education and/or education-related careers in non-school settings. The College of Education will not recommend certification to teach in the public schools on the bases of this degree.

The Bachelor of Educational Studies may be completed on campus or online. Students interested in this degree on campus may complete an individualized major course of study developed with an advisor from the office of Advising Services. Students interested in the online BES degree, may complete an individualized major course of study in collaboration with the program director.

## Major Program Requirements

The Bachelor of Educational Studies (BES) degree prepares students for education-related careers. The College of Education will not recommend certification to teach in the public schools on the basis of the BES degree. This degree may be completed on campus or online. Students interested in the BES degree on campus may complete an individualized major course of study developed with an advisor from Advising Services. Students interested in the online BES degree may complete an individualized major course of study in collaboration with the Program Director. Please contact Mizzou Online at 1-800-609-3727 or [mizzouonline@missouri.edu](mailto:mizzouonline@missouri.edu).

In addition to University requirements (p. 32), such as University general education (p. 33) and graduation requirements, students must complete the following requirements:

- Multicultural studies: Students address this requirement by demonstrating competence through a multicultural studies course.
- A minimum of 24 - 32 credits in the study of the field of education
- A minimum of 24 - 32 credits in a concentration option

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## BES in Educational Studies with Emphasis in Interdepartmental

### Degree Program Description

The Bachelor of Educational Studies is for students with interests in the scientific and scholarly study of education and education-related careers in non-school settings, without the requirement of preparing to teach in PK-12 schools. This is not for students pursuing certification to teach in the public schools. The program may be completed on campus or online. Students will be able to develop an individualized major course of study.

### Major Program Requirements

Please see the BES in Educational Studies (p. 405) for program requirements.

### Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## Elementary Education

Dr. Laurie Kingsley, Director of Teacher Education  
Department of Learning, Teaching and Curriculum  
202 Townsend Hall  
573-882-0560  
[TeacherEducation@missouri.edu](mailto:TeacherEducation@missouri.edu)

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

## Faculty

**Professor** E. A. Baker\*\*, S. Empson\*\*, K. B. Chval\*\*, J. Lannin\*\*, T. Sadler\*\*, J. E. Tarr\*\*

**Emeritus Professor** L. H. Barrow\*, J. Baumann\*, R. F. Fox\*\*, N. Knipping\*, S. Palonsky\*, B. B. Reys\*, R. E. Reys\*, R. D. Robinson\*

**Associate Professor** L. Bennett\*\*, T. Castro\*\*, P. J. Friedrichsen\*\*, C. Gilles\*\*, D. L. Hanuscin\*\*, R. Pinnow\*\*, M. Siegel\*\*, K. Unrath\*\*

**Associate Professor Emeritus** M. Volkmann\*

**Assistant Professor** Z. de Araujo\*\*, B. Hermann\*\*, L. King\*\*, C. Kuby\*\*, A. Lannin\*\*, S. Otten\*\*, L. Sanchez\*\*, C. Weibel\*, L. Zangori\*\*, A. Zapata\*\*

**Emeritus Research Professor** D. A. Grouws

**Associate Teaching Professor** A. Barbis\*, L. Kingsley\*, J. Ostrow\*

**Assistant Teaching Professor** A. Ashcraft\*, L. Neier\*, H. Sanders\*

**Assistant Clinical Professor** A. Waldron\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEd in Elementary Education (p. 407)
  - with emphasis in Elementary Education (p. 407)

The requirements for the Bachelor of Science in Education are specified in three areas: University general education, professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

## Graduate

The Elementary Education Program at the University of Missouri includes degree programs that focus on preparing graduates to teach in grades 1-6. We currently offer a Master's and Doctoral (PhD or EdD) in Learning, Teaching and Curriculum with an emphasis in Elementary Education. You can find out more about these programs at <http://education.missouri.edu/LTC/elementary/>.

You might also browse the complete list of degree options (p. 17) at the University of Missouri.

## BSEd in Elementary Education

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### Degree Program Description

The Elementary Education program leads to a Bachelor of Science in Education in Elementary Education, grades one through six. Coursework focuses on development of the knowledge, skills, and dispositions needed to support teaching and learning in a variety of diverse settings, and includes elementary methods courses designed to support elementary school teaching and learning in all subject areas. Each semester includes extensive experiences in elementary classrooms working with teachers and children, with immediate opportunities to put course ideas into practice. Placements are carefully chosen to represent schools that represent diverse demographics and populations. The culminating Senior Year On-Site Program (SYOSP) is a unique yearlong internship that gives interns the opportunity to experience all facets of the teaching profession. SYOSP is designed to immerse the interns in the life and culture of a school community, and begins with teacher back-to-school meetings and assisting with classroom set-up. Interns are regarded as full-time members of the school faculty and participate in all school events and experiences such as teacher workdays, professional learning communities, and data team meetings. Students will spend a minimum of three full days per week in the schools during the first semester while also completing a full course load that complements the internship. During the second semester, the internship extends to five full days in a single classroom where the SYOSP intern completes the student teaching experience.

### Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## BSEd in Elementary Education with Emphasis in Elementary Education

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### Degree Program Description

The Elementary Education program leads to a Bachelor of Science in Education in Elementary Education, grades one through six. Coursework focuses on development of the knowledge, skills, and dispositions needed to support teaching and learning in a variety of diverse settings, and includes elementary methods courses designed to support elementary school teaching and learning in all subject areas. Each semester includes extensive experiences in elementary classrooms

working with teachers and children, with immediate opportunities to put course ideas into practice. Placements are carefully chosen to represent schools that represent diverse demographics and populations. The culminating Senior Year On-Site Program (SYOSP) is a unique yearlong internship that gives interns the opportunity to experience all facets of the teaching profession. SYOSP is designed to immerse the interns in the life and culture of a school community, and begins with teacher back-to-school meetings and assisting with classroom set-up. Interns are regarded as full-time members of the school faculty and participate in all school events and experiences such as teacher workdays, professional learning communities, and data team meetings. Students will spend a minimum of three full days per week in the schools during the first semester while also completing a full course load that complements the internship. During the second semester, the internship extends to five full days in a single classroom where the SYOSP intern completes the student teaching experience.

### Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to the degree requirements.

Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## Information Science and Learning Technologies

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School of Information Science & Learning Technologies  
304 Townsend Hall  
Columbia, MO 65211  
phone: 877-747-5868  
phone: 573-882-4546  
fax: 573-884-0122  
email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
website: <http://sislt.missouri.edu/>

### Faculty

**Professor** S. Erdelez\*\*, R. Marra\*\*, J. Moore\*\*, J. Strobel\*\*

**Associate Professor** D. Adkins\*\*, J. Bossaller\*\*, I. Jahnke\*\*

**Assistant Professor** B. Brendler\*\*, S. Buchanan\*\*, T. Gibson\*\*, H. Moulaison-Sandy\*\*

**Teaching Professor** J. Howland\*

**Associate Teaching Professor** A. Klimczak\*

**Associate Clinical Professor** Z. March

**Assistant Teaching Professor** C. Le Beau\*, K. Robinson\*

**Professor Emeriti** J. M. Budd\*\*, J. Caplow\*, G. Fitzgerald\*\*, T. R.

Kochtanek\*\*, J. Laffey\*\*, M. Sievert



\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in information science and learning technologies, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MA in Information Science and Learning Technologies (p. 408)
  - with emphasis in Library Media Specialist, Certification (p. 408)
  - with emphasis in Library Science (p. 408)
- MEd in Information Science and Learning Technologies (p. 409)
  - with emphasis in Learning Systems Design and Development (p. 409)
  - with emphasis in Online Educator (p. 410)
  - with emphasis in Technology in Schools (p. 411)
- EdSp in Information Science and Learning Technologies (p. 411)
  - with emphasis in Learning Systems Design and Development (p. 412)
  - with emphasis in Online Educator (p. 412)
  - with emphasis in Technology in Schools (p. 413)
- PhD in Information Science and Learning Technologies (p. 414)

## About Information Science & Learning Technologies

In January 1997, the School of Information Science & Learning Technologies became the home for MU's graduate programs in Library and Information Science and Educational Technologies as well as a new, interdisciplinary doctoral program in Information Science & Learning Technologies.

SISLT faculty are internationally renowned for their research and development accomplishments. Faculty and students are committed to a collaborative, interdisciplinary approach – both within MU and among other research-intensive universities. Nowhere is this more evident than in the Allen Institute (<http://alleninstitute.missouri.edu>), a 10,000 square foot facility dedicated to supporting collaborative R&D at the intersection of Information & Learning.

Student Services Coordinator, 304 Townsend Hall  
Columbia, MO 65211  
573-882-4546 or toll free 877-747-5868  
<http://sislt.missouri.edu/>

## MA in Information Science and Learning Technologies

Degree information for the MA in Information Science and Learning Technologies degree may be found on the degree's emphasis pages.

They are Library Media Specialist, Certification (p. 408) and Library Science (p. 408).

## MA in Information Science and Learning Technologies with Emphasis in Library Media Specialist, Certification

In the state of Missouri, Library Media Certification is granted by the Missouri Department of Elementary and Secondary Education (DESE). The School of Information Science & Learning Technologies (SISLT) LIS Program offers many of the courses approved by DESE for this certification. Presently SISLT does not offer courses in **Library Media Administration** and **Curriculum and the Media Center**. Students are encouraged to speak with their academic advisors about completing these courses at other universities in the state of Missouri. For more information about the process of certification, please visit DESE website (<http://dese.mo.gov/sites/default/files/04%20Secondary%20Education04-08.pdf>).

## MA in Information Science and Learning Technologies with Emphasis in Library Science

### About the Program

The School of Information Science & Learning Technologies (SISLT) is the only program in Missouri to offer the American Library Association accredited Master's Degree, continuously accredited since 1966/67. Upon successful completion of the 39-hour program of study (42 hours for students admitted before Fall 2014), students receive a Master of Arts (MA) Degree in Information Science & Learning Technologies with an Emphasis in Library Science. The program curriculum reflects the foundations of the LIS field as well as the critical issues facing the profession. Courses are offered in online and hybrid formats and can be completed on the MU campus in Columbia, MO or at distributed locations in Missouri (Kansas City, Springfield, St. Louis) and Omaha, NE, or online. More detailed Program information is available at: <http://lis.missouri.edu>.

### Portfolio or Comprehensive Examination Process

Master's degree students in the Library Science program must complete the Comprehensive Examination or the electronic portfolio during the final semester of course work. Students admitted in Fall 2016 and later must complete the electronic portfolio.

The Comprehensive Examination consists of one question in each of four general areas: Issues, Management, Services, and Technology. Each question is created and evaluated by one of the full-time resident Library Science faculty. Eight weeks prior to the administration of the examination each semester, students are given an overview of the content of the questions, a list of suggested readings for each question and information on how the Comprehensive Examination will be administered. Students scheduled to take the exam are loaded into a Blackboard site where you can post questions and interact with the Comprehensive Examination Committee and your peers. Toward the

latter half of the semester, the Comprehensive Examination questions are released on the Blackboard site. You have nine days to answer the four questions and submit the answers to the Comprehensive Exam Committee.

The Electronic Portfolio is developed over the duration of the student's program, and is made up of assignments and reflections that demonstrate mastery of the LIS Program Student Learning Outcomes. It is turned in during Week Four of the student's final semester and reviewed by the Portfolio Committee, who will provide guidance on revisions and additional information needed.

## Admissions

Contact Information

Email: [sistl@missouri.edu](mailto:sistl@missouri.edu)

SISLT Student Services Coordinator

304 Townsend Hall

Columbia, MO 65211

Phone: 573-882-4546 or toll free 877-747-5868

<http://lis.missouri.edu/>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Information Science and Learning Technologies program (<http://lis.missouri.edu/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Information Science and Learning Technologies

Degree information for the MEd in Information Science and Learning Technologies degree may be found on the degree's emphasis pages.

They are Learning Systems Design and Development (p. 409), Online Educator (p. 410), and Technology in Schools (p. 411).

## MEd in Information Science and Learning Technologies with Emphasis in Learning Systems Design and Development

The Learning Systems Design and Development emphasis area is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the LSDD focus area you will develop the knowledge and skills to design learning systems and develop the digital media and network applications need to implement them. The courses emphasize learning by doing. You will take on challenging assignments and work collaboratively with both faculty and other students to produce a portfolio that documents your work and accomplishments.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The MEd consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. The Learning Systems Design and Development curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

## Sample Plan of Study

First Year		
Fall	CR Spring	CR
IS_LT 7310 (Designing Games for Learning )	3 IS_LT 9474	3
	IS_LT 9461	3
	3	6
Second Year		
Fall	CR Spring	CR
IS_LT 9471	3 IS_LT 7310 (Mobile Apps Development)	3
IS_LT 9450	3	
	6	3
Third Year		
Fall	CR Spring	CR
IS_LT 9456	3 IS_LT 7361	3
IS_LT 7356	3 IS_LT 7383	3
	6	6

Total Credits: 30

## Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

1. Does the portfolio demonstrate the student's knowledge of what the competencies mean?

- Does the portfolio demonstrate the student's mastery of the competencies?
- Does the portfolio present the student in a positive and professional manner?

Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

## Admissions

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 Columbia, MO 65211  
 Phone: 573-882-4546 or toll free 877-747-5868  
<http://edtech.missouri.edu/lstd>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Information Science and Learning Technologies program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Information Science and Learning Technologies with Emphasis in Online Educator

In the Online Educator emphasis area you will develop the knowledge and skills in eLearning offerings. You will prepare for jobs in an expanding field where online education is used in schools, universities, industry, health care, museums, and other learning settings. Your work will culminate in an authentic capstone project that documents your learning and accomplishments.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The MEd consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. The Online Educator curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

## Sample Plan of Study

IS_LT 7361	Introduction to Digital Media	3
IS_LT 9484	Teaching Online Courses	3
IS_LT 9485	Designing Online Learning	3
IS_LT 9471	Instructional Systems Design	3
IS_LT 9450	Introduction to Research in Library and Information Science	3
IS_LT 7374	Exploring Canvas	1
IS_LT 7372	Exploring Blackboard	1
IS_LT 7310	Seminar in Information Science and Learning Technology (Designing Games for Learning)	3
IS_LT 9483	Capstone: Online Educator Emphasis Area	1
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9474	Front End Analysis of Systems	3
IS_LT 7383	Rapid Development Tools for Online Learning	3

## Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

- Does the portfolio demonstrate the student's knowledge of what the competencies mean?
- Does the portfolio demonstrate the student's mastery of the competencies?
- Does the portfolio present the student in a positive and professional manner?

Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

## Admissions

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 SISLT Student Services Coordinator  
 304 Townsend Hall  
 Columbia, MO 65211  
 Phone: 573-882-4546 or toll free 877-747-5868  
<http://edtech.missouri.edu/oe>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Information Science and Learning Technologies program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum->

requirements.php). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Information Science and Learning Technologies with Emphasis in Technology in Schools

The Technology in Schools emphasis area is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the TiS focus area you will prepare to use innovative and effective technology to improve teaching and learning in a wide variety of settings. In addition to gaining a working knowledge of the underlying theories and strategies involved, you will get practical experience using technology as an effective teaching and learning tool.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

### Degree Requirements

The MEd consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. The Technology in Schools curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

### Sample Plan of Study

IS_LT 7361	Introduction to Digital Media	3
IS_LT 7360	Introduction to Web Development	3
IS_LT 7378	Electronic Portfolio Development	3
IS_LT 9450	Introduction to Research in Library and Information Science	3
IS_LT 9484	Teaching Online Courses	3
IS_LT 9458	Technology and Assessment	3
IS_LT 7366	Technology Leadership in Schools	3
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9467	Technology to Enhance Learning	3
IS_LT 9471	Instructional Systems Design	3

### Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what

they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

1. Does the portfolio demonstrate the student's knowledge of what the competencies mean?
2. Does the portfolio demonstrate the student's mastery of the competencies?
3. Does the portfolio present the student in a positive and professional manner?

Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

### Admissions

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 SISLT Student Services Coordinator  
 304 Townsend Hall  
 Columbia, MO 65211  
 Phone: 573-882-4546 or toll free 877-747-5868  
<http://edtech.missouri.edu/tis>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Information Science and Learning Technologies program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## EdSp in Information Science and Learning Technologies

Degree information for the EdSp in Information Science and Learning Technologies degree may be found on the degree's emphasis pages. They are Learning Systems Design and Development (p. 412), Technology in Schools (p. 413), and Online Educator (p. 412).

# EdSp in Information Science and Learning Technologies with Emphasis in Learning Systems Design and Development

The Educational Specialist degree in Learning Systems Design and Development at MU is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the LSDD emphasis area you will develop the knowledge and skills to design learning systems and develop the digital media and network applications need to implement them. The courses emphasize learning by doing. You will take on challenging assignments and work collaboratively with both faculty and other students to produce a portfolio that documents your work and accomplishments. Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree in Learning Systems Design and Development will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The Educational Specialist degree is a 30-hour program of specialization built upon the Master's degree. It requires 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. At least 15 credit hours must be at the 8000/9000 level.

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
IS_LT 9474	3 IS_LT 9456	3 IS_LT 9471	3
IS_LT 9450	3 IS_LT 9461 IS_LT 7310 (Designing Games for Learning)	3	
6		9	3
Second Year			
Fall	CR Spring	CR	
IS_LT 7356	3 IS_LT 7383	3	
IS_LT 7361	3 IS_LT 7310	3	
6		6	

Total Credits: 30

## Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

1. Does the portfolio demonstrate the student's knowledge of what the competencies mean?
2. Does the portfolio demonstrate the student's mastery of the competencies?
3. Does the portfolio present the student in a positive and professional manner?

Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

## Admissions

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 SISLT Student Services Coordinator  
 304 Townsend Hall  
 Columbia, MO 65211  
 Phone: 573-882-4546 or toll free 877-747-5868  
<http://edtech.missouri.edu/lssdd>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Information Science and Learning Technologies program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

# EdSp in Information Science and Learning Technologies with Emphasis in Online Educator

The Educational Specialist degree at MU is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the Online Educator emphasis area you will develop the knowledge and skills in eLearning offerings. You will prepare for jobs in an expanding field where online education is used in schools, universities, industry, health care, museums, and other learning settings. Your work will culminate in an authentic capstone project that documents your learning and accomplishments.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree in Online Educator will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The Educational Specialist degree is a 30-hour program of specialization built upon the master's degree. It requires 27 credit hours of coursework relevant to the Online Educator competencies plus 3 credit hours in ESC\_PS 7170 Introduction to Applied Statistics. At least 15 credit hours must be at the 8000/9000 level.

## Sample Plan of Study

IS_LT 7361	Introduction to Digital Media	3
IS_LT 9484	Teaching Online Courses	3
IS_LT 9485	Designing Online Learning	3
IS_LT 9471	Instructional Systems Design	3
IS_LT 9450	Introduction to Research in Library and Information Science	3
IS_LT 7374	Exploring Canvas	1
IS_LT 7372	Exploring Blackboard	1
IS_LT 9483	Capstone: Online Educator Emphasis Area	1
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9474	Front End Analysis of Systems	3
IS_LT 7310	Seminar in Information Science and Learning Technology (Designing Games for Learning)	3
IS_LT 7383	Rapid Development Tools for Online Learning	3

## Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

1. Does the portfolio demonstrate the student's knowledge of what the competencies mean?
2. Does the portfolio demonstrate the student's mastery of the competencies?
3. Does the portfolio present the student in a positive and professional manner?

Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio

coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

## Admissions

Email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
 SISLT Student Services Coordinator  
 304 Townsend Hall  
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 Phone: 573-882-4546 or toll free 877-747-5868  
<http://edtech.missouri.edu/oe>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Information Science and Learning Technologies program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## EdSp in Information Science and Learning Technologies with Emphasis in Technology in Schools

The Educational Specialist degree at MU is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the Technology in Schools (TiS) emphasis area you will prepare to use innovative and effective technology to improve teaching and learning in a wide variety of settings. In addition to gaining a working knowledge of the underlying theories and strategies involved, you will get practical experience using technology as an effective teaching and learning tool.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree in Educational Specialist degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The EdSp is a 30 credit hour option is available for students who already have a master's degree. The Technology in Schools curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

## Sample Plan of Study

First Year		
Fall	CR Spring	CR
IS_LT 9450	3 IS_LT 9484	3
IS_LT 7361	3 IS_LT 9458	3
IS_LT 7360	3	
		6
9		
Second Year		
Fall	CR Spring	CR
IS_LT 9440	3 IS_LT 9471	3
IS_LT 9467	3 IS_LT 7366	3
	IS_LT 7378	3
		9
		6

Total Credits: 30

## Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

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## Admissions

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<http://edtech.missouri.edu/tis>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Information Science and Learning Technologies program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer

to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Information Science and Learning Technologies

### About the Program

The PhD program prepares professionals to understand and influence learning, information and performance in diverse settings, especially through the use of interactive technologies. We seek individuals who are committed to conducting research that integrates theory and practice.

You will gain the competencies required to:

- Analyze specific informational organization and retrieval, learning and performance needs and evaluate systems to meet these needs.
- Design, develop and implement technologies and technological interventions to improve information organization and retrieval, learning and performance.
- Conduct systematic research, which contributes to the knowledge base of learning, information organization and retrieval, performance and/or technology.

### Degree Requirements

1-3 master's level conceptual courses in Educational Technology or Library Science (if entering doctoral program without Master's in Educational Technology, Library Science, or a related field)

#### Doctoral Seminar Courses (9 credit hours)

IS_LT 9411	Doctoral Seminar in Information Science and Learning Technologies (Design & Analysis of Research in Information Science & Learning Technologies, and other research and theory seminars)	9
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#### Elective SISLT Coursework (minimum of 18 credit hours)

IS_LT coursework	18
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#### Research Methodologies (minimum of 9 credit hours)

Research design courses with at least one course in qualitative and once course in quantitative - check with your advisor and the College of Education website for selecting courses

ESC_PS 7170	Introduction to Applied Statistics	3
ESC_PS 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9620	Qualitative Methods in Educational Research II	3
or ESC_PS 8840	Quantitative Analysis in Educational Research II	

#### Support Field (9 or more credit hours)

Coordinated coursework related to an area of emphasis outside IS_LT and research courses selected in consultation with your program committee	9
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#### Dissertation

Course work, internships and independent study projects support the achievement of these competencies, and your program centers on producing a portfolio of achievements indicating that the competencies have been attained. While course work supports production of the portfolio, we encourage students to develop products that cut across

several courses, resulting in products that are personally satisfying, solve real problems and represent high quality work. We are particularly interested in products developed in collaboration with other students, faculty, practicing professionals and others beyond our program and campus.

The program culminates with a significant research effort - the dissertation - that contributes to the knowledge base of learning, information organization and retrieval, performance and/or technology. Whether one major study or a series of smaller studies, the research is designed to position our graduates alongside the leading theorists, researchers and practitioners in the field. There is no minimum number of 9090 research hours.

## Sample Plan of Study

During your first two academic semesters, you will work with your assigned advisor to select courses and identify Professional Immersion activities that will successfully lead toward the completion of your degree. During this same time period, you should work to establish professional relationships with faculty in SISLT and your supporting field who you would like to include on your Program Committee. Prior to the beginning of your second academic year of study, you must have identified your Program Committee and conducted a Program of Study meeting with your Program Committee. Early approval of your Program of Study will enhance your academic experience in SISLT. This is a very important part of the degree planning process; failure to receive approval of your Program of Study prior to the second academic year may mean that courses or activities completed afterward may not count toward your degree.

## Qualifying Examination

Approximately one to two semesters after you have had your Program of Study and Residency plan approved by your committee, AND BEFORE you may complete your portfolio and take comprehensive exams, you will be required to complete a qualifying examination. The exam task will require you to complete a task that academic professionals would be required to perform. For example, we might have you provide a scholarly review of a journal or conference paper submission. Your advisor will provide more details.

## Comprehensive Examination Process

The comprehensive examination is an assessment of your comprehensive knowledge of information science and learning technologies. It is your responsibility to inform your committee members of your intent to complete your comprehensive exam prior to the beginning of the semester in which you plan to complete the exam.

The IS&LT examination consists of three parts:

- Portfolio
- Written component
- Oral component

For more information on the comprehensive exam process, please refer to the SISLT PhD Handbook at [http://sislt.missouri.edu/phd\\_handbook/index.html](http://sislt.missouri.edu/phd_handbook/index.html).

## Dissertation Requirements

You should become involved in research throughout your program so that, by the time the comprehensive examination is completed, you have a well-formulated topic for research. Research may include required

coursework activities, collaborations with faculty, or an independent effort. Earlier research can serve to explore a dissertation topic, serve as a pilot study, or become part of a dissertation prospectus. However, formal approval of a dissertation prospectus by your Committee must precede the serious pursuit of the study.

### Dissertation Committee

Following the completion of the comprehensive examination, the responsibility of the Program Committee is completed. You will then form a committee to direct your dissertation. This committee may, but does not have to, consist of the same members as the Program Committee. You are encouraged to include those faculty members who can best support your line of research as members of your Dissertation Committee. During your academic program, your interests may change and should be reflected in the Dissertation Committee membership. The Dissertation Committee must consist of a minimum of three SISLT faculty members. The Dissertation Committee chair must be a member of the MU doctoral faculty. A faculty member or practitioner holding a terminal degree from outside of SISLT who has expertise in your research may be added as a special Committee member with program approval. At least one member must be from a program other than IS&LT, typically from your minor or supporting field.

### Dissertation Proposal Meeting

You will be required to schedule a dissertation proposal meeting prior to beginning your research. Your Dissertation Committee must approve your conceptualization and methodology prior to beginning any data collection. The proposal meeting is open to all faculty and students in the School. The proposal should include the first three chapters (Chapter 1: Rationale for the Study, Chapter 2: Literature Review, Chapter 3: Description of Methodology) of the dissertation unless your Committee has approved an alternative form.

### Dissertation Defense

After receiving your Dissertation Chair's approval, you may schedule your dissertation defense. A copy of your dissertation must be sent to each committee member at least three weeks prior to the defense meeting. Other faculty, students, and staff may also attend your oral defense. It will be announced to the entire program at least one week prior to the scheduled examination time. These people will be excused while the Committee evaluates your performance.

## Admissions

Email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
SISLT Student Services Coordinator  
304 Townsend Hall  
Columbia, MO 65211  
Phone: 573-882-4546 or toll free 877-747-5868

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Information Science and Learning Technologies program (<http://sislt.missouri.edu/islit>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.



## Learning, Teaching and Curriculum

Professionals interested in advancing their careers in education can specialize in a variety of disciplines in MU's Department of Learning, Teaching and Curriculum. LTC specializes in teacher preparation and in graduate programming for professionals in education. Students find challenging, yet rewarding, opportunities through MU's dynamic research centers and projects and are supported by faculty who are subject matter experts.

Consider LTC if you:

- want to advance as a professional in education through a field specialization
- enjoy exercising independent judgment, and
- desire to help all learners achieve success and strengthen the future through education.

Contact us:

Dr. James Tarr, Associate Division Director  
 303 Townsend Hall  
 Columbia, MO 65211  
 phone: 573-882-3742  
 fax: 573-884-2917  
 website: <http://education.missouri.edu/LTC/index.php>

## Faculty

**Professor** E. Baker\*\*, K. B. Chval\*\*, S. Empson\*\*, B. Dougherty\*\*, J. Lannin\*\*, T. Sadler\*\*, J.E. Tarr\*\*

**Associate Professor** L. Bennett\*\*, A. J. Castro\*\*, P. J. Friedrichsen\*\*, C. Gilles\*\*, D. L. Hanuscin\*\*, R. Pinnow\*\*, M. Siegel\*\*, K. Unrath\*\*

**Assistant Professor** Z. de Araujo\*\*, B. Herman\*\*, L. King\*\*, C. Kuby\*\*, A. Lannin\*\*, C. Munter\*, S. Otten\*\*, L. Sanchez\*\*, C. Weibel\*\*, L. Zangori\*\*, A. Zapata\*\*

**Associate Teaching Professor** A. Barbis\*, L. Kingsley\*, J. Ostrow\*

**Assistant Teaching Professor** N. Ashcraft\*, L. Neier\*, H. Sanders\*

**Research Professor Emeritus** D. A. Grouws\*

**Professor Emeritus** L. H. Barrow\*, J. Baumann\*, R. F. Fox\*\*, N.

Knipping\*, S. Palonsky\*\*, B. B. Reys\*, R. E. Reys\*\*, R. Robinson\*

**Associate Professor Emeritus** M. Volkmann\*

**Division Executive Director** J.

Lannin\*\*

**Associate Division Director** J. E. Tarr\*\*

**Chancellor's Chair for Excellence in Literacy Education and**

**Professor** J. Baumann\*

**Richard G. Miller Professor** S. Empson\*\*

**Curators' Professor** R. E. Reys\*\*

**Lois Knowles Distinguished Professor** B. Reys\*

**Director, Office of Science Outreach:** A. Waldron

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in Learning, Teaching & Curriculum, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that comprise the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MA in Learning, Teaching and Curriculum (p. 422) (not accepting applications)
  - with emphasis in General (p. 422)
  - with emphasis in Music Education (p. 423)
- MEd in Learning, Teaching and Curriculum (p. 423)
  - with emphasis in Art Education (p. 422)
  - with emphasis in Art Education, Certification (p. 423)
  - with emphasis in Early Childhood Education (p. 424)
  - with emphasis in Early Childhood Education, Certification (p. 425)
  - with emphasis in Elementary Education (p. 425) (not accepting applications)
  - with emphasis in Elementary Education, Teaching Fellow (p. 426)
  - with emphasis in English Education (p. 426)
  - with emphasis in English Education, Teaching Fellow (p. 427)
  - with emphasis in Literacy Education (p. 427)
  - with emphasis in Mathematics Education (p. 428)
  - with emphasis in Mathematics Education, Certification (p. 428) (not accepting applications)
  - with emphasis in Mathematics Education, Teaching Fellow (p. 429)
  - with emphasis in Music Education (p. 429)
  - with emphasis in Music Education, Certification (p. 430)
  - with emphasis in Music Education, Teaching Fellow (p. 431)
  - with emphasis in Science Education (p. 432)
  - with emphasis in Science Education, Certification (p. 432) (not accepting applications)
  - with emphasis in Science Education, Teaching Fellow (p. 433)
  - with emphasis in Social Studies Education (p. 433)
  - with emphasis in Social Studies Education, Teaching Fellow (p. 434)
  - with emphasis in Teaching English to Speakers of Other Languages (p. 434)
- EdSp in Learning, Teaching and Curriculum (p. 419)
  - with emphasis in Literacy Education (p. 419)
  - with emphasis in Mathematics Education (p. 420)
  - with emphasis in Music Education (p. 421)
  - with emphasis in Science Education (p. 421)
- EdD in Learning, Teaching and Curriculum (p. 417)
  - with emphasis in Elementary Education (p. 418) (not accepting applications)
  - with emphasis in General (p. 418) (not accepting applications)

- with emphasis in Reading Education (p. 418)
- PhD in Learning, Teaching and Curriculum (p. 435)
  - with emphasis in Art Education (p. 436)
  - with emphasis in Early Childhood Education (p. 436)
  - with emphasis in Elementary Education (p. 437) (not accepting applications)
  - with emphasis in English Education (p. 437)
  - with emphasis in Foreign Language Education (p. 438) (not accepting applications)
  - with emphasis in General (p. 438) (not accepting applications)
  - with emphasis in Mathematics Education (p. 438)
  - with emphasis in Music Education (p. 439)
  - with emphasis in Reading Education (p. 440)
  - with emphasis in Science Education (p. 441)
  - with emphasis in Social Studies Education (p. 441)

303 Townsend  
 573-882-3742  
 573-884-2917 (fax)  
<http://education.missouri.edu/LTC/>

**Director of Graduate Studies:** Tony Castro

## About the Program

Graduate study in Learning, Teaching, & Curriculum prepares teachers, curriculum leaders and teacher educators for professional excellence. With the rapid changes in education--especially developments in instructional materials and techniques, curriculum construction and classroom organization--teachers who have completed their certification may need to update, refine and extend their knowledge and skills.

Further, many educators enter new roles as subject-matter specialists, curriculum coordinators, supervisors of instruction, department heads, leaders of professional development education or teacher educators. Graduate programs in Learning, Teaching, & Curriculum are designed to prepare the professionals for these new roles.

## Areas of Study

Depending on the degree program, students can pursue discipline-specific emphasis areas (e.g., elementary education, music education, science education and others) and focus on curriculum development, research, or teacher education. Outside concentration areas are also available.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## EdD in Learning, Teaching and Curriculum

### Admission Contact Information

Fran Colley  
 colleyf@missouri.edu  
 303 Townsend Hall  
 Columbia, MO 65211

573-882-2659

## About the Ed.D.

The LTC department offers the doctorate of education with emphasis in General LTC studies, Elementary Education, or Reading Education.

## Application Deadline

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to expedite completely. Every reasonable effort will be made to process the application for the semester requested.

## Admission Requirements

- Completion of an appropriate preliminary degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field
- Minimum TOEFL scores for most areas:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum GRE score\* (varies by program area). Generally:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	810+
On or After August 1, 2011	291= (V150,Q141)

\***Note:** Minimum GRE score varies by program area. All LTC doctoral programs require the GRE exam in order to be considered for the program.

*Required Application Materials to the Office of Graduate Studies:*

- All required Graduate Studies documents
- Official transcripts
- Official GRE Scores
- Official TOEFL scores

*Required Application Materials to the Learning, Teaching, & Curriculum Program*

- Personal data sheet form (select appropriate form from the department website)
  - Statement of purpose
  - GRE scores (a copy may be sent to the department too; minimum, an official result needs to be sent to Graduate School)
  - 3 letters of recommendation are required for all doctoral applicants.
- ALL LETTERS MUST BE CONFIDENTIAL AND SUBMITTED ACCORDINGLY THROUGH THE GRADUATE STUDIES APPLICATION SYSTEM.

## Financial Aid from the Program

Internal assistantships, fellowships or other funding packages require a departmental application, starting Fall 2010, and must be completed every semester in order to have funding renewed. Completion of the application does not guarantee renewal. Check the program Web site or ask the program contact for details.

## EdD in Learning, Teaching and Curriculum with Emphasis in Elementary Education

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This emphasis is **currently suspended** within the Learning, Teaching, and Curriculum program due to budget constraints and limited resources. We are not taking applicants at this time.

Would you like to become a district coordinator for Elementary Education or a professor of Elementary Education? You can participate in advanced research-based courses in literacy/reading, mathematics education, science education, and social studies education. In addition, you will be mentored to teach at the university level and to conduct publishable research. The majority of Ed.D. students in elementary education move into administrative roles at the district or state level. The majority of Ph.D. students in elementary education move on to take positions at universities or colleges. This program offers 72-hours beyond the bachelor's degree.

### Goals of the Doctoral Programs

Prepares students to:

- Understand the depth and breath of the fields of literacy, mathematics education, social studies education, and science education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in some area of elementary education;
- Become outstanding teachers/advisors of college students;
- Understand the role of service in the university setting and begin those memberships in organizations that can lead to a service agenda.

These goals are achieved through a combination of course-work, internships, and authentic experiences with research, development, and teacher education.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.

- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 7.0 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdD in Learning, Teaching and Curriculum with Emphasis in General

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This emphasis is **currently suspended** within the Learning, Teaching, and Curriculum program due to budget constraints and limited resources. We are not taking applicants at this time.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## EdD in Learning, Teaching and Curriculum with Emphasis in Reading Education

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The Ed.D. in Reading Education is a 72-hour program above the bachelor's. Students can expect to:

- Understand the depth and breath of literacy education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in literacy education;
- Become outstanding teachers/advisors of college students;
- Understand the role of service in the university setting and begin those memberships in organizations that can lead to a service agenda.

These goals are achieved through a combination of course-work, internships, and authentic experiences with research, development, and teacher education.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum

### Admission Contact Information

Caitlin Rosbach  
 rosbachc@missouri.edu  
 303 Townsend Hall  
 Columbia, MO 65211  
 573-882-3742

### About the Ed.S.

This post-master Educational Specialist degree is offered with the following emphasis areas: Literacy Education; Mathematics Education; Music Education; and Science Education.

## Admissions Deadlines

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

## Admission Requirements

- Completion of an appropriate baccalaureate degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field
- Minimum TOEFL scores for most areas:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum GRE score is required for all applicants of the Ed.S. program.

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291+ (V150, Q141)

### Required Application Materials to the Office of Graduate Studies:

- All required Graduate Studies documents
- Official transcripts
- GRE scores
- TOEFL scores

### Required Application Materials to the Learning, Teaching, & Curriculum Program

- Personal data sheet form (complete through online application)
- Statement of purpose
- GRE scores (a copy may be sent to the department too; minimum, an official result needs to be sent to Graduate School)
- 3 letters of recommendation; check with department to see if they are required for your emphasis. ALL LETTERS MUST BE CONFIDENTIAL AND SUBMITTED ACCORDINGLY THROUGH THE GRADUATE STUDIES APPLICATION SYSTEM.

## EdSp in Learning, Teaching and Curriculum with Emphasis in Literacy Education

### Degree Requirements

The EdSp is a 30-hour program of specialization built on the master's degree. The program requires course work in core, research, and electives. The program is directed by an advisory committee (3 members) and supervised by the major advisor.

### Sample Plan of Study

Please consult with an advisor to inquire what a sample program of study may look like. Coursework will generally comprise upper-level graduate work in literacy education, tailored to the student's needs and career objectives.

- **Prerequisites**
  - Foundations of Educational Psychology (or equivalent)

- Introduction to Statistics (or equivalent)
- **English Education or Literacy Education Core**
  - To be negotiated with advisor to meet your professional goals
- **Education Core** (3+ semester hours)
  - If not completed as a part of the master's degree, one or more graduate courses in the behavioral, social, philosophical, or historical foundations of education
- **Research Courses** (6+ semester hours)
  - Introduction to Educational Statistics
  - Overview of Educational Research
- **Electives**
  - May be taken to deepen specialization or to advance the student's career goals

## Comprehensive Examination Process

A thesis or seminar paper and final examination are required.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria.

Complete admission requirements (<https://education.missouri.edu/degree/literacy-education-eds>) for the EdSp program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum with Emphasis in Mathematics Education

The Educational Specialist degree in Mathematics Education is intended for teachers who have already completed a masters degree and are seeking additional work related to leadership, curriculum development, research and/or improving their own teaching skills.

The Ed.S. is a 30-hour program beyond a master's degree. Coursework is comprised of at least 15 hours at the 8000 level or higher; and at least half the coursework in education. The program of study is approved by the student's advisor and two committee members.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria.

Complete admission requirements (<https://education.missouri.edu/degree/mathematics-educations-eds>) for the Ed.S. program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed Ed.S. degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum with Emphasis in Music Education

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The Educational Specialist Degree (EdS) in Learning, Teaching, & Curriculum with an emphasis in Music Education, is offered by the College of Education in close collaboration with the School of Music. The Ed.S. represents a planned program of approved graduate course work beyond the master's degree, organized to meet the specific needs of the student. The program is one of specialization and is designed to build upon the foundation represented by previous coursework and teaching experience.

The Ed.S. is a 30-hour program beyond a master's degree. Coursework is comprised of at least 15 hours at the 8000 level or higher; and at least half the coursework in education. The program of study is approved by the student's advisor and two committee members.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/music-education-eds>) for the Ed.S. program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed Ed.S. degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum with Emphasis in Science Education

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The MU Educational Specialist (EdS) Program in Science Education is designed for individuals holding a Master's in Science Education who desire further education. The EdS in Science Education is typically considered a terminal degree, not a stepping stone to the PhD.

The Ed.S. is a 30-hour program beyond a master's degree. Coursework is comprised of at least 15 hours at the 8000 level or higher; and at least half the coursework in education. The program of study is approved by the student's advisor and two committee members.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/science-education-eds>) for the Ed.S. program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MA in Learning, Teaching and Curriculum

Our department is no longer admitting students to the MA in Learning, Teaching and Curriculum. We invite you to explore the other graduate degree options in Learning, Teaching and Curriculum (p. 416) and the College of Education. (p. 364)

## MEd in Learning, Teaching and Curriculum with Emphasis in Art Education

### Degree Requirements

The master's degree in Art Education is designed to allow elementary teachers or secondary teachers to pursue a program of study to increase competence in curriculum planning, techniques of teaching art, and the subject matter of studio art and art history.

The MEd degree in Art Education comprises 32 semester hours of graduate work that meets the professional needs of the students. The courses include 16 hours of classes at the 8000-9000 level and 16 hours of work in education at the 7000-9000 level or above, which includes a course that enables the student to read, interpret and evaluate research.

### Sample Plan of Study

#### Core Courses in Art Education (on-campus)

LTC 8730	Survey of Art Education	3
LTC 8740	Curriculum in Art Education	3
LTC 8750	Review of Research in Art Education	3

#### General College of Education Requirements

Take one of the following:

ESC_PS 7100	Theories and Applications of Educational Psychology	
ED_LPA 9460	Philosophic Theory in Education	
ESC_PS 7115	Human Learning	

#### Electives

FA Graduate Art Studie		
Graduate Art History		
Graduate Multi Media		
Art Education Certification (2-4 courses)		
LTC 8941	Internship in Curriculum and Instruction	1-3
LTC 8900	Seminar in Curriculum and Instruction	1-3
LTC 8900	Seminar in Curriculum and Instruction (Teaching for Studio Thinking)	1-3
LTC 8085	Problems in Curriculum and Instruction	1-3
LTC 7587	Seminar in Curriculum and Instruction (Art Education in the Multicultural Classroom)	1-3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum (Classroom Research in Art Education (fall))	1-3
LTC 8900	Seminar in Curriculum and Instruction (Visual Thinking Strategies I (fall))	1-3
LTC 8900	Seminar in Curriculum and Instruction (Visual Thinking Strategies II (spring))	1-3
LTC 8735	Visual Literacy and Visual Culture (spring)	3

LTC 8765	Artistic Thinking: Multimedia Applications for Teaching Art (fall)	3
LTC 8900	Seminar in Curriculum and Instruction (Illuminating Process and Product-Making Learning Visible (fall))	1-3
LTC 8900	Seminar in Curriculum and Instruction (The Art of the Reflective Teacher (spring))	1-3

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria.

Complete admission requirements (<http://online.missouri.edu/degreeprograms/education/art/masters>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MA in Learning, Teaching and Curriculum with Emphasis in General

Our department is no longer admitting students to the MA in Learning, Teaching and Curriculum. We invite you to explore the other graduate degree options in Learning, Teaching and Curriculum (p. 416) and the College of Education. (p. 364)

## MA in Learning, Teaching and Curriculum with Emphasis in Music Education

Our department is no longer admitting students to the MA in Learning, Teaching and Curriculum. We invite you to explore the other graduate degree options in Learning, Teaching and Curriculum (p. 416) and the College of Education. (p. 364)

## MEd in Learning, Teaching and Curriculum

### Admission Contact Information

Caitlin Rosbach  
rosbachc@missouri.edu  
303 Townsend Hall  
Columbia, MO 65211  
573-882-3742

### About the M.Ed.

The M.Ed. program requires a minimum of 30 hours in Learning, Teaching, & Curriculum coursework. The following emphasis areas are currently offered: Art Education; Early Childhood Education; English Education; Literacy Education, Mathematics Education; Music Education; Science Education; Social Studies Education; and Teaching English to Speakers of Other Languages (TESOL).

### Admissions Deadlines

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

### Admission Requirements

- Completion of an appropriate baccalaureate degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field
- Minimum TOEFL scores for most areas:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE score\* required for following emphasis areas only: Early Childhood Education, English Education, Mathematics Education, Science Education, and TESOL.

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291= (V150,Q141)

\*Clarification: Not all LTC programs require the GRE exam - only those listed above.

### Required Application Materials to the Office of Graduate Studies

- All required documents
- Official transcripts
- GRE scores required for Early Childhood Education, English Education, Mathematics Education, Science Education, and TESOL.

- TOEFL scores (international applicants)

### Required Application Materials to the Learning, Teaching, & Curriculum Program

- Personal data sheet form (complete through the online application system)
- Statement of purpose
- GRE scores (a copy may be sent to the department too; minimum, an official result needs to be sent to Office of Graduate Studies)
- Letters of recommendation; check with department to see if they are required for your emphasis. Most programs now require a minimum of 2 letters of recommendation. ALL LETTERS MUST BE CONFIDENTIAL AND SUBMITTED ACCORDINGLY THROUGH THE OFFICE OF GRADUATE STUDIES APPLICATION SYSTEM.

## MEd in Learning, Teaching and Curriculum with Emphasis in Art Education, Certification

### Degree Requirements

The master's degree in Art Education with certification is designed to allow non-certified students to pursue a program of study to increase competence in curriculum planning, techniques of teaching art, and the subject matter of studio art and art history and lead to certification to teach art.

The MEd degree in Art Education comprises 32 semester hours of graduate work that meets the professional needs of the students. The courses include 16 hours of classes at the 8000-9000 level and 16 hours of work in education at the 7000-9000 level or above, which includes a course that enables the student to read, interpret and evaluate research.

### Sample Plan of Study

#### Core Courses in Art Education (on-campus)

LTC 8730	Survey of Art Education	3
LTC 8740	Curriculum in Art Education	3
LTC 8750	Review of Research in Art Education	3

#### General College of Education Requirements

Take one of the following:

ESC_PS 7100	Theories and Applications of Educational Psychology
ED_LPA 9460	Philosophic Theory in Education
ESC_PS 7115	Human Learning

#### Electives

FA Graduate Art Studies		
Graduate Art History		
Graduate Multi Media		
Art Education Certification (2-4 courses)		
LTC 8941	Internship in Curriculum and Instruction	1-3
LTC 8900	Seminar in Curriculum and Instruction	1-3
LTC 8900	Seminar in Curriculum and Instruction (Teaching for Studio Thinking)	1-3
LTC 8085	Problems in Curriculum and Instruction	1-3
LTC 7587	Seminar in Curriculum and Instruction (Art Education in the Multicultural Classroom)	1-3



LTC 8915	Classroom Research-Learning, Teaching and Curriculum (Classroom Research in Art Education (fall))	1-3
LTC 8900	Seminar in Curriculum and Instruction (Visual Thinking Strategies I (fall))	1-3
LTC 8900	Seminar in Curriculum and Instruction (Visual Thinking Strategies II (spring))	1-3
LTC 8735	Visual Literacy and Visual Culture (spring)	3
LTC 8765	Artistic Thinking: Multimedia Applications for Teaching Art (fall)	3
LTC 8900	Seminar in Curriculum and Instruction (Illuminating Process and Product-Making Learning Visible (fall))	1-3
LTC 8900	Seminar in Curriculum and Instruction (The Art of the Reflective Teacher (spring))	1-3

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

# MEd in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education

## Overview

In the early childhood education emphasis, students will gain increased knowledge and skills in the design, delivery and evaluation of educational services to children from birth through age 8. The program addresses the essential problems of practice with special emphasis given to effective teaching approaches for children who are at risk for school failure: children with special needs, children who are English-language learners and children who have challenging behaviors.

The program is designed for early childhood practitioners, Head Start teachers, early childhood special education teachers, child-care center staff and others who work with children from birth through age 8.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

More information about the Early Childhood Education M.Ed. program can be found at the Mizzou Online website. <http://online.missouri.edu/degreeprograms/ed-early/index.aspx>

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

# MEd in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education, Certification

## Overview

In the early childhood education emphasis, students will gain increased knowledge and skills in the design, delivery and evaluation of educational services to children from birth through age 8. The program addresses the essential problems of practice with special emphasis given to effective teaching approaches for children who are at risk for school failure: children with special needs, children who are English-language learners and children who have challenging behaviors. Students may pursue initial certification with this degree.

Those students seeking certification have to meet all Early Childhood Education requirements (at least two years of coursework in Phase II) and then take additional courses for an M.Ed.

The program is designed for early childhood practitioners, Head Start teachers, early childhood special education teachers, child-care center staff and others who work with children from birth through age 8.

## Sample Plan of Study

### Core Courses (25 credits)

ESC_PS 7000	Foundation of Teacher Prep I	3
LTC 7040		2-3
SPC_ED 7020	Teaching the Exceptional Learner	3
ED_LPA 7060		3
LTC 7120		3
LTC 7130		9

### Field and Clinical Experience Courses (15 credits)

ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2044	Inquiry into Schools, Community and Society: Field	1
LTC 4124		3
LTC 4134		3
LTC 4971	Internship and Capstone Seminar	1-16

### Specialization Area (9 credits)

LTC 7091		3
LTC 7110		3
LTC 7200		2
LTC 7210		3
H_D_FS 7720		2-3
LTC 7140		3
LTC 7160		2
LTC 7240		2
LTC 8612		2-3
LTC 8900	Seminar in Curriculum and Instruction (or SPC_ED 8490)	1-3

SPC_ED 8440		3
SPC_ED 8485		3
SPC_ED 8495		2-3
SPC_ED 8605		3

### Research Course (3 credits)

LTC 8900

Seminar in Curriculum and Instruction

1-3

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

More information about the Early Childhood Education M.Ed. program can be found at the Mizzou Online website. <http://online.missouri.edu/degreeprograms/ed-early/index.aspx>

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150,Q141,A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

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## MEd in Learning, Teaching and Curriculum with Emphasis in Elementary Education

This emphasis is **currently suspended** within the Learning, Teaching, and Curriculum program due to budget constraints and limited resources. We are not taking applicants at this time.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate

Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Learning, Teaching and Curriculum with Emphasis in Elementary Education, Teaching Fellow

### Sample Plan of Study

General Core (10 credits)		
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues: Wellness & Stress)	1
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues)	3
IS_LT 7368		3
Pedagogical Core (11 credits)		
SPC_ED 8520		3
LTC 8780		1
LTC 8780		3
LTC 8900	Seminar in Curriculum and Instruction (Classroom Context)	1
LTC 8900	Seminar in Curriculum and Instruction (Authentic Assessment)	3
Specialization Area (7 credits)		
LTC 8900	Seminar in Curriculum and Instruction (Adv. Curr. & Ped. in Literacy I)	2
LTC 8900	Seminar in Curriculum and Instruction (Adv. Curr. & Ped. in Literacy II)	2
LTC 8900	Seminar in Curriculum and Instruction (Advanced Mathematics I)	2
LTC 8900	Seminar in Curriculum and Instruction (Advanced Mathematics II)	1
Research Courses (5 credits)		
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8910		2
Total Credits		33

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application

process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Learning, Teaching and Curriculum with Emphasis in English Education

### Overview

The English area gives students a strong background in reading and writing pedagogy, adolescent literature, and media literacy. We also emphasize lesson planning, curriculum creation and teaching, classroom management, diversity and social equity.

We prepare candidates to be English teachers and follow the guidelines of National Council of Teachers of English (NCTE), as well as those of the National Middle School Association (NMSA).

This degree program is a completely online masters of education degree in English Education. More information specific to this program can be found here: <http://online.missouri.edu/degreeprograms/education/english/masters>

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150,Q141,A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related

to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in English Education, Teaching Fellow

### Sample Plan of Study

General Core (10 credits)		
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues: Wellness & Stress)	1
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues)	3
IS_LT 7368		3
Pedagogical Core (11 credits)		
SPC_ED 8520		3
LTC 8780		1
LTC 8780		3
LTC 8900	Seminar in Curriculum and Instruction (Classroom Context)	1
LTC 8900	Seminar in Curriculum and Instruction (Authentic Assessment)	3
Specialization Area (6 credits)		
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
Research Courses (5 credits)		
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8910		2
Total Credits		32

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Learning, Teaching and Curriculum with Emphasis in Literacy Education

### Overview

Do you want to improve your literacy instruction (K-12)? Do you want to be certified as a Special Reading teacher (K-12) in the state of Missouri? Do you want to become a literacy education researcher?

The nationally-recognized Literacy Faculty at the University of Missouri-Columbia are prepared to help you accomplish your professional goals.

This degree program is a completely online masters of education degree in Literacy Education. More information specific to this program can be found here: <http://online.missouri.edu/degreeprograms/education/literacy/masters/>

Teachers with this certification are qualified for such positions as: Remedial Reading, Title I Reading, Reading Development, Special Education, and Language Arts. Depending on your initial certification experience (BA/BS), this certification may require as few as 6 courses.

### Degree Requirements

The MEd degree in Literacy Education comprises a minimum of 32 semester hours of graduate work that meets the professional needs of the students. The courses include 16 hours of classes at the 8000-9000 level and 16 hours of work in education at the 7000-9000 level or above, which includes a course that enables the student to read, interpret and evaluate research.

### Sample Plan of Study

- **Prerequisites** (0-9 semester hours)
- **Psychological or Philosophical Foundations of Education** (3 semester hours)
- **Educational Research** (3 semester hours)
- **Foundations of Literacy Education** (12-15 hours)
- **Area of Specialization** (0-9 semester hours)
  - Children's Literature
  - Media and Technology
  - Special Reading Certification (K-12)
  - Teaching Literacy to Diverse Learners
  - Writing Instruction
- **Electives** (0-9 semester hours)

### Thesis/Non-Thesis Requirements

To complete the masters programs, students are required to pass "comprehensive exams" or equivalent. Please speak with your advisor what this exam/project may entail.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/>)

minimum-requirements.php). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education

The Master of Education degree in Mathematics Education is intended for those who wish to improve their mathematics teaching practice and to gain a broader understanding of issues related to teaching and learning mathematics, K-12.

This degree program is a completely online masters of education degree in Mathematics Education for certified teachers. More information specific to this program can be found here: <http://online.missouri.edu/degreeprograms/education/mathematics/masters/>.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150,Q141,A3.5 or higher)
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education, Certification

### Overview

**Program currently suspended due to limited budget and departmental resources.**

This degree combines both the masters degree and initial certification in K-12 mathematics education into a 36+ hour program.

### Sample Plan of Study

#### Core Courses (12 credits)

LTC 7040		2-3
SPC_ED 7020	Teaching the Exceptional Learner	3
ED_LPA 7060		3

#### Field and Clinical Experience Courses (11 credits)

LTC 8942	Advanced Internship in Curriculum and Instruction	1-10
LTC 8942	Advanced Internship in Curriculum and Instruction	1-10

#### Specialization Area (9 credits)

LTC 8717	Teaching, Learning, & Research in Middle & Secondary School Sci.I	3
LTC 8718	Teaching, Learning & Research Middle & Secondary School Sci.: II	3
LTC 8719	Teaching, Learning, & Research Middle & Secondary	3
LTC 7410	Teaching, Engaging and Assessing Middle-Level Students	3

**Research Course (3 credits)**

LTC 8900	Seminar in Curriculum and Instruction	1-3
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## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150,Q141,A3.5 or higher)
- For students whose native language is not English, a score of 550 or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education, Teaching Fellow

### Sample Plan of Study

**General Core (10 credits)**

ESC_PS 8320	Advanced Human Learning	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues: Wellness & Stress)	1
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues)	3
IS_LT 7368		3

**Pedagogical Core (11 credits)**

SPC_ED 8520		3
LTC 8780		1
LTC 8780		3
LTC 8900	Seminar in Curriculum and Instruction (Classroom Context)	1
LTC 8900	Seminar in Curriculum and Instruction (Authentic Assessment)	3
<b>Specialization (6 credits)</b>		
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
<b>Research Courses (5 credits)</b>		
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8910		2
Total Credits		32

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Learning, Teaching and Curriculum with Emphasis in Music Education

Master's degrees in music education, offered through the College of Education's Department of Learning, Teaching, and Curriculum (<https://education.missouri.edu/degree/music-education-med>), are fully accredited by the National Association of Schools of Music. The MEd with a major in Music Education is a practice-oriented degree, designed to meet the needs of professionals interested in advancing their careers, knowledge, and skills in music education, regardless of level or specialization. This may be completed either by full-time teachers attending classes part time during evenings and full time during summers, or by traditional, full-time graduate students. Students who hold a BA or BM in music may pursue teacher certification simultaneously while working on the MEd.

This degree requires 32 credit hours. At least 16 hours must be taken in education/music education, and 16 must be numbered 8000 or above (one course may be counted in both categories: i.e., LTC 8900 can be used in both).

### Sample Program of Study

**Music Education Coursework (13-18 credit hours)**

Required:

- LTC 8900 Seminar in Curriculum and Instruction: Research and Measurement in Music Education (3 credits)
- MUS\_EDUC 8150 Foundations of Music Education
- LTC 8900 Seminar in Curriculum and Instruction: Psychology of Music Performance

Additional music education courses as determined by student and advisor, from among the courses listed below, and depending on course availability (3 credits each, unless noted otherwise):

- MUS\_EDUC 8140 Advanced Techniques in Music Education-General
- MUS\_EDUC 8141 Advanced Techniques in Music Education-Early Childhood
- MUS\_EDUC 8163 Administration and Supervision of Music Programs
- LTC 8900 Seminar in Curriculum and Instruction: Seminars with varying topics, such as Current Issues in Music Education, Implementing National Standards K-12, Diversity Issues in Music Education
- LTC 8085 Problems in Curriculum and Instruction, LTC 8940 In-Service Course in Curriculum and Instruction, or LTC 8941 Internship in Curriculum and Instruction: (individual study courses) (1-3 credits)

Professional Education Coursework (3-6 credits)

- At least one course (3 credits) must be taken in Educational Psychology, Philosophy, or Sociology.
- One additional course (3 credits) may count toward the degree as an elective.

**Music Coursework (11-16 credit hours)**

Required:

- Music Theory and History: 8-9 credits, at least one course from each area
- Applied Music, Music Techniques, or Conducting: 2-3 credits from one of these areas

Electives in Music (0-5 credits)

**Examinations**

Written comprehensive examinations are administered by the music education faculty, comprising take-home projects and essays based on synthesis of aspects of the coursework completed in the Music Education area, and application of the coursework completed in the Studies in Music component of the degree program to their current or future classrooms.

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of

Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Music Education, Certification

### Degree Requirements

Master's degrees in music education, while offered through the College of Education's Department of Learning, Teaching, and Curriculum (<https://education.missouri.edu/learning-teaching-curriculum>), are fully accredited by the National Association of Schools of Music. The MEd with a major in Music Education is a practice-oriented degree, designed to meet the needs of professionals interested in advancing their careers, knowledge, and skills in music education, regardless of level or specialization. This may be completed either by full-time teachers attending classes part time during evenings and during summers, or by traditional, full-time graduate students. Students who hold a BA or BM in music may pursue teacher certification simultaneously while working on the MEd.

This degree requires 32 credit hours. At least 16 hours must be taken in education/music education, and 16 must be numbered 8000 or above (courses may be counted in both categories: i.e., LTC 8900 can be used in both).

### Sample Plan of Study

**Music Education Coursework (13-18 credit hours)**

Required:		
LTC 8900	Seminar in Curriculum and Instruction (Research and Measurement in Music Education)	3
MUS_EDUC 8150	Foundations of Music Education	3
LTC 8900	Seminar in Curriculum and Instruction (Psychology of Music Performance)	1-3

Additional music education courses as determined by student and advisor, from among the courses listed below, and depending on course availability (3 credits each, unless noted otherwise):

MUS_EDUC 8140	Advanced Techniques in Music Education-General	2-5
MUS_EDUC 8141	Advanced Techniques in Music Education-Early Childhood	2-5
MUS_EDUC 8163	Administration and Supervision of Music Programs	3
LTC 8900	Seminar in Curriculum and Instruction (Seminars with varying topics, such as Current Issues in Music Education, Implementing National Standards K-12, Diversity Issues in Music Education)	1-3
LTC 8085 or LTC 8940 or LTC 8941	Problems in Curriculum and Instruction In-Service Course in Curriculum and Instruction Internship in Curriculum and Instruction	1-3
Professional Education Coursework		3-6
At least one course must be taken in Educational Psychology, Philosophy, or Sociology		3
One additional course may count toward the degree as an elective		3
<b>Music Coursework (11-16 credit hours)</b>		
Required:		
Music Theory and History: at least one course from each area		8-9
Applied Music, Music Techniques, or Conducting: 2-3 credits from one of these areas		2-3
Elective in Music		0-5

## Examinations

Written comprehensive examinations are administered by the music education faculty, comprising take-home projects and essays based on synthesis of aspects of the coursework completed in the Music Education area, and application of the coursework completed in the Studies in Music component of the degree program to their current or future classrooms.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Music Education, Teaching Fellow

### Sample Plan of Study

#### General Core (10 credits)

ESC_PS 8320	Advanced Human Learning	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues: Wellness & Stress)	1
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues)	3
IS_LT 7368		3

#### Pedagogical Core (11 credits)

SPC_ED 8520		3
LTC 8780		1
LTC 8780		3
LTC 8900	Seminar in Curriculum and Instruction (Classroom Context)	1
LTC 8900	Seminar in Curriculum and Instruction (Authentic Assessment)	3

#### Specialization Area (6 credits)

LTC 8900	Seminar in Curriculum and Instruction (Adv. Pedagogy in Music Education)	3
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3

#### Research Courses (5 credits)

LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8910		2

Total Credits		32
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## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.



## MEd in Learning, Teaching and Curriculum with Emphasis in Science Education

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The MU Master's Program in Science Education is intended for classroom teachers who want to become reflective and inquiring professionals by:

- Enhancing their knowledge and skills about science teaching and learning,
- Inquiring into and improving their practice and
- Building leadership skills in science education.

### Degree Requirements

The M Ed program requires a minimum of 32 semester hours beyond the Bachelor's (16 hours at the 8000 or 9000 level, 16 hours of education courses), planned in agreement with the student's Advisory Committee.

Listed below are the requirements for a Master's degree in Science Education.

- **Science Education** (9 or more semester hours)
- **Science Content** (9 or more semester hours)
- **Educational Foundations** (1 course in sociology, philosophy, or history of education--e.g., ED\_LPA 9460, ED\_LPA 9462, ED\_LPA 9464; or educational psychology--e.g., ESC\_PS 7100, ESC\_PS 8320 or ED\_LPA 9441)
- **Research Methods** (1 course in research methods: LTC 8714 or Action Research)
- **Comprehensive Exam** (Written comps, either in exam or project format, are individually designed for each student by committee members.)

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)

- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Science Education, Certification

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### Overview

**This degree program is currently suspended due to limited budget and departmental resources. (This program was known as the SMAR2T program.)** We are not taking applications for this program at this time.

The MU Master's Program in Science Education is intended for students who have a BA or BS in a science field and want to become classroom teachers by:

- Enhancing their knowledge and skills about science teaching and learning,
- Inquiring into and improving their practice and
- Building leadership skills in science education.

### Sample Plan of Study

The M Ed program requires a minimum of 32 semester hours beyond the Bachelor's (16 hours at the 8000 or 9000 level), planned in agreement with the student's Advisory Committee. Listed below are the requirements for a Master's degree in Science Education.

- **Science Education** (9 or more semester hours)
- **Science Content** (9 or more semester hours)
- **Educational Foundations** (1 course in sociology, philosophy, or history of education--e.g., ED\_LPA 9460, ED\_LPA 9462, ED\_LPA 9464; or educational psychology--e.g., ESC\_PS 7100, ESC\_PS 8320 or ED\_LPA 9441)
- **Research Methods** (1 course in research methods: LTC 8714 or Action Research)

### Thesis/Non-Thesis Requirements

- **Comprehensive Exam** (Written comps, either in exam or project format, are individually designed for each student by committee members.)

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational>

specialist.php) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q141, A3.5 or higher)
- For students whose native language is not English, a score of 550 or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Science Education, Teaching Fellow

### Sample Plan of Study

#### General Core (10 credits)

ESC_PS 8320	Advanced Human Learning	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues: Wellness & Stress)	1
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues)	3
IS_LT 7368		3

#### Pedagogical Core (11 credits)

SPC_ED 8520		3
LTC 8780		1
LTC 8780		3
LTC 8900	Seminar in Curriculum and Instruction (Classroom Context)	1
LTC 8900	Seminar in Curriculum and Instruction (Authentic Assessment)	3

#### Specialization Area (6 credits)

LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
<b>Research Courses (5 credits)</b>		
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8910		2
Total Credits		32

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Learning, Teaching and Curriculum with Emphasis in Social Studies Education

The masters degree program in Social Studies Education is primarily for classroom teachers, grades 1-12, who wish to advance their knowledge and practice of social studies while obtaining an advanced degree. This plan of study will provide you with skills and knowledge applicable to the social studies classroom.

<http://online.missouri.edu/degreeprograms/ed-socialstudies/details.aspx>

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.

- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Social Studies Education, Teaching Fellow

### Sample Plan of Study

General Core (10 credits)		
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues: Wellness & Stress)	1
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Mental Health Issues)	3
IS_LT 7368		3
Pedagogical Core (11 credits)		
SPC_ED 8520		3
LTC 8780		1
LTC 8780		3
LTC 8900	Seminar in Curriculum and Instruction (Classroom Context)	1
LTC 8900	Seminar in Curriculum and Instruction (Authentic Assessment)	3
Specialization Area (6 credits)		
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
LTC 8900	Seminar in Curriculum and Instruction (Content Area Elective)	3
Research Courses (5 credits)		
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8910		2
Total Credits		32

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Graduate School

(<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Learning, Teaching and Curriculum with Emphasis in Teaching English to Speakers of Other Languages

The University of Missouri's Teaching English to Speakers of Other Languages (TESOL) program is designed to meet the challenges of a diverse student body in a variety of education settings. Given the use of English as a global lingua franca, learning the unique methodology and theories associated with second language teaching is crucial to effectively meeting the challenges of a multilingual global society.

The TESOL program at MU can meet the needs of teachers seeking ESOL certification in the state of Missouri, those seeking advanced education in ESL/EFL teaching and learning, as well as those who seek further education in TESOL. Currently, many of our students begin the ESOL certification courses but find the topic so intriguing that they go on to pursue advanced education in the field (all TESOL courses taken at the graduate level are fully transferable to the M.Ed. degree).

The student body in the TESOL program at MU is incredibly diverse with students from a variety of ethnicities, cultures, and linguistic and educational backgrounds. We welcome traditional and nontraditional students as the program is designed to meet the needs of a variety of learners in a variety of academic settings.

The TESOL program at MU is informed by the second language acquisition theories and pedagogy unique to students who speak English in addition to their native language(s). The courses in the TESOL program are taught by faculty with expertise and knowledge in the field of English language learning including applied linguistics, sociolinguistics, intercultural communication, and English language education. By focusing on the interplay of theory and methods, as well as the cultural and linguistic diversity of English Language Learners, this program focuses on developing effective, responsive scholars and practitioners who use theory and research to enhance their work in a global, diverse, and technological society.

### Degree Requirements

The M Ed program in TESOL requires 33 semester hours beyond the Bachelor's (16 hours at the 8000 or 9000 level), planned in agreement with the student's Advisory Committee.

### Sample Plan of Study

TESOL Focus Courses (18 semester hours)		
LTC 8645	Second Language Acquisition	3
LTC 8648	Linguistics for Educators	3
LTC 8647	Language and Culture for Educators	3
LTC 8646	Materials for and Assessment of English Language Learners	3

LTC 8649	Methods of Teaching English Language Learners	3
LTC 8650	English to Speakers of Other Languages Practicum	3

Practicum: All master's students will be required to complete a practicum upon completion of the TESOL focus courses. LTC 8649 Methods of Teaching English Language Learners is a prerequisite and cannot be taken during the same semester as the practicum. If you are currently teaching English language learners, the 16-week practicum can be conducted in your own classroom and will be supervised online by a TESOL instructor. The Practicum may be waived for two years of full-time teaching experience in an ELL program

#### Core Master's Courses (6 semester hours)

ESC_PS 7115	Human Learning	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	1-3

#### Electives (9 semester hours)

LTC 8900	Seminar in Curriculum and Instruction (Teaching ESL/EFL to Adult Learners)	1-3
LTC 8683	Celebrating Reading Through Good Books	3
LTC 8642	Teaching Writing and Reading in Content Areas	3
LTC 8644	Teaching English Grammar and Pronunciation	3
LTC 8651	Working with English Language Learners with Special Needs	3
LTC 8900	Seminar in Curriculum and Instruction (Seminar in Bilingual Education)	1-3
ED_LPA 8428	Curriculum Leadership	3
IS_LT 9467	Technology to Enhance Learning	3

Other electives may be chosen in consultation with your advisor

## Thesis/Non-Thesis Requirements

To complete the masters programs, students are required to pass "comprehensive exams" or equivalent. Please speak with your advisor what this exam/project may entail.

## Admission

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/master-of-education--educational-specialist.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.

- GRE scores taken within the last 5 years (preferred minimum scores should be V150,Q145,A3.5 or higher). The verbal must meet the 150 minimum in order to be considered for the program.
- For students whose native language is not English, a score of 550 or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## PhD in Learning, Teaching and Curriculum

### Admission Contact Information

Caitlin Rosbach, [rosbachc@missouri.edu](mailto:rosbachc@missouri.edu)  
303 Townsend Hall  
Columbia, MO 65211  
573-882-3742

### About the Ph.D.

The LTC Department offers the Doctorate of Philosophy (Ph.D.) with emphasis options in General LTC; Art Education; Early Childhood Education; Elementary Education; English Education; Mathematics Education; Music Education; Reading Education; Science Education; or Social Studies Education.

### Application Deadlines

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

### Admission Requirements

- Completion of an appropriate preliminary degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field
- Minimum TOEFL scores for most areas:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE score\* (varies by program area). Generally:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	V153,Q144=297+

**Note:** Minimum GRE score varies by program area. All LTC doctoral programs require the GRE exam in order to be considered for the program.

### Required Application Materials to the Office of Graduate Studies:

- All required Graduate Studies documents

- Official transcripts
- Official GRE scores
- Official TOEFL scores

#### **Required Application Materials to the Learning, Teaching, & Curriculum Program**

- Personal data sheet form (select appropriate form from the department website)
- Statement of purpose
- GRE scores (a copy may be sent to the department too; minimum, an official result needs to be sent to Office of Graduate Studies)
  - 3 letters of recommendation are required for all doctoral applicants. ALL LETTERS MUST BE CONFIDENTIAL AND SUBMITTED ACCORDINGLY THROUGH THE OFFICE OF GRADUATE STUDIES APPLICATION SYSTEM.

#### **Financial Aid from the Program**

Internal assistantships, fellowships or other funding packages require a departmental application and must be completed every semester in order to have funding renewed. Completion of the application does not guarantee renewal. Check the program website or ask the program contact for details.

## **PhD in Learning, Teaching and Curriculum with Emphasis in Art Education**

The MU Art Education PhD program prepares individuals for research and teacher education careers in higher education and for leadership positions in various educational settings. The program offers opportunities to expand a teaching repertoire and research current topics in art education as well as to develop expertise in conceptualizing, conducting and reporting research in the arts arena.

The individual and a faculty committee develop an individualized program of study based upon a candidate's background, experiences, and professional goals. The majority of MU PhD graduates take positions in Colleges of Education or Fine Arts in Art and Art Education at universities or colleges. However, some graduates move into administrative and supervisory positions at art museums, and arts agencies.

#### **Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/art-education-phd>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## **PhD in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education**

The faculty and students in early childhood education work closely together. The newly renovated Townsend Hall makes dialogue and consultation easy. Each doctoral student who is a GTA/GRA has office space, a computer, and access to state-of-the-art technology in the Reflector. Faculty and students share ideas and learn from one another.

Your faculty advisor has the strongest interest in your professional/personal growth, but each early childhood faculty member will be a valued part of your community.

#### **Goals of the PhD Program**

These goals are achieved through a combination of course-work, internships and authentic experiences with research, development, and teacher education.

- Understand the depth and breadth of the field of early childhood education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in some area of early childhood education;
- Become outstanding teachers/advisors of college students;
- Understand the role of service in the university setting and learn how memberships in organizations can lead to a service agenda.

#### **Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a

degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

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## PhD in Learning, Teaching and Curriculum with Emphasis in Elementary Education

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This emphasis is **currently suspended** within the Learning, Teaching, and Curriculum program due to budget constraints and limited resources. We are not taking applicants at this time.

Would you like to become a district coordinator for Elementary Education or a professor of Elementary Education? You can participate in advanced research-based courses in literacy/reading, mathematics education, science education, and social studies education. In addition, you will be mentored to teach at the university level and to conduct publishable research. The majority of Ed.D. students in elementary education move into administrative roles at the district or state level. The majority of Ph.D. students in elementary education move on to take positions at universities or colleges. This program offers 72-hours beyond the bachelor's degree.

### Goals of the Doctoral Programs

Prepares students to:

- Understand the depth and breath of the fields of literacy, mathematics education, social studies education, and science education in terms of research, curriculum, policy, teacher development and student learning;

- Develop, carry out, and report independent research in some area of elementary education;
- Become outstanding teachers/advisors of college students;
- Understand the role of service in the university setting and begin those memberships in organizations that can lead to a service agenda.

These goals are achieved through a combination of course-work, internships, and authentic experiences with research, development, and teacher education.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
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## PhD in Learning, Teaching and Curriculum with Emphasis in English Education

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The English Education area gives students a strong background in reading and writing pedagogy, adolescent literature, and media literacy.

We also emphasize lesson planning, curriculum creation and teaching, classroom management, diversity and social equity.

We prepare candidates to be English teachers and follow the guidelines of National Council of Teachers of English (NCTE), as well as those of the National Middle School Association (NMSA).

In order to earn a PhD in English Education, a minimum of 72 semester hours beyond the bachelor's degree is required.

**Study Plan:**

English Education	33-36 semester hours
Support Area I	12-15 semester hours
Support Area II	12-15 semester hours
Research Methodology	12-15 semester hours
Dissertation	9 semester hours

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

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**PhD in Learning, Teaching and Curriculum with Emphasis in Foreign Language Education**

The Learning, Teaching, & Curriculum Graduate Program is no longer accepting students into the Foreign Language Education program.

**PhD in Learning, Teaching and Curriculum with Emphasis in General**

This emphasis is **currently suspended** within the Learning, Teaching, and Curriculum program due to budget constraints and limited resources. We are not taking applicants at this time.

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

**PhD in Learning, Teaching and Curriculum with Emphasis in Mathematics Education**

The MU Ph.D. program in Mathematics Education is designed to prepare individuals for careers in higher education and leadership positions in a variety of educational settings. The program aims to enhance student knowledge about the field of mathematics education and develop expertise in conceptualizing, conducting and reporting research studies. Programs of study are individually planned with a faculty committee, and are based upon candidate's background, experiences, and professional goals. The majority of our graduates take positions in Colleges of Education or Departments of Mathematics at universities or colleges. However, some graduates move into administrative and supervisory roles at district or state levels.

Detailed information about all of the elements of the program can be found in the MU Mathematics Education Ph.D. Program: Faculty and Student Handbook ([http://education.missouri.edu/LTC/mathematics/files/math\\_ed\\_handbook.pdf](http://education.missouri.edu/LTC/mathematics/files/math_ed_handbook.pdf)).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions>) for the PhD program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation; three letters.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## PhD in Learning, Teaching and Curriculum with Emphasis in Music Education

The doctorate in music education, offered through the College of Education's Department of Learning, Teaching and Curriculum (<https://education.missouri.edu/degree/music-education-phd>) (LTC), is fully accredited by the National Association of Schools of Music. This degree is designed to prepare students for careers in higher education as music education teacher/researchers, as ensemble conductors with a strong commitment to music education teaching and research, or as master teachers or music supervisors in the K-12 system. Applicants must be certified music teachers, with a bachelor's or master's degree in music education, or present evidence of equivalent experience. Individuals with music teaching experience in higher education but without music teaching experience in elementary or secondary schools are eligible for

admission, but are required to complete field experiences in elementary and secondary schools prior to taking comprehensive examinations.

This program is "research-intensive," and students are expected to complete four to five research courses, read past and current research, assist and eventually collaborate with faculty and peers on research projects, develop the ability to translate research findings to classroom applications, and ultimately achieve independence as a researcher.

Within the general framework, the PhD program is relatively flexible and individualized for each student. The degree requires 72 hours beyond the bachelor's degree. Specific coursework is planned by the doctoral student and the four- to five-member doctoral committee to meet the student's individual needs and future goals. The committee must be chaired by a music education faculty member who is a member of the LTC Doctoral Faculty, and at least 2 members must be members of the LTC Doctoral Faculty and one must be from the School of Music. Students may choose two support areas, one comprising 12 hours and one comprising 9 (each may include 3 hours from the master's degree work), one of which is in music and the other in either a second area of music or a related field. The support-area courses are not prescribed, but are selected in consultation with a faculty member in that area, who often serves as a doctoral committee member. In addition to the coursework requirements, students must complete one "research internship" and one "teaching internship," which may or may not be attached to credit hours. These are faculty-supervised experiences designed to help prepare the students with skills they will need to enter the professoriate.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/music-education-phd>) for the PhD program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation; three letters.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.



Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## PhD in Learning, Teaching and Curriculum with Emphasis in Reading Education

The Doctoral Program in Literacy Education is designed to prepare individuals for careers in higher education and leadership positions in a variety of educational settings. Besides enhancing students' knowledge of literacy education, students develop expertise in conceptualizing, conducting and reporting research studies.

**Programs of study** are individually planned with a faculty committee. Recommendations include the following:

### I. Literacy Education Core (18+ hours)

#### A. Foundations (9-12 hours)

- Theoretical Foundations of Literacy
- Whole Language Curriculum or Talk in the Curriculum
- History of Literacy or Issues and Trends of Literacy Education
- Linguistics, Sociolinguistics, Psycholinguistics

#### B. Concentration (9-12 hours)

Declared area of interest or specialization selected in consultation with advisor. Possible areas of specialization include:

- Early Literacy
- Children's Literature
- Linguistics and Literacy
- Literacy in a Digital World
- Literacy for Special Needs Children
- Other

### II. Professional Education Core

(12 hours, 3 hours from each category)

#### A. Humanistic Dimensions of Education

- Social and Philosophical Aspects of Teaching
- Sociology of the Classroom
- Issues in Education and Human Development: Historical and Philosophical
- Multicultural Dimensions of Education

#### B. Psychological Foundations of Education

- Psychological Foundations of Education
- Human Learning
- Human Cognition
- Applications of Computer Based Systems to Educational Settings
- Instructional Programs for Young Children
- Parents, the School, and the Community

### III. Research Core (12 hours of the following or equivalent courses)

- Quantitative Methods in Educational Research I
- Quantitative Methods in Educational Research II
- Qualitative Methods of Educational Research I
- Qualitative Methods of Educational Research II

### IV. Teaching and Research Internships (0-6 hours)

To be negotiated with advisor to meet your professional goals

### V. Electives (0-12+ hours)

Select courses within or outside the College of Education that will help focus and support your research interests (with committee approval). Or take a concentrated set of 9-12 hours as a minor

### VI. Dissertation (12 hours)

Includes proposal approval, Institutional Review Board Approval, approval from participants, write up, and oral defense

Doctoral Regulations:

Minimum total semester hours: 72 beyond the baccalaureate degree

Minimum semester hours 8000-level or above: 15 exclusive of research, problems, and independent study experiences

PREREQUISITES:

- Introduction to Statistics (or equivalent)
- Foundations of Educational Psychology (or equivalent)

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/reading-education-phd/#degree-requirements>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation; three letters.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

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## PhD in Learning, Teaching and Curriculum with Emphasis in Science Education

The doctoral program emphasizes science education research and culminates with a dissertation project completed under the supervision of a science education faculty member. The program requires coursework in science education, science content, educational foundations, and educational research.

The Science Education Ph.D. requires a minimum of 72 semester hours beyond the Bachelor's degree (the Master's degree can be counted toward this total). The Science Education Ph.D. program includes three emphasis areas:

1. Elementary Science Education
2. Middle/Secondary Science Education
3. College Science Teaching

Each emphasis area requires coursework in science education, science content, and educational research as well as teaching and research experiences.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/science-education-phd/#apply>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)

- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

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## PhD in Learning, Teaching and Curriculum with Emphasis in Social Studies Education

The Ph.D. in Social Studies Education at the University of Missouri provides increased opportunities for its graduates to assume leadership roles in a variety of academic, knowledge-driven, and/or governmental and politically-based institutions and organizations. The core of the Ph.D. experience lies in scholarship and in the process by which graduate students transition from being knowledge-consumers to knowledge-producers. Hence, the doctoral experience involves a journey of personal growth and development, which leads the graduate student towards a deeper sense of the self and towards crafting a personal agenda for scholarship in the social studies field.

### The Culture of the Social Studies Education Doctoral Program

Unique among graduate programs, the social studies doctoral students and faculty form a community of learners and employ democratic practices to shape the direction of the community, its scholarship, and future coursework. As a result, in dialogue with faculty members, doctoral students help co-direct the structure of their Ph.D. experience. This occurs in two ways. First, doctoral students have flexibility in much of the design of their own coursework, research endeavors, and scholarship. Second, in community with the other doctoral students and faculty members, doctoral students vote on coursework requirements, expectations for the program, and program goals.

An important aspect of forming this community of learners involves identifying and clarifying the academic and research interests of its members. As a result, the current doctoral students have established four **research clusters**, or areas that describe their often overlapping research interests in the social studies education field. At this time, these clusters include the following:

- **Social Studies Teacher Education for Social Justice:** addressing issues of citizenship, diversity, and social justice in teacher education.
- **Multicultural and Global Education:** Preparing teachers and students to address local, national, and global concerns of culture, environment, and the socio- and geopolitical landscape in education.
- **Social Studies Curriculum and Instruction:** Confronting persistent issues in social studies curriculum and teaching, including official and master narratives, teaching methodologies, assessment, technology, and student engagement in the classroom.
- **Educational Policy and Politics Affecting Social Studies Teaching:** Investigating the power structures, political dynamic,

curriculum control, and educational policy and system structure influence social studies education and teaching.

These research clusters not only clarify and support doctoral students in team-oriented scholarship, but also inform social studies faculty on which courses to offer and what kinds of research opportunities to promote. Research clusters are reviewed and revised on a yearly basis. Because admission into the doctoral program also includes membership into our community of learners, we recommend that individuals interested in applying for the Social Studies Education doctoral program at the University of Missouri demonstrate research interests that align with one or more of these research clusters.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<http://gradstudies.missouri.edu/academics/programs/learning-teaching-curriculum/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/degree/social-studies-education-phd/#apply>) for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation; three letters.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

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## Middle School Education

Dr. Laurie Kingsley, Director of Teacher Education  
Department of Learning, Teaching and Curriculum  
202 Townsend Hall  
573-882-0560  
[TeacherEducation@missouri.edu](mailto:TeacherEducation@missouri.edu)

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

## Faculty

**Professor** E. A. Baker\*\*, S. Empson\*\*, K. B. Chval\*\*, J. Lannin\*\*, T. Sadler\*\*, J. E. Tarr\*\*

**Emeritus Professor** L. H. Barrow\*, J. Baumann\*, R. F. Fox\*\*, N. Knipping\*, S. Palonsky\*, B. B. Reys\*, R. E. Reys\*, R. D. Robinson\*

**Associate Professor** L. Bennett\*\*, T. Castro\*\*, P. J. Friedrichsen\*\*, C. Gilles\*\*, D. L. Hanuscin\*\*, R. Pinnow\*\*, M. Siegel\*\*, K. Unrath\*\*

**Associate Professor Emeritus** M. Volkmann\*

**Assistant Professor** Z. de Araujo\*\*, B. Hermann\*\*, L. King\*\*, C. Kuby\*\*, A. Lannin\*\*, S. Otten, L. Sanchez\*\*, C. Webel\*, L. Zangori\*\*, A. Zapata\*\*

**Emeritus Research Professor** D. A. Grouws

**Associate Teaching Professor** A. Barbis\*, L. Kingsley\*, J. Ostrow\*

**Assistant Teaching Professor** A. Ashcraft\*, L. Neier\*, H. Sanders\*

**Assistant Clinical Professor** A. Waldron\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEd in Middle School Education (p. 443)
  - with emphasis in Language Arts (p. 443)
  - with emphasis in Mathematics (p. 443)
  - with emphasis in Science (p. 443)
  - with emphasis in Social Studies (p. 444)

The requirements for the Bachelor of Science in Education are specified in three areas: University general education, professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

## Graduate

The Middle School Education Program at the University of Missouri includes degree programs that focus on preparing graduates to teach in grades 5-9. The College of Education does not currently offer a graduate degree specifically in Middle School Education. However, we do offer Masters (M.Ed.) and doctorates (Ph.D) in the following areas.

- Math
- English/Language Arts
- Science
- Social Studies
- Art
- Music

We also offer a graduate degree in "Reading/Literacy Education" at the M.Ed., Ed.S., Ed.D, and Ph.D. levels.

You can find out more about the programs by going to [http://education.missouri.edu/academics/graduate\\_studies/index.php](http://education.missouri.edu/academics/graduate_studies/index.php).

## **BSEd in Middle School Education**

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### **Degree Program Description**

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework will help you learn about general teaching and learning strategies as well as those specific to your discipline.

### **Major Program Requirements**

The BSEd in Middle School Education is offered in four emphasis areas: Language Arts (p. 443), Math (p. 443), Science (p. 443), and Social Studies (p. 444). Students must choose one of the emphasis areas to earn the BSEd. Students must complete all university (p. 32), general education (p. 33), and content requirements in addition to the degree requirements. Please meet with a Mizzou Ed Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### **Semester Plan**

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **BSEd in Middle School Education with Emphasis in Language Arts**

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### **Degree Program Description**

### **Major Program Requirements**

Students must complete all university (p. 32), general education (p. 33), and content requirements in addition to the degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary

and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### **Semester Plan**

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **BSEd in Middle School Education with Emphasis in Mathematics**

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### **Degree Program Description**

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in middle school mathematics. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Middle School Mathematics will teach you ways to support the development and mathematical learning of middle school students by learning research-based instructional practices.

### **Major Program Requirements**

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### **Semester Plan**

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **BSEd in Middle School Education with Emphasis in Science**

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## Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in middle school science. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Middle School Science will teach you ways to support the development of science learning of middle school students. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional science educator.

## Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## BSEd in Middle School Education with Emphasis in Social Studies

### Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools.

Upon successfully completing the initial teacher certification process, the state grants you certification in middle school social studies. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Middle School Social Studies will teach you ways to support the social studies learning of middle school students.

## Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## Secondary Education

Dr. Laurie Kingsley, Director of Teacher Education  
Department of Learning, Teaching and Curriculum  
202 Townsend Hall  
573-882-0560  
TeacherEducation@missouri.edu

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

## Faculty

**Professor** E. A. Baker\*\*, S. Empson\*\*, K. B. Chval\*\*, J. Lannin\*\*, T. Sadler\*\*, J. E. Tarr\*\*

**Emeritus Professor** L. H. Barrow\*, J. Baumann\*, R. F. Fox\*\*, N. Knipping\*, S. Palonsky\*, B. B. Reys\*, R. E. Reys\*, R. D. Robinson\*

**Associate Professor** L. Bennett\*\*, T. Castro\*\*, P. J. Friedrichsen\*\*, C. Gilles\*\*, D. L. Hanuscin\*\*, R. Pinnow\*\*, M. Siegel\*\*, K. Unrath\*\*

**Associate Professor Emeritus** M. Volkmann\*

**Assistant Professor** Z. de Araujo \*\*, B. Hermann\*\*, L. King\*\*, C. Kuby\*\*, A. Lannin\*\*, S. Otten\*\*, L. Sanchez\*\*, C. Weibel\*, L. Zangori\*\*, A. Zapata\*\*

**Emeritus Research Professor** D. A. Grouws

**Associate Teaching Professor** A. Barbis\*, L. Kingsley\*, J. Ostrow\*

**Assistant Teaching Professor** A. Ashcraft\*, L. Neier\*, H. Sanders\*

**Assistant Clinical Professor** A. Waldron\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEd in Secondary Education (p. 445)
  - with emphasis in Art Education (p. 445)
  - with emphasis in Biology (p. 445)
  - with emphasis in Chemistry (p. 446)
  - with emphasis in Earth Science (p. 446)
  - with emphasis in General Science (p. 447)
  - with emphasis in Language Arts (p. 447)
  - with emphasis in Mathematics Education (p. 447)
  - with emphasis in Physics (p. 448)
  - with emphasis in Social Studies (p. 448)

The requirements for the Bachelor of Science in Education are specified in three areas: University general education (p. 33), professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education (p. 33) program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

## Graduate

The Secondary Education Program at the University of Missouri includes degree programs that focus on preparing graduates to teach in grades 9-12. The College of Education does not currently offer a graduate degree specifically to Secondary Education. However, we do offer Masters (M.Ed.) and doctorates (Ph.D) in the following areas.

- Math
- English/Language Arts
- Science
- Social Studies
- Art
- Music

We also offer a graduate degree in "Reading/Literacy Education" at the M.Ed., Ed.S., Ed.D, and Ph.D. levels.

You can find out more about the programs by going to [http://education.missouri.edu/academics/graduate\\_studies/index.php](http://education.missouri.edu/academics/graduate_studies/index.php).

## BSEd in Secondary Education

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on

students, teachers, and schools. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence.

## Major Program Requirements

The BSEd in Secondary Education is offered in nine emphasis areas:

Art Education, Biology, Chemistry, Earth Science, General Science, Language Arts, Mathematics Education, Physics, and Social Studies.

Students must choose one of the emphasis areas to earn the BSEd.

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to the degree requirements.

Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## BSEd in Secondary Education with Emphasis in Art Education

### Degree Program Description

The Undergraduate Art Education Program is currently suspended due to low enrollment. The University of Missouri and MU College of Education remain committed to art education and will continue to provide a post-baccalaureate certification program, master's degree and doctorate in art education. BA and BFA candidates may acquire art teaching certification by completing the art education requirements not already completed in the BA or BFA programs. In addition, students must complete all university (p. 32), general education (p. 33) and content requirements. In addition, the MU College of Arts and Science offers a bachelor's degree in art and a bachelor's degree in fine arts.

## Major Program Requirements

This degree program does not currently have any program requirements available.

## Semester Plan

This degree program does not currently have a semester plan available.

## BSEd in Secondary Education with Emphasis in Biology

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to

strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary biology. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Biology provides you with experience in the methods of teaching biology in supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional biology educator.

## Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## BSEd in Secondary Education with Emphasis in Chemistry

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### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary chemistry. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Chemistry provides you with experience in the methods of teaching chemistry and

supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional chemistry educator.

## Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## BSEd in Secondary Education with Emphasis in Earth Science

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### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary earth science. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Earth Science provides you with experience in the methods of teaching earth science and supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional earth science educator.

## Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required

that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **BSEd in Secondary Education with Emphasis in General Science**

### Degree Program Description

The College of Education is no longer accepting applications to the BSEd in Secondary Education with emphasis in General Science. Please see our science emphasis areas (Biology (p. 445), Chemistry (p. 446), Earth Science (p. 446), Physics (p. 448)).

### Major Program Requirements

There are currently not any major program requirements for this program.

### Semester Plan

There is currently not a semester plan available for this program.

## **BSEd in Secondary Education with Emphasis in Language Arts**

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary language arts. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary language arts provides you with experience in the methods of teaching language arts. Education courses include an introduction to language arts education, and three teaching language arts methods and assessment courses focused on literature, writing, and mass media.

### Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **BSEd in Secondary Education with Emphasis in Mathematics Education**

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary mathematics. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Mathematics provides you with research-based methods of teaching mathematics.

### Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.



## **BSEd in Secondary Education with Emphasis in Physics**

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### **Degree Program Description**

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary physics. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Physics provides you with experience in the methods of teaching earth science and supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, and strategies for assessing science learning.

### **Major Program Requirements**

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### **Semester Plan**

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **BSEd in Secondary Education with Emphasis in Social Studies**

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### **Degree Program Description**

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers'

roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary social studies. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary social studies provides you with experience in the methods of teaching social studies. Education courses include an introduction to social studies education, methodology for teaching science and assessment within the field. Inquiry courses focus on how issues related to schools, family, community and society affect educators, classroom management, and special needs learners.

### **Major Program Requirements**

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### **Semester Plan**

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## **Special Education**

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Our mission is to prepare educators to work with children, youth and adults with disabilities to be academically and socially successful life-long learners. The department offers comprehensive degree programs that blend pedagogy and practices across developmental, specific content, and exceptionality to prepare educators to work with individuals at-risk and those with disabilities. In addition, the department offers comprehensive programs within exceptionalities, curriculum development for learners with disabilities, policy, and research across the lifespan.

#### **Contact us:**

303 Townsend Hall  
Columbia, MO 65211  
phone: 573-882-3742  
fax: 573-884-2917  
email: [sped@missouri.edu](mailto:sped@missouri.edu)  
website: <http://education.missouri.edu/SPED/index.php>

Dr. Erica Lembke  
Associate Professor & Associate Division Director  
email: [LembkeE@missouri.edu](mailto:LembkeE@missouri.edu) ([lombkee@missouri.edu](mailto:lombkee@missouri.edu))

#### **For Graduate questions Contact:**

Dr. Delinda van Garderen  
Associate Professor and Director of Graduate Studies  
email: [vanguardere@missouri.edu](mailto:vanguardere@missouri.edu)

**For Undergraduate questions Contact:**

Dr. Cathy Thomas

Assistant Professor and Director of Undergraduate Studies

email: thomascat@missouri.edu

**Faculty****Professor** T. Lewis\*\*, J. Stichter\*\*, M. Stormont\*\***Associate Professor** E. Lembke\*\*, R. McCathren\*, D. van Garderen\*\***Assistant Professor** A. Barth\*, C. Rose\*, C. Thomas\*\***Assistant Research Professor** M. Herzog, K. O'Connor, J. Randolph**Professor Emeritus** J. E. Leigh**Associate Professor Emeritus** M. Pullis**Assistant Professor Emeritus** S. Huntze

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

**Undergraduate**

- BSEd in Special Education (p. 450)
  - with emphasis in Cross Categorical Special Education (p. 450)

The requirements for the Bachelor of Science in Education are specified in three areas: University general education (p. 33), professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

**Graduate**

- MA in Special Education (p. 451)
  - with emphasis in Behavior Disorders (p. 452)
  - with emphasis in Curriculum Development for Exceptional Students (p. 453) (not accepting applications)
  - with emphasis in Early Childhood Special Education (p. 453)
  - with emphasis in Special Education, General (p. 453) (not accepting applications)
  - with emphasis in Learning Disabilities (p. 453)
  - with emphasis in Mental Retardation (p. 454) (not accepting applications)
- MEd in Special Education (p. 454)
  - with emphasis in Autism (p. 455)
  - with emphasis in Behavior Disorders (p. 455)
  - with emphasis in Combined Early Childhood and Autism (p. 456)
  - with emphasis in Cross-Categorical, Certification (p. 456)
  - with emphasis in Curriculum Development for Exceptional Students (p. 457) (not accepting applications)
  - with emphasis in Early Childhood Special Education (p. 457)
  - with emphasis in Gifted Education (p. 457)
  - with emphasis in Learning Disabilities (p. 458)

- with emphasis in Mental Retardation (p. 458) (not accepting applications)
- EdSp in Special Education (p. 450) (not accepting applications)
  - with emphasis in General (p. 450)
- EdD in Special Education (p. 450)
  - with emphasis in Administration and Supervision of Special Education (p. 451) (not accepting applications)
  - with emphasis in General (p. 451) (not accepting applications)
- PhD in Special Education (p. 458)
  - with emphasis in Administration and Supervision of Special Education (p. 459) (not accepting applications)
  - with emphasis in Behavior Disorders (p. 459)
  - with emphasis in Curriculum Development for Exceptional Students (p. 460) (not accepting applications)
  - with emphasis in Early Childhood Special Education (p. 460)
  - with emphasis in General (p. 461) (not accepting applications)
  - with emphasis in Learning Disabilities (p. 461)
  - with emphasis in Mental Retardation (p. 462) (not accepting applications)

College of Education

303 Townsend Hall

573-882-3742

573-884-0520 (fax)

<http://education.missouri.edu/SPED/>**Director of Graduate Studies:**

Delinda Van Garderen, 311K Townsend Hall, 884-7075

**About Special Education Graduate Programs**

We strive to prepare educators to assist children, youth and adults with disabilities to be academically and socially successful life-long learners. Our faculty are consistently recognized — internationally and across the U.S. — for their individual and collaborative teaching and research excellence. The department's unique mix of faculty expertise areas creates a wide range of opportunities for students and researchers. Special Education hosts or co-hosts several state and federally supported training, demonstration and research projects, including the following three centers that focus on facilitating positive developmental outcomes for children and youth with disabilities:

- Center for School-Wide Positive Behavioral Supports
- Center for Adolescent Research in Schools
- Thompson Center for Autism and Neuro-developmental Disorders

**Areas of Study**

Students pursuing a master's degree may pursue course work in autism, behavior disorders, early-childhood special education, general special education (cross categorical), gifted education, learning disabilities or learning and instruction.

Doctoral student may study in areas such as administration and supervision of special education, behavior disorders, early-childhood special education, general special education (cross categorical), learning disabilities or developmental disabilities (cognitive impairments).

## Careers

Undergraduate and graduate programs prepare teachers and leadership personnel in the field of special education. Program graduates assume roles as teachers in a variety of educational settings, as consulting teachers, college professors, researchers, school administrators and leaders in state and federal governmental agencies. Programs meet students' needs and interests within the framework of the requirements of each specific degree and state certification guidelines.

## BSEd in Special Education

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### Degree Program Description

The Bachelor of Science in Education in Special Education prepares students to work with children from kindergarten through twelfth grade in public, private, and alternative school systems. Students should consider a degree in special education if they enjoy working with children and/or adolescents who are struggling or who have special needs, want to help these students develop into strong citizens, and are excellent collaborators. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth with and at risk for disabilities. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Students must choose the emphasis area.

### Major Program Requirements

Students are required to select the emphasis area in Cross Categorical Special Education (p. 450) for this degree. Refer to the emphasis area for degree requirements.

### Semester Plan

For a sample plan of study refer to the semester plan designed for the emphasis in Cross Categorical Special Education (p. 450).

## BSEd in Special Education with Emphasis in Cross Categorical Special Education

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### Degree Program Description

The Bachelor of Science in Education in Special Education prepares students to work with children from kindergarten through twelfth grade in public, private, and alternative school systems. Students should consider a degree in special education if they enjoy working with children and/or adolescents who are struggling or who have special needs, want to help these students develop into strong citizens, and are excellent collaborators. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth with and at risk for disabilities. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants certification in Special Education: Cross Categorical.

Practical and rewarding clinical training in schools begins sophomore year, and continues each semester culminating in a full year senior-level teaching internship, enhancing teaching skills and confidence. Students focus on understanding and teaching students with a range of mild and moderate disabilities. Courses within special education address foundational principles of how to teach students with special needs, including methods in mathematics and literacy, behavior management, language, and introduction and methods in cross categorical instruction, among others.

### Major Program Requirements

Students must complete all university (p. 32), general education (p. 33), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

As Mizzou Ed continues to implement the new Missouri Standards for the Preparation of Educators mandated by the Department of Elementary and Secondary Education (DESE), curriculum changes will be required that must be met in order to complete your degree and earn teacher certification. Those changes may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with an academic advisor to discuss courses.

## EdSp in Special Education

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Our department is no longer admitting students to the EdSp program. We invite you to explore the other graduate degree options within the College of Education.

## EdSp in Special Education with Emphasis in General

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Our department is no longer admitting students to the EdSp program. We invite you to explore the other graduate degree options within the College of Education.

## EdD in Special Education

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### Admission Contact Information

Caitlin Rosbach [sped@missouri.edu](mailto:sped@missouri.edu)  
 303 Townsend Hall; Columbia, MO 65211  
 573-882-3742

### Admission Criteria

Fall deadline: January 15  
 Spring deadline: August 15

- Minimum GPA: 3.5/4.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2011	297+ (V153 + Q144)	4.0

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents

To the Special Education Program:

- Departmental application
- Letter of intent and professional goals
- 3 letters of recommendation (submitted confidentially and electronically through the online application system)
- GRE score report

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Plan of Study

The EdD program requires 72 hours beyond the requirements of the bachelor's degree.

## Qualifying Exam

Doctoral students must successfully pass a qualifying exam. This is given to assess the student's current knowledge of the field, their ability to synthesize professional literature, engage in professional writing practices, and orally present/discuss key issues within the field. This process is conducted by three faculty members and may be used to help define the student's plan of study.

## Comprehensive Exam and Dissertation

Doctoral students must complete comprehensive exams, which have a written and oral component, which is constructed and evaluated by the student's doctoral committee in order to advance to "candidacy" status. A minimum of six hours of 9090 Research is required for the doctoral program in completion of the dissertation.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education site.

## EdD in Special Education with Emphasis in Administration and Supervision of Special Education

This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## EdD in Special Education with Emphasis in General

This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MA in Special Education

Caitlin Rosbach ([sped@missouri.edu](mailto:sped@missouri.edu))  
303 Townsend Hall, Columbia, MO 65211  
573-882-3742

### About Special Education's Master 's Degrees

The Master of Arts program emphasizes research and requires 33 hours. MA candidates must follow graduate school guidelines with respect to timeliness and committee formations and complete a thesis.

The Master of Education program requires 33 hours and a comprehensive examination or project.

## Admission Criteria

### Application Submission/Completion Deadline:

Fall deadline: May 1  
 Spring deadline: October 1  
 Summer deadline: March 1

Minimum GPA: 3.0/4.0  
 Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291+ (V 150 + Q 141) / Analytic Writing 3.5

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents

To the Special Education Program:

- Departmental application
- Letter of intent and professional goals
- 2 letters of recommendation (submitted electronically and confidentially through the online graduate application)
- GRE score report

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Degree Completion

The MA program emphasizes research and requires 33 hours. MA candidates must follow the guidelines of the Office of Graduate Studies with respect to timeliness and committee formations and complete a thesis.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must

also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education site.

## MA in Special Education with Emphasis in Behavior Disorders

### Degree Requirements

Coursework and practica in MU's Behavioral Disorders Program focus on the preparation of high quality teachers for students with behavioral disorders. MU prepares teachers for a variety of delivery settings, including general education classrooms as well as resource and self-contained classes from kindergarten through 12th grade.

The program is grounded in the MOSTEP Quality Indicators, the DESE Cross-Categorical Competencies, the standards of the Council for Exceptional Children, relevant research pertaining to best practice, significant field work and a problems-based approach to content.

The M.A. in Behavioral Disorders emphasizes applied knowledge to prepare special educators to work directly with children and youth across a variety of settings.

A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements.

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed (within the last two years) one year of college-level full-time study in a

country where English is the native language may waive the TOEFL requirement if they meet all the conditions.

7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## MA in Special Education with Emphasis in Curriculum Development for Exceptional Students

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This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Special Education with Emphasis in Early Childhood Special Education

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### Degree Requirements

The Early Childhood Special Education (ECSE) Program is a graduate program that provides students with the necessary experiences and information to work with young children, both typically developing and those with disabilities, and their families in a variety of settings, including both home and school. The program also focuses on working effectively with families and children from a variety of cultures and how to provide intervention in a culturally consistent manner.

The Masters program in ECSE is 30 credit hours. In the campus program there are six required courses. Additional coursework is negotiated with the advisor. The online program coursework is set and can be found at Mizzou Online (<http://online.missouri.edu/degreeprograms/ed-specialeducation>).

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must*

refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## MA in Special Education with Emphasis in Special Education, General

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This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

## MA in Special Education with Emphasis in Learning Disabilities

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### Degree Requirements

A Master's degree with an emphasis in Learning Disabilities may be earned in conjunction with certification to teach in the state of Missouri. Although the state no longer offers certification in the area of learning disabilities, certification in cross-categorical special education can be obtained, along with a Master's degree in Learning Disabilities, through supplemental coursework. Coursework and practica in the LD program focus on the preparation of high quality teachers for students with a range of learning and behavioral needs. Graduates may work in a variety of service delivery settings, including general education classes as well as resource and self-contained classes from kindergarten through 12th grade. A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## MA in Special Education with Emphasis in Mental Retardation

This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Special Education

Caitlin Rosbach ([sped@missouri.edu](mailto:sped@missouri.edu))  
 303 Townsend Hall; Columbia, MO 65211  
 573-882-3742

### About Special Education's Master 's Degrees

The Master of Education program requires 33 hours and a comprehensive examination or project.

The Master of Education program emphasizes practical applications and requires 33 hours. MEd candidates must follow graduate school guidelines with respect to timeliness of committee formation and paperwork completion.

### Admission Criteria

#### Application Submission/Completion Deadline:

Fall deadline: May 1  
 Spring deadline: October 1  
 Summer deadline: March 1

Minimum GPA: 3.0/4.0  
 Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291+ (V 150 + Q 141) / Analytic Writing 3.5

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

### Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents

To the Special Education Program:

- Departmental application
- Letter of intent and professional goals
- 2 letters of recommendation (submitted electronically and confidentially through the online application system)
- GRE score report

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding

packages. Check the program Website or ask the program contact for details.

## Degree Completion

Master's candidates must follow the guidelines of the Office of Graduate Studies with respect to timeliness and committee formations and complete paperwork.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education site.

## MEd in Special Education with Emphasis in Autism

### Degree Requirements

This program prepares personnel to effectively implement evidenced based practices for students along the full continuum of autism spectrum disorders (ASD). The MU Autism Master's program prepares personnel to effectively implement evidenced based practices for students along the full continuum of autism spectrum disorders (ASD). The program enables special educators to integrate all areas of curriculum to effectively assess and develop social competence benchmarks for students with ASD. The College of Education's Special Education program delivers curriculum and practica in collaboration with the Thompson Center for Autism and Neurodevelopmental Disorders (<https://mizzougivedirect.missouri.edu/Division.aspx?division=C905>). A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements.

The MEd in Autism is also available online through Mizzou Online.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.

3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## MEd in Special Education with Emphasis in Behavior Disorders

### Degree Requirements

Coursework and practica in MU's Behavioral Disorders Program focus on the preparation of high quality teachers for students with behavioral disorders. MU prepares teachers for a variety of delivery settings, including general education classrooms as well as resource and self-contained classes from kindergarten through 12th grade.

The program is grounded in the MOSTEP Quality Indicators, the DESE Cross-Categorical Competencies, the standards of the Council for Exceptional Children, relevant research pertaining to best practice, significant field work and a problems-based approach to content.

The MEd in Behavior Disorders emphasizes applied knowledge to prepare special educators to work directly with children and youth across a variety of settings.

A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.



2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

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## MEd in Special Education with Emphasis in Combined Early Childhood and Autism

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### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

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## MEd in Special Education with Emphasis in Cross Categorical, Certification

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### Degree Requirements

MU's cross-categorical disabilities program is tailored to graduate students who are receiving initial and secondary certification in cross-categorical special education. Upon completion of the degree, graduates are certified to teach students with mild disabilities (i.e., learning disabilities, emotional/behavior disorders, mental retardation) and are certified to teach all grades K-12.

In addition to enrolling in courses to fulfill general certification requirements, students are required to take graduate coursework (30 hours) in the area of cross-categorical disabilities.

The coursework represents a broad scope of content including language development, assessment, advanced behavior management, vocational education, collaboration and consultation, literacy instruction, mathematics instruction, research, and trends and issues in special education. In addition to the above requirements, students in the cross-categorical program also need to take a 3-hour characteristics of students with cross-categorical disabilities course and a 4-hour strategies for students with cross-categorical disabilities course.

To enhance the generalization of critical skills and knowledge to the classroom setting, students are also required to take two practica concurrent with the characteristics and methods courses that include field experiences and applications of key concepts. Students are required to have their practica represent the range of grade levels for which they will be responsible. More specifically, if their first practicum was in an elementary setting, then their second will be in a middle school, junior high or high school setting or vice versa.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## MEd in Special Education with Emphasis in Curriculum Development for Exceptional Students

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This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Special Education with Emphasis in Early Childhood Special Education

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The Early Childhood Special Education (ECSE) Program is a graduate program that provides students with the necessary experiences and information to work with young children, both typically developing and those with disabilities, and their families in a variety of settings, including both home and school. The program also focuses on working effectively with families and children from a variety of cultures and how to provide intervention in a culturally consistent manner.

The Masters program in ECSE is 30 credit hours. In the campus program there are six required courses. Additional coursework is negotiated with the advisor. The online program coursework is set and can be found at Mizzou Online (<http://online.missouri.edu/degreeprograms/ed-specialeducation>).

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.

3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## MEd in Special Education with Emphasis in Gifted Education

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### Degree Requirements

#### Online Degree Only

The Gifted Education Master's Program (MEd) is a graduate level program designed to provide candidates with advanced preparation in gifted education methodology and practices. Candidates become equipped with the knowledge and skills necessary to work with children and youth in the field of gifted education. The program meets Missouri Department of Education (DESE) academic requirements for Missouri Gifted Certification. This program is offered through Mizzou Online (<http://online.missouri.edu/degreeprograms/ed-gifted>).

Applicants who are accepted into the master's program will participate in a 30-hour online degree program with 15 hours of gifted education courses and 15 hours of core course work. Courses are selected to provide educators with skills and knowledge in current learning theory and to translate this knowledge into practical strategies and techniques for use in the classroom.

The 15 hours of gifted focus courses include content covering, nature and needs of gifted students, curriculum methods, differentiated curriculum, assessment and evaluation, and gifted practicum. The 15 hours of core course work in this program include study in learning theory, research with exceptional children, instructional technology, instructional leadership, and instructional strategies.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about

specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## **MEd in Special Education with Emphasis in Learning Disabilities**

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### **Degree Requirements**

A Master's degree with an emphasis in Learning Disabilities may be earned in conjunction with certification to teach in the state of Missouri. Although the state no longer offers certification in the area of learning disabilities, certification in cross-categorical special education can be obtained, along with a Master's degree in Learning Disabilities, through supplemental coursework. Coursework and practica in the LD program focus on the preparation of high quality teachers for students with a range of learning and behavioral needs. Graduates may work in a variety of service delivery settings, including general education classes as well as resource and self-contained classes from kindergarten through 12th grade. A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements.

### **Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of

Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

1. A completed baccalaureate degree.
2. Graduate grade point average above 3.0 (on a 4.0 scale) or higher in the last 60 hours of undergraduate coursework.
3. GRE scores taken within the last five years. For GRE scores taken on or after August 1 2011, they should reflect a preferred combined score of 291 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 3.5 or better.
4. A minimum of two letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the graduate level.
5. Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
6. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program. International students who have completed within the last two years, one year of college-level full-time study in a country where English is the native language may waive the TOEFL requirement if they meet all the conditions.
7. Students may be required to complete an interview with special education faculty.
8. Students must complete all graduate school and program application materials by the deadline posted each term.

## **MEd in Special Education with Emphasis in Mental Retardation**

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This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### **Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/masters.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## **PhD in Special Education**

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### **Admission Contact Information**

Caitlin Rosbach (sped@missouri.edu)  
303 Townsend Hall; Columbia, MO 65211  
573-882-3742

### **Admission Criteria**

Fall deadline: January 15

Spring deadline: August 15

Minimum GPA: 3.5/4.0

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	297+ (V153 +Q144) / Analytic Writing 4.0

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

## Required Application Materials

*To the Office of Graduate Studies:*

All required Graduate Studies documents

*To the Special Education Program:*

Departmental application

Letter of intent and professional goals

3 letters of recommendation (submitted confidentially and electronically through our online application system)

GRE score report

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Emphasis Areas

For the doctorate's specializations, see Degrees Offered.

## Plan of Study

The PhD program requires 72 hours beyond the requirements of the master's degree.

## Qualifying Exam

Doctoral students must successfully pass a qualifying exam. This is given to assess the student's current knowledge of the field, their ability to synthesize professional literature, engage in professional writing practices, and orally present/discuss key issues within the field. This process is conducted by three faculty members and may be used to help define the student's plan of study.

## Comprehensive Exam and Dissertation

Doctoral students must complete comprehensive exams, which have a written and oral component, which is constructed and evaluated by the student's doctoral committee in order to advance to "candidacy" status.

A minimum of six hours of 9090 Research is required for the doctoral program in completion of the dissertation.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education site.

## PhD in Special Education with Emphasis in Administration and Supervision of Special Education

This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## PhD in Special Education with Emphasis in Behavior Disorders

### Degree Overview and Requirements

The Doctorate of Philosophy program in Behavior Disorders supports advanced instruction and research in Behavior Disorders. Candidates complete individualized programs of study to meet their learning objectives and prepare for further research in the field. The candidate will build on prior graduate coursework through special education doctoral coursework, specified behavior disorders coursework, and dissertation preparation and defense. Students meeting entrance criteria will be conditionally admitted to the program, assigned an advisor, and expected to enroll in designated requisite coursework.

1. After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
2. Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
3. Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
4. Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research

proposal. The dissertation committee may be the same as the program committee or may change based on the need to include faculty members with specific areas of expertise. Once all committee members approve the proposal, students can begin implementation of the dissertation study.

5. Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.
6. Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
7. Students must also comply with all College of Education and Office of Graduate Studies guidelines.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

Admissions to Doctoral programs in Special Education will be based upon the following criteria:

1. Graduate grade point average above 3.5 and a preferred combined score of 297 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 4.0 or better on the GRE taken within the last 5 years.
2. A minimum of three years full-time appropriate teaching or professional experience in pre K-12 or other direct services with persons with disabilities.
3. A minimum of three letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the advanced graduate level.
4. Statement of purpose indicating clearly that the proposed doctorate is appropriate to the applicant's professional aspirations.
5. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program.
6. An interview may be required by the admissions committee.
7. Confer or correspond with one of the special education faculty members in the proposed area of concentration prior to submitting an application. This contact is ultimately a requirement for admission.

All requirements implicit in the above statement must be completed before consideration of an applicant for admission. The department cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of all applicants. It is the responsibility of this committee to exercise professional judgment related to the criteria which applicants must meet in order to be considered for admission to the program. The committee frequently must use its

judgment to discern from among a number of applicants those individuals who are judged to have the greatest potential for program success and ultimate contribution to the profession. Membership in under-represented groups will be a special consideration with regards to admission by the committee.

## PhD in Special Education with Emphasis in Curriculum Development for Exceptional Students

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This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## PhD in Special Education with Emphasis in Early Childhood Special Education

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### Degree Overview and Requirements

The Doctorate of Philosophy program in ECSE supports advanced instruction in Early Childhood Special Education. Candidates will develop a program to meet their learning and research goals in the field of Early Childhood Special Education.

1. After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
2. Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
3. Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
4. Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research proposal. The dissertation committee may be the same as the program committee or may change based on the need to include faculty members with specific areas of expertise. Once all committee

members approve the proposal, students can begin implementation of the dissertation study.

5. Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.
6. Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
7. Students must also comply with all College of Education and Office of Graduate Studies guidelines.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

Admissions to Doctoral programs in Special Education will be based upon the following criteria:

1. Graduate grade point average above 3.5 and a preferred combined score of 297 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 4.0 or better on the GRE taken within the last 5 years.
2. A minimum of three years full-time appropriate teaching or professional experience in pre K - 12 or other direct services with persons with disabilities.
3. A minimum of three letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the advanced graduate level.
4. Statement of purpose indicating clearly that the proposed doctorate is appropriate to the applicant's professional aspirations.
5. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program.
6. An interview may be required by the admissions committee.
7. Confer or correspond with one of the special education faculty members in the proposed area of concentration prior to submitting an application. This contact is ultimately a requirement for admission.

All requirements implicit in the above statement must be completed before consideration of an applicant for admission. The department cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of all applicants. It is the responsibility of this committee to exercise professional judgment related to the criteria which applicants must meet in order to be considered for admission to the program. The committee frequently must use its judgment to discern from among a number of applicants those individuals who are judged to have the greatest potential for program success and ultimate contribution to the profession. Membership in under-represented

groups will be a special consideration with regards to admission by the committee.

## PhD in Special Education with Emphasis in General

This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## PhD in Special Education with Emphasis in Learning Disabilities

### Degree Overview and Requirements

The Doctorate of Philosophy program in Learning Disabilities supports advanced instruction in Learning Disabilities. Candidates will develop a program to meet their learning and research goals in the field of Learning Disabilities.

1. Students meeting entrance criteria will be conditionally admitted to the program, assigned an advisor, and expected to enroll in designated requisite coursework.
2. After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
3. Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
4. Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
5. Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research proposal. The dissertation committee may be the same as the program committee or may change based on the need to include faculty members with specific areas of expertise. Once all committee members approve the proposal, students can begin implementation of the dissertation study.
6. Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.

7. Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
8. Students must also comply with all College of Education and Office of Graduate Studies guidelines.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

Admissions to Doctoral programs in Special Education will be based upon the following criteria:

1. Graduate grade point average above 3.5 and a preferred combined score of 297 or better on the Verbal Reasoning and Quantitative Reasoning sections and Analytical Writing score of 4.0 or better on the GRE taken within the last 5 years.
2. A minimum of three years full-time appropriate teaching or professional experience in pre K - 12 or other direct services with persons with disabilities.
3. A minimum of three letters of recommendation, which on the whole, clearly reflect professional success and predict academic success at the advanced graduate level.
4. Statement of purpose indicating clearly that the proposed doctorate is appropriate to the applicant's professional aspirations.
5. For students whose native language is not English, a score of 100 or better on the TOEFL or a grade band score of 7 or better on the IELTS taken within the past two years. Ideally, the TOEFL or IELTS will be taken 6-9 months prior to the term in which the student wishes to start their program.
6. An interview may be required by the admissions committee.
7. Confer or correspond with one of the special education faculty members in the proposed area of concentration prior to submitting an application. This contact is ultimately a requirement for admission.

All requirements implicit in the above statement must be completed before consideration of an applicant for admission. The department cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of all applicants. It is the responsibility of this committee to exercise professional judgment related to the criteria which applicants must meet in order to be considered for admission to the program. The committee frequently must use its judgment to discern from among a number of applicants those individuals who are judged to have the greatest potential for program success and ultimate contribution to the profession. Membership in under-represented groups will be a special consideration with regards to admission by the committee.

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## PhD in Special Education with Emphasis in Mental Retardation

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This emphasis is **currently suspended** within the Special Education Department due to budget constraints and limited resources. We are not taking applicants at this time.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Special Education program (<http://gradstudies.missouri.edu/academics/programs/special-education/doctorate.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

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## Additional Minors and Certificates - Education

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### Graduate Certificates

- Certificate in College Teaching (p. 462)
- Certificate in Education Improvement (p. 463)
- Certificate in Education Policy (p. 463)
- Certificate in Elementary Mathematics Specialist (p. 463)
- Certificate in Higher Education Administration (p. 464)
- Certificate in Multicultural Education (p. 464)
- Certificate in Online Educator (p. 465)
- Certificate in Positive Psychology (p. 465)
- Certificate in Qualitative Research (p. 465)
- Certificate in Teaching English to Speakers of Other Languages (p. 466)

### Graduate Minors

- Minor in Multicultural Psychology (p. 466)

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## Graduate Certificate in College Teaching

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### Contact Information

Department of Educational Leadership and Policy Analysis

202 Hill Hall

573-882-8221

<https://online.missouri.edu/degreeprograms/education/college-teaching/grad-cert/>

**The Graduate Certificate in College Teaching requires the completion of a total of 4 courses (12 credit hours) of which of two courses are required and the remaining two courses can be chosen from the list of approved electives.**

**Courses for this program are 100 percent online: no campus visits are required.**

**The University reserves the right to change or cancel courses as needed.**

**Required Courses**

ED_LPA 9448	College Teaching	3
ED_LPA 9456	The Professoriate	3

**Elective Courses**

ED_LPA 9442	Curriculum Philosophy and Development in Higher Education	3
ED_LPA 9452	Overview of Higher Education	3
ED_LPA 9455	The Community College	3
ED_LPA 9408	Seminar in Higher Education (Teaching with Technology)	3
AG_ED_LD 8330	Advanced Methods of Teaching	3

For more information about this graduate certificate, contact the ELPA Department by phone at 573-882-8221 or by e-mail at [elpagrad@missouri.edu](mailto:elpagrad@missouri.edu).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/college-teaching-graduate-certificate/college-teaching-ge/Gedt.html>.

## Graduate Certificate in Education Improvement

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/education-improvement-graduate-certificate/education-improvement-ge/Gedt.html>.

## Graduate Certificate in Education Policy

### Contact Information

Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
<https://education.missouri.edu/degrees-programs/certificates-minors/education-policy/>

Through an interdisciplinary partnership among Education, Law, and Public Policy scholars, our Education Policy Graduate Certificate serves to develop critical leaders, policymakers, and scholars who demonstrate excellence in implementing and analyzing policy. A carefully planned set of courses will provide students with the knowledge, skills, and tools to answer tough policy questions facing our society, for instance: How do we address the rising costs of higher education? Segregated schooling? Undocumented immigrant students? Families who speak languages other than English?

The Education Policy Graduate Certificate will provide students with:

- *Knowledge* that they can apply to the study of education policy within their major discipline or their work in policy settings;

- *Skills* in analyzing education policy issues, i.e., understanding differing values, political and economic arguments, costs/benefits, and policy processes;
- *Conceptual tools* to use in understanding and resolving issues faced in educational policy development and implementation.

**Foundations - Students choose 1 of the following:**

PUB_AF 8170	Public Policy Processes and Strategies	3
ED_LPA 9402	Educational Policy Analysis	3

**Knowledge/Concepts - Students choose 1 or 2 of the following:**

ED_LPA 9451	Higher Education Finance	3
ED_LPA 9457	Higher Education Policy	3
ED_LPA 7458	Sociology of Education	3
ED_LPA 9462	History of U.S. Education Policy	3
ED_LPA 9463	Politics of Education	3
LAW 5525	Education Law	1-3
LAW 5526		1-3
PUB_AF 8173	Education Governance, Finance and Policy	3
PUB_AF 8175	Early Childhood Policy	3

**Skills - Students choose 1 or 2 of the following:**

ED_LPA 8955	Discourse Analysis in Education	3
ED_LPA 9409	Introduction to Research Design	3
PUB_AF 8190	Economic Analysis for Public Affairs	3
PUB_AF 8420	Public Program Evaluation	3
PUB_AF 8430	Public Policy Analysis	3
ESC_PS 8690	Educational Planning and Evaluation	3

After coursework is complete, students will develop a mini-portfolio to demonstrate their learning.

Applications accepted anytime. For more information about this graduate certificate, contact the ELPA Department by phone at 573-882-8221 or by e-mail at [elpagrad@missouri.edu](mailto:elpagrad@missouri.edu)

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/education-policy-graduate-certificate/ed-policy-ge/Gedt.html>.

## Graduate Certificate in Elementary Mathematics Specialist

The EMS graduate certificate program includes five integrated mathematics content/pedagogy courses, each with an attached internship and two leadership development courses (total of 24 credits). The program is designed for inservice K-6 teachers interested in pursuing advanced learning experiences and training to increase their knowledge and skill to teach or lead others in teaching mathematics in elementary classrooms. That is, the program is designed for teachers currently working full time. The courses will be offered over a 2-year cycle beginning in the Fall semester (6 semesters of part-time student effort).

For information about certificate, contact Dr. Barbara Reys:  
 Phone: 573-882-4406  
 Address: 121 F Townsend  
 email: [reysb@missouri.edu](mailto:reysb@missouri.edu)



Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/elementary-mathematics-specialist/elem-math-ge/Gedt.html>.

## Graduate Certificate in Higher Education Administration

### Contact Information

Department of Educational Leadership and Policy Analysis  
202 Hill Hall  
573-882-8221

<https://education.missouri.edu/degrees-programs/certificates-minors/higher-education-administration/>

Due to multiple and growing demands upon the academy for quality control, accountability, and productivity, administration of higher education has become increasingly complex. The Graduate Certificate in Higher Education Administration is designed to address the need for enhanced understanding of the higher education institutional context and for improved skills in areas required for effective administration of the higher education enterprise.

The Graduate Certificate in Higher Education Administration is designed to provide students with an overview of higher education administration and governance, and with some technical knowledge about various aspects of administration (e.g., finance, law, policy).

### Required Courses

Six semester hours/two 3-credit courses

ED_LPA 9450	Administration and Governance of Higher Education	3
ED_LPA 9451	Higher Education Finance	3

### Elective Courses

Six semester hours/two 3-credit courses, select two of the following: 6

ED_LPA 9444	Program Planning in Higher Education	
ED_LPA 9446	Student Affairs Administration	
ED_LPA 9447	College Student Culture and Environment	
ED_LPA 9449	History of Higher Education in the United States	
ED_LPA 9452	Overview of Higher Education	
ED_LPA 9454	Introduction to Post-Secondary Law	
ED_LPA 9455	The Community College	
ED_LPA 9457	Higher Education Policy	

Total Credits 12

For more information about this graduate certificate, contact the ELPA Department by phone at 573-882-8221 or by e-mail at [elpagrad@missouri.edu](mailto:elpagrad@missouri.edu).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/higher-education-administration-graduate-certificate/HACE-ge/Gedt.html>.

## Graduate Certificate in Multicultural Education

This certificate will provide the requisite awareness, knowledge and skill to effectively work with students and families from diverse cultural backgrounds and is ideal for teachers, counselors and administrators in

P-12 school settings. By creating this online certificate, Mizzou is working to increase the number of qualified teachers and other school personnel who can serve diverse populations and prepare all students to function more effectively in society. The 12 hour certificate can be completed entirely online, but some students may choose electives that are offered on campus.

Certificate web site: Multicultural Education Graduate Certificate. (<http://online.missouri.edu/degreeprograms/ed-multicultural>)

## Certificate Details

### Core Courses

The foundation of the certificate starts with the following two courses:

ESC_PS 8450	Diversity Issues in School Mental Health	3
ESC_PS 8550	Diversity and Multiculturalism II - Practical Application	3

### Electives

Students complete two courses (6 credit hours):

ESC_PS 8555	African American Education - Historic and Current Issues	3
ESC_PS 8565	Gay, Lesbian and Bisexual Issues in the Schools	3
ESC_PS 8560	Immigrant Issues in Education	3

## How To Apply

Certificate program admission requirements will be the same as those for the Office of Graduate Studies. (<http://gradstudies.missouri.edu/admissions/eligibility-process/degree-certificate-seeking-applicants/admission-process>)

- Grade point average of B or better in the last 60 hours of undergraduate education for applicants with less than a master's degree.
- Submit the Office of Graduate Studies online application ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)).
- Upload unofficial transcripts when using the Office of Graduate Studies online application system.
- Two letters of recommendation.
- GRE scores are NOT required.

## Application Deadline

None. Rolling admission.

## Financial Aid

To receive financial aid, students must be admitted to the graduate certificate program. Financial aid is generally available to eligible students who are fully accepted into the program and who carry a course load of at least four credit hours per semester.

## Contact Information

- Dr. Francisco Sanchez ([SanchezF@missouri.edu](mailto:SanchezF@missouri.edu)) - Multicultural Education Faculty Coordinator
- Sandy Sites ([SitesS@missouri.edu](mailto:SitesS@missouri.edu)) - ESCP Online Program Coordinator

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/multicultural-education-graduate-certificate/>

## Graduate Certificate in Online Educator

The Online Educator Graduate Certificate Program will equip individuals with the knowledge and skills needed to design and provide effective online learning experiences including:

- Designing online learning activities and assessments for meaningful learning
- Designing, facilitating, and evaluating online discussions
- Promoting student engagement and motivation in online learning environments
- Understanding unique characteristics of online learning environments
- Selecting appropriate technology tools and learning objects to support online learners
- Using Learning Management Systems to support and deliver online learning
- Seeking for and evaluating Internet-based information and resources that can be used to enhance online learning
- Organizing course materials in an online format

Certificate web site: <http://edtech.missouri.edu/oe>

For information about certificate, contact:  
 SISLT Student Services Coordinator  
 304 Townsend Hall  
 Columbia, MO 65211  
[sislt@missouri.edu](mailto:sislt@missouri.edu)  
 phone: 877-747-5868 or 573-882-4546

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/online-educator-graduate-certificate/online-ed-ge/Gedt.html>.

## Graduate Certificate in Positive Psychology

This online **15-credit hour graduate certificate in positive psychology** from Mizzou's Department of Educational, School, and Counseling Psychology (ESCP) is designed for individuals seeking a program that emphasizes applied interventions and theory in building thriving individuals, families, communities and organizations. Combining 21st century psychology and several ancient philosophies, contemporary positive psychology is focused on advancement of the individual and their collective well-being.

The program will provide you with a thorough understanding of the science of well-being and flourishing that will allow you to be more effective in your professional and personal life. Individuals may use this graduate certificate for personal enrichment or to increase their professional marketability across many career paths such as life/career coaching, teaching, managing, and organizational consulting.

Note: This graduate certificate does not provide counselor certification.

Certificate web site: Positive Psychology Graduate Certificate (<http://online.missouri.edu/degreeprograms/ed-positivepsychology/gradcertificate>)

### Certificate Details

#### Core Course

ESC_PS 7200	Positive Psychology	3
<b>Electives</b>		
ESC_PS 8700	Life/Career Coaching and Development	3
ESC_PS 8710	Meaning In Work	3
ESC_PS 8720	Community and Stewardship	3
ESC_PS 8730	Positive Organizational Psychology	3
Total Credits		15

### How To Apply

Certificate program admission requirements will be the same as those for the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/degree-certificate-seeking-applicants/admission-process.php>).

- Grade point average of B or better in the last 60 hours of undergraduate education for applicants with less than a master's degree.
- Submit the Office of Graduate Studies online application (<https://applygrad.missouri.edu/apply>).
- Upload unofficial transcripts when using the Office of Graduate Studies online application system.
- Statement of interest: Briefly describe how this program will benefit your career aspirations and help you act upon your personal beliefs, goals, and philosophy. (Maximum of 500 words)
- Two letters of recommendation.
- Résumé or curriculum vitae.
- GRE scores are NOT required.

### Application Deadline

None. Rolling admission.

### Financial Aid

To receive financial aid, students must be admitted to the graduate certificate program. Financial aid is generally available to eligible students who are fully accepted into the program and who carry a course load of at least four credit hours per semester.

### Contact Information

- Dr. Patrick Rottinghaus ([RottinghausP@missouri.edu](mailto:RottinghausP@missouri.edu)) - Positive Psychology Faculty Coordinator
- Sandy Sites ([Sitess@missouri.edu](mailto:Sitess@missouri.edu)) - ESCP Online Program Coordinator

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/positive-psychology-certificate/positive-psychology-ge/Gedt.html>.

## Graduate Certificate in Qualitative Research

### Prerequisites

Open to all MU doctoral students. Students must have taken LTC 8957 Qualitative Methods in Educational Research I\* or a comparable course outside the College of Education, as approved by the certificate committee. LTC 8957 will not count towards the 18 hours required for

the certificate. \*Note: LTC 8957 is cross-listed as ED\_LPA 8957 and ESC\_PS 8957.

## Required Courses

<b>Qualitative Research Methods II</b>		<b>3</b>
ESC_PS 9620	Qualitative Methods in Educational Research II (or comparable course outside the College of Education as approved by the certificate committee; sometimes listed as ED_LPA or LTC)	
<b>Qualitative III (Combination of advanced courses in qualitative research)</b>		<b>12</b>
Methodologies		
Theories		
Methods of data production and analysis		
<b>Qualitative Research Internship</b>		<b>3</b>
Qualitative Research Internship with a Faculty Member		
<b>Total Credits</b>		<b>18</b>

Courses outside of the College of Education may be accepted upon approval.

For additional information about the CQR, visit: <https://education.missouri.edu/degrees-programs/certificates-minors/qualitative-research/> or email: [qualcertificate@missouri.edu](mailto:qualcertificate@missouri.edu). ([qualcertificate@missouri.edu](mailto:qualcertificate@missouri.edu))

## Graduate Certificate in Teaching English to Speakers of Other Languages

The Graduate Certificate in Teaching English to Speakers of Other Languages (TESOL) prepares English language teachers, English language program administrators, language testers, and educational materials writers to work in contexts where English is a foreign language (EFL contexts). The objectives of the certificate are to develop professionals with a) knowledge of the structure of the English language; b) an understanding of how languages are used and learned; and c) skills in designing and implementing pedagogical tasks to facilitate language learning. The certificate consists of 18 graduate credit hours divided among five core courses and one elective course.

Certificate web site: <http://online.missouri.edu/degreeprograms/ed-tesol/gradcertificate.aspx>

For information about certificate, contact:

Dr. Nikki Ashcraft  
[ashcraftn@missouri.edu](mailto:ashcraftn@missouri.edu)  
 573-882-8394

Dr. Rachel Pinnow  
[pinnowr@missouri.edu](mailto:pinnowr@missouri.edu)  
 573-882-8465

Address:  
 Learning, Teaching and Curriculum  
 303 Townsend Hall  
 University of Missouri  
 Columbia, MO 65211

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/tesol-certificate/tesol-ge/Gedt.html>.

## Graduate Minor in Multicultural Psychology

As we enter the new millennium, the U.S. population is becoming more multiracial, multiethnic, and multilingual. Some estimate that by the year 2020, racial and ethnic minorities will become the numerical majority. This demographic shift has already occurred in specific contexts, such as K-12 schools in Los Angeles. Applied psychologists and educators have begun to develop competency standards for professionals to provide culturally relevant and effective services to our ever-changing population. In fact, multiculturalism has been identified as the fourth focus in counseling psychology. The purpose of the graduate minor in multicultural psychology and education would be to (a) expose graduate students to the growing theoretical and empirical research completed in the fields of multicultural psychology and education, (b) help graduate students develop multicultural competencies in research and practice, and (c) provide graduate students with training necessary to meet the psychological and educational demands of diverse populations.

The requirements for the minor are listed below.

- A minimum of 12 credit hours
- 9 credit hours must be taken as a graduate student at the University of Missouri
- No more than 6 credit hours should be listed in the masters or doctoral planner. That is, a maximum of 6 hours can overlap between the courses applied to the Minor in Multicultural Psychology and the courses applied toward a masters or doctoral degree.
- A minimum of 9 credit hours must be 8000 or above (graduate level)
- 6 credit hours must be taken within the core area with a foci on racial and ethnic minorities (see listing below)
- 3 credit hours must be taken in the auxiliary area (see listing below)
- 3 credit hours must be taken in the skills area (see listing below)

### Core Courses

Must complete at least 6 credit hours from the following courses with a main emphasis on race/ethnicity in psychology and/or education

ESC_PS 8580	Social and Cultural Identity Development	3
ESC_PS 8590	Multicultural Counseling Competencies: Theory and Research	3
ESC_PS 9000	Multicultural Issues in Counseling	3

Other racial/ethnic-focused graduate level courses in other departments, with pre-approval.

### Auxiliary Courses

Must complete 3 credit hours from the following courses emphasizing a wide range of diversity and social change issues.

ESC_PS 8585	Gender Issues in Counseling and Education	3
ESC_PS 8990	Career Development Theory for Women	3
ESC_PS 8510	Medical and Psychological Aspects of Disability	3
ESC_PS 8540	Theory and Practice in Feminist Therapy	3

Other diversity issues and inequality in social systems graduate level courses in other departments, with pre-approval.

### Skill Courses

Must complete 3 credit hours from one of the options below.

I. Research Skills \*

ESC\_PS 8090 Master's Thesis in Educational, School, and Counseling Psychology

ESC\_PS 9090 Doctoral Dissertation Educational School & Counseling Psychology

II. Applied Multicultural Skills ^

ESC\_PS 8943 Practicum in Multicultural Counseling Interventions

Pre-approved Multiculturally-designated applied course (e.g. counseling practica, teaching practica, group counseling practica)

Applied experience via community outreach programs, work placements in agencies, or extended volunteer experiences in community agencies.

Multicultural Competency Portfolio to demonstrate awareness, knowledge and skill competencies, as approved by a Center Director.

Consultation courses in organization or systemic changes including applied consultation activities, as pre-approved by a Center Director.

\* The scope and quality of the research project is expected to be of such a caliber that it could be submitted to a refereed journal in the student's discipline. The research project must be on a multicultural-related topic (i.e. issues related to race, sexual orientation, gender, and international concerns). Successful completion of this requirement will consist of approval of the project from a Director of the Center for Multicultural Research, Training and Consultation, or have an ESCP faculty affiliated with the Center on the committee with at least one committee member having expertise in multicultural issues.

^ The person must demonstrate competencies in working with diverse populations (with an emphasis on racial and ethnic minority populations).

## College of Engineering

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### Administration

Elizabeth Loba, Dean  
W1025 Lafferre Hall  
(573) 882 4378  
loboae@missouri.edu

When engineering classes at the University of Missouri began in 1849, a strong tradition was born that continues to grow. At the University of Missouri College of Engineering, we believe that with every innovation we make and every new development we bring to light, we do more than solve the problems of today. Here, we ready the leaders who will blaze forward with a revolution that defines the world for tomorrow. At Mizzou Engineering, collaboration, creativity and research surge together. Where others may see problems, disease and inefficiencies, we see opportunities, potential and infinite possibilities. We teach, we learn, and we analyze — and we demand innovation, inclusion and integrity as we create smarter, safer, more efficient ways of living.

The College of Engineering has a vision for becoming *the* college of choice for faculty and students in four Pillars of Pursuit: Educating Engineering Leaders, Big Data Analytics, Biomedical Innovations and Sustainability in *FEWS*ed (Food, Energy, Water, Smart Cities). These pillars represent the College's areas of strength and greatest potential growth as we seek to recruit faculty and train students who will solve the next generation of global challenges.

The college offers fully accredited degree programs in biological, chemical, civil, computer, electrical, industrial and mechanical engineering, along with computer science. All of programs offer both undergraduate and graduate degrees. The college also offers a bachelor's degree in Information Technology. Naval Science is under the academic administration of the college as well. The hallmark of the College of Engineering is excellence in teaching and scholarly pursuits.

### Mission

The mission of the University of Missouri College of Engineering is to educate engineers, create leaders and develop entrepreneurs in a research and interdisciplinary environment.

We do this by:

- Supporting engineering educational programs with extracurricular student activities and research experience.
- Encouraging faculty to be entrepreneurial and interdisciplinary.
- Conducting world class research that produces new knowledge and new researchers for the future.

...resulting in economic development, job creation and an improved standard of living for our state and country.

### Undergraduate

- Admissions (p. 468)
- Graduation Requirements (p. 470)
- Academic Regulations (p. 470)
- Student Services (p. 471)

The MU College of Engineering is committed to a longstanding tradition of educating future engineering leaders. Here, students are inspired and challenged. Students work, learn, research and create in an atmosphere

where innovation, collaboration and finding ways to rise above challenges are more than aspirations — they are simply how we operate.

### Admissions

#### Direct Freshman Admission to Engineering

Entering freshmen are expected to have completed 17 units of approved high school course work (in grades 9-12), including 4 units in English, 4 in mathematics and 3 in science with laboratory. Mathematics should include 2 units of algebra, 1 unit of plane and solid geometry (combination course), and 1/2 unit of trigonometry. Additional senior mathematics is recommended.

For direct admission to the College of Engineering, the applicant must meet the qualifications listed below (these numbers are subject to change).

- ACT-Math of at least 26 AND
- ACT-Composite of at least 26 OR high school class rank in the upper 25 percent

For direct admission to one of the College of Engineering degree programs, the applicant must meet the qualifications listed below (these numbers are subject to change).

- ACT-Math of at least 32 AND
- ACT-Composite of at least 32 AND
- High school class rank in the upper 25 percent

The average ACT scores for first-time freshmen admitted to the College of Engineering for fall 2016 were ACT-Composite 28.03 and ACT-Math 28.74.

#### Pre-Engineering Program (PEP)

Freshmen who do not meet the criteria for direct admission to the College of Engineering are admitted initially into the Pre-Engineering Program. Although admitted to the College of Arts and Science, each PEP student has access to the Engineering Advising Office.

PEP reduces freshman pressures while preserving alternatives. Because PEP students are enrolled in the College of Arts and Science, degree options in the College of Arts and Science are available to those who may decide to change their focus from engineering.

Most first-semester PEP students enroll in one preparatory math course and three courses in the College of Arts and Science, which count in both the engineering and arts and science degree programs. The prime objective is to strengthen math preparation sufficiently for success in engineering.

PEP students are eligible to transfer to the College of Engineering when they meet the following requirements:

- Satisfactory completion of 24 credits
- GPA of 2.0 or higher both Cumulative and last graded term
- A grade of C- or better in MATH 1500 Analytic Geometry and Calculus I or
- Academic good standing
- Students with 60 credits or more must be admitted to their Department of choice prior to being admitted to Engineering
- For admission to Information Technology, students must have GPA of 2.0 or higher in both Cumulative and last graded term

## Declared and Undeclared Status

Freshmen engineering students will start in an undeclared status unless they meet criteria for direct departmental admission (see criteria below). Students admitted to the College of Engineering in undeclared status will work to complete a foundational curriculum consisting of math, science, and engineering courses. Upon completion of the foundational curriculum students will apply for entrance to available degree programs. The specific standards and capacity vary among the degree programs as necessary to align enrollments with educational resources.

## Freshman and Transfer Admission Requirement

### Bioengineering Department

Courses required before consideration for admission into Bioengineering

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CHEM 1320	College Chemistry I
PHYSCS 2750	University Physics I
BIO_SC 1500	Introduction to Biological Systems with Laboratory (recommended)

### Chemical Engineering Department

Courses required before consideration for admission into Chemical Engineering

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CHEM 1320	College Chemistry I
CHEM 1330	College Chemistry II
PHYSCS 2750	University Physics I
CH_ENG 1000	Introduction to Chemical Engineering

### Civil and Environmental Engineering Department

Courses required before consideration for admission into Civil and Environmental Engineering

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CHEM 1320	College Chemistry I
PHYSCS 2750	University Physics I
ENGLISH 1000	Exposition and Argumentation

### Computer Science Department

Courses required before consideration for admission into Computer Science

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CMP_SC 1050	Algorithm Design and Programming I
CMP_SC 2050	Algorithm Design and Programming II
General Science Elective	

### Information Technology Department

Admittance to Information Technology follows the standard MU admissions requirements

### Electrical and Computer Engineering Department

Courses required before consideration for admission into Electrical and Computer Engineering

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CHEM 1320	College Chemistry I
CMP_SC 1050	Algorithm Design and Programming I

ECE 1210	Introduction to Logic Systems
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### Industrial and Manufacturing Systems Engineering Department

Courses required before consideration for admission into Industrial and Manufacturing Systems Engineering

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CHEM 1320	College Chemistry I
PHYSCS 2750	University Physics I
ENGLISH 1000	Exposition and Argumentation

Minimum cumulative GPA of 2.75

### Mechanical and Aerospace Engineering Department

Courses required before consideration for admission into Mechanical and Aerospace Engineering

MATH 1500	Analytic Geometry and Calculus I
MATH 1700	Calculus II
CHEM 1320	College Chemistry I
PHYSCS 2750	University Physics I
ENGLISH 1000	Exposition and Argumentation

Undeclared students should discuss course selection with the academic advisor each semester to keep options open among departmental curricula.

To transfer from one department to another, students must submit an application to the new department. Admittance to the new department will be based upon the student's academic performance and departmental capacity. Students who transfer must satisfy the specific degree requirements of the new department.

## Engineering Dean's Scholars Program

The purpose of the Engineering Dean's Scholars Program is to recognize, mentor and train the highest-achieving students in scholarship and leadership. Engineering Dean's Scholars participate in the Engineering Scholars Freshman Interest Group (FIG) which will be housed in Hudson or Gillett Residence Hall. Faculty-scholar lunches are held several times during the semester to allow the scholars to meet with engineering faculty and to learn about the engineering profession and undergraduate research opportunities.

Scholars participate in leadership or mentoring activities during their sophomore, junior and senior years. Examples of such activities include serving as engineering ambassadors or peer advisors for an engineering FIG, and participating in Undergraduate Research. Students chosen for peer advisor positions have their room and board covered in exchange for their services.

Students who have ACT math and composite scores of 32 and a high school rank in the top 10 percent of their class may submit an application for consideration of admission to the program.

Mizzou Engineering Dean's Scholars Program  
 W1025 Lafferre Hall  
 University of Missouri  
 Columbia, MO 65211  
 (573) 882-4092

## Transfer Students

Students wishing to transfer to MU from an accredited college or university are subject to University regulations described in this catalog.

The MU College of Engineering cooperates with many colleges through articulation agreements that help pre-engineering students transfer to MU

with maximum ease and minimum loss of credits. A student may take the first two years at the participating school and then transfer to MU for the junior and senior years in engineering. After the program is completed, the student is awarded a BS degree in the chosen engineering field.

Transfer students may be admitted to the College as undeclared or may start with a departmental affiliation. Eligibility to enter the College with a departmental affiliation is based upon the student's previous academic performance and department capacity.

Transfer students who enter the College as undeclared, are required to submit an application to enter a degree program. Admittance to the degree program is based upon previous academic performance and department capacity.

To be recommended for the BS degree from the College of Engineering, a student transferring from an accredited institution must complete at least 30 upper-level credits in the degree program at a UM System campus. At least 21 of the 30 credits must be upper-level engineering courses approved by the department awarding the degree.

A student transferring with senior standing from another UM System campus must complete the last 15 credits in residence on the campus where the degree program is located. Twelve of these 15 credits must be in engineering and approved by the department awarding the degree.

Any student whose enrollment in any college-level academic program resulted in dismissal, departure or who are on probation will not be admitted to the College of Engineering.

## International Admission

Admission of international students is determined on an individual basis by a committee of representatives from the Admissions Office and the College of Engineering.

Before registering for classes at the University, international students must take the MU English Language Test, developed for international students. Students passing the test are eligible to take ENGLSH 1000 and any other required English courses.

International students whose test scores indicate that additional English training is needed, including those with transferred English credit, are required to register for an English-language support class. The course, developed for international students, should be taken during the first semester of enrollment. This course does not count toward graduation credit, but regular attendance is required and failure to attend will result in dismissal. The English-language support class taken must be satisfactorily completed before the student can enroll in ENGLSH 1000. Students not satisfactorily completing the class in the first semester of enrollment must re-enroll in the second semester. If the student does not satisfactorily complete the English-language support class in the second term of enrollment, the student will not be permitted to re-enroll in the College of Engineering.

## 60 Credit Hour Rule

To remain in the College of Engineering, students must be admitted to an Engineering degree program by the end of the semester when their total credit hours earned are equal to or greater than 60. Students not admitted by 60 credit hours will become ineligible to remain in the College of Engineering and must transfer to another MU school or college in order to remain a student at the University of Missouri. Transfer students who enter the College of Engineering with 60 or greater credit hours will be given one semester to gain admittance to a degree program. If not admitted to a degree program after one semester, they will become

ineligible to remain in the College of Engineering. If more than one semester is needed to complete the courses required to enter a degree program, a waiver may be granted at the discretion of the college. If students are pre-enrolled for the following term at the time they become ineligible to remain in the College of Engineering, all Engineering courses will be administratively dropped.

## Graduation Requirements

The curriculum provides a solid foundation of mathematics and physical sciences followed by the application of these sciences in engineering specialties. The balance of the curriculum encompasses communication skills, English, social sciences and humanities courses.

Many freshmen are eligible to start with calculus. However, some can profit from additional pre-calculus preparation, which is an addition to the undergraduate curricula.

Students should access the engineering web site (<http://engineering.missouri.edu>) for details regarding social and behavioral sciences and humanities and fine arts requirements.

In addition to the University's general education and graduation requirements, the departments in the College of Engineering may require further specific courses to better equip students to perform in their chosen fields of study.

While many students complete the BS degree program in four years, some may find it advisable to extend the curriculum in order to carry lighter semester loads, add preparatory courses or compensate for part-time work.

## GPA Requirements for Graduation from the College of Engineering

- GPA of record of at least 2.0
- GPA of at least 2.0 in all engineering courses offered by one of the four campuses of the UM System. "Engineering courses" include all courses that are offered through the College of Engineering or its equivalent on the four campuses, or that have "Engineering" in the curricular designator. Only the last grade in a repeated course will be used in the calculation.

## Academic Regulations

### Degree with Honors Requirements

Latin Honors are granted to students who meet the following cumulative GPA requirements:

Latin Honor	GPA
summa cum laude	3.9
magna cum laude	3.7
cum laude	3.5

### Departmental Honors

The college maintains an undergraduate honors program to further challenge those who have established a minimum GPA of 3.0 at the beginning of the junior year. A comparable grade point average is required of transfer students. The program leads to an undergraduate honors thesis on a research or advanced design project, provides for additional curricula flexibility and contains features that ease the transition to graduate school.

Opportunities available to honors students include:

- More personal attention from an honors advisor
- Independent study or undergraduate research with a senior faculty member whose specialty interests the honors candidate

A student who successfully completes the engineering honors program, including the independent project, will be designated an "Honors Scholar in Engineering." Interested students should contact their departmental office.

Qualified engineering students are also welcome to join the programs of the Honors College and may enroll in various honors courses and honors sections of regular courses.

## Courses in Basic Skills

No basic skills courses may be taken to fulfill graduation requirements.

## Curriculum of Record

The curriculum of record is the curriculum a student must satisfy to meet graduation requirements. For students who maintain continuous, full-time enrollment, the curriculum of record is the one approved by the College of Engineering at the time the student achieves upper-division status in the discipline of choice. For others, the curriculum of record is decided by the department faculty.

## Academic Probation and Dismissal

1. A student whose term and cumulative UM GPA are 2.0 or higher is in good academic standing. A "term" is defined as a semester or summer session.
2. A student will be placed on academic probation if while in good academic standing the student has a term GPA less than 2.0 but equal to or greater than 1.0.
  - While on academic probation, a student must enroll in and complete each semester at MU at least 12 credits of course work necessary for the degree. Courses taken through MU's Mizzou Online (self-paced) count as part of these 12 credits. Part-time students must enroll in at least as many credits each semester as the college rules governing part time enrollment.
  - A student will be removed from probation at the end of the term when the term and cumulative GPA are 2.0 or higher, provided the student completed 12 or more hours applicable toward the degree.
  - A student will be continued on probation if while on probation the student has a term GPA greater than or equal to 2.0, but whose cumulative GPA is below 2.0.
3. A student will be dismissed from the College of Engineering if the student:
  - Receives a term GPA of less than 1.0.
  - Receives a term GPA of less than 2.0 while on probation.
  - Fails to complete at least 12 credit hours toward their Engineering degree program while on academic probation.
4. Readmission:
  - Students who are dismissed from the College of Engineering and who wish to appeal their case for continuation must write an appeal letter and submit it to the academic appeals committee.
  - If the appeals committee allows a student to re-enroll on final probation, it may set conditions such as courses to be taken,

minimum grades, total hours, etc to which the student must adhere.

- A student who has been dismissed for academic reasons may be readmitted upon a successful appeal to the academic appeals committee of the College of Engineering.
  - Similarly, students who wish to re-enroll in the college of Engineering after having been out of school as a result of a dismissal must write a letter of appeal to the College of Engineering academic appeals committee requesting readmission.
  - Letter of appeal may be addressed to: Engineering Academic Appeals Committee, W1025 Lafferre Hall, University of Missouri, Columbia, MO 65211. A personal visit with the director of undergraduate studies of the students' department and advisor before appealing by letter is recommended and often helpful, both to the student and to the committee.
  - One of the primary objectives of the appeals committee is evaluate indicators of the likelihood of future success of the student. Accordingly, any appeal letter should include an explanation for past poor performance and reason for expecting better outcomes in the future
5. A student who is dismissed while on final probation will normally be ineligible for readmission.

## Satisfactory/Unsatisfactory Grading Option

Under Satisfactory/Unsatisfactory (S/U) grading, an S is assigned for a grade in the A, B or C range, and a U is assigned for a grade in the D range or for an F. Neither an S nor a U will be calculated into a student's grade point average. A student enrolled in the College of Engineering may not take any math, science or engineering course that counts toward degree requirements under the S/U grading option, unless the course is only offered S/U. In addition, any course specifically required (by course number) in the curriculum may not be taken S/U. This includes ENGLSH 1000 or ENGLSH 1000H. The 18 credits taken to fulfill the University general education distribution requirement may be taken S/U.

## Restrictions

- First-semester freshmen are ineligible to take any course S/U unless it is only offered S/U.
- Only one course per semester may be taken S/U.
- Students on academic probation are not allowed to take any course S/U.
- To be eligible for the Dean's List each term, a student must complete 12 graded credits (S/U courses are not considered "graded").

## Student Services

### Advising

Each student in the College of Engineering is assigned an advisor from the College of Engineering Advising Office who assists the student in reaching academic and professional goals, as well as assist students with time management and academic success strategies. Students are encouraged to meet with their advisors as often as needed. Engineering students have advising holds placed on their accounts each semester and will work with their advisor to verify enrollment and degree progress before enrolling for the following semester. In addition, students have access to work with a faculty mentor in their degree program who can assist with career planning and selection of technical elective coursework.



## Diversity and Outreach Initiatives

At Mizzou Engineering we honor our values by insuring a diverse and inclusive college. The College of Engineering Office of Diversity and Outreach Initiatives facilitates the outreach, recruitment, retention, and overall success of all members of our community, but especially those from backgrounds traditionally underrepresented in engineering. The Office of Diversity and Outreach Initiatives provides professional development programming surrounding inclusion, equity, and diversity for all of our undergraduate, graduate, staff, and faculty. The Office houses many programs including:

- The Inclusivity Center provides a physical space where everyone is welcome as well as a venue for our events and activities.
- The Women in Engineering Center focuses on all activities that support and recruit women students.
- The Minority Engineering Program fosters a support network between students, faculty, and staff to ensure academic success by providing structured progress checks, professional development trainings, early research experience, counseling, academic enrichment, mentoring and information about graduate study for the Engineering Diversity Scholarship recipients.
- The Office of Diversity and Outreach Initiatives serves as a resource for the College of Engineering student organizations to further engage them in diversity and inclusion efforts.

## Study Abroad

College of Engineering and STEM students have opportunities to pursue academic, leadership, and service opportunities around the world. Students can participate in short-term study abroad programs in Europe, Asia, and Latin America and earn college credit towards general education requirements, core engineering requirements, and engineering technical electives to complete graduation requirements. Students can also participate in semester long programs.

## Learning Communities

The college cosponsors several living/learning options for engineering students. The college believes that an environment conducive to the formation of networks, with aspects of social and academic interaction, enhances the retention and ultimate success of students in the engineering curriculum. Students selecting these options generally earn higher grades and are more likely to graduate than the average engineering student.

The Engineering Learning Community (ELC) is a special co-ed environment that offers engineering majors a full range of academic support and activities. ELC allows engineering students to live together, study together and have fun together. Freshman Interest Groups (FIGs) support incoming freshmen. Members of a FIG are co-enrolled in three courses during the first semester of the freshman year with a group of up to 20 students. Each community has its own computer lab, peer tutors, study groups and quiet hours.

## Professional Engineering Registration

The revised statutes of Missouri (Section 327.221) require that each applicant for registration as a professional engineer in Missouri must be a graduate of and hold a degree in engineering in a curriculum accredited by the Accreditation Board for Engineering and Technology. The MU undergraduate programs in biological, chemical, civil, computer,

electrical, industrial and mechanical engineering, and computer science at MU are so accredited.

Senior students are strongly encouraged to take the Fundamentals of Engineering Exam leading to the Fundamentals in Engineering (FE) status as a first step toward registration.

The MU undergraduate programs in biological, chemical, civil, computer, electrical, industrial and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET and computer science is accredited by the Computing Accreditation Commission of ABET [www.abet.org](http://www.abet.org) (<http://www.abet.org>).

## Naval Reserve Officers Training Corps (NROTC)

NROTC was established in 1926 to offer college students the necessary naval science courses to qualify for commissions in the Navy or Marine Corps Reserve. Today, NROTC is one of the primary accession sources of officers for the Navy and Marine Corps.

Scholarship NROTC midshipmen incur no military obligation during their freshman year. This allows students to get a better understanding and appreciation of the life of a Navy or Marine Corps officer. Navy NROTC graduates incur a minimum five years military obligation. Marine NROTC graduates incur a minimum four year military obligation. The two-year NROTC program is designed for transfer students and for MU students who did not participate in NROTC during the first two years. MU also offers a Minor in Naval Science (p. 536).

Navy students should major in a technical course of study while marine students may major in any course of study leading to a baccalaureate degree. Academic credit for naval science courses is accepted toward a baccalaureate degree by most MU schools and colleges. Midshipmen take one naval science course for credit each semester, which provides education and training in various aspects of the Navy or Marine Corps. Associated with each course is a leadership laboratory. NROTC activities include water survival, self-defense, physical fitness, orienteering, aviation, nuclear power indoctrination, pistol/rifle marksmanship and a variety of field trips. Upon graduation, midshipmen are commissioned as Ensigns in the Navy or Second Lieutenants in the Marine Corps.

For additional information, contact:

Department of Naval Science  
105 Crowder Hall  
(573) 882-6693 or 888-686-7682  
[NROTC@missouri.edu](mailto:NROTC@missouri.edu)  
<http://nrotc.missouri.edu/>

## Graduate

Graduate students have many opportunities to develop special skills in the career paths they choose. Students interested in pursuing a career in academia can participate in the Preparing Future Faculty Fellowship Program, where they can choose courses from the College of Education and have the opportunity to co-teach engineering courses and write proposals.

Additionally, MU promotes technology, innovation and entrepreneurship. Mizzou Engineering sustains a variety of research centers, programs, groups and facilities along with other departmental groups that are designated as areas of exemplary expertise and success. The college contributes significantly to MU's overall annual research and development

spending. The College also offers exceptional business opportunities to corporations, small businesses and start-ups.

MU graduate students have gone on to become faculty at world-class academic institutions in the U.S. and around the world, have created start-up companies as successful entrepreneurs and have secured jobs with leading companies, including Oak Ridge National Laboratory, PepsiCo, Amazon, Google and more.

Graduate engineering programs include

- Biological Engineering
- Chemical Engineering
- Civil & Environmental Engineering
- Computer Science
- Electrical & Computer Engineering
- Industrial Manufacturing & Systems Engineering
- Mechanical & Aerospace Engineering
- MU Informatics Institute

Note: Prospective graduate students must apply to both the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Biological Engineering

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J. Tan, Chair

College of Engineering

College of Agriculture, Food and Natural Resources

215 Agricultural Engineering Building

(573) 882-7044

TanJ@missouri.edu

Recognizing the immense promise of biological engineering and the unique position of Mizzou for a strong biological engineering program, the College of Agriculture, Food and Natural Resources (CAFNR) and the College of Engineering (CoE) joined forces.

Biological Engineering unites existing faculty and infrastructure from both colleges. CoE contributes biomedical engineering capabilities while CAFNR brings strengths in bioprocess and bioenvironmental engineering.

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### Faculty

#### Primary Faculty

**Professors** K. D. Gillis\*\*, S. A. Grant\*\*, J. Tan\*\*, A. L. Thompson\*\*, G. Yao\*\*

**Associate Professors** S. Ding\*\*, S. C. Borgelt\*, L. Gu\*\*, W. A. Jacoby\*\*, R. Kannan\*\*, S. Sengupta\*\*

**Assistant Professors** C. Costello\*, H. Hunt\*, F. M. Pfeiffer\*, C. Wan

**Professor Emeritus** F. H. Hsieh

#### Affiliated Faculty

**Professors** D. Brune\*\*, C. S. Cutler\*, M. Davis\*\*, M. W. Downs\*, G. Forgacs\*, S. Gangopadhyay\*\*, M. Hill\*\*, T. Hwang\*\*, K. V. Katti\*\*, M. L. Katz\*, A. McClellan\*\*, G. Meininger\*\*, S. Nair\*\*, E. J. Sadler\*, L. G. Schumacher\*, S. Segal\*, K. A. Sudduth\*\*, G. Suppes\*

**Associate Professors** D. E. Baker\*, T. M. Guess\*\*, J. W. Kwon\*, H. Li\*

**Assistant Professors** P. V. Cornish\*\*, T. T. Lim\*, L. A. Martinez-Lemus\*\*, L. Polo-Parada\*\*, R. A. White\*, J. Zulovich\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BSBE in Biological Engineering (p. 475)

#### Advising and Scholarship Contacts

Steve Borgelt, Undergraduate Director

254 Agricultural Engineering Building

Jean Gruenewald, Academic Advisor

W1006 Lafferre Hall

(573) 882-4659

gruenewaldj@missouri.edu

Biological engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. The MU biological engineering program is a broadly-based curriculum that prepares students for careers in three areas:

- Biomedical engineering (including pre-medicine)
- Bioprocess engineering
- Bioenvironmental engineering

Biological engineering graduates are hired by biotechnology, medical, pharmaceutical, food and agricultural companies, and by government agencies. Some attend graduate and medical schools. Graduates are well prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license.

The Bachelor of Science with a major in Biological Engineering (BS BE) program at MU is accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org) (<http://www.abet.org>). The biological engineering curriculum was developed to meet the mission, program objectives and student outcomes described below.

### Mission and Objectives

The department mission is to educate biological engineers to integrate engineering and biological sciences in the contexts of health, sustainability and environmental stewardship, thus preparing them for productive careers characterized by continual professional growth.

### Program Educational Objectives

The undergraduate program leads to a Bachelor of Science degree in Biological Engineering, producing graduates who will, within 3-5 years:

1. Show proficiency in quantitative analysis, engineering design and development.
2. Interact effectively with life science and other professionals.
3. Leverage principles of biological and engineering sciences for the design and development of innovative systems.
4. Demonstrate leadership and professionalism as they continually add value to their chosen field of endeavor.
5. Succeed in advanced study in engineering, medicine or other fields, if pursued.

### Student Outcomes

By the time of graduation, Biological Engineering students will possess:

- a. An ability to apply knowledge of mathematics, science and engineering;
- b. An ability to design and conduct experiments, as well as to analyze and interpret data;
- c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- d. An ability to function on multi-disciplinary teams;
- e. An ability to identify, formulate and solve engineering problems;
- f. An understanding of professional and ethical responsibility;
- g. An ability to communicate effectively;
- h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;

- i. A recognition of the need for, and an ability to engage in, life-long learning;
- j. A knowledge of contemporary issues;
- k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- l. An ability to integrate engineering and biological sciences to develop systems and processes for improved health, bio-resource utilization, and environmental protection.

## Graduate

- MS in Biological Engineering (p. 476)
- PhD in Biological Engineering (p. 477)

Department of Biological Engineering  
 254 Agricultural Engineering Building  
 Columbia, MO 65211-5160  
 (573) 882-7044  
<http://bioengineering.missouri.edu/>

**Director of Graduate Studies:** Gang (Gary) Yao

## About Biological Engineering

Recognizing the immense promise of bioengineering and the unique position of MU for a strong bioengineering program, the College of Agriculture, Food and Natural Resources (CAFNR) and the College of Engineering (CoE) joined forces to form the Department of Biological Engineering (BE). BE unites existing faculty and infrastructure from both colleges. CoE contributes biomedical engineering capabilities while CAFNR brings strengths in bioprocess and bioenvironmental engineering. Biological engineering confers both masters and doctoral degrees to students who satisfy the general requirements of the Graduate School and the specific requirements for the masters degree and the doctoral degree of the Department of Biological Engineering.

## Thesis Research and Funding

Research assistantships are available to qualified graduate students. Thesis research may emphasize bioprocessing, biomedical engineering, environmental engineering or precision agriculture. Laboratories are well equipped for research in biomaterials, biomedical optics, bioprocessing, biosensors, computer vision, electrophysiology, food extrusion, properties of biological and food materials, process control, GIS, precision agriculture, water quality, wetlands, chemical application technology, soil physics, hydrology and renewable energy.

## BSBE in Biological Engineering

### Degree Program Description

### Major Program Requirements

The curriculum encompasses basic sciences, social and behavioral sciences, humanities and fine arts, engineering sciences and topics, and program core courses. The core courses cover topics of biological engineering principles and design. In a capstone design course, each student completes a design project under the direction of a faculty advisor. Technical electives allow students to place emphasis on biomedical, bioprocess or bioenvironmental engineering. The requirements listed below are in addition to University general education (p. 33) requirements.

## Major Core Requirements

<b>Math and Statistics</b>		19
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
Statistics (from approved list)		3
<b>Basic sciences</b>		28
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 2100	Organic Chemistry I	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
Biology and related science (from approved list)		6
<b>Basic Engineering</b>		14
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
Fluid Mechanics (from approved list)		3
Thermodynamics (from approved list)		3
<b>Biological Engineering</b>		18
BIOL_EN 2000	Professional Development in Engineering	2
BIOL_EN 2080	Introduction to Programming for Engineers	3
BIOL_EN 2180	Engineering Analysis of Bioprocesses	3
BIOL_EN 3180	Heat and Mass Transfer in Biological Systems	3
BIOL_EN 4380	Applied Electronic Instrumentation	4
BIOL_EN 4980	Biological Engineering Design	3
<b>Technical electives</b>		24
Upper-level engineering courses with 12 credits in a technical emphasis.		24

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ENGINR 1000	1 ENGLISH 1000	3
MATH 1500	5 MATH 1700	5
CHEM 1320	4 BIO_SC 1500	5
ENGINR 1100	2 ECONOM 1014	3
American History or American Government	3	
		15
Second Year		
Fall	CR Spring	CR
BIOL_EN 2080	3 BIOL_EN 2000	2
MATH 2300	3 MATH 4100	3
PHYSICS 2750	5 PHYSICS 2760	5
CHEM 2100	3 ENGINR 1200	3
Behavioral or Social Science Course	3 Humanities/Fine Art Course	3
		17

Third Year		
Fall	CR Spring	CR
BIOL_EN 2180	3 BIOL_EN 3180	3
ENGINR 2200	3 Thermodynamics	3
Fluid Mechanics	3 Biological Sciences Elective	4
Technical Electives	3 Humanities/Fine Arts Course	3
Biological Sciences Elective	3 Statistics	3
		15

Fourth Year		
Fall	CR Spring	CR
BIOL_EN 4980	3 BIOL_EN 4380	4
Technical Elective	3 Technical Elective	3
Technical Elective	3 Technical Elective	3
Technical Elective	3 Technical Elective	3
Humanities/Fine Arts Course	3 Technical Elective	3
		15

Total Credits: 126

## MS in Biological Engineering

### Admission Contact Information

Jean Gruenewald  
 W1041C Laffer Hall  
 Columbia, MO 65211-5200  
 573-882-4659

### Admission Criteria

- Fall deadline: June 1st
- Minimum GPA: 3.0 in the last 60 hours
- BS in engineering from an accredited university or equivalent experience
- Minimum English Proficiency Requirements (for International Applicants):

Item	Score
IELTS	6.5
TOEFL (Internet-based)	80
TOEFL (Paper-based)	550

### Required Application Materials

Prospective students should submit graduate applications online: <https://applygrad.missouri.edu/apply/>. The following materials are required:

*To the Office of Graduate Studies:*

- All required Graduate Admissions documents
- Official transcripts
- TOEFL scores (for International Applicants)

*To the Bioengineering Master's Program:*

- Resume or CV
- Statement of Purpose
- Three Recommendation Letters
- GRE scores

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

### Graduation Requirements: Master of Science (MS) and Master of Engineering (ME) in Biological Engineering

Students without a BS in engineering will be required to complete additional courses in mathematics, basic sciences and engineering science. Students with engineering degrees other than biological engineering should meet certain proficiency requirements.

The Biological Engineering Program requires a minimum of 30 semester hours beyond the baccalaureate degree for the **MS thesis (MST)** degree and a minimum of 36 semester hours for the **MS non-thesis (MSNT)** degrees. A student may also choose to complete a **Master of Engineering** (p. 516) (**ME**) degree with a focus in Biological Engineering. The ME degree requires a minimum of 36 semester hours. See the Master of Engineering page for general requirements (p. 516).

If approved by the student's Master's Program Committee, the program of study may include up to six hours of graduate credit transferred from another university or from another campus of the MU system. In general, the Graduate School does not accept correspondence or extension course credit earned at any other campus. However, a student may take up to eight hours of correspondence courses that are authorized for graduate credit and offered through Mizzou Online. Courses to be taken for graduate credit must be approved by the Graduate Dean, and the enrollment form has a place designated for the Graduate Dean's signature. See [online.missouri.edu](http://online.missouri.edu) for more information on distance education opportunities.

As a minimum, the Program of Study for **MST** and **MSNT** should include the following:

BIOL_EN 8402	Research Methods	2
BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8180	Numerical Methods in Engineering Research	3
BIOL_EN 8990	Masters Thesis Research in Biological Engineering 3 credits maximum for MSNT degree; 6 credits minimum for MST degree	1-12
A graduate level Statistics course		3
Additional Bioengineering 8000 level courses (excluding Readings or Problems or Research): two for MST, three for MSNT		6-9

As a minimum, the Program of Study for **ME** should include the following:

BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8000	Scientific Discovery Leading to Life Science Innovations	3
BIOL_EN 8180	Numerical Methods in Engineering Research	3
A graduate level Statistics course		3
Two additional Bioengineering 8000 level courses (excluding Readings or Problems or Research).		6

A minimum of 21 hours must be from the College of Engineering with at least 15 hours in 8000+ level courses.

The combined hours of Research, Problems, and Readings can not be more than 3 credit hours.

Additional course hours for the Master's study may come from Bioengineering courses numbered 7000 or above or courses from other MU departments numbered 7000 or above. Classes chosen to fill the plan of study may include those needed to fulfill proficiency areas if they are taken for graduate credit. Other courses should be chosen to strengthen the student's ability to do research in their specific area.

## PhD in Biological Engineering

### Admission Contact Information

Jean Gruenewald  
W1041C Laffer Hall  
Columbia, MO 65211-5200  
573-882-4659

### Admission Criteria

- Fall deadline: June 1
- Minimum GPA: 3.2
- BS and MS in engineering from an accredited university or equivalent experience. In rare instances, an exceptional student will be allowed to study for the PhD without first completing an MS degree.
- Minimum English Proficiency Requirements (for International Applicants):

Item	Score
IELTS	6.5
TOEFL (Internet-based)	80
TOEFL (Paper-based)	550

### Required BE Doctoral Degree Application Materials

Prospective students should submit graduate applications online: <https://applygrad.missouri.edu/apply/>. The following materials are required:

To the Office of Graduate Studies:

- All required Graduate Admissions documents
- Official transcripts
- TOEFL scores (for International Applicants)

To the BE Program:

- Resume or CV
- Statement of Purpose
- Three Recommendation Letters
- GRE scores

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

### Degree Requirements

Within the first year in the program, each PhD student must pass a qualifying examination before continuing enrollment. The exam is

designed to test the student's ability to undertake advanced learning and carry out independent research.

A doctoral candidate must complete a minimum of 72 credit hours of course work beyond the BS degree with a minimum of fifteen hours (exclusive of research, problems or independent study courses) at the 8000 (graduate) level, including at least three BE courses. In addition, there will be a minimum of one hour of Seminar (BIOL\_EN 8087) and research (BIOL\_EN 9990) may not exceed 28 hours of the total 72 hours required in the PhD Program of Study. The courses and research plan must be approved by the doctoral program committee.

The student is required to pass a comprehensive examination, which includes both written and oral components. The student must demonstrate his or her ability for in-depth research by presenting and successfully defending a dissertation embodying the results of original research. A foreign language is not required.

## Chemical Engineering

Patrick Pinhero, Interim Chair  
College of Engineering  
W2033 Laffer Hall  
(573) 882-4877  
[pinherop@missouri.edu](mailto:pinherop@missouri.edu)  
<http://engineering.missouri.edu/chemical/>

Chemical Engineering at the University of Missouri focuses on education and research involving industrial chemicals, materials, environmental, and life-science processes. We aim to be a reservoir of talent for the research, design, and management of complex process challenges. The Department strives to provide its faculty and students with an environment for research, learning, and professional growth.

The faculty of the MU Department of Chemical Engineering prepares its students for careers in a broad range of fields and to assume leadership roles in society through a well-rounded general and rigorous technical education. The technical curriculum challenges students with a broad education in Chemical Engineering theory and practice, and to improve their skills in problem solving, critical thinking, and appreciation of the relationship between technology and society. Innovative development and use of technology facilitates both research and teaching, creating a diverse, learning environment.

MU Chemical Engineering program aims to develop versatile professionals who can excel in a variety of career environments. Our curriculum is focused on the basic sciences, engineering topics, and problem solving and design. A flexible program offering environmental, material, and biochemical options allows our graduates to move into non-traditional careers as well as traditional chemical engineering. Additionally, we build teamwork and design skills by integrating team design projects, laboratories, and reports into our curriculum.

### Faculty

**Professor** T. K. Ghosh\*\*, P. J. Pinhero\*\*, G. J. Suppes\*\*, Y. Xing\*\*

**Associate Professor** D. G. Retzlloff\*

**Assistant Professor** K. D. Hammond\*\*, B. D. Ulery\*\*

**Associate Teaching Professor** M. A. Myers\*

**Assistant Teaching Professor** S. A. Gheni\*, A. Hacioglu\*, J. L. Tatarko\*

**Adjunct Professor** B. Deng\*\*, H. Foley\*\*, J. M. Gahl\*\*, S. J.

Lombardo\*\*, W. A. Jacoby\*\*

**Adjunct Assistant Professor** S. Baker\*\*, C. Wan\*\*

**Assistant Professor** K. D. Hammond\*\*, B. D. Ulery\*\*

**Professor Emeritus** R. K. Bajpai\*, M. deChazal\*, R. H. Luecke\*, D. S. Viswanath\*, H. K. Yasuda\*

**Chancellor's Professor** P. C. H. Chan\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSChE in Chemical Engineering (p. 478)
  - with emphasis in Biochemical (p. 479)
  - with emphasis in Environmental (p. 480)
  - with emphasis in Materials (p. 481)

### Advising and Scholarship Information Contact

Paul Chan

W2033 Lafferre Hall  
(573) 884-7414

Teresa Pinhero  
W1006 Lafferre Hall  
(573) 882-2684

The educational objectives of the Chemical Engineering program at the University of Missouri are:

- Graduates will meet the expectations of employers of chemical engineers.
- Graduates will pursue advanced study if desired.
- Graduates will pursue leadership positions in their profession and/or communities.

## Exploratory Course

A student wanting to explore chemical engineering as a major should take CH\_ENG 1000 Introduction to Chemical Engineering.

## Graduate

- MS in Chemical Engineering (p. 481)
- PhD in Chemical Engineering (p. 482)

### Admissions Contact:

Department of Chemical Engineering  
Teresa Pinhero  
W1006 Lafferre Hall  
(573) 882-2684  
<http://engineering.missouri.edu/chemical/>

**Director of Graduate Studies:** David G. Retzliff

## About Chemical Engineering

Established in 1906, MU Chemical Engineering has a long standing commitment to provide quality undergraduate and graduate education. Our department serves the discipline well by providing state of the art research in many cutting edge fields including batteries, biochemical engineering, biomaterials, carbon, ceramics, catalysis, corrosion, electrochemistry, environmental sciences, ionic liquids, materials science,

computational modeling & simulation, nanomaterials, nuclear materials, polymers, separations, solar energy, and surface science.

## Faculty Research

Currently active research areas include batteries, biochemical engineering, biomaterials, carbon, ceramics, catalysis, corrosion, electrochemistry, environmental sciences, ionic liquids, materials science, computational modeling and simulation, nanomaterials, nuclear materials, polymers, separations, solar energy, and surface science.

## Facilities and Resources

There are excellent facilities for research students, including electron microscopy, ultra-high vacuum (UHV surface science, atomic force microscopy, a heterogeneous catalysis and reaction kinetics laboratory, a heat and mass transport laboratory, an air pollution monitoring and control laboratory, a biochemical engineering laboratory, a computational laboratory, and a transport properties phenomena laboratory. Excellent library facilities provide the latest domestic and international journals specific to chemical engineering and physical sciences research.

## Internal Funding

Research and teaching assistantships are available to qualified students for the entire year. The yearly stipend for graduate students ranges from \$17,500 to \$20,000, depending on the student's terminal degree. Assistantships also include a tuition waiver and health insurance. Academically qualified students may receive additional scholarship awards. Grant research assistantships and some industrial and Graduate School fellowships may also be available. Extremely well-qualified students may be eligible for the Robert and Dorcas Holtzsmith Graduate Fellowship.

RA and TA appointments allow for 12 credit hours of advanced study each semester. The applicant's academic record and research potential determine the financial assistance offered. Students who receive financial assistance are expected to continue their appointment during the summer session as well, as these appointments are year long positions.

## BSCHE in Chemical Engineering

### Degree Program Description

The curriculum provides a well-rounded general and rigorous technical education in order to hone an appreciation of the relationship between technology and society. The technical curriculum focuses on the basic sciences, as well as Chemical Engineering theory and practice. Throughout the curriculum, problem solving, design, critical thinking and teamwork skills are built by integrating team-based design projects, laboratories, and reports. Our graduates work in traditional chemical engineering areas such as the petroleum and chemical industries, as well as microelectronics, pharmaceuticals, materials, polymers, environmental protection, consumer products and engineering consulting. Our graduates also pursue careers in business management or government as well as advanced studies in medicine, law, business, basic sciences and other engineering disciplines.

### Major Program Requirements

Each graduate must complete the required curriculum designed to demonstrate knowledge and integration of chemical engineering science and practice using analytical, computational and experimental techniques. In addition, each graduate must have a comprehensive

background in advanced chemistry. Graduates have a detailed working knowledge of the entire spectrum of chemical engineering activities.

All requirements listed below are in addition to University graduation requirements, including University general education (p. 33), and College of Engineering requirements. Students are also required to complete emphasis area requirements.

## Major core requirements

### Required entry-level courses

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 3200	Quantitative Methods of Analysis with Lab	4
Approved statistics elective		3

### Chemical engineering core

CH_ENG 1000	Introduction to Chemical Engineering	2
CH_ENG 2225	Mass and Energy Balance	3
CH_ENG 2226	Engineering Process Computations and Laboratory	3
CH_ENG 3234	Principles of Chemical Engineering I	4
CH_ENG 3235	Principles of Chemical Engineering II	3
CH_ENG 3243	Chemical Engineering Laboratory I	3
CH_ENG 3261	Chemical Engineering Thermodynamics I	3
CH_ENG 3262	Chemical Engineering Thermodynamics II	3
CH_ENG 4363	Chemical Reaction Engineering and Technology	3
CH_ENG 4370	Process Control Methods and Laboratory	3
CH_ENG 4385	Chemical Engineering Design I	3
CH_ENG 4980	Process Synthesis and Design	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### First Year

Fall	CR Spring	CR
MATH 1500	5 CHEM 1330	4
CHEM 1320	4 ENGLSH 1000	3
Humanities and Social Science	3 MATH 1700	5
CH_ENG 1000	2 PHYSICS 2750	5
	14	17

### Second Year

Fall	CR Spring	CR
CHEM 2100	3 MATH 4100	3
PHYSICS 2760	5 CHEM 2110	3
CH_ENG 2225	3 CHEM 2130	2
MATH 2300	3 Approved Statistics Elective	3

Humanities and Social Science	3 Humanities and Social Science	3
	Approved Elective	3
	17	17

### Third Year

Fall	CR Spring	CR
CHEM 3200	4 CH_ENG 3235	3
CH_ENG 2226	3 Approved Chemical Engineering Elective	3
CH_ENG 3234	4 Approved Technical Elective	3
CH_ENG 3261	3 Humanities and Social Science	3
Humanities and Social Science	3 CH_ENG 3262	3
	17	15

### Fourth Year

Fall	CR Spring	CR
CH_ENG 3243	3 CH_ENG 4370	3
CH_ENG 4363	3 CH_ENG 4980	3
CH_ENG 4385	3 Approved Chemical Engineering Elective	3
Approved Chemical Engineering Elective	3 Approved Technical Elective	3
Approved Technical Elective	3 Humanities and Social Science	3
	15	15

Total Credits: 127

# BScE in Chemical Engineering with Emphasis in Biochemical

## Degree Program Description

The curriculum provides a well-rounded general and rigorous technical education in order to hone an appreciation of the relationship between technology and society. The technical curriculum focuses on the basic sciences, as well as Chemical Engineering theory and practice. Throughout the curriculum, problem solving, design, critical thinking and teamwork skills are built by integrating team-based design projects, laboratories, and reports. Our graduates work in traditional chemical engineering areas such as the petroleum and chemical industries, as well as microelectronics, pharmaceuticals, materials, polymers, environmental protection, consumer products and engineering consulting. Our graduates also pursue careers in business management or government as well as advanced studies in medicine, law, business, basic sciences and other engineering disciplines.

## Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the BScE requirements (p. 478), in addition to the degree requirements below.

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIOCHM 4270	Biochemistry	3
CH_ENG 4315	Introduction to Bioprocess Engineering	3
CH_ENG 4316	Biomass Refinery Operations	3



## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 CHEM 1330	4
CHEM 1320	4 Humanities and Social Science	3
CH_ENG 1000	2 MATH 1700	5
Humanities and Social Science	3 PHYSICS 2750	5
ENGLISH 1000	3	
	17	17

Second Year		
Fall	CR Spring	CR
CHEM 2100	3 BIO_SC 1500	5
PHYSICS 2760	5 MATH 4100	3
CH_ENG 2225	3 CHEM 2110	3
MATH 2300	3 CHEM 2130	2
Humanities and Social Science	3 CH_ENG 4270	3
	17	16

Third Year		
Fall	CR Spring	CR
BIO_SC 2200	4 BIO_SC 2300	4
CHEM 3200	4 CH_ENG 3262	3
CH_ENG 2226	3 Approved Chemical Engineering Elective	3
CH_ENG 3234	4 Humanities and Social Science	3
CH_ENG 3261	3 CH_ENG 3235	3
	18	16

Fourth Year		
Fall	CR Spring	CR
CH_ENG 3243	3 BIOCHM 4270	3
CH_ENG 4316	3 CH_ENG 4315	3
CH_ENG 4363	3 CH_ENG 4370	3
CH_ENG 4385	3 CH_ENG 4980	3
Humanities and Social Science	3 Humanities and Social Science	3
	15	15

Total Credits: 131

## BScHE in Chemical Engineering with Emphasis in Environmental

### Degree Program Description

The curriculum provides a well-rounded general and rigorous technical education in order to hone an appreciation of the relationship between technology and society. The technical curriculum focuses on the basic sciences, as well as Chemical Engineering theory and practice. Throughout the curriculum, problem solving, design, critical thinking and teamwork skills are built by integrating team-based design projects, laboratories, and reports. Our graduates work in traditional chemical engineering areas such as the petroleum and chemical industries, as well as microelectronics, pharmaceuticals, materials, polymers, environmental protection, consumer products and engineering consulting. Our graduates also pursue careers in business management or government

as well as advanced studies in medicine, law, business, basic sciences and other engineering disciplines.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the BScHE requirements (p. 478), in addition to the degree requirements below.

CH_ENG 3307	Chemical Process Safety and Professional Ethics	3
CH_ENG 4220	Hazardous Waste Management	3
CH_ENG 4311	Chemodynamics	3
CH_ENG 4312	Air Pollution Control	3
CV_ENG 3200	Fundamentals of Environmental Engineering	4

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 CHEM 1330	4
CHEM 1320	4 Humanities and Social Science	3
CH_ENG 1000	2 MATH 1700	5
Humanities and Social Science	3 PHYSICS 2750	5
ENGLISH 1000	3	
	17	17

Second Year		
Fall	CR Spring	CR
CHEM 2100	3 MATH 4100	3
PHYSICS 2760	5 CHEM 2110	3
CH_ENG 2225	3 CHEM 2130	2
MATH 2300	3 CV_ENG 3200	4
Humanities and Social Science	3 Approved Statistics Elective Humanities and Social Science	3 3
	17	18

Third Year		
Fall	CR Spring	CR
CHEM 3200	4 CH_ENG 3235	3
CH_ENG 2226	3 CH_ENG 3307	3
CH_ENG 3234	4 CH_ENG 4311	3
CH_ENG 3261	3 Approved Chemical Engineering Elective	3
Humanities and Social Science	3 CH_ENG 3262	3
	17	15

Fourth Year		
Fall	CR Spring	CR
CH_ENG 3243	3 CH_ENG 4220	3
CH_ENG 4312	3 CH_ENG 4370	3
CH_ENG 4363	3 CH_ENG 4980	3
CH_ENG 4385	3 Humanities and Social Science	3
Environmental Law	3 CH_ENG 4285	3
	15	15

Total Credits: 131

## BSCHE in Chemical Engineering with Emphasis in Materials

### Degree Program Description

The curriculum provides a well-rounded general and rigorous technical education in order to hone an appreciation of the relationship between technology and society. The technical curriculum focuses on the basic sciences, as well as Chemical Engineering theory and practice. Throughout the curriculum, problem solving, design, critical thinking and teamwork skills are built by integrating team-based design projects, laboratories, and reports. Our graduates work in traditional chemical engineering areas such as the petroleum and chemical industries, as well as microelectronics, pharmaceuticals, materials, polymers, environmental protection, consumer products and engineering consulting. Our graduates also pursue careers in business management or government as well as advanced studies in medicine, law, business, basic sciences and other engineering disciplines.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), and the BSCHE requirements (p. 478), in addition to the emphasis requirements below.

ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
CH_ENG 4317	Chemical Processing in Semiconductor Device	3
CH_ENG 4319	Introduction to Polymer Materials	3
CH_ENG 4321	Introduction to Ceramics	3
Approved Materials Elective		6

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 CHEM 1330	4
CHEM 1320	4 Humanities and Social Science	3
CH_ENG 1000	2 MATH 1700	5
Humanities and Social Science	3 PHYSICS 2750	5
ENGLSH 1000	3	
	17	17
Second Year		
Fall	CR Spring	CR
CHEM 2100	3 MATH 4100	3
PHYSICS 2760	5 CHEM 2110	3
CH_ENG 2225	3 CHEM 2130	2
MATH 2300	3 ENGINR 1200	3
Humanities and Social Science	3 Approved Statistics Elective	3
	Humanities and Social Science	3
	17	17
Third Year		
Fall	CR Spring	CR
CHEM 3200	4 CH_ENG 3235	3

CH_ENG 2226	3 CH_ENG 4321	3
CH_ENG 3234	4 Approved Chemical Engineering Elective	3
CH_ENG 3261	3 Humanities and Social Science	3
ENGINR 2200	3 CH_ENG 3262	3
	17	15

Fourth Year		
Fall	CR Spring	CR
CH_ENG 3243	3 CH_ENG 4319	3
CH_ENG 4317	3 CH_ENG 4370	3
CH_ENG 4363	3 CH_ENG 4980	3
CH_ENG 4385	3 Approved Materials Elective	3
Approved Materials Elective	3 Humanities and Social Science	3
	15	15

Total Credits: 130

## MS in Chemical Engineering

### Minimum Graduate School Requirements

- The student's program must include a minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent).
- At least 3 credits must be in 8000+ level courses, not including special readings, seminar, or research; and no more than 4-% of the total can be research-based.
- The candidate must have completed all graduate work attempted at MU with a GPA of 3.0 or better.
- Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of Chemical Engineering.
- Students must present a thesis.
- Students must be enrolled.

### Sample course list

CH_ENG 8336	Advanced Heat and Momentum Transfer	3
CH_ENG 8337	Advanced Mass Transfer	3
CH_ENG 8451	Advanced Chemical Engineering Thermodynamics I	3
CH_ENG 8463	Chemical Reaction Engineering Science	3
CH_ENG 8087	Seminar in Chemical Engineering	1
CH_ENG 8990	Research-Masters Thesis in Chemical Engineering	8
CH_ENG 7226	Engineering Research Calculations and Reporting (Or Math 7000+)	3
7000+ CH_ENG, Other Engineering, Physical, Chemical, or Biological Sciences.	Electives must be approved by student's thesis advisor and thesis committee.	6
Total Credits		30

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission consideration: the requirements of the M.S. in Chemical Engineering program (<http://gradstudies.missouri.edu/academics/programs/chemical-engineering/master-of-science-in-chemical-engineering.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/apply>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn

about specific admission criteria, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

### Application Deadlines

- Fall Deadline: March 15
- With change of degree within MU: May 15
- Spring Deadline: October 15
- With change of degree within MU: November 1

### Required Application Materials

#### Chemical Engineering Program

- Résumé
- Transcript
- Statement of Purpose
- 3 Letters of Reference
- GRE scores (School Code: 6875; Dept. Code: 1001)
- TOEFL (if you are an international student)
- Any additional documents requested by the Office of Graduate Studies

## PhD in Chemical Engineering

### Minimum Graduate Admissions Requirements

- The student's program must include a minimum of 72 hours of graduate credit beyond the bachelor's degree (or its equivalent).
- At least 15 credits must be in 8000+ level courses, not including special readings, seminar, or research; and no more than 4-% of the total can be research-based.
- The candidate must have completed all graduate work attempted at MU with a GPA of 3.0 or better.
- Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of Chemical Engineering.
- Students must present a dissertation
- Students must be enrolled.

### Sample course list

CH_ENG 8336	Advanced Heat and Momentum Transfer	3
CH_ENG 8337	Advanced Mass Transfer	3
CH_ENG 8451	Advanced Chemical Engineering Thermodynamics I	3
CH_ENG 8463	Chemical Reaction Engineering Science	3
CH_ENG 8087	Seminar in Chemical Engineering	1
CH_ENG 8990	Research-Masters Thesis in Chemical Engineering	43
or CH_ENG 9990	Research-Doctoral Dissertation in Chemical Engineering	
CH_ENG 7226	Engineering Research Calculations and Reporting (Or Math 7000+)	3

7000+ CH\_ENG, Other Engineering, Physical, Chemical, or Biological Sciences. Electives must be approved by student's thesis advisor and thesis committee. 9

8000+ CH\_ENG, Other Engineering, Physical, Chemical, or Biological Sciences. Electives must be approved by student's thesis advisor and thesis committee. 3

Total Credits 71

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission consideration: the requirements of the PhD. in Chemical Engineering program (<http://gradstudies.missouri.edu/academics/programs/chemical-engineering/doctorate-in-chemical-engineering>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/apply>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, eligibility and application process.

Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of the Graduate Studies and the degree program to which you've applied.

### Application Deadlines

- Fall Deadline: March 15
- With change of degree within MU: May 15
- Spring Deadline: October 15
- With change of degree within MU: November 1

### Required Application Materials

#### Chemical Engineering Program

- Résumé
- Transcript
- Statement of Purpose
- 3 Letters of Reference
- GRE scores (School Code: 6875; Dept. Code: 1001)
- TOEFL (if you are an international student)
- Any additional documents requested by the Office of Graduate Studies

## Civil Engineering

Zhiqiang Hu, Interim Chair  
 Department of Civil & Environmental Engineering  
 E2509 Lafferre Hall  
 (573) 882-6084  
<http://engineering.missouri.edu/civil/>

Civil engineers are responsible for planning, design, construction, and operation of public and private facilities essential to modern life; including infrastructure for transportation of people and goods, water supply and water treatment, waste disposal, communications, and energy. Civil engineers are problem solvers, meeting the challenges of infrastructure, pollution, traffic congestion, drinking water supply, energy, national security, communications, urban redevelopment, and sustainable community planning.

## Faculty

**Professor** J. J. Bowders Jr\*\*, P.E., W. G. Buttlar\*, P.E., Z. Chen\*\*, P.E., B. Deng\*\*, V. S. Gopalaratnam\*, P.E., Z. Hu\*\*, P.E., H. A. Salim\*\*, P.E., C. C. Sun\*\*, P.E., Esq., G. Washer\*\*, P.E.

**Associate Professor** P. K. Edara\*\*, P.E., M. M. Fidalgo\*\*, J. E. Loehr\*\*, P.E., T. C. Matisziw\*\*, S. L. Orton\*\*, P.E., B. L. Rosenblad\*\*, P.E., K. M. Trauth\*\*, P.E.

**Assistant Teaching Professor** E. C. Inniss\*\*

**Adjunct Faculty** A. Boeckmann, P.E., H. Brown\*, P.E., C. J. Nemmers\*, P.E.

**Professor Emeritus** T. E. Clevenger\*, S. A. Kiger\*, M. R. Virkler\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSCiE in Civil Engineering (p. 484)

The Department of Civil and Environmental Engineering offers a Bachelor of Science in Civil Engineering (BSCiE). Most graduates take the Fundamentals of Engineering Exam. Graduates are encouraged to become registered professional engineers and to continue their education throughout their careers.

## Departmental Honors

Students who will graduate with a 3.0 GPA or higher are eligible for the College of Engineering honors program. Interested students should ask their advisor for details about this highly rewarding program that can include earning a salary for research performed under the guidance of a faculty member, and eligibility for dual enrollment in graduate classes.

## Educational Mission

The educational objectives of the Bachelor of Science in Civil Engineering describe the expected accomplishments of graduates after graduation. It is expected that nearly all students completing the requirements of the Bachelor of Science in Civil Engineering will engage in the life-long learning necessary to advance professionally in the field of civil engineering and contribute to society and the profession through involvement in professional or other service activities.

It is expected that most graduates will

1. Enter the profession of civil engineering with proficiency in environmental engineering, geotechnical engineering, structural engineering, transportation engineering and water resources engineering. In doing so, these students will
  - a. Take and pass the Fundamentals of Engineering exam
  - b. Gain employment as an engineer-in-training
  - c. Take and pass the Professional Engineers Exam, and
  - d. Be licensed to practice engineering in one or more states

It is expected that some graduates will

1. Begin careers in civil engineering-related industries, especially construction and other careers not requiring professional licensure
2. Begin and complete graduate study in civil engineering at MU or other Carnegie doctoral extensive universities, and
3. Begin and complete graduate/professional study in other associated fields

The following list of outcomes describes what graduates are expected to know and to be able to do when they complete the program. At graduation, graduates will have:

- Ability to apply knowledge of mathematics through differential equations, calculus-based physics, chemistry and at least one additional area of basic science
- Ability to conduct laboratory experiments and to critically analyze and interpret experimental data
- Ability to perform civil engineering design by means of design experiences integrated throughout the professional component of the curriculum
- Ability to function on teams that must integrate contributions from different areas of civil engineering toward the solution of multidisciplinary projects
- Ability to identify, formulate and solve civil engineering problems
- Understanding of professional practice issues in civil engineering including professional and ethical responsibility
- Ability to communicate effectively
- The broad education necessary to understand the impact of civil engineering solutions in a global economic, environmental, and societal context
- Recognition of the need for, and an ability to engage in, life-long learning
- Knowledge of contemporary issues as they relate to civil engineering problems and solutions
- Ability to use the techniques, skills and modern engineering tools necessary for civil engineering practice, particularly in areas of environmental/water resources, geotechnical, structural and transportation engineering

## Graduate

- MS in Civil Engineering (p. 485)
- PhD in Civil Engineering (p. 486)

<http://engineering.missouri.edu/civil/>

**Director of Graduate Studies:** Praveen Edara

## About the Program

Civil engineering education at MU began in 1856. Graduate programs offered by the department prepare students for leadership positions in academia, research and advanced practice engineering careers. Major program areas include: structural mechanics, structural engineering and materials, transportation engineering, geotechnical and geoenvironmental engineering, environmental engineering, hydrology and water resources engineering.

## Areas of Study

**Structural Mechanics, Structural Engineering and Materials.** Study areas: fracture and failure of composites, model-based simulation, inelastic response of materials and structures, bridge engineering, linear and nonlinear structural dynamics, explosion resistant structural design, timber engineering, microstructure of porous materials, concrete and aggregate durability, advanced fiber reinforced composites for construction and nondestructive structural health evaluation

**Environmental Engineering.** Study areas: water and air pollution control, water purification, wastewater treatment, environmental

remediation, hazardous and solid waste treatment and management, membrane processes, implication and application of environmental nanotechnology and renewable energy issues. Other areas of research include the application of physical, chemical and biological principles to design of water supply systems, pollution control facilities and fate and transport of contaminants in soils and groundwater.

**Geotechnical and Geoenvironmental.** Study areas: strength, deformation and flow properties of earthen materials and application of this understanding to foundation engineering, slope stability analyses, earth structures design, pavement design and performance, and geoenvironmental challenges. Research areas include: unsaturated soil mechanics, soil improvement techniques, geosynthetics, landfills and waste containment, stabilization and maintenance of earth slopes, in situ soil cleanup technologies, geotechnical earthquake engineering, nondestructive geophysical technologies for subsurface applications, satellite – and ground-based remote sensing risk analysis and reliability-based design.

**Transportation Engineering.** Study areas: traffic engineering, intelligent transportation systems, highway safety, network modeling and simulation, geographic information systems, security and evacuations, transportation planning, traffic flow theory, highway design, intersection operations, bicycle and pedestrian facilities, infrastructure management, driver behavior, airport engineering, transportation legal issues, artificial intelligence and advanced computing applications in transportation.

**Hydrology and Water Resources.** Study areas: hydrologic, hydraulic, regulatory/public policy and geographic information system applications for transportation, surface water quality and storm water management and decision making.

## Facilities and Resources

The department has laboratories for experimental research in structural engineering, materials, geotechnical and geoenvironmental engineering, environmental engineering, and transportation engineering.

**Structural Testing.** Several computer-controlled electrohydraulic testing machines and associated instrumentation are available in the high-bay structural engineering and materials engineering laboratories. The laboratories are serviced by a 5-ton overhead crane. An additional structural testing facility located south of the campus houses a 100-foot by 20-foot structural floor with anchor points on a 4-foot-square grid. This high-bay facility is serviced by a 10-ton overhead crane. There is also a materials laboratory for concrete mix design and evaluation.

**Geotechnical Testing.** The laboratories house state-of-the-art permeability, consolidation, triaxial, geosynthetics, soil dynamics and unsaturated soil mechanics testing equipment and is home to the Missouri Soil Characterization Laboratory. Additional laboratories include facilities and equipment for large-scale model testing of slopes, piles and other geotechnical systems, including a 10-acre geotechnical experiment site.

**Environmental Labs.** The laboratories are supplied with analytical equipment for the complete physical, chemical and microbiological analysis of environmental samples. Additional capacities include membrane fabrication and characterization facilities, and chemical reactors and bioreactors for contaminant removal and/or degradation.

**Transportation Laboratory.** The laboratories include capabilities in advanced surveillance and video image processing, transportation modeling and simulation, Geographical Information Systems, traffic

management and control, driver behavior, and safety, and ZouSim (bicycle, wheelchair, and driving simulator).

**Missouri Asphalt Pavement and Innovation Laboratory (MAPIL).** Advanced asphalt binder and mixture tests, including bending beam rheometer, dynamic shear rheometers (2), extraction and recovery apparatus, mixture creep, fatigue, rutting and fracture tests, compaction and fabrication equipment, advanced numerical modeling workstations and software, and an innovation center focusing on sustainable and resilient infrastructure development and intelligent infrastructure sensing and data analytics.

## Funding

In addition to assistantships sponsored by the National Science Foundation (NSF), the US Environmental Protection Agency, Federal Highway Administration and other governmental agencies, several graduate assistantships are available each year. The assistantships are primarily research appointments; however, the Department does make a limited number of teaching assistantship appointments. Most assistantships offer tuition waivers and health insurance.

## BSCiE in Civil Engineering

### Degree Program Description

Civil engineers are responsible for design, construction, and operation of our public and private infrastructure, for protecting our natural resources, and for preserving the health and safety of the general public. Civil engineers are vital to our nation's economic vitality as they provide infrastructure for safe, efficient, and sustainable transportation of people and goods. The curriculum includes fundamental coursework in math and basic sciences, specialized coursework covering the subdisciplines of structural engineering, transportation engineering, geotechnical engineering, environmental engineering, and water resources engineering, as well as general education courses in the humanities and social sciences. Graduates are well prepared to become licensed Professional Engineers. The BS degree in civil and environmental engineering is accredited by the Engineering Commission of ABET. Graduates are commonly employed by private firms that provide design and consulting services, by construction contractors that build our infrastructure, and by government agencies responsible for specific components of the nation's infrastructure. Some graduates opt to further specialize within the civil engineering profession by pursuing graduate degrees.

### Major Program Requirements

Engineering topics start with basic computer and graphics courses. These are followed with basic engineering science courses, which ground the students in the fundamentals necessary for future course work and a sophomore design experience.

Engineering topics courses in the junior year provide students with the basic fundamentals in the areas of environmental engineering, geotechnical engineering, hydrology/water resources, structural engineering, and transportation/traffic engineering. Many of these topics courses contain elements of civil engineering design. Elective courses in the senior year enable students to specialize within or maintain a broad educational background across the civil engineering discipline.

Design is integrated throughout the curriculum. The capstone design project is supplied by consultants or governmental agencies. The course

requires working in teams, making oral and written presentations, and completing a final design report. Oversight, interaction, and evaluation are provided by practicing engineers from industry and governmental organizations.

In addition to the major core requirements, students must complete all University graduation requirements (p. 32) including University General Education Requirements (p. 33), as well as all degree and college requirements (p. 468).

## Major Core Requirements

<b>Math</b>		16
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
<b>Basic Sciences</b>		17-18
CHEM 1320	College Chemistry I	4
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5-6
or CHEM 1330 & CHEM 2100	College Chemistry II and Organic Chemistry I	
Basic Science Elective		3
<b>Engineering Topics-General</b>		17
INFOTC 1040	Introduction to Problem Solving and Programming	3
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
Engineering topics elective		6
Select two of the following:		
(a)		
ENGINR 2100	Circuit Theory for Engineers	3-4
or BIOL_EN 4380	Applied Electronic Instrumentation	
(b)		
ENGINR 2300	Engineering Thermodynamics	3
or CH_ENG 3261	Chemical Engineering Thermodynamics I	
(c)		
CV_ENG 2080	Introduction to Dynamics	3
or MAE 2600	Dynamics	
<b>Civil Engineering Topics</b>		
CV_ENG 3010	Decision Methods for Civil Engineering Design	3
CV_ENG 3100	Fundamentals of Transportation Engineering	4
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 3300	Structural Analysis I	4
CV_ENG 3312	Reinforced Concrete Design	3
or CV_ENG 3313	Structural Steel Design	
CV_ENG 3400	Fundamentals of Geotechnical Engineering	4
CV_ENG 3600	Civil Engineering Materials	4
CV_ENG 3700	Fluid Mechanics	3
CV_ENG 3702	Hydrology	4
CV_ENG 4980	Civil Engineering Systems Design	3
CV_ENG Electives		15
<b>Advisor-approved electives</b>		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 MATH 1700	5
CHEM 1320	4 PHYSICS 2750	5
ENGINR 1100	2 S BS or HS FA **	3
ENGLISH 1000	3 Basic science elective	3
S BS or HS FA **	3	
		17

Second Year		
Fall	CR Spring	CR
MATH 2300	3 MATH 4100	3
ENGINR 1200	3 PHYSICS 2760	5
CV_ENG 3010	3 ENGINR 2200	3
CV_ENG 3200	4 CV_ENG 3100	4
S BS or HS FA **	3	
		16

Third Year		
Fall	CR Spring	CR
CV_ENG 3300	4 INFOTC 1040	3
CV_ENG 3400	4 CV_ENG 3702	4
CV_ENG 3600	4 CV_ENG 3312 or 3313	3
CV_ENG 3700	3 Civil Engineering Elective	3
undefined	S BS or HS FA **	3
		15

Fourth Year		
Fall	CR Spring	CR
Engineering Topics Elective	3 CV_ENG 4980	3
Engineering Topics Elective	3 S BS or HS FA **	3
Civil Engineering Elective	6 Civil Engineering Electives	6
S BS or HS FA **	3 Advisor Approved Elective	3
		15

Total Credits: 125

\* Denotes General Education Requirements

\*\* S BS = Social Behavior Science; HS FA = Humanities Studies/Fine Arts

## MS in Civil Engineering

Dr. Praveen Edara  
 Director of Graduate Studies  
<http://engineering.missouri.edu/civil/>

## Degree Requirements

A student's program must include a minimum of 30 hours (transportation area) or 31 hours of graduate credit beyond the bachelor's degree (or its equivalent). A total of 15 hours of the 30-hour minimum must be selected from courses at the 8000 or 9000 level. No more than 40 percent of the 30-hour credit requirement can be satisfied by a combination of special investigations, research (CV\_ENG 8990), readings and/or problems courses. The student's GPA must be 3.0 or greater. Students should

consult with their academic advisor to ensure all requirements are satisfied.

## Sample Plan of Study

- 8 or more courses (3 credit hours each) at the appropriate level
- Up to 6 hours of research (CV\_ENG 8990)
- One or more 1-hour seminars associated with your specialty area (seminar is not required in all areas; see your academic advisor for details).

## Thesis/Non-Thesis Requirements

All candidates for the Master of Science degree are required to complete a substantial independent effort reflecting some measure of creativity and/or originality and to produce evidence of such effort. A final oral examination is required of all master's candidates. Approximately two weeks before this examination, a candidate must submit to an examining committee a thesis, a formal report or a design of professional quality applying the knowledge gained in course work to the solution of an engineering problem. Students who receive research appointments or traineeships are required to submit a thesis. Formal or design report is at the discretion of the advisor.

Academic credit allowed for this portion of a student's program of study shall be for 3 credit hours for a report and 6 credit hours for a thesis.

## Admissions

Priority admission and funding consideration are given to applications received by February 15/September 15. Applications submitted after February 15/September 15 will be considered, with preference going to those received by May 1/December 1. Prospective students applying after May 1/December 1 will be considered for fall/spring admission on a case by case basis.

## Admission Criteria

- Minimum GPA: 3.0 in last 2 years of coursework. Note: Lower than 3.0 GPA requires special action and substantiation such as good test scores on the GRE or other recognized examinations.
- BS in engineering. Applicants with BS degrees in related fields may be considered for admission. If admitted, non-engineers are required to complete remedial courses as determined by their advisor and advisory committee.
- GRE test is required but no minimum score set. Typical acceptance scores: around 300 for Verbal + Quantitative and between 3.0 and 5.0 for Analytical.
- Minimum TOEFL and IELTS scores for international students: See language requirements by the Office of Graduate Studies.

## Required Application Materials

Upload to the Office of Graduate Studies:

- All required Graduate Admissions documents
- 3 Letters of Recommendation (at least two from faculty members who have taught or advised you)
- GRE scores
- Résumé
- Statement of Purpose
  - See instructions (<http://engineering.missouri.edu/civil/degree-programs/statement-of-purpose-guidelines>)

## Financial Aid from the Program

If you wish to be considered for financial aid, please complete the financial aid section of the departmental application.

## PhD in Civil Engineering

Dr. Praveen Edara  
Director of Graduate Studies  
<http://engineering.missouri.edu/civil/>

## Degree Requirements

PhD programs are committee administered and tailored to fit the needs of each individual student. A minimum of 72 credit hours, including the credit hours taken during the MS program beyond the bachelor's degree, are required. Students who received the MS degree from other than MU may transfer up to 30 hours of credit from their MS degree. The candidate must pass a comprehensive examination and submit and defend a dissertation at a final oral examination.

## Residency Requirement

A student must complete at least two nine-hour semesters or three six-hour semesters in an 18-month period at MU. All courses taken to satisfy the residency requirement must be approved by the student's doctoral program committee. Correspondence and off-campus courses may not be counted toward the residency requirements.

## Qualifying for Candidacy

Students are accepted for advisement upon CE Graduate Admissions Committee review. Formal acceptance to the PhD program is based on a qualifying examination during the first year of post-master's work.

The *Qualifying Examination* is required to determine the formal acceptance to candidacy for the PhD. degree and is based on a written and/or oral examination administered by faculty members in the student's area of concentration. The student, upon passing this examination, will be advised on the program of coursework that should be taken to prepare for the PhD. degree.

## Comprehensive Examination Process

Candidacy for a doctoral degree is established by passing the comprehensive examination. The comprehensive examination includes written and oral sections and is completed as the candidate is completing the prescribed coursework to determine if the PhD. candidate is adequately prepared to conduct the doctoral research. This examination will focus on the coursework and/or research/proposal writing. The student may be advised to take some additional coursework. A written proposal of the research must be distributed to the student's doctoral committee for review after which an oral presentation and examination on the proposed work will be administrated.

## Dissertation Requirements

The third examination, called the *Defense of the Doctoral Dissertation*, is required to determine if the PhD. degree should be awarded on the basis of the research that is presented. The student must submit the written dissertation to the committee members at least two weeks prior to the exam. This is an oral examination that is administered by the Doctoral Committee.

Graduate students are required to submit one copy of their dissertation or thesis to the Office of Graduate Studies, 210 Jesse Hall on a CD.

## Admissions

### Application Deadlines

Priority admission and funding consideration are given to applications received by February 15/September 15. Applications submitted after February 15/September 15 will be considered, with preference going to those received by May 1/December 1. Prospective students applying after May 1/December 1 will be considered for fall/spring admission on a case by case basis.

### Admission Criteria

- Minimum GPA: 3.0 in last 2 years of coursework. Note: Lower than 3.0 GPA requires special action and substantiation such as good test scores on the GRE or other recognized examinations.
- BS in engineering. Applicants with BS degrees in related fields may be considered for admission. If admitted, non-engineers are required to complete remedial courses as determined by their advisor and advisory committee.
- GRE test is required but no minimum score set. Typical acceptance scores: around 300 for Verbal + Quantitative and between 3.0 and 4.0 for Analytical.
- Minimum TOEFL and IELTS scores for international students: See language requirements by the Office of Graduate Studies.

### Required Application Materials

- All required Graduate Admissions documents
- 3 Letters of Recommendations (at least two from faculty members who have taught or advised you)
- GRE scores
- Résumé
- Statement of Purpose
  - See instructions (<http://engineering.missouri.edu/civil/degree-programs/statement-of-purpose-guidelines>)

### Financial Aid from the Program

If you wish to be considered for financial aid, please complete the financial section of the departmental application.

## Computer Engineering

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Kannappan Palaniappan, Interim Chair EECS  
College of Engineering  
201 Naka Hall  
(573) 882-3843  
(573) 882-6387  
pal@missouri.edu  
<http://engineering.missouri.edu/eecs>

## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS

undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. At the graduate level, the EECS Department offers MS and ME degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate degree program prepares students for rewarding careers in hardware and software systems and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 (<http://missouri.edu/about/history/engineering.php>) as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with 35 faculty members (<http://engineering.missouri.edu/eecs/people>), not including instructors, teaching professors, and emeriti.

## About Electrical and Computer Engineering Program

The Electrical and Computer Engineering Program (ECEP) in the Electrical Engineering and Computer Science (EECS) Department is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research. The ECE Program offers a comprehensive undergraduate curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in computer and electrical engineering. Students seeking either one of the two undergraduate degrees offered -- Bachelor of Science in Computer Engineering (BS CoE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ce>) and Bachelor of Science in Electrical Engineering (BS EE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ee>) -- are able to pursue dual degrees in related fields including information technology and computer science, as well as in the other degree of the ECEP, i.e. BS EE and BS CoE, respectively. Not to mention majors and minors in other colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experiences working with faculty. The faculty research areas covers both well established and emerging fields including mobile video communication; wireless and digital communications; satellite remote sensing; geospatial image and video processing; computational neuroscience; systems biology; eldercare technology; computational intelligence, machine learning, pattern recognition, deep networks, fuzzy systems; computer vision; robotic vision; robotic assistive technology; human/robot interaction; landmine detection; pulsed power and plasmatechnology; nuclear and renewable energy systems; semiconductor devices; photonics; accelerators and beams; antennas and radar systems; nano and microelectromechanical systems; bioMEMS; heterostructures, microfabrication; feedback and control systems; parallel processing; computer architecture; autonomous



systems; real-time embedded architectures; high performance computing; sensor networks; and human-computer interfaces.

The ECEP in EECS also offers a Dual Bachelor of Science in Electrical Engineering & Physics (<http://engineering.missouri.edu/ece/degree-programs/bs-eep>).

At the MS and PhD levels, the ECEP offers the following graduate degrees:

- Master of Science in Computer Engineering (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msce>)
- Master of Science in Electrical Engineering (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)
- Doctoral Degree in Electrical and Computer Engineering (<http://engineering.missouri.edu/ece/degree-programs/phd>)

with options for dual masters and Masters in Engineering (ME) -- i.e. coursework only, without thesis. The graduate degree programs prepare graduates of four-year BS degrees in Computer Engineering, Electrical Engineering, Computer Science or closely related areas for further study at the doctoral level or for successful careers as specialized CoE and EE professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with the faculty in their respective fields of research expertise.

The faculty members in the ECE Program participate in the full spectrum of undergraduate and graduate education. Graduate education has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, that is often multidisciplinary in nature, spanning interdepartmental and cross-college research. The aim is to produce professionals who can function well as part of interdisciplinary research and development as well as product teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the ECEP are among the leading faculty in University's Research Revenue, with major research projects funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) as well as Microsoft, Honeywell and Monsanto, to cite just a few.

Research facilities are well established around faculty expertise in the broad emphasis areas of Communications and Signal Processing (SP), Intelligent Systems and Robotics (ISR), Physical and Power Electronics (PPE), Applied Physics (AP), Systems Modeling and Control (SMC), Computer Architecture and Systems (CAS), Nano/Micro Technology (NMT). Faculty in the Electrical and Computer Engineering Program work closely with faculty in the Computer Science Program within the EECS Department.

For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in CoE or EE is available.

Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

## Summary

The ECE Program offers undergrad degrees:

- Bachelor of Science in Computer Engineering (BS CoE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ce>)
- Bachelor of Science in Electrical Engineering (BS EE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ee>)
- Dual Bachelor of Science in Electrical Engineering & Physics (<http://engineering.missouri.edu/ece/degree-programs/bs-eep>)

with many more options for dual degrees within the EECS department and outside.

Graduates with BS degrees in CoE, EE, CS or closely related areas can choose to pursue advanced study towards the following degrees:

- Master of Science in Computer Engineering (MS) (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msce>)
- Master of Science in Electrical Engineering (MS) (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)
- Doctoral Degree in Electrical and Computer Engineering (PhD) (<http://engineering.missouri.edu/ece/degree-programs/phd>)

The MS and PhD are professional research degrees designed to prepare students for advanced professional careers, including teaching and research at university level, as well as research and development in industrial, government, and nonprofit organizations.

The ECE Program offers learning and research opportunities for both undergraduate and graduate students in the areas of:

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep networks, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasmatechnology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;

- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Research

The ECEP in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Faculty

**Professor** R. D. Curry\*\*, C. H. Davis\*\*, J. M. Gahl\*\*, S. Gangopadhyay\*\*, Z. He\*\*, D. K. C. Ho\*\*, N. E. Islam\*\*, J. M. Keller\*\*, S. D. Kovaleski\*\*, J. W. Kwon\*\*, S. Nair\*\*, R. M. O'Connell\*\*, M. A. Prelas\*\*, M. Skubic\*\*

**Associate Professor** M. Almasri\*\*, G. DeSouza\*\*, T. G. Engel\*\*, T. Han\*\*, J. J. Legarsky\*\*

**Assistant Research Professor** G. Scott\*\*

**Assistant Teaching Professor** R. Druce\*, L. Rivera\*

**Professor Emeritus** L. A. Akers\*, M. J. Devaney\*, C. O. Harbourt\*, K. F. Lee\*, R. W. McLaren\*, B. W. Sherman, H. W. Tyrer Jr.\*, K. Unklesbay

**Associate Professor Emeritus** R. W. Leavene Jr.\*

**Adjunct** M. Becchi\*\*, D. Heise, G. K. Hubler\*, V. Korampally\*, G. Triplett\*\*, A. Zare\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSCoE in Computer Engineering (p. 492)

### Advising and Scholarship Contact

Tami Beatty  
Undergraduate Program Office  
W1002 Thomas & Nell Lafferre Hall  
(573) 882-2648  
beattyt@missouri.edu

The Department of Electrical Engineering and Computer Science (EECS) offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The

undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

The EECS department emphasizes close interaction with industry. Industry engineers visit regularly and industry-sponsored student projects are provided to give extra dimension to the program.

Many students in the EECS department combine the electrical engineering major with the computer engineering major in a special 138-credit program. These students receive both the BS EE and BS CpE degrees.

Students interested in interdisciplinary studies may use some electives to study business, premedicine, prelaw, and other areas. Students are able to choose from a wide variety of courses offered by other departments in the College of Engineering, as well as from other MU colleges, taking advantage of the multidisciplinary nature of the campus.

The current educational objectives of the electrical engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

The current educational objectives of the computer engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

Both the Bachelor of Science in Electrical Engineering (BS EE) and the Bachelor of Science in Computer Engineering (BS CoE) require that students earn a 2.0 GPA or better in all courses that have an MU engineering prefix. All ECE courses require a grade of C or better in ECE prerequisites.

Engineering design in both the electrical engineering and computer engineering programs is provided through an integrated laboratory structure. Beginning with the first laboratory course in the fourth semester of each program, students have a significant design and laboratory experience in each semester of their respective programs.

In addition to the major core requirements, students must complete all University graduation requirements (p. 32) including University general education (p. 33), as well as all degree and college or school requirements.

## Electrical and Computer Engineering (ECE) Honors Program

The ECE Honors Program follows the general rules and philosophy of the College of Engineering Honors Program. Students may enter the program from the beginning of the junior year and must have a GPA of 3.0/4.0 at the start. Eligible students participate in the program by enrolling in ECE 4995 Undergraduate Honors Research in Electrical Computer

Engineering for one to three credit hours, which replaces an equivalent number of hours of ECE technical electives.

The heart of the program is a research or advanced design project culminating in an undergraduate honors thesis. The project is conducted under the supervision of the honors advisor, who is an ECE faculty member selected by mutual agreement between the student and the professor. Satisfactory completion of the project requires approval (signatures) of the honors thesis by both the honors advisor and an additional faculty member, who serves as second reader of the thesis. Students who complete the program and graduate with a GPA of a least 3.0 receive the designation "Honors Scholar in Engineering" at graduation and on their diploma.

Another valuable feature of the Honors Program is that participants may reduce the number of credit hours required for degree completion to the University minimum of 120 by substituting up to six hours of credit from graduate courses through dual (undergraduate/graduate) enrollment during the last four semesters of the undergraduate program and after completion of the honors project.

## Double Majors - Electrical Engineering and Computer Engineering

Many students in the EECS department combine the BS in Electrical Engineering with the BS in Computer Engineering in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

### Major Program Requirements

#### Constitutional Elective

Select one of the following: 3

HIST 1100	Survey of American History to 1865	
HIST 1200	Survey of American History Since 1865	
HIST 1400	American History	
HIST 2210	Twentieth Century America	
HIST 2440	History of Missouri	
HIST 4000	Age of Jefferson	
HIST 4220	U.S. Society Between the Wars 1918-1945	
HIST 4230	Our Times: United States Since 1945	
POL_SC 1100	American Government	
POL_SC 2100	State Government	

Humanities/Fine Arts courses 9

Social Science/Behavioral Science courses 3

Select two of the following: 6

ENGINR 1200	Statics and Elementary Strength of Materials	
ENGINR 2300	Engineering Thermodynamics	
IMSE 2710	Engineering Economic Analysis	

#### Other major core requirement courses:

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLSH 1000	Exposition and Argumentation	3
ECONOM 1014	Principles of Microeconomics	3

or ECONOM 1015	Principles of Macroeconomics	
or ECONOM 1024	Fundamentals of Microeconomics	
CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3
ECE 1000	Introduction to Electrical and Computer Engineering	2
ECE 1210	Introduction to Logic Systems	3
ECE 2100	Circuit Theory I	4
ECE 3210	Microprocessor Engineering	4
ECE 3810	Circuit Theory II	4
ECE 3220	Software Design in C and C++	3
ECE 3830	Signals and Linear Systems	3
ECE 3510	Electromagnetic Fields	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3610	Semiconductors and Devices	3
ECE 3110	Electrical and Computer Engineering Projects	3
ECE 4220	Real Time Embedded Computing	3
ECE 4250	VHDL and Programmable Logic Devices	4
ECE 4270	Computer Organization	4
ECE 4970	Senior Capstone Design	3
<b>Electives</b>		
3000+ ECE or CMP_SC Elective		12
ECE 4000+ Technical Elective		6
ECE 4000-level Senior Lecture/Lab		4
Any Elective		1

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
CHEM 1320	4 CMP_SC 1050	3
MATH 1500	5 ECE 1210	3
ECE 1000	2 ENGLSH 1000	3
Constitutional Requirement	3 MATH 1700	5
Economics Elective	3 Humanities/Fine Arts Elective	3
	17	17
Second Year		
Fall	CR Spring	CR
ECE 2100	4 CMP_SC 2050	3
ECE 3210	4 ECE 3810	4
MATH 2300	3 MATH 4100	3
PHYSICS 2750	5 PHYSICS 2760	5
	16	15
Third Year		
Fall	CR Spring	CR
ECE 3410	4 ECE 3610	3
ECE 3220	3 ECE 4250	4
ECE 3510	3 MATH 2320	3
ECE 3830	3 ECE 4000+ Technical Elective	3
STAT 4710	3 Flexible Technical Elective	3
	16	16

Fourth Year		
Fall	CR Spring	CR
ECE 4220	3 ECE 3110	3
ECE 4270	4 ENGINR 1200, 2300, or IMSE 2710	3
ENGINR 1200, 2300, or IMSE 2710	3 ECE 4000+ Technical Elective	3
Flexible Technical Elective	3 Flexible Technical Elective	3
Social/Behavioral Science Elective	3 Humanities/Fine Arts Elective	3
	16	15

Fifth Year	
Fall	CR
ECE 4970 (WI)	3
ECE 4000-level Senior Lecture/Lab	4
Flexible Technical Elective	3
Humanities/Fine Arts Elective	3
	13

Total Credits: 141

## Graduate

- MS in Computer Engineering (p. 493)

201 Naka Hall

Columbia, MO 65211

Phone: (573) 882-4436

Email: [umcengregegradoff@missouri.edu](mailto:umcengregegradoff@missouri.edu)

<http://engineering.missouri.edu/ece/>

**Director of Graduate Studies:** Gui N. DeSouza

325 Naka Hall

Columbia, MO 65211

Phone: (573) 882-5579

Email: [DeSouzaG@missouri.edu](mailto:DeSouzaG@missouri.edu)

<http://engineering.missouri.edu/ece/>

The Department also offers a PhD in Electrical and Computer Engineering (p. 505), and the College of Engineering offers an interdepartmental ME in Engineering with a focus in Computer or Electrical Engineering (p. 516).

## Research Areas

The ECE Program in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in expenditures with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Specific Topics of Study

- mobile video communication;
- wireless and digital communications;

- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep learning, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Admission Requirements for the MS and ME Programs in EE or CE

- GPA from BS program
- GRE: Quantitative, Verbal and Analytic scores.
- International students:
  - Computer-based TOEFL, or
  - Paper-based TOEFL, or
  - Internet-based TOEFL, or
  - IELTS exam
- 3 letters of recommendation
- Statement of purpose
- Transcripts

**(When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri-Columbia and your program of interest as locations to receive the scores. MU's Institutional Code for the GRE and TOEFL is: 6875.)**

In addition to the Graduate School requirements, the ECE programs have the following additional requirements:

The three letters of recommendation should be from persons familiar with the applicant's engineering or related work. It is required that the recommendation letter use the institutional letterhead or be sent

directly from the recommender's institutional e-mail address (not gmail, hotmail, etc.). Similarly, each provided reference must include the person's institutional e-mail address. Any letters of recommendation or listed reference that does not comply with the above or otherwise look 'unofficial' will be disregarded.

To be accepted outright by the Director of Graduate Studies in ECE (DGS-ECE), the student needs to have a BS degree in either Electrical Engineering or Computer Engineering in addition to meeting the above requirements.

Students who meet the academic requirements but have degrees in other Engineering or Science disciplines can be accepted directly into the MS/ME programs by the Graduate Program Committee in ECE (GPC-ECE).

Such students are strongly encouraged to consult with the DGS-ECE or their advisor about appropriate bridge courses. Based on individual circumstances, students may be advised to register as an undeclared graduate student to fill in background course work prior to admission into the department.

Students who don't meet the above requirements may still be admitted on Probation by the GPC if there are mitigating factors. Students admitted on Probation must receive at least a 3.0 GPA for the first 12 hours of graded graduate coursework completed in their first two semesters. Failure to achieve this GPA will result in expulsion from the ECE MS/ME program.

### Fast Tracking

In an effort to streamline and accelerate the acquisition of MU graduate degree(s) we establish fast tracking options for our current undergraduate students and our 3+2 students. For MU undergraduate students, the fast track option allows them to become integrated into the research environment of the EECS department early in their career and to earn between 6 and 12 hours of graduate credit as their schedules allow. For these qualified graduate school bound students, we will waive the GRE requirement and give them preference in TA and RA positions. For the 3+2 students who demonstrate excellence in their first semester of ECE course work at MU, we will waive the GRE and provide up to 12 hours of graduate credit prior to entry into one of the ECE graduate programs. The summary follows.

#### MU BS students(all relevant majors)

- GPA > 3.0 after junior year
- Waive GRE requirement for admission to ECE graduate programs
- Use 6 hours of 126 for graduate credit (after 90 credit hours have been earned)
- Earn 6 additional hours of graduate credit as schedule allows (after 90 credit hours have been earned)
- Participate in Undergraduate Research at least one semester
- Participate in Honors Scholars' Program

#### International or Domestic 3 + 2 students

- GPA from Home institution (last 60 hours) > 3.2
- MU GPA in at least 12 hours of ECE courses >= 3.5
- Waive GRE requirement for admission
- Take up to 12 hours as dual enrolled student (second semester of first year)

## Internal Funding

### Teaching Assistantships

Teaching assistantships are normally awarded to qualified graduate students with appropriate communication skills who assist faculty members in various phases of instruction. International students may not be appointed to teaching assistantships in their first semester on campus. International students must pass a language screening test at a proper level to be eligible for the TA positions available.

### Research Assistantships

Research assistantships are granted to students qualified for working with professors on particular research projects. The research assistants are selected by faculty members who have research funds to support graduate students. Therefore, students should contact the faculty members directly for the RA possibility.

### Fellowships

The department faculty actively pursue funding for selected research fellowships. Available fellowship opportunities can be found by contacting the ECE Graduate Office. Additionally, a limited number of "Teaching Fellows" are awarded annually to outstanding PhD students, particularly for those preparing for academic careers. Details can be obtained from the ECE Graduate Office.

## BSCoE in Computer Engineering

### Degree Program Description

#### Major Program Requirements

The computer engineering degree offers a balanced approach to both hardware and software, as well as other areas of engineering. Focused areas of work in additional hardware or software, communications, discrete and integrated electronics, and robotics are offered by the department. (Focus areas are not listed on transcripts or diplomas.)

Students must complete all university requirements, including general education (p. 33), and Department Level Requirements (p. 489), in addition to the degree requirements below.

#### Major core requirements

##### Constitutional Elective

Select one of the following:	3
HIST 1100	Survey of American History to 1865
HIST 1200	Survey of American History Since 1865
HIST 1400	American History
HIST 2210	Twentieth Century America
HIST 2440	History of Missouri
HIST 4000	Age of Jefferson
HIST 4220	U.S. Society Between the Wars 1918-1945
HIST 4230	Our Times: United States Since 1945
POL_SC 1100	American Government
POL_SC 2100	State Government

Humanities/Fine Arts courses	9
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Social Science/Behavioral Science courses	6
---	---

##### Other major core requirement courses:

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3

MATH 2320	Discrete Mathematical Structures	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLISH 1000	Exposition and Argumentation	3
ENGINR 1200	Statics and Elementary Strength of Materials	3
or ENGINR 2300	Engineering Thermodynamics	
or IMSE 2710	Engineering Economic Analysis	
CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3
ENGINR 1000	Introduction to Engineering	1
ECE 1210	Introduction to Logic Systems	3
ECE 2100	Circuit Theory I	4
ECE 3210	Microprocessor Engineering	4
ECE 3810	Circuit Theory II	4
ECE 3830	Signals and Linear Systems	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3110	Electrical and Computer Engineering Projects	3
ECE 3220	Software Design in C and C++	3
ECE 4220	Real Time Embedded Computing	3
ECE 4250	VHDL and Programmable Logic Devices	4
ECE 4270	Computer Organization	4
ECE 4970	Senior Capstone Design	3

**Electives**

3000+ ECE or CMP_SC Elective	9
ECE 4000+ Technical Elective	6
Any Elective	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
CHEM 1320	4 CMP_SC 1050	3
MATH 1500	5 ECE 1210	3
Constitutional Requirement	3 ENGLISH 1000	3
ENGINR 1000	1 MATH 1700	5
Humanities/Fine Arts Elective	3 Humanities/Fine Arts Elective	3
	16	17

Second Year		
Fall	CR Spring	CR
ECE 2100	4 CMP_SC 2050	3
ECE 3210	4 ECE 3810	4
MATH 2300	3 MATH 4100	3
PHYSICS 2750	5 PHYSICS 2760	5
	16	15

Third Year		
Fall	CR Spring	CR
ECE 3220	3 ECE 4250	4
ECE 3410	4 ENGINR 1200, 2300, or IMSE 2710	3
ECE 3830	3 ECE 4220	3

STAT 4710	3 Flexible Technical Elective	3
MATH 2320	3 Social/Behavioral Elective	3
	16	16

**Fourth Year**

Fall	CR Spring	CR
ECE 3110	3 ECE 4970 (WI)	3
ECE 4270	4 Flexible Technical Elective	3
ECE 4000+ Technical Elective	3 4000+ Technical Elective	3
Flexible Elective	Humanities /Fine Arts Elective	3
Social/Behavioral Science Elective	3 Free Elective	2
	13	14

Total Credits: 123

## MS in Computer Engineering

### Admission

349 Engineering Building West, Columbia, MO 65211

Phone: (573) 882-4436

 Email: [umcengreogradoff@missouri.edu](mailto:umcengreogradoff@missouri.edu)
<http://engineering.missouri.edu/ece/>

### Admission Criteria

Fall deadline: February 15

Spring deadline: September 1

Note: Applications received after these deadlines will be evaluated as time allows.

- Minimum GPA: 3.0 for the last 60 hours
- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	80th percentile	will be considered	will be considered
On or After August 1, 2011	80th percentile	will be considered	will be considered

International applicants only:

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS scores:

Item	Score
Listening	5.5
Reading	5.5
Writing	5.5
Speaking	5.5

Required Application Materials:

- Statement of Purpose (upload to the Supplemental information section of the application)
- Copies of your official transcripts (upload to the Educational History section of the application)

- Copies of your GRE scores (upload to the Test Information section of the application)
- Copies of your TOEFL or IELTS Scores (for non-native English speakers only) (upload to the Test Information section of the application)
- 3 letters of Recommendation (the department accepts electronic recommendations – in the recommendation section of the online application, enter the information for three recommenders. Each recommender will receive an email with instructions on how to complete the recommendation). The department does also accept hard copy letters of recommendation. The letters may be mailed to: The Office of Graduate Studies, 210 Jesse Hall, Columbia, MO 65211.

To the Office of Graduate Studies:

Official Transcripts. The mailing address is: Office of Graduate Studies, 210 Jesse Hall, Columbia, MO 65211.

Note: when registering for GRE or TOEFL exams, be sure to designate your program of interest at the University of Missouri – Columbia. MU's Institutional Code is 6875 (no departmental code is necessary).

## Admissions Criteria for the MS in Electrical or Computer Engineering

To be accepted outright by the director of graduate studies (DGS), the student needs to have a BS degree in either Electrical Engineering or Computer Engineering in addition to meeting the above requirements. Students who meet the academic requirements but have degrees in other engineering or science disciplines can be accepted directly into the MS program by the graduate program committee (GPC). Such students are strongly encouraged to consult with the DGS or their advisor about appropriate bridge courses. Based on individual circumstances, students may be advised to register as an undeclared graduate student to fill in background course work prior to admission into the department.

Students who do not meet the above requirements may still be admitted on probation by the GPC if there are mitigating factors. Students admitted on probation must receive at least a 3.0 GPA for the first 12 hours of graded graduate coursework completed in their first two semesters. Failure to achieve this GPA will result in expulsion from the ECE MS program.

## Appeal Process

All students have the right to a timely formal appeal to the GPC. Upon receipt of an admission decision or disciplinary action, the student has 10 working days in which to request a formal appeal. The DGS will convene a meeting of the GPC, the student, and the student's advocate (if appropriate) within 10 working days of receiving the request. The decision of the GPC at the hearing is final.

## Degree Requirements

To fulfill the requirements for the MS degree, the following rules apply:

- A candidate must complete 30 hours, including at least 12 hours of 8000-level graded course work (exclusive of ECE 8990 or ECE 8085 or ECE 8010 hours).
- At least six of these graded 8000 level course hours need to come from ECE.
- At least 15 hours of graded course work (total combination of 7000 and 8000 level courses, exclusive of ECE 8990, ECE 8085, or

ECE 8010 hours) must be taken from the Electrical and Computer Engineering Department course offerings.

- A maximum of six hours of graduate credit may be transferred from another campus in the University of Missouri System or other university, while a maximum of eight hours of graduate credit may be used from a previous MU master's degree.
- At most, three hours of course work in supervised study (ECE 8010) may be taken during the MS program and they will be graded on an S/U basis.
- At least one course from each of three different emphasis areas must be taken; a minimum of two of the emphasis areas must be in Electrical and Computer Engineering. (Each ECE graduate course is designated to an emphasis area. Contact the ECE graduate office for a current list).
- A minimum of 3 hours to a maximum of 6 hours of research (ECE 8990) or problems (ECE 8085) are required, based on whether the student writes a master's thesis or a master's Report.
- The student's cumulative GPA must be at least 3.0 to graduate.

The requirements for the MS degree must be met within an eight year period. Each candidate must pass a final oral examination to demonstrate mastery of the work included in the thesis or in a substantial independent project. These MS requirements apply to ECE graduate students first enrolled in MU ECE in the Fall semester 2007 or later. UM ECE graduate students enrolled prior to Fall semester 2007 may choose to follow the MU ECE MS requirements that were in effect for their MU ECE graduate admission semester.

## Academic Probation

A student whose GPA drops below 3.0 is automatically placed on academic probation. In such a case, the student has one semester to raise his or her cumulative GPA to 3.0. Failure to do so will result in expulsion from the program. Additionally, a student who receives the grade of "C" in 9 hours of coursework will be expelled. As with acceptance, students here also have a right to the same formal appeal process described above.

## Selection of an Advisor

Students must choose an academic advisor who will then provide guidance for the selection of coursework, and in the choice and execution of a research question. The student's academic advisor and the Director of Graduate Studies must approve all coursework used to satisfy the credit hour requirements for this degree. After performing satisfactorily for a minimum of one semester, the student, with the advisor's assistance, completes the Program of Study form that outlines the plan of study for the student's graduate program. M1 - Program of Study form.

The form is forwarded through the DGS to the Office of Graduate Studies for approval. In the event that an advisor retires or leaves MU, he/she may continue to serve as the student's main advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the DGS, will assist the student to ensure that a replacement is found.

The Program of Study form must be filed with the Office of Graduate Studies by the end of the student's second semester of enrollment. Upon approval of the program by the Graduate School, the student is a candidate for the degree. If changes must be made on a student's Program of Study form, a Program of Study Substitution form is used.

## Thesis Option

For students under the thesis option of the MS degree, i.e., students enrolling for ECE 8990, an M-2 Request for Thesis Committee form is required to be submitted for approval by the department DGS and the Office of Graduate Studies by the end of the student's second semester.

A thesis committee is composed of three members of the MU faculty: a major advisor from the academic program, a second reader from the academic program, and an outside reader who is a member of the graduate faculty from a different MU graduate program. Upon approval of the department DGS, the student may petition the Office of Graduate Studies to allow a person who is not a member of the MU graduate faculty to serve as the third reader. The petition should include a written justification for such a request and a copy of the person's curriculum vitae. The Office of Graduate Studies maintains copies of curriculum vitae previously received and approved, and if such a request is anticipated, the student should contact the Graduate School to see if the curriculum vita of a particular person is already on file. Students need to supply committee members with copies for review/evaluation at least one week prior to the defense date.

Information about submitting the thesis can be found in the Thesis and Dissertation Guidelines.

## Non-Thesis Option

For students who enroll in ECE 8085 (Problems), a problem report rather than a thesis is required. The student is not required to submit the M-2 form (request for a thesis committee). Instead, the student must have the report approved by his or her advisor and two other members of the graduate faculty, forming the student's Problem Committee. It is not required that a member outside of ECE be included, although it is permissible for such a member of the MU graduate faculty to be appointed. At least one of the three members must have a primary academic appointment in ECE. Students need to supply committee members with copies for review/evaluation at least one week prior to the defense date. At that time, an announcement is to be made to the department faculty and graduate students to allow them to attend the defense. The student must defend the problem report to the committee, and make any needed adjustments in format and corrections/clarifications based on input from the committee. A final copy of the problem report must be filed with the ECE graduate office.

## Report of the Master's Examining Committee

The purpose of the M-3 Report of the Master's Examining Committee Form is to have an official record of the final examining process, whether it is a thesis defense or presentation of a report. The student's committee will indicate on this form if the student has passed the final exam. This form must be submitted to the Office of Graduate Studies by a deadline for the semester in which the students plan to graduate. For a report option, the 3rd reader of the committee may be from the student's department. The form is due in the Office of Graduate Studies two weeks prior to graduation.

## Computer Science

Kannappan Palaniappan, Interim Chair EECS  
College of Engineering  
201 Naka Hall

(573) 882-3843  
(573) 882-6387  
pal@missouri.edu  
<http://engineering.missouri.edu/eecs>

## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. At the graduate level, the EECS Department offers MS and ME degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate CS degree program prepares students for rewarding careers in software systems and computing technologies and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 (<http://missouri.edu/about/history/engineering.php>) as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with 35 faculty members (<http://engineering.missouri.edu/eecs/people>), not including instructors, teaching professors, and emeriti.

## About Computer Science Programs

The Computer Science Program (CSP) in the Electrical Engineering and Computer Science (EECS) Department continues to be a dynamic, rapidly evolving and research-active unit at the University of Missouri. The Computer Science Program offers a comprehensive curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in computing and information technology. Students are able to pursue dual degrees in related fields including information technology, computer engineering and electrical engineering as well as minors in other colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experiences working with faculty. The faculty lead computer science activities on campus and their research covers both well established and emerging fields including big data analytics, machine learning, cloud computing, cyber-physical, Internet of Things, artificial intelligence, computer vision, robotics, autonomous systems, embedded architectures, high performance computing, computational biology and bioinformatics, biomedical and geospatial informatics, cyber-security, distributed and mobile computing, learning systems, multimedia communications, data visualization, information



fusion, sensor networks, spoken language processing, human-computer interfaces, virtual and augmented reality.

The CSP offers graduate programs in masters, dual masters, and doctoral degrees. The graduate degree programs prepare graduates of four-year BS degrees in Computer Science or closely related areas for further study at the doctoral level or for successful careers as specialized computer professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with the faculty in their respective fields of research expertise.

The faculty members in the Computer Science Program participate in the full spectrum of undergraduate and graduate education. Graduate education, has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, and is often multidisciplinary in nature spanning interdepartmental and cross-college research. The aim is to produce computer scientists who can function well as part of interdisciplinary research teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the CSP lead the University's institutional efforts in developing infrastructure for bioinformatics, computational biology, and high-performance computing and networking. Our major research projects are funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) which are examples of federal funding, Microsoft, Honeywell and Monsanto are representative of industrial funding.

Research facilities are well established around faculty expertise in cloud computing, bioinformatics and computational biology, biological and biomedical image analysis, graphics, visualization and virtual reality, mobile computing, artificial intelligence, multimedia, networking, human-computer interaction, information web services, and computer science foundations. These facilities are clustered in core laboratories for bioinformatics, multimedia and visualization, video processing, spoken-language processing, mobile networking and communications, wireless sensor networks, high-performance computing, cyber security, and medical informatics. Faculty in the Computer Science Program work closely with faculty in the Computer Engineering and Electrical Engineering Programs within the EECS Department.

## Careers and Graduate study

The Computer Science curriculum prepares graduates of four-year B.S. degrees in Computer Science for successful careers as computer and information technology professionals in industry as part of the rapidly expanding and pervasive information economy. Graduates with B.S. degrees in Computer Science or closely related areas can choose to pursue advanced study at the masters and doctoral level under the mentorship of a faculty in specialized research fields within the broad discipline of computing with engaging opportunities in multidisciplinary collaborative research across departments and colleges.

The M.S. and Ph.D. programs are a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and

development in industrial, government, and nonprofit organizations. Specialized training is available through close interaction with faculty mentors in their active research fields. For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in Computer Science is available. Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

With foundations in undergraduate courses covering algorithms, compilers, software engineering, web technologies, database, networking, operating systems, programming languages, artificial intelligence and computational complexity, the graduate programs are integrated over many application areas and multidisciplinary fields such as:

- cyber-security
- social multimedia and databases
- big data analytics
- web services and content delivery networks
- wearable and embedded devices, architectures and systems
- smartphone applications
- video games, film and entertainment
- mobile and sensor networks
- personalized learning systems
- high performance computing and networking
- information search, discovery and retrieval systems
- smart communities and smart grid energy systems
- robotics and industrial automation systems
- bioinformatics and computational biology
- biomedical image analysis
- medical informatics and healthcare
- human and animal medicine
- space, defense and security imaging systems
- precision agriculture and food security
- management information systems and business analytics
- journalism and the media of the future

## Research

This CSP is the hub of computer science research activities on campus that involve theoretical, experimental, computational and applied research areas in:

- cloud computing and high performance computing
- big data science and machine learning
- bioinformatics and computational biology
- bioimaging and phenomics
- graphics, visualization, virtual and augmented reality
- computer vision and image processing
- geospatial information mining and retrieval
- biomedical image analysis
- satellite and aerial imaging
- information fusion & filtering
- cyber-security and cryptography
- cyber-physical and IoT

- multimedia communications and databases
- ambient intelligence and sensor networks
- mobile, distributed and pervasive computing
- spoken language processing
- gesture and human-computer interfaces, etc.

Additionally, members of the CSP lead the University's institutional efforts in developing infrastructure for cloud computing, bioinformatics, computational biology, visualization and high-performance computing and networking.

## Faculty

**Professor** J. Cheng\*\*, K. Palaniappan\*\*, Y. Shang\*\*, C. R. Shyu\*\*, D. Xu\*\*, Y. Zhao\*\*, X. Zhuang\*\*

**Associate Professor** Y. Duan\*\*, S. Goggins\*\*, W. L. Harrison\*\*, M. Jurczyk\*\*, T. Kazic\*\*, Y. Saab\*\*, J. Uhlmann\*\*

**Assistant Professor** P. Calyam\*\*, R. Chadha\*\*

**Assistant Research Professor** H. Aliakbarpour\*, F. Bunyak\*\*, S. Prasath\*, T. Joshi\*

**Associate Teaching Professor** D. Musser\*

**Assistant Teaching Professor** F. Wang\*

**Associate Professor Emeritus** G. K. Springer\*\*

**Adjunct** F. Esposito, D. Korkin\*\*, G. Seetharaman\*, W. Zeng\*\*, Y. S. Zeng

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Computer Science (p. 498)
- Minor in Computer Science (p. 500)

### Advising Contact

Adrianna Wheeler  
W1006 Lafferre Hall  
(573) 884-6342  
wheeleral@missouri.edu

### Scholarship Information Contact

Dr. Rohit Chadha  
111 Naka Hall  
(573) 882-4899  
chadhar@missouri.edu

The Computer Science Program (CSP) in the Electrical Engineering and Computer Science (EECS) Department offers a broad curriculum that spans the theory, design and applications of computing. The Bachelor of Science degree in Computer Science includes a strong component of mathematics and sciences along with more theoretical courses in computer science. A Computer Science minor is available.

## Graduate

- MS in Computer Science (p. 500)
- PhD in Computer Science (p. 501)

Department of Electrical Engineering and Computer Science  
201 Naka Hall

University of Missouri  
Columbia, MO 65211  
<http://engineering.missouri.edu/cs/>

**Director of Graduate Studies:** Yi Shang

207 Naka Hall  
(573) 884-7794  
ShangY@missouri.edu

## Introduction

The EECS graduate programs lead to the degrees of Master of Science in Computer Science (MS CS), Computer Engineering (MS CE) and Electrical Engineering (MS EE), Master of Engineering (ME), and Doctor of Philosophy in Computer Science (PhD CS) and Doctor of Philosophy in Electrical and Computer Engineering (PhD ECE). The EECS graduate degree programs prepare prior recipients of four-year BS degrees in Computer Science, Computer Engineering, Electrical Engineering or closely related areas for further study at the doctoral level or for successful careers as specialized computer professionals. The Ph.D. program is a research degree designed to prepare students for various advanced professional careers, including college teaching and research, as well as research and development in leading industrial and government R&D facilities.

The ME degree is designed for entering master students interested in a terminal master's degree, who have a demonstrated need for a professional, non-research degree in engineering, and have an academic interest in the department.

## Application Procedures for CS MS and PhD Programs

In order to be considered for admission in a particular semester we must receive all required paperwork by these deadlines:

**Fall admission:** Applications and all paperwork must be received by March 1st. NOTE: If applying for financial assistance in the department, applications and all paperwork must be received by January 15th.

**Spring admission:** Applications and all paperwork must be received by October 1st.

Application for admission involves submitting a formal application through the online application system. An application must be accompanied by an application fee. In addition, the applicant must have the following original paperwork sent directly from the originating institutions to the Office of Graduate Studies:

- Official transcripts from ALL institutions attended
- Official GRE score report from Educational Testing Service in New Jersey (and TOEFL or IELTS scores for international applicants)

The following supplemental materials must be uploaded in the online application:

- Your résumé
- A personal goal statement indicating why you feel prepared to pursue the degree program and why you want to pursue this degree
- Three letters of recommendation from professors who know your abilities that must address your ability and readiness to pursue a graduate program in computer science (submitted by your references directly to your online application)
- Copies (unofficial) of all transcripts

- Copies of GRE results (and TOEFL or IELTS, if applicable).

Note: Copies of the required documents (transcripts, GRE scores, etc.) cannot be accepted in lieu of the official reports from the originating institutions. Copies of these records should be submitted for evaluation, but any decision on admission is non-binding until the official records have been received.

**Current/Former MU students:** All current and former MU students must meet the same requirements as external students *and* file one of the following forms (in lieu of an MU Application Form):

- Current Non-Degree Graduate Students: Change of Division, Degree, Program, Emphasis, or Advisor form,
- Current graduate students in another department: Change of Division, Degree, Program, Emphasis, or Advisor form (same as 1)
- Previous graduate students returning to same program: Re-Activation form.

### Degree Completion Requirements

Use the links at the top of the page to direct you to details on the requirements that must be completed in order to earn the respective graduate degrees. The Master of Science degree program has both a thesis and a non-thesis option, which can be chosen by the student after consultation with their selected advisor.

### Credit toward a Second Master’s Degree

A student who has completed one Master’s degree at MU or elsewhere may present, upon the recommendation of the student’s advisor and approval by the Director of Graduate Studies and the Graduate School, a maximum of six hours of credit earned in the previous program toward a second Master’s degree.

### Master of Engineering Degree

A student may also choose to complete a Master of Engineering (<http://catalog.missouri.edu/undergraduategraduate/collegeofengineering/engineering/#graduatetext>) degree. The requirements for the ME degree are the same as the MS CS with the following exceptions: 1) the student must complete at least 36 hours of graduate courses, 2) a minimum of 30 credit hours must be earned from UM System institutions, 3) at least 21 hours must be courses offered by the CS Department, 4) at least 15 hours must be 8000 level courses offered by CS Department (excluding CMP\_SC 8085), 5) CMP\_SC 8980, CMP\_SC 8990 and CMP\_SC 9990 may not be taken, 6) at most 3 hours of CMP\_SC 8085 may be taken, 7) No final examination is required. Only the M1 *Program of Study* is submitted for this program. Master of Engineering, not Computer Science, is noted on the student’s transcripts. The degree completion letter is tied to meeting the seminar attendance requirement (see M.S. Degree above). Entrance requirements for ME and MS degree are the same.

### Financial Aid

Teaching and research assistantships are available on a competitive basis for qualified students in the graduate programs.

Teaching assistantships and research assistantships are available with tuition waivers in the Department. Requests for financial aid are examined at the same time as those for graduate admission, which are due before January 15 for fall semester and October 1 for spring semester.

## BS in Computer Science

### Degree Program Description

Computer Science emphasizes the study of algorithms, programming methodology, software systems, computational theories and algorithms, computer organization, networking, computer graphics, cyber-security, machine learning, artificial intelligence, high performance computing, and database. In the two-semester capstone design courses, students complete design projects that serve as a culminating academic experience. Internships with companies for real-world experience and undergraduate research opportunities with faculty are abundant and encouraged. The BS CS degree is accredited by the Computing Accreditation Commission of ABET, <http://www.abet.org>. Students who complete the BS in Computer Science can work for government agencies, academic institutions, or private industry creating and applying new technologies to solve complex problems, or attend graduate schools.

### Major Program Requirements

The Bachelor of Science with a major in Computer Science emphasizes the study of software systems, computational theories and algorithms, computer organization, networking, and programming methodology. Students who complete the BS in Computer Science can work for government agencies, academic institutions, or private industry creating and applying new technologies to solve complex problems.

The BS degree requires the completion of the three-semester calculus sequence plus discrete math and statistics. A student who selects an appropriate additional math course as a technical elective and has at least 9 credits in math with appropriate grades at MU can earn a math minor.

The BS degree requires the completion of 126 credits. To graduate, a student must earn a 2.0 GPA or better in all CMP SC/IT courses.

The Engineering Career Services Office, W1025 Lafferre Hall, can assist students in searching for employment opportunities upon graduation and for internship/co-op positions.

Course requirements listed here apply to students beginning as regular college freshmen in Fall 2016 or after. A student who started college before Fall 2016 and who has been continuously enrolled as a full-time student may be pursuing the previous program and should contact the department for information on these degree requirements.

In addition to the major core requirements, students must complete all University graduation requirements including University general education (p. 33), as well as all degree and college or school requirements.

### Major Core Requirements

#### Computer science courses

CMP_SC 1000	Introduction to Computer Science	1
CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3
CMP_SC 2270	Introduction to Digital Logic	3
CMP_SC 3050	Advanced Algorithm Design	3
CMP_SC 3280	Computer Organization and Assembly Language	3
CMP_SC 3330	Object Oriented Programming	3
CMP_SC 3380	Database Applications and Information Systems	3

CMP_SC 4050	Design and Analysis of Algorithms I	3
CMP_SC 4320	Software Engineering I	3
CMP_SC 4520	Operating Systems I	3
CMP_SC 4850	Computer Networks I	3
CMP_SC 4970	Senior Capstone Design I	3
CMP_SC 4980	Senior Capstone Design II	3
<b>CMP SC courses chosen from the following list <sup>1</sup></b>		<b>21</b>

CMP_SC 2830	Introduction to the Internet, WWW and Multimedia Systems	
CMP_SC 3530	UNIX Operating System	
CMP_SC 3940	Internship in Computer Science	
CMP_SC 4001	Topics in Computer Science	
CMP_SC 4060	String Algorithms	
CMP_SC 4070	Numerical Methods for Science and Engineering	
CMP_SC 4080	Parallel Programming for High Performance Computing	
CMP_SC 4085	Problems in Computer Science	
CMP_SC 4270	Computer Architecture I	
CMP_SC 4280	Network Systems Architecture	
CMP_SC 4330	Object Oriented Design I	
CMP_SC 4350	Big Data Analytics	
CMP_SC 4380	Database Management Systems I	
CMP_SC 4410	Theory of Computation I	
CMP_SC 4430	Compilers I	
CMP_SC 4440	Malware Analysis and Defense	
CMP_SC 4450	Principles of Programming Languages	
CMP_SC 4460	Introduction to Cryptography	
CMP_SC 4530	Cloud Computing	
CMP_SC 4610	Computer Graphics I	
CMP_SC 4620	Physically Based Modeling and Animation	
CMP_SC 4650	Digital Image Processing	
CMP_SC 4670	Digital Image Compression	
CMP_SC 4720	Introduction to Machine Learning and Pattern Recognition	
CMP_SC 4730	Building Intelligent Robots	
CMP_SC 4740	Interdisciplinary Introduction to NLP	
CMP_SC 4750	Artificial Intelligence I	
CMP_SC 4770	Introduction to Computational Intelligence	
CMP_SC 4830	Science and Engineering of the World Wide Web	
CMP_SC 4990	Undergraduate Research in Computer Science	
CMP_SC 4995	Undergraduate Research in Computer Science - Honors	

<b>Related courses</b>		<b>22</b>
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures	3
STAT 4710	Introduction to Mathematical Statistics	3

<b>Technical elective <sup>2</sup></b>		<b>3</b>
<b>Science courses (choose one of the following four sequences) <sup>3</sup></b>	minimum	<b>12</b>

**Physics sequence:**  
 (credit not given for both PHYSCS 1210 and PHYSCS 2750, or PHYSCS 1220 and PHYSCS 2760)

PHYSCS 1210	College Physics I	8
& PHYSCS 1220	and College Physics II	
PHYSCS 2750	University Physics I	10
& PHYSCS 2760	and University Physics II	

<b>Chemistry sequence:</b>		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4

<b>Biology sequence:</b>		
BIO_SC 1010	General Principles and Concepts of Biology	3
BIO_SC 1020	General Biology Laboratory	2

Select one of the following:		
BIO_SC 1200	General Botany with Laboratory	
BIOCHM 2110	The Living World: Molecular Scale	
BIOCHM 2112	Biotechnology in Society	
ANTHRO 2050	Introduction to Biological Anthropology with Laboratory	

OR		
ANTHRO 2051	Introduction to Biological Anthropology	
& ANTHRO 2052	and Biological Anthropology Laboratory	
BIO_SC 2100	Infectious Diseases	
BIO_SC 2600	Ornithology	
BIO_SC 3050	Genetics and Society	
BIO_SC 3210	Plant Systematics	

<b>Geology sequence:</b>		
GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	

Select one of the following:		
GEOL 2150	The Age of the Dinosaurs	
GEOL 2200	Oceanography	
GEOL 2300	Earth Systems and Global Change	
GEOL 2350	Historical Geology	
GEOL 2400	Surficial Earth Processes and Products with Laboratory	
GEOL 3110	Geology of Missouri	
& GEOL 3115	and Geology of Missouri Laboratory	

<b>Additional courses to complete 12 credits in science</b>		
ASTRON 1010	Introduction to Astronomy	4
ASTRON 1020	Introduction to Laboratory Astronomy	2

Any science sequence courses outside the student's selected sequence.  
 Any biology, biochemistry, chemistry, geology, or physics courses beyond the levels listed above.  
 Other science courses pre-approved by the advisor.

<b>Non-Science Electives</b>		<b>9</b>
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Students must complete 9 hours of non-science electives which include courses in business, education, or additional social, behavioral or humanities courses beyond what is required in those categories.

<sup>1</sup> At least 15 credit hours of computer science electives must be numbered above 4000; one of the 4000-level courses must be CMP\_SC 4410 or CMP\_SC 4450. A maximum of 6 hours of IT courses can be taken as CS electives with the following stipulations: One 3000/4000 level INFOTC course (excluding INFOTC 4400 and INFOTC 4500) can be taken as a CMP\_SC elective but it is counted as a lower level (below 4000) CMP\_SC course. INFOTC 4400 and INFOTC 4500 are counted as CS 4000 level courses.

- <sup>2</sup> 2000-level or above CMP\_SC course or 4000-level MATH course, 2000-level or above engineering courses, MANGMT 3000, FINANC 3000 or other courses that meet prior approval of Computer Science advisor. An INFOTC course at the 2000 level or above can be taken. Students cannot take INFOTC 2810 or INFOTC 2910 as a technical elective if they have already taken CMP\_SC 4850.
- <sup>3</sup> Including one of the two-semester sequences below. At least one of the courses must include a lab. Labs listed separately are not considered a second science course (for example, BIO\_SC 1010 and BIO\_SC 1020 equal one science course).

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
CMP_SC 1000	1 CMP_SC 2050	3
CMP_SC 1050	3 MATH 1700	5
MATH 1500	5 ENGLISH 1000*	3
Constitutional/State Law Elective*	3 CMP_SC 2270	3
COMMUN 1200*	3 Non-Science Elective	3
	15	17
Second Year		
Fall	CR Spring	CR
CMP_SC 3330	3 CMP_SC 3050	3
MATH 2300	3 MATH 2320	3
Non Science Elective	3 Science Sequence	5
Science Sequence	5 CMP SC Elective	3
Humanities/Fine Art*	3 Behavioral Science*	3
	17	17
Third Year		
Fall	CR Spring	CR
CMP_SC 3280	3 CMP_SC 4050	3
CMP_SC 3380	3 CMP_SC 4320	3
CMP SC Elective	3 CMP SC Elective	3
STAT 4710	3 Science Elective	2
Social/Behavioral Science*	3 Technical Elective	3
	General Elective	1
	15	15
Fourth Year		
Fall	CR Spring	CR
CMP_SC 4970	3 CMP_SC 4980	3
CMP_SC 4850	3 CMP_SC 4520	3
CMP_SC 4410 or 4450	3 4000-level CMP SC Elective	3
4000-level CMP SC Elective	3 4000-level CMP SC elective	3
Humanities/Fine Arts*	3 Non Science Elective	3
	15	15
Total Credits: 126		

\* Denotes General Education Requirements

## Minor in Computer Science

A minor in computer science is offered through the College of Engineering. To obtain a minor, a student must complete 18 hours of courses approved by the Department of Electrical Engineering and Computer Science. The student must earn a grade of C- or better in each course counting toward the minor and have a 2.0 GPA in all courses counting toward the minor. At least 9 hours must be taken in residence. The following courses are required.

CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3
CMP_SC 2270	Introduction to Digital Logic	3
Three additional department-approved CMP SC courses with at least one numbered above 3000		9
Total Credits		18

## MS in Computer Science

All students completing a master's degree must fulfill the following minimum requirements:

- The student must earn a minimum of 30 credit hours of computer science (CS) course work approved by the EECS Department. This course work must include at least 15 credit hours of computer science course work numbered 8000 or above (CMP\_SC 8990 Research-Masters Thesis Computer Science credit is counted in the required 15 credit hours, but CMP\_SC 8980 is not).
- The overall GPA of course work taken as an enrolled graduate student must be at least 3.0 (out of 4.0).
- Up to 6 credit hours from courses taken in other departments or from non-CS courses in the EECS Department will be considered for approval as part of a student's MS program. Written approval from faculty advisors or the Computer Science Director of Graduate Studies is required prior to the student undertaking the coursework. Selected non-CS courses, such as IS\_LT 7360 and IS\_LT 7370, Intro and Intermediate Web Development, and IS\_LT 7310 Seminar in Mobile App Development will not be counted.
- Non-Thesis Option: In order to complete the non-thesis option, the student must complete an independent project under a faculty advisor approved by the department. This project is carried out by enrolling in CMP\_SC 8980 (Non-Thesis Research) for at least one hour of credit. This project is documented and presented to a faculty committee of at least three graduate faculty members and defended in a public defense as part of a final oral examination. The CMP\_SC 8980 course grade is assigned by the student's faculty advisor upon the conclusion of the oral examination. This course is graded on an S/U basis and cannot be used to increase the student's overall GPA in graduate work. In this option, at most 3 credit hours of Research, Reading, and/or Problem courses (such as CMP\_SC 8980, CMP\_SC 8990, CMP\_SC 8085) can be counted toward the 30-hour MS graduate requirements.
- Thesis Option: In order to complete the thesis option, the student must complete an independent project under a faculty advisor approved by the department. This project is carried out by enrolling in CMP\_SC 8990 (Thesis Research) for at least three hours of credit. A maximum of six credit hours of CMP\_SC 8990 can be counted toward the required 30 credit hours for the MS degree program. The thesis project is documented in a formal thesis, presented to a faculty

committee of at least three graduate faculty members (one of whom is a faculty member from another department) and defended in a public defense as part of a final oral examination. The CMP\_SC 8990 course grade(s) is/are assigned by the student's faculty advisor upon the conclusion of the oral examination. CMP\_SC 8990 is graded on an S/U basis and cannot be used to increase the student's overall GPA in graduate work. In this option, at most 9 credit hours of Research, Reading, and/or Problem courses (such as CMP\_SC 8980, CMP\_SC 8990, CMP\_SC 8085) can be counted toward the 30-hour MS graduate requirements.

6. Seminar Attendance: The approval of the M3 form is tied to the attendance records for the department's seminar series. MS and ME students are required to attend a total of at least ten EECS seminars during the course of their Master's program. PhD students are required to attend a total of at least twenty EECS seminars during the course of their PhD program. Master's students who add the PhD program can apply their seminar attendance as part of their Master's program toward the attendance requirement for PhD students.
7. M Forms: By the end of the second semester in the program, the M1 Plan of Study form should be prepared and submitted, with the aid of a faculty advisor in the department. A faculty advisor should be selected during the student's first year. If a thesis option is chosen, the student must form a thesis committee and submit the M2 Request for Thesis Committee form. The M3 Report of Master's Examining Committee form is submitted after the thesis or project defense during the final semester.
8. Annual Review Requirement of the Graduate School: All graduate students are required to complete the Annual Review Requirement by updating their information in the Graduate Student Progress System. The CS department requires that this report be approved online by the student's faculty advisor, and a printed copy attached to each M form before being signed by the CS Director of Graduate Studies.

## PhD in Computer Science

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All students completing a PhD degree must fulfill the following minimum requirements:

1. Complete all of the computer science (CS) course work requirements of the Master's degree in CS or have an MS degree in CS from another institution. The required 15 hours at the 8000- level must be regular CS courses, excluding Research or Problems courses. The student must maintain an overall GPA of at least 3.4/4.0 in their graduate level course work (excluding Research and Problems courses).
2. Pass a qualifying examination\* to be admitted to candidacy in the CS PhD program within three years of program enrollment.
3. Earn a minimum of 72 credit hours of course work and research past the student's Bachelor's degree.
4. Pass a comprehensive examination covering their areas of expertise within five years of program enrollment.
5. Complete a doctoral dissertation on a topic approved by the candidate's advisory committee.
6. Defend the dissertation in a final oral examination.
7. Have at least one journal paper submitted, accepted or published, as approved by the advisor.
8. Present on a research topic as part of the CS Seminar Series at some point between passing the qualifying exam and the dissertation

defense. This policy is effective for entering PhD students in Spring 2013 and after.

9. Seminar Attendance: The approval of the D4 form is tied to the attendance records for the department's seminar series. PhD students are required to attend a total of at least twenty EECS Seminar Series presentations. Master's students who add the PhD program can apply their seminar attendance as part of their Master's program toward the attendance requirement for doctoral students.
10. D Forms: After the successful completion of the Qualifying Examination, the D1 Qualifying Exam Results and Doctoral Committee Approval form should be submitted to the Graduate School, followed by the D2 Plan of Study for the Doctoral Degree form. The D3 form Doctoral Comprehensive Examination Results is submitted when the student has completed the Comprehensive Exam. Graduate School policy requires the completion of the Comprehensive Exam within five years of starting the PhD program. At least seven months must pass between the Comp Exam and the dissertation defense, which is followed by submission of the D4 Dissertation Defense form.
11. Annual Review Requirement of the Graduate School: All graduate students are required to complete the Annual Review Requirement by updating their information in the Graduate Student Progress System. The Department requires that this report be approved online by the student's faculty advisor and a printed copy attached to each D form before being signed by the CS Director of Graduate Studies.

\*Students cannot take CMP\_SC 9990 before passing the PhD qualifying exam. Pre-Qual students should take CMP\_SC 8990 for Research credit.

## Electrical and Computer Engineering

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Kannappan Palaniappan, Interim Chair EECS  
College of Engineering  
201 Naka Hall  
(573) 882-3843  
(573) 882-6387  
pal@missouri.edu  
<http://engineering.missouri.edu/eecs>

### Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. At the graduate level, the EECS Department offers MS degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep

learning, robotics, autonomous systems and smart cities. The four year undergraduate degree program prepares students for rewarding careers in hardware and software systems and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 (<http://missouri.edu/about/history/engineering.php>) as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with 35 faculty members (<http://engineering.missouri.edu/eecs/people>), not including instructors, teaching professors, and emeriti.

## About Electrical and Computer Engineering Program

The Electrical and Computer Engineering Program (ECEP) in the Electrical Engineering and Computer Science (EECS) Department is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research. The ECE Program offers a comprehensive undergraduate curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in computer and electrical engineering. Students seeking either one of the two undergraduate degrees offered -- Bachelor of Science in Computer Engineering (BS CoE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ce>) and Bachelor of Science in Electrical Engineering (BS EE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ee>) -- are able to pursue dual degrees in related fields including information technology and computer science, as well as in the other degree of the ECEP, i.e. BS EE and BS CoE, respectively. Not to mention majors and minors in other colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experiences working with faculty. The faculty research areas covers both well established and emerging fields including mobile video communication; wireless and digital communications; satellite remote sensing; geospatial image and video processing; computational neuroscience; systems biology; eldercare technology; computational intelligence, machine learning, pattern recognition, deep networks, fuzzy systems; computer vision; robotic vision; robotic assistive technology; human/robot interaction; landmine detection; pulsed power and plasmatechnology; nuclear and renewable energy systems; semiconductor devices; photonics; accelerators and beams; antennas and radar systems; nano and microelectromechanical systems; bioMEMS; heterostructures, microfabrication; feedback and control systems; parallel processing; computer architecture; autonomous systems; real-time embedded architectures; high performance computing; sensor networks; and human-computer interfaces.

The ECEP in EECS also offers a Dual Bachelor of Science in Electrical Engineering & Physics (<http://engineering.missouri.edu/ece/degree-programs/bs-eep>).

At the MS and PhD levels, the ECEP offers the following graduate degrees:

- Master of Science in Computer Engineering (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)

- Master of Science in Electrical Engineering (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)
- Doctoral Degree in Electrical and Computer Engineering (<http://engineering.missouri.edu/ece/degree-programs/phd>)

with options for dual masters and Masters in Engineering (ME) -- i.e. coursework only, without thesis. The graduate degree programs prepare graduates of four-year BS degrees in Computer Engineering, Electrical Engineering, Computer Science or closely related areas for further study at the doctoral level or for successful careers as specialized CoE and EE professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with the faculty in their respective fields of research expertise.

The faculty members in the ECE Program participate in the full spectrum of undergraduate and graduate education. Graduate education, has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, and is often multidisciplinary in nature spanning interdepartmental and cross-college research. The aim is to produce professionals who can function well as part of interdisciplinary research teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the ECEP are among the leading faculty in University's Research Revenue, with major research projects funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) as well as Microsoft, Honeywell and Monsanto, to cite just a few.

Research facilities are well established around faculty expertise in the broad emphasis areas of Communications and Signal Processing (SP), Intelligent Systems and Robotics (ISR), Physical and Power Electronics (PPE), Applied Physics (AP), Systems Modeling and Control (SMC), Computer Architecture and Systems (CAS), Nano/Micro Technology (NMT). Faculty in the Electrical and Computer Engineering Program work closely with faculty in the Computer Science Program within the EECS Department.

For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in CoE or EE is available.

Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

## Summary

The ECE Program offers undergrad degrees:

- Bachelor of Science in Computer Engineering (BS CoE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ce>)
- Bachelor of Science in Electrical Engineering (BS EE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ee>)
- Dual Bachelor of Science in Electrical Engineering & Physics (<http://engineering.missouri.edu/ece/degree-programs/bs-eep>)

with many more options for dual degrees within the EECS department and outside.

Graduates with BS degrees in CE, EE, CS or closely related areas can choose to pursue advanced study towards the following degrees:

- Master of Science in Computer Engineering (MS) (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msce>)
- Master of Science in Electrical Engineering (MS) (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)
- Doctoral Degree in Electrical and Computer Engineering (PhD) (<http://engineering.missouri.edu/ece/degree-programs/phd>)

The MS and PhD are professional research degrees designed to prepare students for advanced professional careers, including teaching and research at university level, as well as research and development in industrial, government, and nonprofit organizations.

The ECE Program offers learning and research opportunities for both undergraduate and graduate students in the areas of:

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep learning, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Research

The ECEP in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Faculty

**Professor** R. D. Curry\*\*, C. H. Davis\*\*, J. M. Gahl\*\*, S. Gangopadhyay\*\*, Z. He\*\*, D. K. C. Ho\*\*, N. E. Islam\*\*, J. M. Keller\*\*, S. D. Kovaleski\*\*, J. W. Kwon\*\*, S. Nair\*\*, R. M. O'Connell\*\*, M. A. Prelas\*\*, M. Skubic\*\*

**Associate Professor** M. Almasri\*\*, G. DeSouza\*\*, T. G. Engel\*\*, T. Han\*\*, J. J. Legarsky\*\*

**Assistant Research Professor** G. Scott\*\*

**Assistant Teaching Professor** R. Druce\*, L. Rivera\*

**Professor Emeritus** L. A. Akers\*, M. J. Devaney\*, C. O. Harbourt\*, K. F. Lee\*, R. W. McLaren\*, B. W. Sherman, H. W. Tyrer Jr.\*, K. Unklesbay

**Associate Professor Emeritus** R. W. Leavene Jr.\*

**Adjunct** M. Becchi\*\*, D. Heise, G. K. Hubler\*, V. Korampally\*, G. Triplett\*\*, A. Zare\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

### Advising and Scholarship Contact

Tami Beatty

Undergraduate Program Office

W1002 Thomas & Nell Lafferre Hall

(573) 882-2648

[beattyt@missouri.edu](mailto:beattyt@missouri.edu)

The Department of Electrical Engineering and Computer Science (EECS) offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

See Electrical Engineering (p. 510) and Computer Engineering (p. 489) for details on the undergraduate degree programs.



## Graduate

- PhD in Electrical and Computer Engineering (p. 505)

201 Naka Hall

Columbia, MO 65211

Phone: (573) 882-4436

Email: [umcengregegradoff@missouri.edu](mailto:umcengregegradoff@missouri.edu)

<http://engineering.missouri.edu/ece/>

**Director of Graduate Studies:** Gui N. DeSouza

325 Naka Hall

Columbia, MO 65211

Phone: (573) 882-5579

Email: [DeSouzaG@missouri.edu](mailto:DeSouzaG@missouri.edu)

<http://engineering.missouri.edu/ece/>

The Department also offers an MS in Computer Engineering (p. 493), an MS in Electrical Engineering (p. 514), and the College offers an interdepartmental ME in Engineering with a focus in Computer and Electrical Engineering (p. 516).

## Research Areas

The ECE Program in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in expenditures with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Specific Topics of Study

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep learning, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;

- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Admission Requirements for the PhD Program in ECE

- GPA from BS or MS
- GRE: Quantitative, Verbal and Analytic scores.
- International students:
  - Computer-based TOEFL, or
  - Paper-based TOEFL, or
  - Internet-based TOEFL, or
  - IELTS exam
- 3 letters of recommendation
- Statement of purpose
- Transcripts

**(When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri-Columbia and your program of interest as locations to receive the scores. MU's Institutional Code for the GRE and TOEFL is: 6875.)**

The three letters of recommendation should be from persons familiar with the applicant's engineering or related work. It is required that the recommendation letter use the institutional letterhead or be sent directly from the recommender's institutional e-mail address (not gmail, hotmail, etc.). Similarly, each provided reference must include the person's institutional e-mail address. Any letters of recommendation or listed reference that does not comply with the above or otherwise look 'unofficial' will be disregarded.

Students who don't meet the above requirements may still be admitted by the GPC if there are mitigating factors. Consideration in doctoral program admissions is given to the applicant's grade trends, experience and maturity, and to the availability of expertise in areas of the applicant's technical interest.

**Outstanding BS** students who meet the following requirements may be accepted directly for advisement in the department's doctoral program:

- Holds the equivalent of a BS degree in electrical or computer engineering
- GRE quantitative score of at least the 90th percentile. The Graduate Committee will also consider the Verbal and Analytic scores.
- For international students, a minimum score of 550 on the paper-based TOEFL, 213 on the computer-based TOEFL, 80 on the internet-based TOEFL, or 5.5 on the IELTS exam
- A 3.5 or better grad point average (A=4.0) in their undergraduate studies

- Submission of three letters of recommendation from persons familiar with the applicant's engineering or related work
- Submission of a written statement of research interests

Additional information can be obtained from the Graduate Division of the Department of Electrical Engineering and Computer Science, 201 Naka Building, Columbia, MO 65211, or via email: [UMCengrECEgradoff@missouri.edu](mailto:UMCengrECEgradoff@missouri.edu)

## Internal Funding

### Teaching Assistantships

Teaching assistantships are normally awarded to qualified graduate students with appropriate communication skills who assist faculty members in various phases of instruction. International students may not be appointed to teaching assistantships in their first semester on campus. International students must pass a language screening test at a proper level to be eligible for the TA positions available.

### Research Assistantships

Research assistantships are granted to students qualified for working with professors on particular research projects. The research assistants are selected by faculty members who have research funds to support graduate students. Therefore, students should contact the faculty members directly for the RA possibility.

### Fellowships

The department faculty actively pursue funding for selected research fellowships. Available fellowship opportunities can be found by contacting the ECE Graduate Office. Additionally, a limited number of "Teaching Fellows" are awarded annually to outstanding PhD students, particularly for those preparing for academic careers. Details can be obtained from the ECE Graduate Office.

## PhD in Electrical and Computer Engineering

### Admission Contact Information

349 Engineering Building West  
Columbia, MO 65211  
(573) 882-4436  
Email: [umcengregegradoff@missouri.edu](mailto:umcengregegradoff@missouri.edu)

The ECE department offers the Doctor of Philosophy in Electrical and Computer Engineering.

### Admission Criteria for the PhD Electrical or Computer Engineering

Deadline for Fall entrance: February 15  
Deadline for Spring entrance: September 1

- Minimum GPA: 3.5 (with A = 4.0) in the last 60 hours of the MS graded coursework
- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	will be considered	90th percentile	will be considered

On or After August 1, 2011	will be considered	90th percentile	will be considered
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International applicants only:

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS scores:

Item	Score
Listening	5.5
Reading	5.5
Writing	5.5
Speaking	5.5

- Holds the equivalent of a BS degree in electrical or computer engineering with an outstanding record, or holds the equivalent of an MS degree in electrical or computer engineering

Consideration in doctoral program admissions is given to the applicant's grade trends, experience and maturity, and to the availability of expertise in areas of the applicant's technical interest.

### Required Application Materials

- Statement of Purpose (upload to the Supplemental information section of the application)
- Copies of your official transcripts (upload to the Educational History section of the application)
- Copies of your GRE scores (upload to the Test Information section of the application)
- Copies of your TOEFL or IELTS Scores (for non-native English speakers only) (upload to the Test Information section of the application)
- 3 letters of Recommendation (the department accepts electronic recommendations – in the recommendation section of the online application, enter the information for three recommenders. Each recommender will receive an email with instructions on how to complete the recommendation). The department does also accept hard copy letters of recommendation. The letters may be mailed to: Graduate School, 210 Jesse Hall, Columbia, MO 65211.

To the Office of Graduate Studies:

Official Transcripts. The mailing address is: Office of Graduate Studies, 210 Jesse Hall, Columbia, MO 65211.

Note: when registering for GRE or TOEFL exams, be sure to designate your program of interest at the University of Missouri-Columbia. MU's Institutional Code is 6875 (no departmental code is necessary).

To be accepted outright by the director of graduate studies (DGS), the student needs to have an MS degree in either Electrical Engineering or Computer Engineering.

Students who meet the academic requirements but have degrees in other engineering or science disciplines can be accepted into the PhD program by the Graduate Program Committee (GPC).

Students who don't meet the above requirements may still be admitted by the GPC if there are mitigating factors. Consideration in doctoral program admissions is given to the applicant's grade trends, experience

and maturity, and to the availability of expertise in areas of the applicant's technical interest.

Outstanding BS students who meet the following requirements may be accepted directly for advisement in the department's doctoral program:

- Holds the equivalent of a BS degree in electrical or computer engineering
- GRE quantitative score of at least the 90th percentile
- TOEFL score of at least 550 paper-based. IELTS score: 5.5
- A 3.5 or better grad point average (A=4.0) in their undergraduate studies
- Submission of three letters of recommendation from persons familiar with the applicant's engineering or related work
- Submission of a statement of research interests

Additional information can be obtained from the Graduate Division of the Department of Electrical and Computer Engineering, 349 Engineering Building West, Columbia, MO 65211, or via email: [umcengreogradoff@missouri.edu](mailto:umcengreogradoff@missouri.edu)

## Appeal Process

All students have the right to a timely formal appeal to the GPC. Upon receipt of an admission decision or disciplinary action, the student has 10 working days in which to request a formal appeal. The DGS will convene a meeting of the GPC, the student, and the student's advocate (if appropriate) within 10 working days of receiving the request. The decision of the GPC at the hearing is final.

## Transfer of Credit

The doctoral committee may recommend up to 30 hours of post-baccalaureate graduate credit from an accredited university be transferred toward the total hours required for the doctoral degree. It is the responsibility of the doctoral committee to determine the appropriateness of coursework for transfer credit. All requests for exceptions to this policy must be approved by the Office of Graduate Studies. This policy applies to students who begin their enrollment during the Fall Term 2006 and subsequent semesters.

(Note: The preceding represents a change in policy and becomes effective for graduate students beginning their doctoral programs during the Fall semester 2006. For students who began their doctoral programs prior to the fall 2006 semester, consult the appropriate catalog or the Office of Graduate Studies for policies pertaining to transfer of credit.)

The committee may recommend that courses taken through MU's Extension division be counted toward the credit hour requirement. Extension or correspondence course work from institutions other than MU may not be used to meet the total hours required for the doctoral degree.

## Time Limits on Transfer Credits

All courses to be applied to the plan of study must be completed within 8 years of filing the plan.

## Requirements to obtain the PhD degree in Electrical Engineering and Computer Engineering

1. The student must be qualified to be a PhD candidate.

Students admitted with an MS degree must prove competency in a written qualifying examination conducted by a PhD qualifying committee within 3 semesters of admission.

Students admitted directly from a BS degree program must complete the 24 hours of graded coursework requirements of the MS degree during the first two years of their program. This will prepare them for the PhD qualifying examination process, to be passed within 4 semesters after this requirement is satisfied, and will allow them to obtain an MS degree if a thesis or project report is completed and defended, consistent with MS requirements, or to obtain an ME degree once the course work requirement has been satisfied. A student may petition the faculty for an extension of the two year requirement.

2. A minimum of 72 semester hours beyond the BS are required by the Graduate School; the student's doctoral program committee sets the total number of credit hours and specific courses to be completed as part of his/her PhD program. However, the Graduate School requires a minimum of 15 hours of 8000/9000 level classes to be taken at MU exclusive of research, problems, and supervised study.
3. The candidate must pass a written and oral comprehensive examination.
4. The student must complete a doctoral dissertation on a topic approved by his or her Doctoral Advisory Committee and defend the dissertation in an oral final examination.

These PhD requirements apply to ECE graduate students first enrolled in MU ECE in the Fall semester 2007 or later. UM ECE graduate students enrolled prior to Fall semester 2007 may choose to follow the MU ECE PhD requirements that were in effect for their MU ECE graduate admission semester.

## Selection of an Advisor

The student selects an advisor or co-advisors, by mutual consent, from doctoral faculty members who are dissertation supervisors in the department or area program in which the major work is planned. In the event that an advisor retires or leaves MU, he/she may continue to serve as a student's advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the director of graduate studies, will assist to ensure that a replacement is found.

## Doctoral Degree Forms

By the end of the second semester of study at MU, a student should begin submitting degree program forms which will aid the academic program and the Graduate School in tracking the student's progress toward degree completion. These forms include the following:

- D1 Qualifying Exam Results & Doctoral Committee Approval (<http://gradstudies.missouri.edu/forms-downloads/repository/d1.pdf>)  
Submitted after passing qualifying exams
- D2 Plan of Study Form (<http://gradstudies.missouri.edu/forms-downloads/repository/d2.pdf>)  
Submitted no later than the end of the student's third semester.
- D3 Result of the Comprehensive Examination (<http://gradstudies.missouri.edu/forms-downloads/repository/d3.pdf>)

Submitted to the Graduate School within one month of exam completion

- D4 Report of the Doctoral Dissertation Defense (<http://gradstudies.missouri.edu/forms-downloads/repository/d4.pdf>) Submitted by the Graduate School deadline for the semester in which the students plan to graduate.
- Change of Committee (<http://gradstudies.missouri.edu/forms-downloads/repository/cocform.pdf>)
- Plan of Study Course Substitution Form (<http://gradstudies.missouri.edu/forms-downloads/repository/subform.pdf>)

More information is available at: <http://gradstudies.missouri.edu/academics/graduation-requirements/doctoral-grad-requirements.php>

## Qualifying Examination/Process

To be officially admitted to the PhD program, the student must pass a qualifying examination/process. The student is given two opportunities to pass the Qualifying Examination with a score of 70% or above.

## Qualifying Exam Rules

1. To be eligible to take the Qualifying Examination, graduate students must be accepted for advisement in the Ph.D. program. The examination must be passed before the end of his or her second year of advisement as a Ph.D. student. Each student may take the exam twice. Students who have been accepted into the PhD program with a BS degree must complete the 24 hours of graded coursework requirements of the MS degree during the first two years of their program. This will prepare them for the PhD qualifying examination process, to be passed within two years after the requirement is satisfied, and will allow them to obtain an MS degree if a thesis or project report is completed and defended, consistent with the MS requirements, or to obtain an ME degree once the course work requirement has been satisfied. A student may petition the faculty for an extension of the two year requirement.
2. All eligible students who intend to take the exam must complete the REQUEST FOR QUALIFYING EXAMINATION form and submit it to the ECE Graduate Office within four weeks after the start of the semester. At this time the student will be asked to select two of the seven topic areas over which he or she wishes to be examined. Only students on the approved lists will be allowed to take the exam. When a student submits the REQUEST FOR QUALIFYING EXAMINATION form, the Graduate Office will provide:
  - a. The date, time and place of the examination;
  - b. A reminder to bring their ID card to the exam.
  - c. A copy of the Qualifying Examination Rules.
  - d. A copy of the Guidelines For Qualifying Exam Committee.
3. The examination shall be prepared and administered during the 12th week of both the fall and winter semesters by the Qualifying Examination (QE) Committee. The ECE Graduate Committee currently serves as the QE Committee since it contains a representative from each of the 6 focus areas in the department. The Graduate Director will select the specific date, time and place of the exam at the beginning of each semester.
4. It shall be a written examination taken by all students desiring to qualify during the given semester.
5. The exam will contain five questions from each of the two areas selected by the student. Each student must select and answer five questions from this set, with no more than three questions from one area. The exam will be closed book, with two standard pages of notes, front and back, allowed. A book of mathematical tables will be provided by the department. The exam will last four hours.
6. The QE committee shall administer the examination and identify passing candidates. The ECE faculty as a whole have the responsibility to approve that action.

## Qualifying Examination Guidelines

These guidelines have been prepared to help maintain consistency in the form and difficulty of the Department's qualifying examination.

1. The QE Committee shall consist of one faculty representative from each of the following topic areas, except Foundations:
  - a. Communications and Signal Processing Area;
  - b. Intelligent Systems Area;
  - c. Physical and Power Electronics Area;
  - d. System Modeling and Control;
  - e. Micro/Nano Electronics;
  - f. Digital/Computer Systems; and
  - g. Applied Physics
  - h. Foundations
2. The ECE graduate Committee serves as the QE Committee since it contains a representative from each research area. The ECE department chair appoints the Graduate Committee with input from the Graduate Director.
3. The faculty from each topic area will be responsible for maintaining a list of topics which constitute the core material an MS graduate should be expected to have mastered. The members of each group will be responsible for preparing questions for the exam covering topics from the list. For the major core focus area, questions will come from 4000/7000 – 8000 level courses. Questions for the topics in the Foundation area will be from a set of required 3000 level courses.
4. The QE Committee will solicit questions from the faculty group, but the Committee will have the responsibility of combining these questions into a fair, comprehensive exam. The QE Committee member for each group will be responsible for coordinating his or her group. The representatives of each topic group shall call a meeting of all faculty from that group for the purpose of reviewing the exam questions to be submitted to the Qualifying Exam Committee. The group's submission must be approved by a majority vote of those present.
5. Solutions will be graded by faculty members who prepared the questions. The grading must be completed within two weeks after the exam. A guideline is that each question should be doable by a strong MS graduate in 40 to 45 minutes.
6. Solutions will be graded on a 100 point scale with 70 points as a minimum passing grade.
7. Each student's performance will be reviewed by the QE Committee and a majority vote of the QE Committee is required for passing.
8. The QE Committee must report the results of the exam to the ECE Faculty within four weeks of the exam.

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## Electrical Engineering

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Kannappan Palaniappan, Interim Chair EECS

College of Engineering  
201 Naka Hall  
(573) 882-3843  
(573) 882-6387  
pal@missouri.edu  
<http://engineering.missouri.edu/eecs>

## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. At the graduate level, the EECS Department offers MS degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate degree program prepares students for rewarding careers in hardware and software systems and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 (<http://missouri.edu/about/history/engineering.php>) as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with 35 faculty members (<http://engineering.missouri.edu/eecs/people>), not including instructors, teaching professors, and emeriti.

## About the Electrical and Computer Engineering Program

The Electrical and Computer Engineering Program (ECEP) in the Electrical Engineering and Computer Science (EECS) Department is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research. The ECE Program offers a comprehensive undergraduate curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in electrical and computer engineering. Students seeking either one of the two undergraduate degrees offered -- Bachelor of Science in Computer Engineering (BS CoE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ce>) and Bachelor of Science in Electrical Engineering (BS EE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ee>) -- are able to pursue dual degrees in related fields including information technology and computer science, as well as in the other degree of the ECEP, i.e. BS EE and BS CoE, respectively, along with majors and minors in other Colleges. Students have opportunities to gain in-

depth hands-on knowledge in specialized areas through undergraduate research experience working with faculty. Faculty research areas cover both well established and emerging fields including mobile video communication; wireless and digital communications; satellite remote sensing; geospatial image and video processing; computational neuroscience; systems biology; eldercare technology; computational intelligence, machine learning, pattern recognition, deep learning, fuzzy systems; computer vision; robotic vision; robotic assistive technology; human/robot interaction; landmine detection; pulsed power and plasma technology; nuclear and renewable energy systems; semiconductor devices; photonics; accelerators and beams; antennas and radar systems; nano and microelectromechanical systems; bioMEMS; heterostructures, microfabrication; feedback and control systems; parallel processing; computer architecture; autonomous systems; real-time embedded architectures; high performance computing; sensor networks; and human-computer interfaces.

The ECEP in EECS also offers a Dual Bachelor of Science in Electrical Engineering & Physics (<http://engineering.missouri.edu/ece/degree-programs/bs-eep>).

At the MS and PhD levels, the ECEP offers the following graduate degrees:

- Master of Science in Computer Engineering (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msce>)
- Master of Science in Electrical Engineering (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)
- Doctoral Degree in Electrical and Computer Engineering (<http://engineering.missouri.edu/ece/degree-programs/phd>)

with options for dual Masters and the Masters in Engineering (ME) which is coursework only, without thesis. The graduate degree programs prepare graduates of four-year BS degrees in Electrical Engineering, Computer Engineering, and Computer Science or closely allied fields for further study at the doctoral level or for successful careers as specialized EE and CoE professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with faculty in their respective fields of research expertise.

The faculty members in the ECE Program participate in the full spectrum of undergraduate and graduate education. Graduate education, has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, and is often multidisciplinary in nature spanning interdepartmental and cross-college research. The aim is to produce professionals who can function well as part of interdisciplinary research teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the ECEP are among the leading faculty in University's Research Revenue, with major research projects funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) as well as Microsoft, Honeywell and Monsanto, to cite just a few.

Research facilities are well established around faculty expertise in the broad emphasis areas of Communications and Signal Processing (SP), Intelligent Systems and Robotics (ISR), Physical and Power Electronics (PPE), Applied Physics (AP), Systems Modeling and Control (SMC), Computer Architecture and Systems (CAS), Nano/Micro Technology (NMT). Faculty in the Electrical and Computer Engineering Program work closely with faculty in the Computer Science Program within the EECS Department.

For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in CoE or EE is available.

Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

## Summary

The ECE Program offers undergrad degrees:

- Bachelor of Science in Computer Engineering (BS CoE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ce>)
- Bachelor of Science in Electrical Engineering (BS EE) (<http://engineering.missouri.edu/ece/degree-programs/bs-ee>)
- Dual Bachelor of Science in Electrical Engineering & Physics (<http://engineering.missouri.edu/ece/degree-programs/bs-eep>)

with many more options for dual degrees within the EECS department and outside.

Graduates with BS degrees in CoE, EE, CS or closely related areas can choose to pursue advanced study towards the following degrees:

- Master of Science in Computer Engineering (MS) (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msce>)
- Master of Science in Electrical Engineering (MS) (<http://engineering.missouri.edu/ece/degree-programs/program-of-study-msee>)
- Doctoral Degree in Electrical and Computer Engineering (PhD) (<http://engineering.missouri.edu/ece/degree-programs/phd>)

The MS and PhD are professional research degrees designed to prepare students for advanced professional careers, including teaching and research at university level, as well as research and development in industrial, government, and nonprofit organizations.

The ECE Program offers learning and research opportunities for both undergraduate and graduate students in the areas of:

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep learning, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;

- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Research

The ECEP in EECS is the most research-active program among all programs and units in the College of Engineering at the University of Missouri, with over \$5 million in expenditures with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Faculty

**Professor** R. D. Curry\*\*, C. H. Davis\*\*, J. M. Gahl\*\*, S. Gangopadhyay\*\*, Z. He\*\*, D. K. C. Ho\*\*, N. E. Islam\*\*, J. M. Keller\*\*, S. D. Kovaleski\*\*, J. W. Kwon\*\*, S. Nair\*\*, R. M. O'Connell\*\*, M. A. Prelas\*\*, M. Skubic\*\*

**Associate Professor** M. Almasri\*\*, G. DeSouza\*\*, T. G. Engel\*\*, T. Han\*\*, J. J. Legarsky\*\*

**Assistant Research Professor** G. Scott\*\*

**Assistant Teaching Professor** R. Druce\*, L. Rivera\*

**Professor Emeritus** L. A. Akers\*, M. J. Devaney\*, C. O. Harbourn\*, K. F. Lee\*, R. W. McLaren\*, B. W. Sherman, H. W. Tyrer Jr.\*, K. Unklesbay

**Associate Professor Emeritus** R. W. Leavene Jr.\*

**Adjunct** M. Becchi\*\*, D. Heise, G. K. Hubler\*, V. Korampally\*, G. Triplett\*\*, A. Zare\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEE in Electrical Engineering (p. 513)

### Advising and Scholarship Contact

Tami Beatty  
 Undergraduate Program Office  
 W1002 Thomas & Nell Lafferre Hall  
 (573) 882-2648  
 beattyt@missouri.edu

The Department of Electrical Engineering and Computer Science (EECS) offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

The EECS department emphasizes close interaction with industry. Industry engineers visit regularly and industry-sponsored student projects are provided to give extra dimension to the program.

Many students in the EECS department combine the electrical engineering major with the computer engineering major in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

Students interested in interdisciplinary studies may use some electives to study business, premedicine, prelaw, and other areas. Students are able to choose from a wide variety of courses offered by other departments in the College of Engineering, as well as from other MU colleges, taking advantage of the multidisciplinary nature of the campus.

The current educational objectives of the electrical engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

The current educational objectives of the computer engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

Both the Bachelor of Science in Electrical Engineering (BS EE) and the Bachelor of Science in Computer Engineering (BS CoE) require that students earn a 2.0 GPA or better in all courses that have an MU engineering prefix. All ECE courses require a grade of C or better in ECE prerequisites.

Engineering design in both the electrical engineering and computer engineering programs is provided through an integrated laboratory structure. Beginning with the first laboratory course in the fourth semester of each program, students have a significant design and laboratory experience in each semester of their respective programs.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements.

## Electrical and Computer Engineering (ECE) Honors Program

The ECE Honors Program follows the general rules and philosophy of the College of Engineering Honors Program. Students may enter the program from the beginning of the junior year and must have a GPA of 3.0/4.0 at the start. Eligible students participate in the program by enrolling in ECE 4995 Undergraduate Honors Research in Electrical Computer Engineering for one to three credit hours, which replaces an equivalent number of hours of ECE technical electives.

The heart of the program is a research or advanced design project culminating in an undergraduate honors thesis. The project is conducted under the supervision of the honors advisor, who is an ECE faculty member selected by mutual agreement between the student and the professor. Satisfactory completion of the project requires approval (signatures) of the honors thesis by both the honors advisor and an additional faculty member, who serves as second reader of the thesis. Students who complete the program and graduate with a GPA of a least 3.0 receive the designation "Honors Scholar in Engineering" at graduation and on their diploma.

Another valuable feature of the Honors Program is that participants may reduce the number of credit hours required for degree completion to the University minimum of 120 by substituting up to six hours of credit from graduate courses through dual (undergraduate/graduate) enrollment during the last four semesters of the undergraduate program and after completion of the honors project.

## Double Majors - Electrical Engineering and Computer Engineering

Many students in the EECS department combine the BS in Electrical Engineering with the BS in Computer Engineering in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

## Major Program Requirements

### Constitutional Elective

Select one of the following:	3
HIST 1100	Survey of American History to 1865
HIST 1200	Survey of American History Since 1865
HIST 1400	American History
HIST 2210	Twentieth Century America
HIST 2440	History of Missouri
HIST 4000	Age of Jefferson
HIST 4220	U.S. Society Between the Wars 1918-1945
HIST 4230	Our Times: United States Since 1945
POL_SC 1100	American Government
POL_SC 2100	State Government
Humanities/Fine Arts courses	9
Social Science/Behavioral Science courses	3
Select two of the following:	6
ENGINR 1200	Statics and Elementary Strength of Materials
ENGINR 2300	Engineering Thermodynamics
IMSE 2710	Engineering Economic Analysis

**Other major core requirement courses:**

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSCS 2750	University Physics I	5
PHYSCS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLSH 1000	Exposition and Argumentation	3
ECONOM 1014	Principles of Microeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
or ECONOM 1024	Fundamentals of Microeconomics	
CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3
ECE 1000	Introduction to Electrical and Computer Engineering	2
ECE 1210	Introduction to Logic Systems	3
ECE 2100	Circuit Theory I	4
ECE 3210	Microprocessor Engineering	4
ECE 3810	Circuit Theory II	4
ECE 3220	Software Design in C and C++	3
ECE 3830	Signals and Linear Systems	3
ECE 3510	Electromagnetic Fields	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3610	Semiconductors and Devices	3
ECE 3110	Electrical and Computer Engineering Projects	3
ECE 4220	Real Time Embedded Computing	3
ECE 4250	VHDL and Programmable Logic Devices	4
ECE 4270	Computer Organization	4
ECE 4970	Senior Capstone Design	3
<b>Electives</b>		
3000+ ECE or CMP_SC Elective		12
ECE 4000+ Technical Elective		6
ECE 4000-level Senior Lecture/Lab		4
Any Elective		1

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 CMP_SC 1050	3
CHEM 1320	4 ECE 1210	3
ECE 1000	2 ENGLSH 1000	3
Constitution Requirement	3 MATH 1700	5
Economics Elective	3 Humanities/Fine Arts Elective	3
		17
<b>Second Year</b>		
Fall	CR Spring	CR
ECE 2100	4 CMP_SC 2050	3
ECE 3210	4 ECE 3810	4
MATH 2300	3 MATH 4100	3

PHYSCS 2750	5 PHYSCS 2760	5
		16
		15
<b>Third Year</b>		
Fall	CR Spring	CR
ECE 3410	4 ECE 3610	3
ECE 3220	3 ECE 4250	4
ECE 3510	3 MATH 2320	3
ECE 3830	3 ECE 4000-level Technical Elective	3
ECE 4710	3 Flexible Technical Elective	3
		16
		16
<b>Fourth Year</b>		
Fall	CR Spring	CR
ECE 4220	3 ECE 3110	3
ECE 4270	4 ENGINR 1200, 2300, or IMSE 2710	3
ENGINR 1200, 2300, or IMSE 2710	3 ECE 4000+ Technical Elective	3
Flexible Technical Elective	3 Flexible Technical Elective	3
Social/Behavioral Science Elective	3 Humanities/Fine Arts Elective	3
		16
		15
<b>Fifth Year</b>		
Fall	CR	
ECE 4970 (WI)	3	
ECE 4000-level Sr Lec/Lab	4	
Flexible Technical Elective	3	
Humanities/Fine Arts Elective	3	
		13

Total Credits: 141

## Graduate

- MS in Electrical Engineering (p. 514)

201 Naka Hall  
Columbia, MO 65211  
Phone: (573) 882-4436  
Email: [umcengrecegradoff@missouri.edu](mailto:umcengrecegradoff@missouri.edu)  
<http://engineering.missouri.edu/ece/>

**Director of Graduate Studies:** Gui N. DeSouza

325 Naka Hall  
Columbia, MO 65211  
Phone: (573) 882-5579  
Email: [DeSouzaG@missouri.edu](mailto:DeSouzaG@missouri.edu)  
<http://engineering.missouri.edu/ece/>

The Department also offers a PhD in Electrical and Computer Engineering (p. 505), and the College of Engineering offers an interdepartmental ME in Engineering with a focus in Computer or Electrical Engineering (p. 516).

## Research Areas

The ECE Program in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in expenditures with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)



- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

### Specific Topics of Study

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep networks, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

### Admission Requirements for the MS and ME Programs in EE or CE

- GPA from BS program
- GRE: Quantitative, Verbal and Analytic scores.
- International students:
  - Computer-based TOEFL, or
  - Paper-based TOEFL, or
  - Internet-based TOEFL, or
  - IELTS exam
- 3 letters of recommendation
- Statement of purpose

- Transcripts

**(When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri-Columbia and your program of interest as locations to receive the scores. MU's Institutional Code for the GRE and TOEFL is: 6875.)**

In addition to the Graduate School requirements, the ECE programs have the following additional requirements:

The three letters of recommendation should be from persons familiar with the applicant's engineering or related work. It is required that the recommendation letter use the institutional letterhead or be sent directly from the recommender's institutional e-mail address (not gmail, hotmail, etc.). Similarly, each provided reference must include the person's institutional e-mail address. Any letters of recommendation or listed reference that does not comply with the above or otherwise look 'unofficial' will be disregarded.

To be accepted outright by the Director of Graduate Studies in ECE (DGS-ECE), the student needs to have a BS degree in either Electrical Engineering or Computer Engineering in addition to meeting the above requirements.

Students who meet the academic requirements but have degrees in other Engineering or Science disciplines can be accepted directly into the MS/ME programs by the Graduate Program Committee in ECE (GPC-ECE).

Such students are strongly encouraged to consult with the DGS-ECE or their advisor about appropriate bridge courses. Based on individual circumstances, students may be advised to register as an undeclared graduate student to fill in background course work prior to admission into the department.

Students who don't meet the above requirements may still be admitted on Probation by the GPC if there are mitigating factors. Students admitted on Probation must receive at least a 3.0 GPA for the first 12 hours of graded graduate coursework completed in their first two semesters. Failure to achieve this GPA will result in expulsion from the ECE MS/ME program.

### Fast Tracking

In an effort to streamline and accelerate the acquisition of MU graduate degree(s) we establish fast tracking options for our current undergraduate students and our 3+2 students. For MU undergraduate students, the fast track option allows them to become integrated into the research environment of the EECS department early in their career and to earn between 6 and 12 hours of graduate credit as their schedules allow. For these qualified graduate school bound students, we will waive the GRE requirement and give them preference in TA and RA positions. For the 3+2 students who demonstrate excellence in their first semester of ECE course work at MU, we will waive the GRE and provide up to 12 hours of graduate credit prior to entry into one of the ECE graduate programs. The summary follows.

#### MU BS students(all relevant majors)

- GPA > 3.0 after junior year
- Waive GRE requirement for admission to ECE graduate programs
- Use 6 hours of 126 for graduate credit (after 90 credit hours have been earned)
- Earn 6 additional hours of graduate credit as schedule allows (after 90 credit hours have been earned)

- Participate in Undergraduate Research at least one semester
- Participate in Honors Scholars' Program

#### International or Domestic 3 + 2 students

- GPA from Home institution (last 60 hours) > 3.2
- MU GPA in at least 12 hours of ECE courses >= 3.5
- Waive GRE requirement for admission
- Take up to 12 hours as dual enrolled student (second semester of first year)

## Internal Funding

### Teaching Assistantships

Teaching assistantships are normally awarded to qualified graduate students with appropriate communication skills who assist faculty members in various phases of instruction. International students may not be appointed to teaching assistantships in their first semester on campus. International students must pass a language screening test at a proper level to be eligible for the TA positions available.

### Research Assistantships

Research assistantships are granted to students qualified for working with professors on particular research projects. The research assistants are selected by faculty members who have research funds to support graduate students. Therefore, students should contact the faculty members directly for the RA possibility.

### Fellowships

The department faculty actively pursue funding for selected research fellowships. Available fellowship opportunities can be found by contacting the ECE Graduate Office. Additionally, a limited number of "Teaching Fellows" are awarded annually to outstanding PhD students, particularly for those preparing for academic careers. Details can be obtained from the ECE Graduate Office.

## BSEE in Electrical Engineering

### Degree Program Description

The Bachelor of Science in Electrical Engineering allows student to learn about electrical power generation, communication systems, instrumentation, circuit design and microprocessor design. Students have the opportunity to gain hands on experience as well as research experience and the opportunity to develop new products.

### Major Program Requirements

The electrical engineering degree offers course work in all traditional areas of the electrical engineering field. Focused areas of work are offered in the areas of communications, digital systems, discrete and integrated electronics, electromagnetics, energy systems and power electronics, robotics and system control. (Focus areas are not listed on transcripts or diplomas).

Students must complete all university requirements (p. 32), including general education (p. 33), and degree requirements below.

#### Major core requirements

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5

MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLSH 1000	Exposition and Argumentation	3
Select two of the following:		6
ENGINR 1200	Statics and Elementary Strength of Materials	
ENGINR 2300	Engineering Thermodynamics	
IMSE 2710	Engineering Economic Analysis	

#### Economics Elective

Select one of the following:		3
ECONOM 1014	Principles of Microeconomics	
ECONOM 1015	Principles of Macroeconomics	
ECONOM 1024	Fundamentals of Microeconomics	

#### Constitutional Elective

Select one of the following:		3
HIST 1100	Survey of American History to 1865	
HIST 1200	Survey of American History Since 1865	
HIST 1400	American History	
HIST 2210	Twentieth Century America	
HIST 2440	History of Missouri	
HIST 4000	Age of Jefferson	
HIST 4220	U.S. Society Between the Wars 1918-1945	
HIST 4230	Our Times: United States Since 1945	
POL_SC 1100	American Government	
POL_SC 2100	State Government	

Humanities/Fine Arts courses	9
Social Science/Behavioral Science courses	3

#### Other major core requirement courses:

CMP_SC 1050	Algorithm Design and Programming I	3
ECE 1210	Introduction to Logic Systems	3
ENGINR 1000	Introduction to Engineering	1
ECE 2100	Circuit Theory I	4
ECE 3110	Electrical and Computer Engineering Projects	3
ECE 3210	Microprocessor Engineering	4
ECE 3810	Circuit Theory II	4
ECE 3830	Signals and Linear Systems	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3510	Electromagnetic Fields	3
ECE 3610	Semiconductors and Devices	3
ECE 4970	Senior Capstone Design	3

#### Electives

ECE or CMP_SC 3000+ Elective	12
ECE 4000+ Technical Elective	9
ECE 4000+ Senior Lecture/Lab	4
Any Elective	4

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
CHEM 1320	4 ECE 1210	3
MATH 1500	5 CMP_SC 1050	3
Constitutional Elective	3 ENGLSH 1000	3
ENGINR 1000	1 MATH 1700	5
Economics Elective	3 Humanities/Fine Arts Elective	3
		17
Second Year		
Fall	CR Spring	CR
ECE 2100	4 ECE 3810	4
ECE 3210	4 MATH 4100	3
MATH 2300	3 PHYSCS 2760	5
PHYSCS 2750	5 Humanities/Fine Arts Elective	3
		15
Third Year		
Fall	CR Spring	CR
ECE 3410	4 ECE 3610	3
ECE 3510	3 ENGINR 1200, 2300, or IMSE 2710	3
ECE 3830	3 Flexible Technical Elective	3
STAT 4710	3 Flexible Technical Elective	3
Social/Behavioral Science Elective	3 Humanities/Fine Arts Elective	3
		15
Fourth Year		
Fall	CR Spring	CR
ECE 3110	3 ECE 4970 (WI)	3
Flexible Technical Elective	3 ENGINR 1200, 2300, or IMSE 2710	3
ECE 4000+ Technical Elective	3 Flexible Technical Elective	3
ECE 4000+ Technical Elective	3 ECE 4000+ Senior Lecture/Lab	4
Free Elective	3 ECE 4000+ Technical Elective	3
		16

Total Credits: 126

## MS in Electrical Engineering

### Master of Science in Electrical or Computer Engineering (MS)

#### Admission

349 Engineering Building West, Columbia, MO 65211

Phone: (573) 882-4436

Email: [umcengregegradoff@missouri.edu](mailto:umcengregegradoff@missouri.edu)

<http://engineering.missouri.edu/ece/>

#### Admission Criteria

Fall deadline: February 15

Spring deadline: September 1

Note: Applications received after these deadlines will be evaluated as time allows.

- Minimum GPA: 3.0 for the last 60 hours
- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	will be considered	80th percentile	will be considered
On or After August 1, 2011	will be considered	80th percentile	will be considered

International applicants only:

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS scores:

Item	Score
Listening	5.5
Reading	5.5
Writing	5.5
Speaking	5.5

Required Application Materials:

- Statement of Purpose (upload to the Supplemental information section of the application)
- Copies of your official transcripts (upload to the Educational History section of the application)
- Copies of your GRE scores (upload to the Test Information section of the application)
- Copies of your TOEFL or IELTS Scores (for non-native English speakers only) (upload to the Test Information section of the application)
- 3 letters of Recommendation (the department accepts electronic recommendations – in the recommendation section of the online application, enter the information for three recommenders. Each recommender will receive an email with instructions on how to complete the recommendation). The department does also accept hard copy letters of recommendation. The letters may be mailed to: Office of Graduate Studies, 210 Jesse Hall, Columbia, MO 65211.

To the Office of Graduate Studies:

Official Transcripts. The mailing address is: Office of Graduate Studies, 210 Jesse Hall, Columbia, MO 65211.

Note: when registering for GRE or TOEFL exams, be sure to designate your program of interest at the University of Missouri – Columbia. MU's Institutional Code is 6875 (no departmental code is necessary).

### Admissions Criteria for the MS in Electrical or Computer Engineering

To be accepted outright by the director of graduate studies (DGS), the student needs to have a BS degree in either Electrical Engineering or Computer Engineering in addition to meeting the above requirements. Students who meet the academic requirements but have degrees in other engineering or science disciplines can be accepted directly into the MS program by the graduate program committee (GPC). Such students are strongly encouraged to consult with the DGS or their advisor about appropriate bridge courses. Based on individual circumstances, students may be advised to register as an undeclared graduate student to fill in background course work prior to admission into the department.

Students who do not meet the above requirements may still be admitted on probation by the GPC if there are mitigating factors. Students admitted on probation must receive at least a 3.0 GPA for the first 12 hours of graded graduate coursework completed in their first two semesters. Failure to achieve this GPA will result in expulsion from the ECE MS program.

## Appeal Process

All students have the right to a timely formal appeal to the GPC. Upon receipt of an admission decision or disciplinary action, the student has 10 working days in which to request a formal appeal. The DGS will convene a meeting of the GPC, the student, and the student's advocate (if appropriate) within 10 working days of receiving the request. The decision of the GPC at the hearing is final.

## Degree Requirements

To fulfill the requirements for the MS degree, the following rules apply:

- A candidate must complete 30 hours, including at least 12 hours of 8000-level graded course work (exclusive of ECE 8990 or ECE 8085 or ECE 8010 hours).
- At least six of these graded 8000 level course hours need to come from ECE.
- At least 15 hours of graded course work (total combination of 7000 and 8000 level courses, exclusive of ECE 8990, ECE 8085, or ECE 8010 hours) must be taken from the Electrical and Computer Engineering Department course offerings.
- A maximum of six hours of graduate credit may be transferred from another campus in the University of Missouri System or other university, while a maximum of eight hours of graduate credit may be used from a previous MU master's degree.
- At most, three hours of course work in supervised study (ECE 8010) may be taken during the MS program and they will be graded on an S/U basis.
- At least one course from each of three different emphasis areas must be taken; a minimum of two of the emphasis areas must be in Electrical and Computer Engineering. (Each ECE graduate course is designated to an emphasis area. Contact the ECE graduate office for a current list).
- A minimum of 3 hours to a maximum of 6 hours of research (ECE 8990) or problems (ECE 8085) are required, based on whether the student writes a master's thesis or a master's Report.
- The student's cumulative GPA must be at least 3.0 to graduate.

The requirements for the MS degree must be met within an eight year period. Each candidate must pass a final oral examination to demonstrate mastery of the work included in the thesis or in a substantial independent project. These MS requirements apply to ECE graduate students first enrolled in MU ECE in the Fall semester 2007 or later. UM ECE graduate students enrolled prior to Fall semester 2007 may choose to follow the MU ECE MS requirements that were in effect for their MU ECE graduate admission semester.

## Academic Probation

A student whose GPA drops below 3.0 is automatically placed on academic probation. In such a case, the student has one semester to raise his or her cumulative GPA to 3.0. Failure to do so will result in expulsion from the program. Additionally, a student who receives the grade of "C" in 9 hours of coursework will be expelled. As with

acceptance, students here also have a right to the same formal appeal process described above.

## Selection of an Advisor

Students must choose an academic advisor who will then provide guidance for the selection of coursework, and in the choice and execution of a research question. The student's academic advisor and the Director of Graduate Studies must approve all coursework used to satisfy the credit hour requirements for this degree. After performing satisfactorily for a minimum of one semester, the student, with the advisor's assistance, completes the Program of Study form that outlines the plan of study for the student's graduate program. M1 - Program of Study form

The form is forwarded through the DGS to the Office of Graduate Studies for approval. In the event that an advisor retires or leaves MU, he/she may continue to serve as the student's main advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the DGS, will assist the student to ensure that a replacement is found.

The Program of Study form must be filed with the Office of Graduate Studies by the end of the student's second semester of enrollment. Upon approval of the program by the Office of Graduate Studies, the student is a candidate for the degree. If changes must be made on a student's Program of Study form, a Program of Study Substitution form is used.

## Thesis Option

For students under the thesis option of the MS degree, i.e., students enrolling for ECE 8990, an M-2 Request for Thesis Committee form is required to be submitted for approval by the department DGS and the Office of Graduate Studies by the end of the student's second semester.

A thesis committee is composed of three members of the MU faculty: a major advisor from the academic program, a second reader from the academic program, and an outside reader who is a member of the graduate faculty from a different MU graduate program. Upon approval of the department DGS, the student may petition the Office of Graduate Studies to allow a person who is not a member of the MU graduate faculty to serve as the third reader. The petition should include a written justification for such a request and a copy of the person's curriculum vitae. The Office of Graduate Studies maintains copies of curriculum vitae previously received and approved, and if such a request is anticipated, the student should contact the Office of Graduate Studies to see if the curriculum vita of a particular person is already on file. Students need to supply committee members with copies for review/evaluation at least one week prior to the defense date.

Information about submitting the thesis can be found in the Thesis and Dissertation Guidelines.

## Non-Thesis Option

For students who enroll in ECE 8085 (Problems), a problem report rather than a thesis is required. The student is not required to submit the M-2 form (request for a thesis committee). Instead, the student must have the report approved by his or her advisor and two other members of the graduate faculty, forming the student's Problem Committee. It is not required that a member outside of ECE be included, although it is permissible for such a member of the MU graduate faculty to be appointed. At least one of the three members must have a primary academic appointment in ECE. Students need to supply committee

members with copies for review /evaluation at least one week prior to the defense date. At that time, an announcement is to be made to the department faculty and graduate students to allow them to attend the defense. The student must defend the problem report to the committee, and make any needed adjustments in format and corrections/clarifications based on input from the committee. A final copy of the problem report must be filed with the ECE graduate office.

## Report of the Master's Examining Committee

The purpose of the M-3 Report of the Master's Examining Committee Form is to have an official record of the final examining process, whether it is a thesis defense or presentation of a report. The student's committee will indicate on this form if the student has passed the final exam. This form must be submitted to the Office of Graduate Studies by a deadline for the semester in which the students plan to graduate. For a report option, the 3rd reader of the committee may be from the student's department. The form is due in the Office of Graduate Studies two weeks prior to graduation.

## Engineering

Programs in Engineering are multi-department programs, and administered by the College of Engineering. Requirements are determined based on the specific area of interest. Options include a minor at the undergraduate level, and a master's degree at the graduate level.

College of Engineering  
W1025 Lafferre Hall  
Columbia, MO 65211  
<http://engineering.missouri.edu>

## Faculty

Please see the appropriate degree program pages for faculty information.

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Minor in Engineering (p. 516)

## Graduate

- ME in Engineering (p. 516)

The College of Engineering offers the Master of Engineering degree for graduate students interested in a terminal master's degree, who have a demonstrated need for a professional, non-research degree in engineering, and have an academic interest in a specific focus area within engineering.

Several departments in the College of Engineering administers an ME degree focusing in that area.

**Note:** A focus area is not listed on the MU transcript. Hence the transcript and the diploma for any student completing an ME degree will

only indicate Master of Engineering, with no designation of any specific department.

## Minor in Engineering

The minor in engineering is designed for students majoring in disciplines such as physics, math, chemistry and computer science, but it is available to students in all disciplines. It consists of 18 or 19 hours of engineering courses as listed below.

### Required Courses

ENGINR 1000	Introduction to Engineering	1
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2300	Engineering Thermodynamics	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
CMP_SC 1050	Algorithm Design and Programming I	3
<b>Engineering Elective - choose from the list below:</b>		3-4
BIOL_EN 2180	Engineering Analysis of Bioprocesses	3
CH_ENG 2118	Introduction to Energy Technology and Sustainability	3
CH_ENG 2225	Mass and Energy Balance	3
CV_ENG 3100	Fundamentals of Transportation Engineering	4
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 3700	Fluid Mechanics	3
CV_ENG 4102	Infrastructure Management	3
CV_ENG 4250	Environmental Regulatory Compliance	3
CV_ENG 4500	Introduction to Construction Management	3
ENGINR 2200	Intermediate Strength of Materials	3
ECE 1210	Introduction to Logic Systems	3
IMSE 2030	Fundamentals of Systems Design and Analysis	3
IMSE 2110	Probability and Statistics for Engineers	3
IMSE 2210	Linear Algebra for Engineers	3
IMSE 2710	Engineering Economic Analysis	3
MAE 2600	Dynamics	3

## ME in Engineering

NOTE: Focus areas do not appear on diplomas or transcripts.

### ME with a focus in Biological Engineering

Recognizing the immense promise of bioengineering and the unique position of MU for a strong bioengineering program, the College of Agriculture, Food and Natural Resources (CAFNR) and the College of Engineering (CoE) joined forces to form the Department of Biological Engineering (BE). BE unites existing faculty and infrastructure from both colleges. CoE contributes biomedical engineering capabilities while CAFNR brings strengths in bioprocess and bioenvironmental engineering. Biological engineering confers both masters and doctoral degrees to students who satisfy the general requirements of the Graduate School and the specific requirements for the masters degree and the doctoral degree of the Department of Biological Engineering

## ME with a focus in either Electrical or Computer Engineering

The ME degree is designed for entering master students interested in a terminal master's degree, who have a demonstrated need for a professional, non research degree in engineering, and have a academic interest in the department. Please note that the official University transcript and diploma will only indicate Master of Engineering, with no designation of the focus area. The entrance requirements for the ME degree/Electrical and Computer Engineering Focus are the same as for the MS in Electrical Engineering and MS in Computer Engineering. Note: When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri-Columbia and your program of interest as locations to receive the scores. MU's Institutional Code for the GRE and TOEFL is: 6875.

## ME with a focus in Industrial and Manufacturing Systems Engineering

The Master of Engineering (ME) degree is a non-research thirty-six-credit-hour program for U.S. students designed to be a terminal degree. The ME curriculum is based upon a seven-course core with the remaining 15 hours made up of courses appropriate to the student's concentration area.

### ME Entrance requirements

- GPA of 3.0 on 4.0 scale in the last 60 hours of the BS program
- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	will be considered	80th percentile	will be considered
On or After August 1, 2011	will be considered	80th percentile	will be considered

- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS scores

Item	Score
Listening	5.5
Reading	5.5
Writing	5.5
Speaking	5.5

- 3 letters of recommendation
- statement of purpose
- transcripts

When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri - Columbia and your program of interest as locations to receive the scores. MU's institutional code for the GRE and TOEFL is 6875.

## Graduation Requirements

An ME student must complete a minimum of 36 credit hours of graduate course work. At least 15 hours must be in 8000+ level courses and a minimum of 21 hours must be from the College of Engineering. The

student must maintain at least a 3.0 cumulative gpa and complete the program in eight years. A project may be required by the advisor. For additional degree requirements based on the focus area, students should consult with the specific College of Engineering Department.

## How to Apply

Applicants must concurrently apply to the MU Graduate School and the engineering department offering the focus area interest. Contact the department *before* applying for specific instructions.

## Industrial Engineering

Luis G. Occeña, Chair  
 College of Engineering  
 E3437 Lafferre Hall  
 (573) 882-2692  
<http://engineering.missouri.edu/imse>

Industrial and manufacturing systems engineering is a blending of natural sciences, engineering science, mathematics, computers, social science and management. This fusion of diverse skills allows industrial engineers to design and implement socio-technical systems - complex combinations of people and technology brought together to solve problems. With its diversity, industrial engineering is used in a wide variety of areas in both manufacturing and service industries.

Industrial engineers in a manufacturing organization address many issues including designing workplaces, considering not only the capabilities of machines, but also the physiological and psychological capabilities of humans. They may design computer-integrated manufacturing systems with robots and computer systems to control production or manage inventory and quality of complex products, determining plant and warehouse locations. They may also develop sales forecasts, evaluate proposals to produce new products and build new or improved production facilities.

The same skills used as an industrial engineer to design manufacturing systems are also useful in designing better systems to care for patients in hospitals, to facilitate the judicial process, to provide faster and more accurate mail distribution and to improve airline routing and reservation methods. In effect, the industrial engineer may be involved in the design of a range of systems that provide beneficial services at a cost that society can afford.

The department offers the Bachelor of Science with a major in Industrial Engineering (BSIE), and 5 year Industrial Engineering BSIE/MS and BSIE/MBA programs. The department also offers students the opportunity to obtain Lean Six Sigma Green Belt certification.

## Faculty

**Professor** C. M. Klein\*\*, J. S. Noble\*\*, B. Wu\*\*

**Associate Professor** L. G. Occeña\*\*

**Assistant Professor** J. H. Kim\*\*, R. G. McGarvey\*\*, S. Rajendran, K. Seo, S. Srinivas

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSIE in Industrial Engineering (p. 519)

### Advising Contact

James S. Noble, Director of Undergraduate Studies

### Scholarship Information Contact

Luis G. Occeña

Industrial engineering undergraduates complete a curriculum similar to all engineering students during the first two years. The objective of this curriculum is to give the student a rigorous foundation in mathematics, natural sciences, basic engineering sciences, applied probability and computer science, as well as a complementary and meaningful exposure to the humanities and social sciences.

In addition to the foundational courses, students gain knowledge of optimization methodologies, static and dynamic modeling. They also learn evaluation techniques for the modeling and evaluation of integrated systems of people, technology and information in the areas of strategic planning, production systems, control systems, quality systems, information systems, product and process design.

These fundamental skills provide the foundation from which students learn to develop systematic and integrated solution approaches to large-scale enterprise problems. In order to be successful as they begin their careers (or graduate study) students learn to communicate effectively in both oral and written forms, and become proficient in working in diverse teams of individuals.

Lastly, the curriculum prepares the student to practice in an ethical and professional manner, to serve as well as benefit from the engineering profession, and to continue the learning of and the contribution to the advancement of industrial and manufacturing systems engineering concepts.

Industrial engineering design experiences are integrated throughout the curriculum, many times in a team-based environment. Industrial engineering design is the process of developing and improving integrated systems that include people, materials, information, equipment and energy.

### Program Educational Objectives

The IE Program educational objectives have been developed to address the needs of our constituencies and to be consistent with the University of Missouri mission. Within 3-5 years of graduation from the industrial engineering program in the Industrial and Manufacturing Systems Engineering Department at the University of Missouri:

- Graduates will create value for their employers, demonstrating entrepreneurial initiative, and make contributions that benefit society.
- Graduates will expand their capabilities through professional development and advanced education.
- Graduates will provide leadership and be agents of change in their profession and/or communities.

The objectives are based on a few key concepts: value, entrepreneurial initiative, expanding capability, leadership, and being agents of change.

"Value" creation is defined as what a graduate's employer requires in order to achieve its stated objectives. The IMSE graduate adds value to the organization by taking entrepreneurial initiative that contributes to the greater good of society. Graduates face an environment where technology is advancing at an ever increasing pace, therefore, they will need to expand their knowledge and capabilities through professional

development and advanced education. Due to their systems view of the enterprise, industrial engineers are often called upon to provide leadership within an enterprise and, as such, are required to manage the change that is inherent in today's dynamic environment.

### Student Outcomes

Student outcomes (SO) are defined as the abilities the department's BSIE graduates will have upon graduation that will enable them to achieve the program's educational objectives. The student objectives reflect the assimilation of what has been taught in the curriculum upon completion of the undergraduate education.

All MU BSIE graduates should have:

- (a) an ability to apply knowledge of mathematics, science and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

In summary, graduates of the Department of Industrial and Manufacturing Systems Engineering (IMSE) will possess a strong foundation upon which they can grow professionally, and continue to build a focused set of fundamental and engineering knowledge and skills that are integrated and applicable to real-world problems in any enterprise setting.

### Accreditation

The University of Missouri program in industrial engineering is accredited by the Engineering Accreditation Commission (EAC) of ABET.

## IMSE Honors Program

The IMSE Honors Program follows the regulations and philosophy of the College of Engineering Honors Program, and as such is intended to encourage, facilitate and reward independent study by high-ability undergraduate students.

The heart of the program is an undergraduate honors project, undertaken and completed by the time of graduation while enrolling in 3 to 6 credits of IMSE 4995 Undergraduate Research Industrial Engineering - Honors. The academic credit for the honors project (3-6 credits in IMSE 4995) replaces an equivalent number of credits of IMSE or Technical electives. The project is conducted under the direction of an IMSE professor (honors advisor) who is selected by the student, with agreement by the

professor. The project culminates in an honors thesis, which is read and approved by the honors advisor and then approved by the chair of the IMSE honors committee. A finished copy of the honors thesis, signed by the honors advisor and second reader, is required for satisfactory completion of the project.

#### Academic Qualifications for the Honors Program

In the case of a transfer student, transferred credit plus MU credit must average 3.0/4.0. A student is typically eligible for the honors program at the junior year of their undergraduate program.

The successful honors scholar is given a degree of flexibility in the program of study. Additionally, honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program.

Honors students must maintain and graduate with a 3.0 overall GPA.

### Lean Six Sigma Green Belt Certification

IMSE students have the opportunity to obtain a Lean Six Sigma Green Belt certification either during their degree program or after. Certification requires students to obtain a GPA average of 2.5 or better in IMSE 4110, IMSE 4310, and IMSE 4610, then they must successfully complete IMSE 4385 - Lean Six Sigma Green Belt Project (a 1 credit hour course where DMAIC is used to improve a process within an organization).

### Graduate

- MS in Industrial Engineering (p. 520)
- PhD in Industrial Engineering (p. 521)

Industrial & Manufacturing Systems Engineering Graduate Programs  
College of Engineering  
E3437 Lafferre Hall  
(573) 882-2691  
<http://engineering.missouri.edu/imse/>

Interim Director of Graduate Studies: Luis G. Occeña

### About IMSE

The graduate program in industrial engineering provides a scholarly environment in which highly qualified, creative students may obtain the knowledge and develop the skills necessary to solve complex industrial, governmental and societal system design problems. These systems are required to operate within increasingly complex constraints, thus requiring the use of sophisticated and creative designs. The industrial engineer responsible for such designs must be capable of applying a broad spectrum of scientific tools if the most effective systems are to be obtained.

Our master of science program is designed to provide a basic understanding of these tools and experience in the application of these tools in the design process. The doctor of philosophy program is designed to provide the specialized knowledge and skills necessary to develop new tools or methods for solving complex systems design problems. Information on engineering licensure is detailed under Professional Engineering Registration.

### General Admission Guidelines

Acceptance for advisement in the department's graduate programs is available to students with an ABET accredited undergraduate

engineering degree. Engineering graduates who have not taken linear programming, linear algebra, statistical quality control or engineering economic analysis must complete 12 hours of additional course work before graduation.

Students with baccalaureate degrees in mathematics, physics, chemistry or computer science may be accepted if they have completed 13 hours of calculus, three hours of differential equations and six hours of calculus-based probability and statistics. Several factors are considered in evaluating an applicant's capability, such as overall GPA, grade trends and major area grades. In addition, each applicant is required to take the general test of the GRE and international students must take the TOEFL and TWE, or IELTS.

### Facilities and Resources

Laboratory facilities in several major application areas, both within the department and in the college, support the academic program. Neighboring industries, city, county and state government agencies, local hospitals and nearby large metropolitan centers provide a reservoir of research and design opportunities.

### Computing and Reference Materials

The department has access to the University of Missouri System computing network and maintains its own computing facilities for student use. Besides Ellis Library facilities, an excellent collection of mathematical, statistical and engineering books and reference materials are housed in the engineering library and the industrial and manufacturing systems engineering departmental library.

### Funding

Fellowships, scholarships and teaching and research assistantships are available to qualified graduate students. These forms of financial assistance are supported by funds made available through state, federal and industrial graduate support programs and through research grants from various industrial and governmental agencies

## BSIE in Industrial Engineering

### Degree Program Description

The Bachelor of Science In Industrial engineering has a curriculum similar to all engineering students during the first two years. The objective of this curriculum is to give the student a rigorous foundation in mathematics, natural sciences, basic engineering sciences, applied probability and computer science, as well as a complementary and meaningful exposure to the humanities and social sciences. The curriculum prepares the student to practice in an ethical and professional manner, to serve as well as benefit from the engineering profession, and to continue the learning of and the contribution to the advancement of industrial and manufacturing systems engineering concepts.

### Major Program Requirements

In addition to the major core requirements, students must complete all University graduation requirements (p. 32) including University general education (p. 33), as well as all degree and college or school requirements.

### Major Core Requirements

MATH 1500

Analytic Geometry and Calculus I



MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
CHEM 1320	College Chemistry I	4
PHYSCS 2750	University Physics I	4
PHYSCS 2760	University Physics II	5
CMP_SC 1050	Algorithm Design and Programming I	3
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
IMSE 1000	Introduction to Industrial Engineering	1
IMSE 2030	Fundamentals of Systems Design and Analysis	3
IMSE 2210	Linear Algebra for Engineers	3
IMSE 2710	Engineering Economic Analysis	3
IMSE 3110	Probability Models for Engineers	3
IMSE 3810	Ergonomics and Workstation Design	3
IMSE 4110	Engineering Statistics	3
IMSE 4210	Linear Optimization	3
IMSE 4230	Operations Research Models	3
IMSE 4280	Systems Simulation	3
IMSE 4310	Integrated Production Systems Design	3
IMSE 4350	Production and Operations Analysis	3
IMSE 4410	Management Information Systems Design	3
IMSE 4550	Computer Aided Design and Manufacturing	4
IMSE 4610	Engineering Quality Control	3
IMSE 4970	Capstone Design I	1
IMSE 4980	Capstone Design II	3
<b>IMSE electives</b>		6
Choose from the following:		6
IMSE 3030	Manufacturing and Supply Systems	3
IMSE 4001	Topics in Industrial and Manufacturing Systems Engineering	3
IMSE 4085	Problems in Industrial Engineering	1-3
IMSE 4330	Material Flow and Logistics System Design	3
IMSE 4360	Supply Chain Engineering	3
IMSE 4420	Web-Based Information Systems	3
IMSE 4560	Introduction to Rapid Prototyping	3
IMSE 4570	Computer Integrated Manufacturing Control	3
IMSE 4580	Industrial Energy Efficiency and Management	3
IMSE 4750	Entrepreneurial Innovation Management: Enterprise Conception	3
IMSE 4770	Entrepreneurial Innovation Management: Enterprise Operations	3
IMSE 4810	Cognitive Ergonomics	3
IMSE 4910	Industrial Engineering Internship	3
IMSE 4920	Industrial Engineering COOP	3
IMSE 4990	Undergraduate Research in Industrial Engineering	1-3
IMSE 4995	Undergraduate Research Industrial Engineering - Honors	1-3
<b>Engineering elective</b>		3
Choose from the following:		3
ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2300	Engineering Thermodynamics	3
<b>Technical electives</b>		6

A technical elective is defined as any course relevant to the degree program but not required, such as computer science, engineering, mathematics, science beyond required, and select business courses above 3000 (except accounting beyond 2000)

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MATH 1500	5 ENGLISH 1000	3
CHEM 1320	4 PHYSCS 2750	5
IMSE 1000	1 MATH 1700	5
ECONOM 1014	3 IMSE 2030	3
Constitutional Requirement (Social Science Elective)	3	
		16

Second Year		
Fall	CR Spring	CR
PHYSCS 2760	5 ENGINR 1200	3
MATH 2300	3 MATH 4100	3
ENGINR 1100	2 IMSE 4110	3
IMSE 3110	3 CMP_SC 1050 (credit hours changing to 4.0 credits pending approval in Spring 2018)	3
IMSE 2710	3 IMSE 2210	3
		16

Third Year		
Fall	CR Spring	CR
ENGINR 2200	3 Humanities/Social Science Elective	3
IMSE 3810	3 IMSE 4550	4
IMSE 4280	3 IMSE 4610	3
IMSE 4210	3 IMSE 4310	3
IMSE 4230	3 IMSE 4350	3
		15

Fourth Year		
Fall	CR Spring	CR
IMSE 4410	3 IMSE 4980	3
IMSE 4970	1 IMSE Elective	3
ENGR Elective	3 Technical Elective	3
IMSE Elective	3 Humanities/Social Science Elective	3
Technical Elective	3 Humanities/Social Science Elective	3
Humanities/Social Science Elective	3	
		16

Total Credits: 125

## MS in Industrial Engineering

### Admission Contact Information

Nicole Theberge (Thebergen@missouri.edu)  
E3437 Thomas and Nell Lafferre Hall  
Columbia, MO 65211

(573) 882-2691

The Master of Science in Industrial Engineering (MS) degree consists of two options: a 30-credit hour research oriented program requiring a thesis or a 30-credit hour application oriented program requiring a project report. The MS Industrial Engineering thesis option curriculum is built upon the choice of a concentration area around which students can mold their overall academic effort including six hours of research. The three current focus areas are Operations Research and Statistics, Manufacturing/Production/Service Systems and Human and Enterprise Systems. Other focus areas are in development. The MS Industrial Engineering project option requires three hours of an approved project advised by a faculty member in lieu of a thesis, and one more course.

#### Master of Engineering

The Master of Engineering (ME) degree is a non-research thirty-six-credit-hour program for U.S. students designed to be a terminal degree. The ME curriculum is based upon a seven-course core with the remaining 15 hours made up of courses appropriate to the student's concentration area.

#### Dual Master's Degree Programs: Master of Science and MBA

The Department of Industrial and Manufacturing Systems Engineering, in cooperation with the College of Business, offers a dual master's degree program for those students who wish to combine the specialized skills of the industrial engineer with the general knowledge of the professional manager. The program was developed in recognition of the fact that solutions to organization problems often require that the engineer's analytical abilities be applied simultaneously with the manager's integrative perspective. This dual program has been carefully structured to provide the necessary academic background to obtain an MS in industrial engineering and an MBA simultaneously, in a minimum amount of time, usually two academic years.

#### Master of Science and MHA

The Department of Industrial and Manufacturing Systems Engineering, in cooperation with the health services management program of the School of Medicine, offers a dual master's degree program to prepare its graduates for careers in the design and administration of health-care delivery systems and organizations. The program was developed in recognition of the highly complex nature of health-care organizations. The program's basic objective is to fuse competencies in health-service management and in health-systems design. The required courses in the industrial engineering program serve as the area of specialization in the health services management program, and the required courses in the health-services management program are used as electives in the industrial engineering program. As a result, it is possible for the student to earn an MHA in health-services management and an MS in industrial engineering simultaneously.

## Application Deadlines

Applications accepted all year.

Fall decision dates: March 1

Spring decision date: September 1

#### Minimum Admission Criteria

- Minimum GPA: 3.0/4.0
- Test of Written English: (TWE) of 4.0 (international applicants only)
- Minimum Academic IELTS OVERALL score: 6.0; or Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	350	700
On or After August 1, 2011	143	155

- Foreign Language: No foreign language is required in either program.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the IMSE Graduate Program:*

- 3 letters of recommendation
- Statement of Purpose
- Curriculum Vitae (CV)
- GRE scores

## TA/RA Hiring

This academic department does **not** have any function of financial Aid. Rather, IMSE hires TA/RA automatically based on the department needs. No separate application or contacts are necessary; all top ranked applicants will be considered.

## Degree Completion Requirements

The Master of Science in Industrial Engineering (MS) degree consists of two options: a 30-credit hour research oriented program requiring a thesis or a 30-credit hour application oriented program requiring a project report. The MS Industrial Engineering thesis option curriculum is built upon the choice of a concentration area around which students can mold their overall academic effort including six hours of research. The three current focus areas are Operations Research and Statistics, Manufacturing/Production/Service Systems and Human and Enterprise Systems. Other focus areas are in development. The MS Industrial Engineering project option requires three hours of an approved project advised by a faculty member in lieu of a thesis, and one more course.

## PhD in Industrial Engineering

#### Admission Contact Information

Jonni Sutton (Thebergen@missouri.edu)

E3437 Thomas and Nell Lafferre Hall

Columbia, MO 65211

(573) 882-2691

## About the Doctoral Degree

Programs are individually tailored to meet students' objectives and to culminate in an original research dissertation. The PhD builds upon the MS programmatic areas. The three current focus areas are Operations Research and Statistics, Manufacturing/Production/Service Systems and Human/Enterprise Systems. Other focus areas are in development. Fundamental IE knowledge in each is expected. The basic goals of the PhD program are to provide students with a solid understanding of the theoretical bases for the latest tools and techniques of systems analysis and design, an extensive experience in applying these analyses

and design tools and techniques, and research experience in the development of new tools or applications of existing techniques to design or analyze problems.

## Application Deadlines

Applications accepted all year.

Fall decision dates: March 1

Spring decision date: September 1

## Minimum Criteria to be Considered for Admission

- Minimum BS GPA: 3.3/4.0; MS GPA: 3.5/4.0
- Minimum OVERALL IELTS scores: 6.0; or Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	350	700
On or After August 1, 2011	143	155

- Foreign Language: No foreign language is required in either program.
- Completed master's thesis or equivalent (Non-thesis MS is not considered).
- Compatible research interests with a member of the IMSE faculty.
- BS in Math is very welcome in OR focus.

**Note:** Only highly qualified students are accepted for advisement in the PhD program. The faculty looks for excellence in undergraduate and graduate work, high GRE scores, thesis training, and strong indications of research potential.

## Notification

This department does not use "rolling admission." Applicants will be notified within a month after decision date.

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents

To the IMSE Graduate Program:

- 3 letters of recommendation
- Statement of Purpose
- Curriculum Vitae (CV)
- GRE scores
- Writing sample demonstrating research experience

## TA/RA Hiring

This academic department does **not** have any function of financial Aid. Rather, IMSE hires TA/RA automatically based on the department needs. No separate application or contacts are necessary; all top ranked applicants will be considered.

## Degree Completion Requirements

The granting of a PhD requires completion of five major requirements:

1. A qualifying examination,
2. A course of study (Study Plan),
3. Comprehensive examination,
4. Acceptance of dissertation proposal, and
5. Final public defense of the completed dissertation.

## Information Technology

Dong Xu, Chair  
College of Engineering  
201 Naka Building  
(573) 884-1887  
engineering.missouri.edu/cs

The information technology (IT) degree program was launched in 2005 with a gift from AT&T/SBC. IT students collaborate with students from other disciplines to create software applications, produce videos and films and use technology to solve a wide range of complex information technology, systems integration, social network and societal problems. The program is attractive to students because of its distinguished faculty and state-of-the-art facilities many of which are shared with the Computer Science Program (CSP) (p. 495) in the Electrical Engineering & Computer Science Department that greatly exceeds what is available at competing institutions. Application areas in IT include mobile computing, game design, information systems, software engineering, cybersecurity, systems administration, and audio/video multimedia technology.

## Faculty

**Professor** Y. Shang\*\*, C. R. Shyu\*\*, D. Xu\*\*, W. Zeng\*\*, Y. Zhao\*\*, X. Zhuang\*\*

**Associate Professor** J. Cheng\*\*, Y. Duan\*\*, W. L. Harrison\*\*, M. Jurczyk\*\*, T. Kazic\*\*, K. Palaniappan\*\*, Y. Saab\*\*, G. K. Springer\*\*, J. Uhlmann\*\*

**Assistant Professor** P. Calyam\*\*, R. Chadha\*\*

**Associate Teaching Professor** D. Musser\*

**Adjunct Professor** J. M. Keller\*\*, S. Nair\*\*, M. Skubic\*\*

**Adjunct Associate Professor** G. DeSouza\*\*

**Adjunct Assistant Professor** M. Becchi\*\*, M. Popescu\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Information Technology (p. 523)
- Minor in Information Technology (p. 524)

### Advising Contact

Nathanael Arbuckle  
107A EBW  
(573) 882-5896  
arbucklen@missouri.edu

**Scholarship Information Contact**

Dr. Michael Jurczyk  
121 EBW  
(573) 884-8869  
jurczyk@missouri.edu

This degree program is offered by the Computer Science Department within the College of Engineering. Career opportunities include database administration, web design, cyber security, game development, film production, and more.

**Graduate**

While the College of Engineering does not offer a graduate degree specifically in Information Technology, it does offer a number of graduate degrees in closely related areas such as Computer Science (p. 497), and Computer Engineering (p. 491). There is a Master of Engineering degree through the department. The University also offers a number of information technology degrees in its other Colleges, and through interdisciplinary programs such as Health Informatics (p. 696), Health Administration (p. 693), or Informatics (p. 700) or Information Science and Learning Technology (p. 408).

A joint degree program administered through the School of Engineering and the Crosby MBA Program is available for students who wish to earn a Bachelor of Science in Information Technology (BS IT) and a Master of Business Administration (MBA) (p. 335). Individuals interested in pursuing engineering and business will find that this program provides them with a valuable set of skills to excel in this rapidly growing field. If earned separately, the BS IT degree would take four years and the MBA degree would take two years. The dual degrees may be completed in five years assuming normal progress toward each degree.

Or you may browse a complete list of degree options (p. 17) at the University of Missouri.

**BS in Information Technology**

**Degree Program Description**

Information Technology (IT) students collaborate with other disciplines to create software applications, design and manage technology-based infrastructures, manage database systems, produce videos and films, and use technology to solve a wide range of complex problems. In the two-semester capstone design courses, students complete design projects that serve as a culminating academic experience. Internships with companies for real-world experience and undergraduate research opportunities with faculty are abundant and encouraged. Some students opt to participate in the joint degree program with the Crosby MBA, earning a BS Information Technology and a Master of Business Administration. Students are prepared to pursue a variety of IT related careers such as programmer analysts, software engineers, database and system administrators, web developers, IT implementation specialists, and business analysts in both the public and private sectors.

**Major Program Requirements**

To receive the Bachelor of Science Degree in Information Technology, the candidate must successfully complete 126 semester hours of credit including the following distribution: Computer Science (CMP\_SC) course requirements - 55 hours of CMP\_SC/INFOTC core courses, 12 hours of related math and business courses, 9-12 hours of science, 15-22 hours of courses in a possible minor and any remaining hours for elective

courses. General education courses include ENGLSH 1000, 9 hours of Social/Behavioral Sciences and 9 hours of Humanities/Fine Arts.

Information Technology students must earn a C-range grade or better in all INFOTC/CMP\_SC courses that are prerequisites for other INFOTC/CMP\_SC courses that the student takes. To graduate, a student must earn a cumulative UM grade point average of 2.0 or better and a 2.0 grade point average or better in all CMP\_SC/INFOTC courses.

The Engineering Career Services Office, W1025 Lafferre Hall, can assist students in searching for employment opportunities and for internship/co-op positions.

These course requirements apply to students beginning full-time Fall 2017 or after.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements. See course descriptions for prerequisites.

**Major Core Requirements**

<b>Computer Science courses</b>		<b>21</b>
CMP_SC 1000	Introduction to Computer Science	1
CMP_SC 1050	Algorithm Design and Programming I	3
CMP_SC 2050	Algorithm Design and Programming II	3
CMP_SC 2830	Introduction to the Internet, WWW and Multimedia Systems	3
CMP_SC 3380	Database Applications and Information Systems	3
CMP_SC 4320	Software Engineering I	3
CMP_SC 4970	Senior Capstone Design I	3
CMP_SC 4980	Senior Capstone Design II	3
<b>Information Technology Core Courses</b>		<b>9</b>
INFOTC 2610	Audio/Video I	3
INFOTC 2810	Fundamentals of Network Technology	3
INFOTC 2910	Cyber Security	3
<b>Information Technology Technical Electives</b>		<b>24</b>
Choose from below or other courses with advisor approval (minimum of 24 credit hours with 12 hours at 3000 level or above):		
CMP_SC 3530	UNIX Operating System	3
CMP_SC 4380	Database Management Systems I	3
CMP_SC 4830	Science and Engineering of the World Wide Web	3
INFOTC 1610	Introduction to Entertainment Media	3
INFOTC 2600	Digital Multimedia	3
INFOTC 2620	Computer Modeling and Animation I	3
INFOTC 3610	Audio/Video II	3
INFOTC 3620	Computer Modeling and Animation II	3
INFOTC 3630	Introduction to Game Design	3
INFOTC 3640	Digital Effects	3
INFOTC 3850	Computer System Administration	3
INFOTC 4400	C#/.NET Development	3
INFOTC 4500	Team-Based Mobile Device Application Development	3
INFOTC 4640	Digital Effects II	3
<b>Mathematics and Business Courses</b>		<b>12</b>
MATH 1300	Finite Mathematics	3
MATH 1400	Calculus for Social and Life Sciences I	3
STAT 2500	Introduction to Probability and Statistics I	3

MANGMT 3000 or IMSE 4750 or MRKTNG 4650	Principles of Management Entrepreneurial Innovation Management: Enterprise Conception e-Marketing	3
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## Minor or Science Concentration

Twelve hours in science are required including one 2-semester sequence in which both courses include laboratories. If student completes a minor by pursuing the formal course requirements for minors in a department outside Computer Science, only 9 credit hours of science with one lab are required.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
CMP_SC 1000	1 CMP_SC 2050	3
CMP_SC 1050	3 INFOTC or CMP_SC Elective	3
MATH 1400	3 MATH 1300	3
Constitutional/State Law Elective	3 ENGLISH 1000	3
Behavioral Science	3 Humanities/Fine Arts	3
General Elective	3 General Elective	1
	16	16
Second Year		
Fall	CR Spring	CR
INFOTC or CMP_SC Elective	3 CMP_SC 2830	3
INFOTC or CMP_SC Elective	3 INFOTC 2610	3
INFOTC or CMP_SC Elective	3 INFOTC or CMP_SC Elective 3000/4000	3
STAT 2500	3 Minor	3
Humanities/Fine Arts Course	3 Science Course	4
	15	16
Third Year		
Fall	CR Spring	CR
CMP_SC 3380	3 INFOTC 2910	3
INFOTC 2810	3 CMP_SC 4320	3
Minor	3 Science Course with Lab	5
Social/Behavioral Course	3 Minor	3
General Elective	4 General Elective	2
	16	16
Fourth Year		
Fall	CR Spring	CR
CMP_SC 4970	3 CMP_SC 4980	3
INFOTC or CMP_SC Elective 3000/4000	3 INFOTC or CMP_SC Elective 3000/4000	3
INFOTC or CMP_SC Elective 3000/4000	3 Humanities/Fine Arts Course	3
Business Course (MANGMT 3000, IMSE 4750 or MRKTNG 4650)	3 Minor	3
Minor	3 General Elective	4
	15	16

Total Credits: 126

## Minor in Information Technology

A minor in Information Technology is offered through the College of Engineering. To obtain a minor, a student must complete courses in a sequence approved by the Department of Computer Science. The student must earn a 2.0 GPA in all courses counting toward the minor. At least 9 hours must be taken in residence at MU. A total of 15 credit hours are required.

The following courses are required for sequence one. At least 9 hours must be at the 2000 level or above. For other possible sequences, contact the department.

INFOTC 2610	Audio/Video I	3
INFOTC 3640	Digital Effects <sup>1</sup>	3
INFOTC 4640	Digital Effects II <sup>2</sup>	3
INFOTC or CMP_SC Electives		6
Total Credits		15

<sup>1</sup> Prerequisite: INFOTC 1610 or INFOTC 2610

<sup>2</sup> Prerequisite: INFOTC 3640

## Mechanical and Aerospace Engineering

Yuwen Zhang, Chair and James C. Dowell Professor

College of Engineering

E2412 Lafferre Hall

(573) 882-2785

ZhangYu@missouri.edu

Melanie M Carraher, Business Support Specialist II

Mechanical & Aerospace Engineering

E2412 Lafferre Hall

(573) 882-2085

carrahermm@missouri.edu

The Department of Mechanical and Aerospace Engineering is one of 9 academic departments within the College of Engineering at the University of Missouri.

Established in 1891, this ABET accredited program is home to more than 800 total undergraduate and graduate students and about 27 faculty.

## Faculty

**Professor** C. L. Chen\*\*, J. K. Chen\*\*, A. S. El Gizawy\*\*, Z. F. Feng\*\*, G. Huang, S. K. Khanna\*\*, C. A. Kluever\*\*, H. Li\*\*, S. J. Lombardo\*\*, H. Ma\*\*, N. D. Manring\*\*, P. F. Pai\*\*, J.E. Thompson\*, R. D. Tzou\*\*, Q. Yu\*\*, Y. Zhang\*\*

**Associate Professor** R. C. Fales\*\*, Y. Lin\*\*, S. P. Neal\*\*, C. Park, R. A. Winholtz\*, M. Xin\*

**Assistant Professor** J. Lin\*\*, M. Maschmann\*\*, J. McFarland\*\*

**Teaching Associate Professor** G. L.

**Research Professor** L. Chen, V. Gruzdev, X. Han

**Research Assistant Professor** H. Chen, J. Shi,

**Resident Instructor** J. Bryan, R. T. Whelove

**Professor Emeritus** W. L. Carson\*, U.W. Cho, R. C. Duffield, A. D.

Krawitz\*, R.C. Warder, D. E. Wollersheim\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSME in Mechanical Engineering (p. 527)
  - with emphasis in Aerospace Engineering (p. 528)

Additional minors and certificates (p. 535) are offered through the College of Engineering.

### Advising Contacts

Nick Balsler  
BalslerN@missouri.edu

Justin Rich  
RichJ@missouri.edu

### Scholarship Contact

Gary L. Solbrekken, Undergraduate Director  
solbrekkeng@missouri.edu

The Department of Mechanical and Aerospace Engineering prepares students for productive careers in mechanical engineering related disciplines. The program focuses on instruction in the thermal and mechanical systems areas as defined by the Accreditation Board for Engineering and Technology (ABET). To support that mission, the Department has been divided into the focus areas of Design and Manufacturing, Dynamics and Controls, Materials, and Thermal and Fluid Sciences. (NOTE: Focus areas are not listed on transcripts or diplomas.)

The department endeavors to present a strong experimental program through laboratory experiences to expose undergraduate students to modern instrumentation and measurement methodologies. Students work in well-equipped laboratories in design optimization, engineering computation, fluid power dynamics and control, materials, structural dynamics, measurement and instrumentation, laser processing, heat transfer and fluid dynamics, stress measurement and nondestructive evaluation.

The MU Mechanical Engineering program offers a Bachelor of Science in Mechanical Engineering (BSME) and prepares students for practice of the profession in industry or government or for further study toward other degrees such as the JD, MD, MS and PhD.

## Mission Statement

The mission of the Mechanical and Aerospace Engineering Department is to:

Prepare our students for successful careers in the mechanical engineering profession, conduct high quality and innovative research, and serve the community and industry providing educational and research resources.

## Program Educational Objectives

The educational objectives of the undergraduate program in Mechanical Engineering are to produce graduates who (within a few years of graduation):

1. successfully practice the mechanical engineering disciplines;
2. contribute to society and the profession;

3. engage in life-long learning to advance professionally through continuing education and training;

4. succeed in graduate studies in mechanical engineering or a related field if pursued.

**ABET Definition for Program Educational Objectives:** Program Educational Objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program Educational Objectives are based on the needs of the program's constituencies.

## Program Outcomes

Students from the Mechanical Engineering program will attain (by the time of graduation):

- a. an ability to apply knowledge of engineering, science, and mathematics (including multivariate calculus and differential equations);
- b. an ability to design and conduct experiments, as well as to analyze a
- c. an ability to design thermal, fluid, and mechanical systems, components, or processes to meet desired needs within realistic constraints
- d. an ability to function on multi-disciplinary teams;
- e. an ability to identify, formulate, and solve mechanical engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively
- h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- i. a recognition of the need for, and an ability to engage in, life-long learning;
- j. a knowledge of contemporary issues in mechanical engineering;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## Double Majors and Dual Degrees

Dual majors and dual degrees are possible at the undergraduate level. These could lead to degrees in the College of Engineering and the College of Arts and Sciences or the College of Agriculture. Dual enrollments could also lead to two engineering majors within the College of Engineering. Any of these dual enrollments would add to the traditional 126-credit undergraduate degree program. Consult with the directors of undergraduate studies of the departments involved for further information.

## MAE Honors Program

The MAE Honors Program follows the general rules, regulations and philosophy of the College of Engineering Honors Program, and as such is intended to encourage, facilitate and reward independent study by high-ability undergraduate students.

The heart of the program is an undergraduate honors project, undertaken and completed by the time of graduation while enrolling in 1 to 6 credits

of MAE 4995 Undergraduate Honors Research Mechanical & Aerospace Engineering. The academic credit for the honors project (1-6 credits in MAE 4995 replaces an equivalent number of credits of technical or MAE elective. The project is conducted under the direction of an MAE professor (honors advisor) who is selected by the student, with agreement by the professor. The project culminates in an honors thesis, which is read and approved by the honors advisor and then approved by the chair of the MAE honors committee. A finished copy of the honors thesis, signed by the honors advisor and second reader, is required for satisfactory completion of the project.

#### **Academic Qualifications for the Honors Program**

In the case of a transfer student, transferred credit plus MU credit must average 3.0/4.0. A student is typically eligible for the honors program at the junior year of their undergraduate program.

The successful honors scholar is given a degree of flexibility in the program of study. Additionally, honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program.

Honors students must maintain and graduate with a 3.0 overall GPA.

In the case of a transfer student, transferred credit plus MU credit must average 3.0/4.0. A student is typically eligible for the honors program at the junior year of their undergraduate program.

The successful honors scholar is given a degree of flexibility in the program of study. Additionally, honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program.

## **Graduate**

- MS in Mechanical and Aerospace Engineering (p. 528)
- PhD in Mechanical and Aerospace Engineering (p. 529)

College of Engineering  
E2413 Lafferre Hall  
(573) 884-8610  
<http://engineering.missouri.edu/mae/>

**Director of Graduate Studies:** Frank Feng

## **About Mechanical & Aerospace Engineering**

Like markets merging together to create a global economy, this decade has approached the exciting frontier of joint research. The marriage of Mechanical Engineering to related fields has contributed to a new "Interdisciplinary Era". In meeting the challenges brought on by this co-operative approach to engineering, the Department of Mechanical & Aerospace Engineering (MAE) at the University of Missouri has broadened its scope in both education and research while maintaining strengths in the fundamental disciplines: Dynamics & Control, Design & Manufacturing, Materials & Solids and Thermal & Fluid Science Engineering. Such well-established academic traditions in the undergraduate and graduate curriculum as well as nationally renowned research programs are the basis for MAE having become the largest department in the College of Engineering at MU. An equally important aspect contributing to the quality of the MAE department is

the aggressive pursuit of funding, by our faculty, to establish nationally recognized research programs. Well-earned support through sizable funding from both federal agencies and industry are valuable resources in the promotion of our graduate research and undergraduate teaching.

## **Career Opportunities**

Graduate programs are planned to prepare students for advanced professional engineering careers. In recognition of the broad nature of the field of mechanical and aerospace engineering, considerable latitude in programs is encouraged so students may prepare for employment in industry, education and government. The usual purpose of a PhD program is to prepare a person for a career in research or teaching. The program is oriented toward research culminating in a dissertation suitable for publication.

## **Areas of Study**

A student may pursue an area of concentration selected from AI/expert systems, automation, bioengineering, combustion, control, creep and plasticity, design optimization, numerical methods, computational fluid dynamics, fracture mechanics, heat transfer, interactive computer graphics, laser diagnostics, manufacturing systems, materials science, mechanical syntheses, mechatronics, mechanics, parallel computation, residual stress, robotics, thermal systems design and management and ultrasonic nondestructive evaluation.

## **Licensure**

Information on degree requirements for engineering licensure is detailed under Professional Engineering Registration.

## **Facilities and Equipment**

The department has several specialized laboratories in aerosol mechanics, combustion, computer control, creep and fracture mechanics, fluid mechanics and heat transfer, manufacturing, materials science and structural dynamics.

Besides the modern instrumentation and equipment normally found in well-equipped mechanical and aerospace engineering laboratories, the department has, or has access to, such specialty items as MTS and Instron material and structural test equipment, wind tunnels, X-ray and a scanning electron microscope facility, computer control systems, a scanning laser vibrometer, a microscale heat transfer and electronic coding laboratory, an experimental stress laboratory, a fluid power laboratory and the university research reactor.

## **Information Technology and Computing**

A combination of the campus Division of Information Technology and the Engineering Technical Services (ETS) provided advanced engineering computation for College of Engineering faculty and students. CAD/CAM and graphics are the primary emphasis, although artificial intelligence, multiple high-level programming languages and computational and simulation libraries also are available.

The College of Engineering operates one high performance enterprise server, two super minicomputers and 17 HP workstations. The ETS also provides hardware/software support, locally, to nine College of Engineering departments and their affiliated research centers. These units are networked via Ethernet to the superminicomputers operated by the College of Engineering.

The Division of IT operates two remote terminal sites in the Engineering Buildings East. The University also supports an extensive computer system consisting of IBM mainframe computers, remote terminal sites, and PC and Macintosh labs throughout the campus.

## Financial Aid from the Program

Admission decisions to the graduate program are made without considerations of a student's financial need. Once admitted, a student may be considered for fellowships, research assistantships (RAs) and teaching assistantships (TAs). Awarding of fellowships is initiated by the department. RAs are awarded by individual faculty members. A student may apply by contacting faculty members directly. Application forms for TAs are available in the department office. International students are not eligible for TAs in their first semester of study. For specific departmental requirements, please refer to the MAE Graduate Handbook. Please see the department website for information on how to contact the professors individually about research assistantships offered.

## BSME in Mechanical Engineering

### Degree Program Description

Mechanical Engineering focuses on thermal and mechanical systems areas. The curriculum presents a strong experimental program through laboratory experiences to expose undergraduate students to modern instrumentation and measurement methodologies. Students work in well-equipped laboratories in design optimization, engineering computation, fluid power dynamics and control, materials, structural dynamics, measurement and instrumentation, laser processing, heat transfer and fluid dynamics, stress measurement and nondestructive evaluation. Bachelor of Science in Mechanical Engineering prepares students for employment in industry or government or for further study toward other degrees such as the JD, MD, MS and PhD.

### Major Program Requirements

The MAE curriculum allows students to transfer among departments during the first two years. Students concentrate on departmental requirements during the junior year. The senior year includes three MAE electives that allow students to develop individual study programs.

This enables students to complete a traditional program or create their own with special emphasis on system design, materials, manufacturing, energy systems, controls, or aerospace.

Experience in design is integrated throughout the required courses in the curriculum and culminates in the capstone design sequence.

The capstone design experience integrates earlier technical work with economic, safety and environmental considerations. The projects are primarily obtained from industrial or private business clients. The presentations of project results are made to a review panel consisting of members of the faculty, the MAE Industrial Advisory Council and representatives of the client firms.

### Major Core Requirements

In addition to the University general education (p. 33) and graduation requirements, the Department of Mechanical and Aerospace Engineering requires the following courses:

CHEM 1320	College Chemistry I	4
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1110	Solid Modeling for Engineering Design	1

IMSE 2710	Engineering Economic Analysis	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
or IMSE 2110	Probability and Statistics for Engineers	
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2200	Intermediate Strength of Materials	3
MAE 2300	Thermodynamics	3
MAE 1000	Introduction to Mechanical Engineering	1
MAE 2100	Programming and Software Tools	2
MAE 3100	Computational Methods for Engineering Design	4
MAE 2600	Dynamics	3
MAE 3200	Engineering Materials	4
MAE 3400	Fluid Mechanics	3
MAE 3600	Dynamic Systems and Control	3
MAE 3800	Instrumentation and Measurements Laboratory	3
MAE 3900	Mechanism Design	3
MAE 4300	Heat Transfer	3
MAE 4500	Manufacturing Methods	3
MAE 4800	Applied Thermal/Fluids Laboratory	4
MAE 4900	Machine Element Design	3
MAE 4980	Senior Capstone Design	3
Elective in approved area of Engineering, Science or Math, 3000-level or above		3
<b>Electives</b>		
MAE 4000 +: MAE elective		9

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
MAE 1000	1 MATH 1700	5
MATH 1500	5 ENGLISH 1000	3
ENGINR 1100	2 CHEM 1320	4
Approved Political Science or History Course	3 ENGINR 1110	1
Social/Behavioral Science Elective	3 Social/Behavioral Science Elective	3
		14
<b>Second Year</b>		
Fall	CR Spring	CR
MATH 2300	3 MAE 2100	2
PHYSICS 2750	5 MATH 4100	3
ENGINR 1200	3 PHYSICS 2760	5
Humanities/Fine Arts Elective	3 ENGINR 2200	3



		Humanities/Fine Arts Elective	3
		14	16
<b>Third Year</b>			
<b>Fall</b>	<b>CR Spring</b>		<b>CR</b>
MAE 3100	4 IMSE 2110 or STAT 4710		3
MAE 2300	3 MAE 3400		3
MAE 2600	3 ENGINR 2100		3
MAE 3200	4 MAE 3900		3
		14	12
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR Spring</b>		<b>CR</b>
IMSE 2710	3 MAE 4800		4
MAE 4300	3 MAE 4900		3
MAE 3800	3 MAE 4000+ Elective		3
MAE 3600	3 Humanities/Fine Arts Elective		3
MAE 4500	3		3
		15	13
<b>Fifth Year</b>			
<b>Fall</b>	<b>CR</b>		
3000+ Technical Elective	3		
MAE 4000+ Elective	3		
MAE 4000+ Elective	3		
MAE 4980	3		
		12	

Total Credits: 126

## BSME in Mechanical Engineering with Emphasis in Aerospace Engineering

### Degree Program Description

Mechanical Engineering focuses on thermal and mechanical systems areas. The curriculum presents a strong experimental program through laboratory experiences to expose undergraduate students to modern instrumentation and measurement methodologies. Students work in well-equipped laboratories in design optimization, engineering computation, fluid power dynamics and control, materials, structural dynamics, measurement and instrumentation, laser processing, heat transfer and fluid dynamics, stress measurement and nondestructive evaluation. Bachelor of Science in Mechanical Engineering prepares students for employment in industry or government or for further study toward other degrees such as the JD, MD, MS and PhD.

### Major Program Requirements

The MAE curriculum allows students to transfer among departments during the first two years. Students concentrate on departmental requirements during the junior year. The senior year includes three MAE electives that allow students to develop individual study programs. This enables students to complete a traditional program or create their own with special emphasis on system design, materials, manufacturing, energy systems, controls, or aerospace.

Experience in design is integrated throughout the required courses in the curriculum and culminates in the capstone design sequence. The capstone design experience integrates earlier technical work with economic, safety and environmental considerations. The projects

are primarily obtained from industrial or private business clients. The presentations of project results are made to a review panel consisting of members of the faculty, the MAE Industrial Advisory Council and representatives of the client firms.

### Options

The senior year includes three MAE electives and one technical elective that allow students to develop individual study programs. This enables students to complete a traditional program or create their own program with special emphasis on system design, materials, manufacturing, energy systems or controls.

An Aerospace Emphasis area is available to students wanting to pursue careers in the aerospace industry. Completing the aerospace emphasis requires taking at least four senior level MAE 4000+ electives from a selection of available courses. These can be chosen from the broad areas of structures/materials, thermal/propulsion, aerodynamics/fluids, flight mechanics/dynamics/controls, and design. Upon completion of the appropriate coursework, an Aerospace Emphasis is shown on the students transcript.

### Semester Plan

A sample plan of study has not been designed for this major. Students should either refer to the plan designed for the BSME in Mechanical Engineering or contact the academic department for assistance with academic planning.

## MS in Mechanical and Aerospace Engineering

### Admission Contact Information

Nick Balsler (Last Names A-K)  
 balsern@missouri.edu  
 573-882-2845

Justin Rich (Last Names L-Z)  
 richj@missouri.edu  
 573-882-4092

### Application Deadline for all applicants

Fall deadline: May 31  
 Spring deadline: October 31  
 Summer deadline: April 30

### Admission Criteria

- BS in same or closely related field
- Minimum GPA: 3.0 during last 2 years
- Minimum GRE Score: 298 combined score on Verbal and Quantitative sections
- Minimum TOEFL score: 80
- Minimum academic IELTS overall score: 6.5

**Note:** Lower GPAs require special action and substantiation, such as good test scores on the GRE or other recognized examinations.

## How to apply to the MAE master's program:

**Step 1:** All documents should be uploaded directly in ApplyYourself. Mailing in documents may delay your application process.

**Step 2:** Required documents:

- Unofficial Transcripts (all Universities and Colleges attended) Uploaded in ApplyYourself (<http://gradstudies.missouri.edu/admissions/apply>)
- TOEFL/IELTS score - sent electronically to the University by ETS (Institution Code 6875 Department Code 1502)
- 3 letters of recommendation - uploaded in ApplyYourself by the recommenders. Letters must come from a school e-mail address, not personal accounts (like yahoo, gmail, etc).
- GRE score - sent electronically by ETS (Institution Code 6875 Department Code 1502)
- Statement of Objectives - one page letter telling about yourself and the area you will study if accepted (uploaded in ApplyYourself)
- CV/Résumé (Uploaded in ApplyYourself)

### Contact:

Mechanical & Aerospace Engineering, Graduate Admissions

Nick Balsler (Last Names A-K)  
balsern@missouri.edu  
573-882-2845

Justin Rich (Last Names L-Z)  
richj@missouri.edu  
573-882-4092

## Plan of Study

A plan of study is developed by the student and the advisor, subject to approval. The minimum degree requirement is 30 hours with a minimum of 18 hours at the 8000 level. Included within the 30 hours must be a special project report or thesis. A special project consists of three to five hours of MAE problems.

Alternatively, programs directed toward a thesis shall include three to eight hours of MAE 8990 (Research). A thesis or a report is approved by designated faculty committees and is deposited in the department libraries.

Passing the MS final committee fulfills the degree requirements.

## PhD in Mechanical and Aerospace Engineering

### Admission Contact Information

Nick Balsler (Last Names A-K)  
balsern@missouri.edu  
573-882-2845

Justin Rich (Last Names L-Z)  
richj@missouri.edu  
573-882-4092

### Application Deadlines for all Applicants

Fall deadline: May 31

Spring deadline: October 31

Summer deadline: April 30

## Admission Criteria

- Minimum GPA: 3.0
- Strong record in the MS program
- Minimum GRE score: 298 combined score on Verbal and Quantitative sections
- Minimum TOEFL score: 80
- Minimum Academic IELTS Overall score: 6.5

**Note:** Doctoral degree program applicants are closely and individually reviewed.

## How to apply to the MAE doctoral program:

**Step 1:** All documents should be uploaded directly in ApplyYourself. Mailing in documents may delay your application process.

**Step 2:** Required documents:

- Unofficial Transcripts (all Universities and Colleges attended) Uploaded in ApplyYourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad))
- TOEFL/IELTS score - sent electronically to the University by ETS (Institution Code 6875 Department Code 1502)
- 3 letters of recommendation (preferably from MS advisor and 2 other letters) - uploaded in ApplyYourself ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad)) by the recommenders. Letters must come from a school e-mail address, not personal accounts (like yahoo, gmail, etc).
- GRE score - sent electronically by ETS (Institution Code 6875 Department Code 1502)
- Statement of Objectives - one page letter telling about yourself and the area you will study if accepted
- CV/Résumé

### Contact:

Mechanical & Aerospace Engineering, Graduate Admissions

Nick Balsler (Last Names A-K)  
balsern@missouri.edu  
573-882-2845

Justin Rich (Last Names L-Z)  
richj@missouri.edu  
573-882-4092

## Degree Requirements

A minimum of 72 semester hours are required including the credit hours taken during the MS program. Students who received the MS degree from other than MU may transfer a maximum of 30 hours from their MS course work.

A doctoral student must satisfy a special requirement, either proficiency in foreign languages or a collateral field. The collateral field requires a minimum of nine hours of course work in one area other than MAE.

## Plan of Study

The PhD candidate plans a plan of study and research under the immediate supervision of an advisor and in close cooperation with the

doctoral program committee approved by the dean of the Graduate School upon the department's recommendation.

## Qualifying Examination

A qualifying examination is given soon after the student begins doctoral study. Successful completion of this examination is a prerequisite to formal acceptance into the PhD program.

Students with an MS from MU or another accredited U.S. engineering program will be exempt from the qualifying examination if their MS GPA and total GRE scores satisfy a departmental exemption rule. See <http://engineering.missouri.edu/mae/degree-programs/phd-mae/> for more information.

## Comprehensive Examination & Dissertation

A comprehensive examination is given after all course work and language or collateral requirements have been satisfied. Upon completion of the plan of study and research a final examination, essentially a defense of the dissertation, is administered.

## Nuclear Engineering

### About the Nuclear Engineering Program

The Nuclear Engineering Program at University of Missouri was established in 1964 and conferred its first Master of Science degree in that same year.

Undergraduate students may pursue an academic minor in nuclear engineering (a baccalaureate degree is not offered at this time).

The master's program is designed for those entering students with a B.S. degree in engineering or in chemistry or physics. Students from other fields will be considered on an individual basis. Those students who have attained a B.S. degree in nuclear engineering may be given revised curricula depending on their backgrounds and the requirements of the specific program in which they are enrolled.

The Ph.D. program is typically tailored to fit the academic needs and research goals of our students. The graduate certificates provide students and working professionals with the opportunity to develop unique skills and expertise for jobs in the areas of nuclear material protection, control and accountability.

## Faculty

**Professor** Z. Chen, B. Deng, J. Gahl\*, T. K. Ghosh\*\*, N. Islam\*, S. Jurisson\*, S. Loyalka\*\*, P. Pinhero, M. Prelas\*\*, J. D. Robertson\*, R. Thompson\*\*

**Associate Professor** S. Kovaleski, J. Kwon, K. Trauth\*, R. Winholz

**Assistant Professor** M. Bernards

**Associate Teaching Professor** G. Solbrekken

**Assistant Teaching Professor** S. Naz

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Minor in Nuclear Engineering (p. 531)

While MU does not offer undergraduate degrees specifically in nuclear engineering, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Engineering, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Nuclear Engineering (p. 532)
  - with emphasis in Environmental and Regulatory Compliance (p. 533)
  - with emphasis in Health Physics (p. 533)
  - with emphasis in Materials (p. 533)
  - with emphasis in Medical Physics (p. 533)
  - with emphasis in Thermal Hydraulics (p. 534)
- PhD in Nuclear Engineering (p. 534)
  - with emphasis in Environmental and Regulatory Compliance (p. 534)
  - with emphasis in Materials (p. 535)
  - with emphasis in Thermal Hydraulics (p. 535)
- Graduate Certificate in Nuclear Engineering (p. 531)
- Graduate Certificate in Nuclear Safeguards Science and Technology (p. 532)

### Contact for prospective students (those intending to apply):

Dr. Naz Islam, Director of Graduate Studies  
319 Naka Hall  
Columbia, MO 65211  
(573) 882-7570 or [islamn@missouri.edu](mailto:islamn@missouri.edu)

### Nuclear Engineering Program

Dr. John M. Gahl, Director  
207 Naka Hall  
Columbia, MO 65211  
(573) 882-5345 or [gahlj@missouri.edu](mailto:gahlj@missouri.edu)

## About the Nuclear Science Engineering Program

The Nuclear Engineering Program at University of Missouri was established in 1964 and conferred its first Master of Science degree in that same year. Educational programs are closely connected with the research foci of participating faculty members. The master's program is designed for those entering students with a B.S. degree in engineering or in chemistry or physics. Students from other fields will be considered on an individual basis. Those students who have attained a B.S. degree in nuclear engineering may be given revised curricula depending on their backgrounds and the requirements of the specific program in which they are enrolled. The Ph.D. program is typically tailored to fit the academic needs and research goals of our students. The graduate certificates provide students and working professionals with the opportunity to develop unique skills and expertise for jobs in the areas of nuclear material protection, control and accountability.

## Illustrative Areas of Study

Course topics include nuclear materials management, aerosol mechanics, reactor safety analysis, nuclear energy conversion, reactor physics, reactor design, nondestructive testing and measurement, radiative heat transfer, neutron spectrometry, neutron and gamma ray transport, neutron activation analysis, nuclear waste management, nuclear plasma research, health physics, magnetic resonance imaging, radiation therapy and alternative and renewable energy concepts.

## Students Admitted in 2012 and Earlier

For nuclear engineering students admitted in 2012 and earlier (i.e., to the Nuclear Science Engineering Institute), the contact is

Dr. Tushar Ghosh  
 NSEI Director of Graduate Studies  
 E2433 Lafferre Hall  
 (573) 882-9736  
 ghosht@missouri.edu

## Minor in Nuclear Engineering

The Minor in Nuclear Engineering is one of three minors offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in nuclear sciences. It is designed for students from Biology, Chemistry, Engineering, Physics or related disciplines who are interested in nuclear power.

The minor requires a minimum of 15 credits of course work. As background preparation, the minor requires math through differential equations and two semesters of calculus-based physics.

### Required courses:

ENGINR 2300	Engineering Thermodynamics	3
NU_ENG 4315	Energy Systems and Resources	3
NU_ENG 4346	Introduction to Nuclear Reactor Engineering I	3
NU_ENG 4391	Nuclear Radiation Detection	3
or CHEM 4600	Introduction to Radiochemistry with Lab	

### Select one additional course from the list below:

NU_ENG 2201	Topics in Nuclear Engineering	3
NU_ENG 4303	Radiation Safety	3
NU_ENG 4330	Science and Technology of Terrorism and Counter Terrorism	3
NU_ENG 4353	Introduction to Fusion	3
ECE 7550	Introduction to Plasmas	3

## Graduate Certificate in Energy Efficiency

To achieve the goal of energy efficiency, we need to educate engineers in basics of energy with emphasis on industrial production process, the buildings housing these manufacturing systems, and in other energy consuming systems. The Graduate Certificate in Energy Efficiency is a stand-alone certificate open to both degree seeking and non-degree seeking students.

### Core Course (required)

MAE 7355	Industrial Energy Analysis *	3
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### Other courses:

ARCHST 7325	Energy-Efficient Building Design	3
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CV_ENG 7232	Water and Wastewater Treatment Facilities	3
ECE 7480	Test and Evaluation of Electrochemical Devices	3
CH_ENG 7464	Electrochemical Reaction Engineering Science	3

Other courses may be in development for this certificate program

\* Students may not use MAE 7355 to fulfill both the Graduate Certificate in Energy Efficiency and the Graduate Certificate in Sustainable Energy and Policy (p. 531).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/energy-efficiency-graduate-certificate/GEdisclosure/Gedt.html>.

## Graduate Certificate in Sustainable Energy and Policy

To achieve the goal of reliable and sustainable energy, we need to educate engineers in basics of energy with emphasis on renewable energy, sustainable practices in manufacturing that are informed by new technology, and impact of energy usage on society, economy and the environment. The Graduate Certificate in Sustainable Energy and Policy will give students a broad view of energy engineering, energy economics and policy, and sustainability. The certificate is a stand-alone certificate open to both degree seeking and non-degree seeking students.

### Required Course

MAE 7355	Industrial Energy Analysis *	3
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### Choose three:

PUB_AF 8177	Energy Economics	3
AG_S_M 8142	Agricultural Energy Efficiency	3
MAE 7356	Renewable Energy	3
Public Affairs 8178:	Sustainable Energy Policy (course approved for Spring 2016)	3

**Total Credits** 12

\* Students who use MAE 7355 to fulfill the requirements of the Graduate Certificate in Energy Efficiency (p. 531), will have to take all four of the remaining course to fulfill the 12 credit hour requirement.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/sustainable-energy-and-policy/sustainable-energy-ge/Gedt.html>.

## Graduate Certificate in Nuclear Engineering

### Eligibility & Mission

The objective of the graduate certificate in Nuclear Engineering is to provide graduate students and professional, non-degree students from various engineering and science departments at MU with a unique opportunity to develop expertise in nuclear engineering that will enhance their job opportunities in the nuclear field.

## Requirements for Graduate Certificate in Nuclear Engineering

Students will be required to take the 12 credit hours of coursework from the Nuclear Engineering (NE) degree program curriculum. Co-listed courses with the Nuclear Science and Engineering Institute NE classes may be considered towards this requirement. As permitted by the University Policy regarding Graduate Certificate offerings, a maximum of 6 credit hours may be counted for both degree course credit within their department and the Graduate Certificate in Nuclear Engineering. However, total credit hours needed to complete their degree need not exceed Departmental or Graduate School requirements. Students will be required to take courses that broaden their knowledge and understanding in nuclear engineering.

The student must complete a Change of Academic Program form to enter the program. The student must also complete the "Course of Study for Graduate Certificate" form, which must be approved by Nisei before taking any courses. Without this prior approval, the Nisei has the authority to deny the certificate.

A student's advisor and graduate committee from the host department and the Graduate Studies Director in the Nuclear Science and Engineering Institute will approve the courses. The selection of courses is restricted to the 7000 level or above and all courses must be successfully completed with a final grade of 'B' or above. Courses must be selected from the list shown in Table 1 at the certificate's website (<http://nisei.missouri.edu/graduateCertification.html>), and documented on the Graduate School's "Course of Study for Graduate Certificate" form. Course credit hours for the certificate could also be applied towards the total credit hours needed for the departmental degree requirements, if accepted by the student's department.

### Course Work

Students should take at least one course from each of the first three clusters listed in Table 1. The student may choose their fourth course from either the Basic Radiation Science Cluster or from any of the four (I, II, III, IV) clusters at the certificate's site (<http://nisei.missouri.edu/graduateCertification.html>).

A minimum of 12 credit hours must be documented (using the Course of Study for Graduate Certificate form) in order to qualify for the Graduate Certificate in Nuclear Engineering.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/nuclear-engineering-graduate-certificate/nu-eng-ge/Gedt.html>.

## Graduate Certificate in Nuclear Safeguards Science and Technology

For additional information about this certificate, contact:

Dr. John Gahl, professor of Electrical Engineering  
(573) 884-7414  
GahlJ@missouri.edu

### Certificate Objectives and Requirements

The objective of offering the Graduate Certificate in Nuclear Safeguards is to provide graduate students and professional, non-degree-seeking,

students in various engineering disciplines with an opportunity to develop unique skills and expertise that will enhance their performance in jobs requiring knowledge of nuclear material protection, control and accountability.

The graduate certificate program serves degree-seeking graduate students and also functions as a stand-alone graduate certificate program for professional, non-degree-seeking students. Both degree-seeking and non-degree-seeking students will be required to take four specific classes (12 credit hours) involving nuclear science, policy and safeguards. The student must complete a Change of Academic Program form to enter the program. The student must also complete the "Course of Study for Graduate Certificate" form, which must be approved by NSEI before taking any courses. Without this prior approval, the NSEI has the authority to deny the certificate.

For MU students, a maximum of 6 credit hours may be counted for both degree course credit within their department and the Graduate Certificate in Nuclear Safeguards. However, total credit hours needed to complete their degrees need not exceed departmental or Graduate School requirements (see the Graduate School catalog for additional information contact Dr. Gahl)

## Nuclear Safeguards Science and Technology Certificate Plan of Study

Four specific classes, comprising 12 hours of course credit, are required for a student to receive this graduate certificate in nuclear safeguards:

NU_ENG 7335	Nuclear Safeguards Science and Technology	3
NU_ENG 7331	Nonproliferation Issues for Weapons of Mass Destruction	3
NU_ENG 7303	Radiation Safety	3
NU_ENG 7391	Nuclear Radiation Detection	3
Total Credits		12

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/nuclear-safeguards-graduate-certificate/nu-safe-ge/Gedt.html>.

## MS in Nuclear Engineering

### Contact for prospective students (those intending to apply):

Dr. Naz Islam, Director of Graduate Studies  
319 Engineering Building West  
Columbia, MO 65211  
(573) 882-7570 or [islamn@missouri.edu](mailto:islamn@missouri.edu)

### Nuclear Engineering Program

Dr. John M. Gahl, Director  
207 Engineering Building West  
Columbia, MO 65211  
(573) 882-5345 or [gahlj@missouri.edu](mailto:gahlj@missouri.edu)  
[engineering.missouri.edu/nuclear/](http://engineering.missouri.edu/nuclear/)

### Preparation for the Program

Students with degrees in physics or chemistry are generally adequately prepared for the nuclear engineering graduate program. Those from other backgrounds may be required to complete engineering undergraduate courses in thermodynamics, advanced engineering mathematics and the full complement of calculus-based physics, based on the student's particular experience.

## Application Deadlines

Fall deadline: March 1

Spring deadline for International students: September 1

Spring deadline for Domestic Students: October 1

Applications received after those time frames will be reviewed for acceptance only as time permits.

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	50 Effective July 1, 2015 must have score of 80

- Minimum GRE score: none set
- Minimum GPA: 3.0 during last 2 years
- Undergraduate degree (with a strong math and physics background) in an engineering field, physics, biology, chemistry or mathematics from an accredited institution.

## Required Application Materials

*To the Graduate School*

All required Graduate School documents

- 3 letters of recommendation and the online recommendation form from previous instructors or technical employers who are familiar with the student's qualifications for graduate study, submitted directly online through the application. (If the student is applying to the PhD program, one of these letters must be from the MS advisor.)
- Statement of Purpose (uploaded via online application)

*To the Nuclear Engineering Program*

- Official GRE score report (Use Department Code 1609)

## Degree Completion Requirements

The nuclear engineering master's degree program requires 31 hours, including a research project or thesis. The requirements are based on the assumption that the student is entering graduate study with a bachelor's degree in engineering from an ABET-accredited school. An original research project is required either in the form of a three-credit master's project or a six-credit master's thesis. Typical time-to-degree completion for the master's degree is 18 months.

## MS in Nuclear Engineering with Emphasis in Environmental and Regulatory Compliance

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/>

[minimum-requirements.php](#)). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MS in Nuclear Engineering with Emphasis in Health Physics

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MS in Nuclear Engineering with Emphasis in Materials

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MS in Nuclear Engineering with Emphasis in Medical Physics

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MS in Nuclear Engineering with Emphasis in Thermal Hydraulics

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Nuclear Engineering

### Contact for prospective students:

Dr. Naz Islam, Director of Graduate Studies  
319 Engineering Building West  
Columbia, MO 65211  
(573) 882-7570 or [islamn@missouri.edu](mailto:islamn@missouri.edu)

### Nuclear Engineering Program

Dr. John M. Gahl, Director  
207 Engineering Building West  
Columbia, MO 65211  
(573) 882-5345 or [gahlj@missouri.edu](mailto:gahlj@missouri.edu)  
[engineering.missouri.edu/nuclear/](http://engineering.missouri.edu/nuclear/)

## Application Deadlines

Fall deadline: March 1  
Spring deadline for International students: September 1  
Spring deadline for Domestic Students: October 1  
Applications received after those time frames will be reviewed for acceptance only as time permits.

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500

- Minimum GRE score: none set
- Minimum GPA: 3.0 during last 2 years
- Undergraduate degree (with a strong math and physics background) in an engineering field, physics, biology, chemistry or mathematics from an accredited institution.

## Required Application Materials

### To the Graduate School

- All required Graduate School documents
- 3 letters of recommendation and the online recommendation form from previous instructors or technical employers who are familiar with the student's qualifications for graduate study, submitted directly online through the application. (If the student is applying to the PhD program, one of these letters must be from the MS advisor.)
- Statement of Purpose (uploaded via online application)

### To the Nuclear Engineering Program

- Official GRE score report (Use Department Code 1609)

## Qualifying Examination

The PhD program is a research program and is tailored to meet specific educational needs. To qualify for the research phase of the PhD program, the student must pass a comprehensive, multi-part qualifying examination, usually administered during the first semester of study for the PhD.

## PhD Plan of Study

If the student is entering the PhD program, the planned course of study will be individually evaluated by the nuclear engineering faculty. A comprehensive examination covering the student's dissertation topic is required at least seven months before anticipated graduation. The PhD degree is a research degree, with a suitable dissertation topic to be chosen in the respective field and usually requires 24 classroom credits of advanced courses beyond the MS degree and 18 credits of research. Typical time-to-degree completion for the PhD degree is three years past the MS degree.

## PhD in Nuclear Engineering with Emphasis in Environmental and Regulatory Compliance

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Nuclear Engineering with Emphasis in Materials

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Nuclear Engineering with Emphasis in Thermal Hydraulics

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in the Nuclear Engineering program (<http://gradschool.missouri.edu/academics/programs/nuclear-engineering/doctorate.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Additional Minors and Certificates - Engineering

### Undergraduate Minors

- Minor in Aerospace (p. 535)
- Minor in Computational Neuroscience (p. 536)
- Minor in Energy Engineering (p. 536)
- Minor in Medical/Health Physics (p. 536)
- Minor in Naval Science (p. 536)
- Minor in Radioenvironmental Sciences (p. 537)

### Graduate Certificates

- Certificate in Energy Efficiency (p. 531)

- Certificate in Sustainable Energy and Policy (p. 531)

## Minor in Aerospace

### Purpose

- To provide a fundamental grounding in aerospace engineering
- To prepare students to be competitive for positions in aerospace-oriented industries

Students will take courses from the 4 fundamental areas of aerospace engineering:

- aerodynamics
- aerospace structures
- flight mechanics
- propulsion

### To Apply

- Meet with your advisor sophomore/junior year to plan minor courses into your schedule.
- Complete the necessary course work (at least 18 credit hours).
- Submit the application below in the semester before you are graduating.
- It will then appear on your diploma.

### Required Course Work

#### Must take both:

MAE 3400	Fluid Mechanics	3
MAE 3600	Dynamic Systems and Control	3

#### Select at least 2 from:

MAE 4210	Aerospace Structures	3
MAE 4390	Aerospace Propulsion	3
MAE 4420	Intermediate Fluid Mechanics	3
MAE 4430	Introduction to Computational Fluid Dynamics and Heat Transfer	3
MAE 4440	Aerodynamics	3
MAE 4450	Gas Dynamics	3
MAE 4620	Aircraft Flight Performance	3
MAE 4630	Space Flight Mechanics	3
MAE 4940	Aircraft Design	3

#### Auxiliary Courses

A maximum of 6 credit hours can be counted toward the minor

MAE 4001	Topics in Mechanical and Aerospace Engineering (When taken as topics title "Applied Finite Element Analysis")	3
MAE 4280	Introduction to Finite Element Methods	3
MAE 4320	Design of Thermal Systems	3
MAE 4600	Advanced Mechanics of Materials	3
MAE 4720	Modern Control	3

### Contact

Mechanical & Aerospace Engineering (<http://mae.missouri.edu>)  
phone: 573-882-2684



## Minor in Computational Neuroscience

Computational neuroscience is becoming an important tool for neuroscientists to understand how complex brain circuits work, for example, what causes post-traumatic stress disorder. This intersection of engineering and neuroscience is allowing great advances in health care, manufacturing and communication.

### Required for all students:

ECE/BIO_SC 4580	Computational Neuroscience	4
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Select 2 courses from the following list:

BIO_SC 3700	Animal Physiology	
BIO_SC 4310	Physics in Cell and Developmental Biology	
BIO_SC 4500	Neurobiology	
BIO_SC 4560	Sensory Physiology and Behavior	
BIO_SC 4986	Neurology of Motor Systems	
BIO_SC 4988	Nerve Cells and Behavior	
BIOL_EN 4070	Bioelectricity	
BIOL_EN 4080	Engineering Computation	
PHYSICS 4310	Physics in Cell and Developmental Biology	
PHYSICS 4500	Computational Biological Physics	

### For students majoring in Engineering, Physics, Math, Psychology or Statistics, choose 6 credits from the following list of courses:

BIO_SC 1010	General Principles and Concepts of Biology (with BIO_SC 1020)	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2300	Introduction to Cell Biology	4
F_W 1100	Introductory Zoology with Laboratory	5
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 4210	Physiological Psychology	3

### For students majoring in Biology choose 6 credits from the following list of courses:

PHYSICS 1220	College Physics II	4
PHYSICS 2760	University Physics II	5
INFOTC 1040	Introduction to Problem Solving and Programming	3
BIOL_EN 2080	Introduction to Programming for Engineers	3
	Seminar for Undergraduates	1

## Minor in Energy Engineering

Energy engineering requires many different types of engineers, and this minor lets you choose from several different tracks to fit your career interests. The minor requires completion of 18 credit hours between the core and the tracks.

### Required Core Courses:

ENGINR 2100	Circuit Theory for Engineers	3
or ECE 2100	Circuit Theory I	
MAE 2300	Thermodynamics	3
or CH_ENG 3261	Chemical Engineering Thermodynamics I	
ECE 4470	Sustainable Electrical Energy Resources	3
IMSE 2710	Engineering Economic Analysis	3

### Electric Utility Generation Track

ECE 4460	Energy and Machines	3
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ECE 3510	Electromagnetic Fields	3
MAE 4320	Design of Thermal Systems	3
MAE 4660	Vibration Analysis	3
ECE 4410	Power Electronics I	4
CV_ENG 4250	Environmental Regulatory Compliance	3

### Electric Utility Transmission & Distribution Track

ECE 3510	Electromagnetic Fields	3
ECE 4410	Power Electronics I	4
CV_ENG 4250	Environmental Regulatory Compliance	3

### Energy Infrastructure and Efficiency Track

MAE 4320	Design of Thermal Systems	3
MAE 4340	Heating and Air Conditioning	3
MAE 4660	Vibration Analysis	3
MAE 4290	Welding Engineering	3
CV_ENG 4250	Environmental Regulatory Compliance	3

### Energy Storage Track

ECE 4001	Topics in Electrical and Computer Engineering	3-4
ECE 4410	Power Electronics I	4
CH_ENG 4464	Electrochemical Reaction Engineering Science	3

## Minor in Medical/Health Physics

The Minor in Medical/Health Physics is one of three minors offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in the nuclear sciences. It is designed for students from Biology, Chemistry, Engineering, Physics or related discipline who are interested in the biological effects of radiation in medical utilization and in occupational health and safety.

The minor requires a minimum of 15 credits of course work. As background preparation, the student must have had the prerequisites of a minimum of college algebra and two semesters of college physics.

### Required courses:

NU_ENG 4303	Radiation Safety	3
NU_ENG 4328	Introductory Radiation Biology	3
NU_ENG 4391	Nuclear Radiation Detection	3
or CHEM 4600	Introduction to Radiochemistry with Lab	

### Select additional courses from the below options:

NU_ENG 2201	Topics in Nuclear Engineering	3
NUCMED 3256	Clinical Nuclear Medicine I	2
CHEM 4170	Medicinal Chemistry	3
NU_ENG 4319	Physics and Chemistry of Materials	3
NUCMED 4329	Radiopharmaceuticals in Nuclear Medicine	3
BIOL_EN 4570	Fluorescent Imaging	3
BIOCHM 3630	General Biochemistry	3

## Minor in Naval Science

A minor in Naval Science is available upon the completion of 20 semester hours to include 11 hours of the lower level and 9 hours of the upper level Naval Science curriculum.

## Minor in Radioenvironmental Sciences

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The Minor in Radioenvironmental Sciences is one of three minors offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in the nuclear sciences. It is designed for students from Biology, Chemistry, Engineering, Physics or related discipline who are interested in the environmental aspects of radiation and radioactive materials.

The minor requires a minimum of 15 credits of course work. As background preparation, the student must have had the prerequisites of a minimum of college algebra and two semesters of college physics.

**Required courses:**

NU_ENG 4303	Radiation Safety	3
NU_ENG 4328	Introductory Radiation Biology	3
NU_ENG 4391	Nuclear Radiation Detection	3
or CHEM 4600	Introduction to Radiochemistry with Lab	

**Select two additional courses form the list below:**

NU_ENG 2201	Topics in Nuclear Engineering	3
NU_ENG 4330	Science and Technology of Terrorism and Counter Terrorism	3
NU_ENG 4350	Nuclear Forensic Analysis	3
NU_ENG 4379	Particulate Systems Engineering	3
CHEM 3300	Fundamentals of Physical Chemistry	3
CHEM 4280	Environmental Chemistry	3
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 4220	Hazardous Waste Management	3
CV_ENG 4250	Environmental Regulatory Compliance	3

## School of Health Professions

### Administration

Kristofer J. Hagglund, Dean  
 Stephanie A. Reid-Arndt, Associate Dean, Academic Affairs  
 Janet E. Farmer, Associate Dean, Research  
 510 Lewis Hall  
 (573) 884-6705  
 haydenrm@health.missouri.edu

### Advising and Scholarship Contact

SHP Student Services Office  
 101 Lewis Hall  
 (573) 882-8011  
 mushpadvising@missouri.edu

The School of Health Professions is Missouri's only state-supported health professions school on a campus with an academic health center. It is uniquely positioned to educate highly qualified health care professionals committed to fulfilling the mission of improving society through education, service and discovery in diagnostic, medical imaging, and rehabilitation sciences. The school is credited with establishing the nation's first baccalaureate degree program in respiratory therapy and the first master's degree program in diagnostic medical ultrasound. Its six departments and eight accredited academic programs have long and distinguished histories. Graduates of the School of Health Professions are nationally recognized leaders in their fields.

The school offers undergraduate degrees with majors in Athletic Training, Communication Science and Disorders, Diagnostic Medical Ultrasound, Health Sciences, Occupational Therapy, Public Health, Respiratory Therapy, Radiologic Sciences with emphasis in Radiography or Nuclear Medicine Technology, and Clinical Laboratory Sciences with an emphasis in Medical Technology. The school offers graduate degrees in Communication Science and Disorders with an emphasis of Speech-Language Pathology, Diagnostic Medical Ultrasound, Occupational Therapy and Physical Therapy and a graduate certificate in Applied Behavior Analysis.

Students gain valuable experience by participating in nationally recognized service centers including PhysZou, Tiger OT, The Adult Day Connection, The Health Connection, the Speech and Hearing Clinic, Robert G. Comb's Language Preschool, Thompson Center for Autism and Neurodevelopmental Disorders, and more than eight hundred fieldwork sites.

### Undergraduate

- Admissions (p. 538)
- Exploratory Courses (p. 538)
- Required Entry Level Courses (p. 538)
- School of Health Professions Scholars Guaranteed Admission Program (SHarP Scholars) (p. 539)
- International Admissions (p. 539)
- Academic Regulations (p. 539)
- Enrolling in Other Institutions Simultaneously (p. 539)
- Advising (p. 539)
- Career Placement (p. 539)

### Admissions

Undergraduate students are enrolled in the School of Health Professions for academic advisement in order to complete University general education (p. 33) and prerequisite courses. Students will be advised by faculty of the department in which they have declared a major, or by an advisor in the Student Services Office. Students should contact the SHP Advising Office to ensure satisfactory progress toward completion of the prerequisites.

Admission to the University and to the School of Health Professions as a pre-professional student does not constitute admission as a candidate for most Bachelor of Health Science degree programs. Pre-professional students are admitted to candidacy for the BHS only when they have been selected to participate in the professional component of a program. Application deadlines and requirements vary for each program (an application is not required for the health sciences programs). Students are strongly encouraged to seek advising to ensure they are making satisfactory progress towards pre-requisites, MU General Education (p. 33), and program requirements.

### Exploratory Courses

The School of Health Professions offers introductory courses and experiences to provide information about career opportunities in these areas. These courses are listed below:

HLTH_SCI 1000	Introduction to the Health Professions	3
NUCMED 1000	Orientation to Nuclear Medicine	1
OC_THR 1000	Introduction to Occupational Therapy	1
PH_THR 1000	Introduction to Physical Therapy	1
RS_THR 1000	Introduction to Respiratory Therapy	1
DMU 1000	Introduction to Diagnostic Medical Ultrasound	1
C_S_D 1000	Introduction to Communication Science and Disorders	1
CL_L_S 1000	Orientation to Clinical Laboratory Science	1

### Required Entry-level Courses

To be admitted into or continue in the School of Health Professions, all students must complete College Algebra (MATH 1100 or equivalent) and Exposition and Argumentation (ENGLSH 1000) upon completing 60 university-level credit hours, including transfer and MU credit. In addition, the School of Health Professions requires students who are declaring a "pre-Health Professions" or "Undeclared" major to meet the minimum GPA requirement for that program of interest. All undergraduate students are required to declare a plan upon completion of 60 university-level credit hours.

While completing prerequisite requirements, students must make formal application for admission to the professional component of the program of their choice. Enrollment is limited and is governed by program admission committees. Application to the professional component is also required for transfer students.

In addition to academic record, attributes such as interpersonal skills, motivation, attitude, interest, commitment and knowledge of the field are considered in selecting students to participate in the professional phase of any program. Applicants may also be evaluated on school and college aptitude tests, pattern of academic achievement, verbal expression, extracurricular activities and motivation demonstrated by employment and volunteer activities.

The application deadlines for the professional component of each program are shown below.

Professional Program	Application Deadline	Classes Begin
Athletic Training	February 1, freshman	Fall
Communication Science and Disorders	Feb. 1, sophomore	Fall
Occupational Therapy	Applications Not Accepted in 2017	Summer
Radiography	Feb. 1, sophomore	Summer
Physical Therapy	Jan. 24, senior	Summer
Nuclear Medicine	Dec. 1, junior	Fall
Respiratory Therapy	Feb. 1, sophomore	Summer
Diagnostic Medical Ultrasound	Feb. 1, sophomore	Summer
Clinical Laboratory Science	Nov. 1, junior	Summer
Health Sciences	N/A, freshman	Fall/Spring

## School of Health Professions Scholars Guaranteed Admission Program (SHaP Scholars)

### International Admissions

Students whose native language is not English should contact the School of Health Professions for requirements.

### Prerequisite Curriculum Requirements

See the degree requirements in the following pages for specific course requirements in the various programs. The student is responsible for meeting graduation requirements for the program and the University. Academic advisors in the School of Health Professions can assist students with understanding degree requirements and progress towards degree completion.

### Graduation Requirements

In addition to degree and major requirements, students must complete university graduation requirements (p. 32), which include university general education (p. 33) requirements.

### Degree Core Requirements

The Bachelor of Health Science degree is granted to candidates who have successfully fulfilled all didactic and clinical requirements of the program as described for each area, in addition to all University requirements (p. 32), including University general education (p. 33) requirements.

In addition to the academic and clinical education requirements of a program, students must possess and exhibit those personal qualities and characteristics that are associated with patient welfare and professional trust. These elements are a part of the overall evaluation process for the professional phase of each program. Should it be determined that these qualities are not present in sufficient degree or that a student does not demonstrate satisfactory growth and progress in these areas, the student is subject to dismissal from the program.

## Degree with Honors Requirements

To earn Latin Honors in the School of Health Professions, a student must meet the following requirements:

- 50 graded MU undergraduate credits
- At least a 3.0 MU cumulative GPA
- MU cumulative GPA equal to or greater than 3.5 or
- last 50 graded credits at MU equal to or greater than 3.5
- GPA for each level

Latin Honor	GPA
Cum laude	3.5
Magna cum laude	3.7
Summa cum laude	3.9

## Academic Regulations

### Time Limits on Credits Earned

Contact each department for information on time limits.

### Credits by Examination

Students with previous training or experience may be allowed to earn advanced-standing credit through challenge or equivalency evaluation in certain programs. Contact the Health Professions Student Affairs Office for information pertaining to the awarding of credit for these exams.

### Maximum Credits Enrolled

A student may not enroll for more than 18 credits in a term without permission from the associate dean.

### Independent Study

Students must receive prior approval before enrolling in independent study courses.

### Satisfactory/Unsatisfactory Grades

A student wishing to enroll in a course on an S/U basis must receive permission from the faculty advisor in his or her department and from the SHP Advising Center.

## Enrolling in Other Institutions Simultaneously

Students must receive approval from the SHP Advising Center before enrolling simultaneously at another institution.

## Advising

Students who are pre-Health Professions, Health Science majors or undeclared Health Professions students will be assigned an advisor in the SHP Advising office. Students who are in a professional program may be advised by a faculty member.

Students should select an area of interest prior to completing the first two years of college. To assist with career decisions, the School of Health Professions offers introductory courses and experiences to provide information and career opportunities in these areas.

## Career Placement

Graduates of programs in the School of Health Professions are highly recruited and frequently hired prior to receiving degrees. The Career

Services office in the School of Health Professions offers résumé, cover letter and personal statement review, mock interviews, and workshops to enhance students' career development. All Health Science majors are required to take Health Science 2100, a career and professional development seminar course. Students are encouraged to seek out and use the Career Services office early in their undergraduate career.

## Graduate

The School of Health Professions offers a wide variety of programs of study for students interested in careers in healthcare. At the graduate level, we offer degrees in

- Communication Science and Disorders
- Occupational Therapy
- Physical Therapy
- Clinical and Diagnostic Sciences

The Graduate School confers an interdisciplinary **Master's of Public Health (MPH) degree. The MPH is available in two emphasis areas: Health Promotion and Policy or Veterinary Public Health. This public health coursework reflects the University of Missouri's strength in the health professions, social work, nursing, medicine, veterinary medicine, and arts and sciences.**

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Applied Behavior Analysis

The Master of Science in Applied Behavior Analysis (ABA) program is designed to help address the state-wide and national shortage of health care providers by training practitioners to affect meaningful change. ABA is a discipline that relies upon evidenced-based behavioral interventions to improve socially significant behaviors. It has been used as an intervention to improve the quality of life for a variety of populations including, but limited to, individuals with autism spectrum disorder (ASD). The goal of our master's program is to become a leading, accredited professional program that will train highly-skilled Behavior Analysts who apply behavioral science to address the behavioral challenges of individuals in need.

## Faculty

**Associate Professor:** S.W. Kahng  
**Assistant Visiting Professor:** C. Clay

## Undergraduate

While MU does not offer undergraduate degrees specifically in Applied Behavior Analysis, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Applied Behavior Analysis (p. 540)
- Certificate in Applied Behavior Analysis (p. 540)

The Master of Science in Applied Behavior Analysis (ABA) program will train you to be an exceptional behavior analyst who has the skills to improve quality of life for people with behavioral challenges, including children and adults with developmental needs. You will also gain experience, and knowledge, in cutting edge research in the field of ABA. Behavior analysts successfully use ABA techniques across a variety of populations and settings to bring about meaningful and positive change in behavior. Behavior analysts are employed in numerous fields, including general and special education, mental health, disability, business, and institutions of higher learning. There is a high demand for individuals who finish their degree and obtain certification who then can practice as independent educational specialists or clinicians. The Behavior Analyst Certification Board, Inc. (<http://bacb.com>) has approved the course sequence as meeting the coursework requirements for eligibility to take the Board Certified Behavior Analyst Examination. Applicants will have to meet additional requirements to qualify.

## Graduate Certificate in Applied Behavior Analysis

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/applied-behavior-analysis-graduate-certificate/applied-behavior-analysis-ge/Gedt.html>.

## MS in Applied Behavior Analysis

The course sequence can be completed in two years on campus. The following is a sample program:

First Year			
Fall	CR Spring	CR Summer	CR
HLTHPSYC 8100	3 HLTHPSYC 8250: Methods in Applied Behavior Analysis (course available Spring 2018).	3 HLTHPSYC 8300	3
HLTHPSYC 8200	3 HLTHPSYC 8350: Individualized Assessment and Intervention (course available Spring 2018).	3	
HLTHPSYC 8800	3 HLTHPSYC 8800	3	
	9	9	3
Second Year			
Fall	CR Spring	CR	
HLTHPSYC 8400: Survey of Applied Behavior Analysis (course available Spring 2018)	3 Theoretical Foundations in Behavior Analysis (course not yet created)	3	
Verbal Behavior (course not yet created)	3 Autism and Behavior Interventions (course not yet created)	3	
Thesis I /Capstone (course not yet created)	3 Thesis II/Capstone (course not yet created)	3	
	9	9	

Total Credits: 39

In addition to the coursework requirement, you will need to meet experience standards (<http://bacb.com/page/69>). The BACB has three experience categories: (a) supervised independent fieldwork (1500 hrs), (b) practicum (1000 hrs), or (c) intensive practicum (750 hrs). Students in the Master's program will be required to complete intensive practicum at the MU Thompson Center for Autism and Neurodevelopmental Disorders for credit (6 credits) under the supervision of a BCBA.

## Athletic Training

### Program Director:

David Colt, EdD, LAT, ATC

The Department of Physical Therapy, Athletic Training Program offers a Bachelors of Health Science degree in Athletic Training (BHS-AT).

Athletic training is a health care profession in which the Athletic Trainer assumes responsibility for the overall health care of the athletic population, particularly having an integral role in the prevention, recognition, care and rehabilitation of athletic injuries. Athletic Trainers have been employed in traditional settings including high schools, colleges, universities, professional sports teams, hospitals, and rehabilitation clinics. The practice of athletic training also includes, but is not limited to, physicians' offices, corporate and industrial institutions, the military and the performing arts. Regardless of the practice setting, Athletic Trainers practice athletic training (or provide athletic training services) according to educational preparation and state practice act.

The Athletic Training Program at the University of Missouri is accredited by the Commission on Accreditation of Athletic Training Education (CAATE (<http://www.caate.net>)). Only graduates of CAATE accredited programs are eligible to sit for the Board of Certification exam.

### Faculty

**Associate Teaching Professor:** D. Colt

**Assistant Teaching Professor:** D. Belmore, K. Belmore

**Adjunct Faculty:** R. Dunn, C. Hairston, J. Lewis, D. McDonnell, N. Philpot

**Clinical Adjunct Instructors:** P. Beckmann, C. Bordelon, J. Gawlik, C. Hairston, C. Jockin, J. Lewis, D. McDonnell, A. Mosel, R. Sharp, B. Sigley, B. Stephens, M. Swee, A. Williams

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BHS in Athletic Training (p. 541)

### Graduate

While MU does not offer graduate degrees specifically in athletic training, the University does offer post-baccalaureate opportunities in a number of related areas, both within the School of Health Professions and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## BHS in Athletic Training

## Degree Program Description

Athletic training is a health care profession in which the Athletic Trainer assumes responsibility for the overall health care of the athletic population, particularly having an integral role in the prevention, recognition, care and rehabilitation of athletic injuries. Athletic Trainers have been employed in traditional settings including high schools, colleges, universities, professional sports teams, hospitals, and rehabilitation clinics. The practice of athletic training also includes, but is not limited to, physicians' offices, corporate and industrial institutions, the military and the performing arts. Regardless of the practice setting, Athletic Trainers practice athletic training (or provide athletic training services) according to educational preparation and state practice act. The Athletic Training Program consists of a one-year pre-professional phase followed by a three-year professional phase. Athletic Training is a professional program requiring secondary admission and a clinical education component. Clinical education experiences are completed at locations on and off campus during the three-year professional phase.

## Major Program Requirements

All required Athletic Training courses have a minimum grade requirement.

Students earning the BHS-AT degree must complete all university requirements, including general education, in addition to the below degree requirements.

### Major Core Requirements

ATHTRN 1100	Athletic Training Skills I	2
ATHTRN 1200	Athletic Training Skills II	2
ATHTRN 2100	Principles and Fundamentals of Athletic Training	3
ATHTRN 2150	Athletic Training Practicum I	3
ATHTRN 2250	Athletic Training Practicum II	3
ATHTRN 2500	Elementary Human Anatomy	3
ATHTRN 2550	Examination of Cadaveric Human Anatomy	4
ATHTRN 2600	Human Physiology	3
ATHTRN 3100	Mental Health in Athletic Training	3
ATHTRN 3150	Athletic Training Practicum III	3
ATHTRN 3200	Therapeutic Modalities	4
ATHTRN 3250	Athletic Training Practicum IV	3
ATHTRN 3300	Injury Assessment I	4
ATHTRN 3400	Injury Assessment II	4
ATHTRN 3500	Rehabilitation of Athletic Injuries	4
ATHTRN 3600	Administration of Athletic Training	3
ATHTRN 3800	General Medical Conditions	3
ATHTRN 4150	Athletic Training Practicum V	3
NEP 4200	Sports Performance and Conditioning	3
ATHTRN 4250	Athletic Training Practicum VI	3
PH_THR 4250	Human Kinesiology	3
PH_THR 4420	Foundations of Therapeutic Exercise	3
ATHTRN 4500	Nutrition for Athletic Performance and Rehabilitation	3
ATHTRN 4970	Seminar in Athletic Training	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR Summer	CR
ATHTRN 1100	2 ATHTRN 1200	2 ATHTRN 2550	4
ATHTRN 2100	3 ATHTRN 2500	3	
MATH 1100	3 ENGLISH 1000	3	
BIO_SC 1010 & BIO_SC 1020	5 PSYCH 1000	3	
HIST 1100, 1200, or POL_SC 1100	3 Elective	3	
	16	14	4
Second Year			
Fall	CR Spring	CR	
ATHTRN 2150	3 ATHTRN 2250	3	
ATHTRN 2600	3 ATHTRN 3400	4	
ATHTRN 3300	4 2000+ Behavioral or Soc Science	3	
2000+ Humanities	3 Humanities (Writing Intensive)	3	
	13	13	
Third Year			
Fall	CR Spring	CR	
ATHTRN 3150	3 ATHTRN 3250	3	
ATHTRN 3100	3 ATHTRN 3500	4	
ATHTRN 3200	4 ATHTRN 3600	3	
PH_THR 4250	3 ATHTRN 3800	3	
PH_THR 4420	3		
	16	13	
Fourth Year			
Fall	CR Spring	CR	
ATHTRN 4150	3 ATHTRN 4250	3	
ATHTRN 4500	3 NEP 4200	3	
ATHTRN 4970W	3 STAT 1200, 1300, or ESC_PS 4170	3	
Humanities	3 Elective	3	
Physical Science	4 Elective	3	
	16	15	

Total Credits: 120

\*The Freshman year is considered "pre-professional." Students apply into the "professional" portion of the program during the Freshman year. All students applying into the "professional" portion of the program must meet the minimum requirements for application into the BHS in Athletic Training degree program.

## Clinical and Diagnostic Sciences

The Clinical and Diagnostic Sciences BHS is made up of five programs; Clinical Laboratory Sciences, Diagnostic Medical Ultrasound, Nuclear Medicine, Radiological Science, and Respiratory Therapy.

### Clinical Laboratory Science Program

School of Health Professions  
605 Lewis Hall  
(573) 882-8011 and (573) 884-1847

Director: Steven Starr

Clinical laboratory scientists are skilled, certified professionals trained in the theoretical and practical aspects of clinical laboratory medicine –

chemistry, hematology, microbiology, immunology, molecular pathology, and blood banking. Clinical Laboratory Scientists have various levels of responsibility - as staff technologists, research technologists, supervisors, managers, or educators -- and can work in a variety of settings, including hospitals, clinics, laboratories, and research centers. Approximately 60 to 70 percent of all medical decisions regarding a patient's diagnosis and treatment, as well as their hospital admission and discharge, are based upon laboratory test results obtained by Clinical Laboratory Scientists.

The Clinical Laboratory Science (CLS) program at MU is a unique collaboration with the University of Nebraska Medical Center in Omaha. The CLS program includes three years of prerequisite coursework, requiring 16 hours of both Biology and Chemistry, and 11 months in the clinical phase of the CLS program. The clinical year begins during the third week of May, with 11 weeks of coursework and clinical lab rotations in a dedicated summer student lab facility at the University of Nebraska's Medical Center in Omaha. After the initial 11 weeks in the program, CLS students return to Columbia and complete their clinical laboratory rotations at one of three clinical sites, which include the University of Missouri Hospital and Clinics, Boyce and Bynum Pathology Laboratories, and Harry S. Truman Memorial Veteran's Hospital. Students graduate with a Bachelor of Health Science degree in Clinical and Diagnostic Sciences with emphasis in Clinical Laboratory Science from the University of Missouri with a Certificate in Medical Technology from the University of Nebraska Medical Center.

### Diagnostic Medical Ultrasound Program

School of Health Professions  
406 Lewis Hall  
(573) 884-2994  
Director: Moses Hdeib

The Diagnostic Medical Ultrasound (DMU) Program in the School of Health Professions (<http://shp.missouri.edu>) at the University of Missouri (<http://www.missouri.edu>) offers a Bachelor of Health Science (BHS) in Diagnostic Medical Ultrasound. The DMU Program is a 35-40 hours per week, 52 weeks per year Clinical Education Program. The DMU program has over 25 clinical sites through the state of Missouri in which students are placed during their clinical training.

### Nuclear Medicine Program

School of Health Professions  
605 Lewis Hall  
(573) 884-7843  
Director: Glen Heggie

The nuclear medicine technologist is concerned with the use of radioactivity for patient diagnosis, monitoring of treatment and in some cases the treatment itself. The nuclear medicine technologist uses radioactive compounds to perform body function studies, produce images of internal organs and analyze biological specimens.

Nuclear Medicine uses extremely small amounts of radioactive compounds in order to image and assess the function and state of health of many of the body's internal organs, and to treat some forms of cancer. It is a multidisciplinary field dependent upon contributions from Physics, Chemistry and Medicine. This highly sophisticated discipline is at the forefront of discovering and understanding the complex physiologic processes of our bodies. This discipline is of enormous importance to medical specialties such as Cardiology (heart), Neurology (nervous system), Oncology (cancer), Orthopedics (bone), Endocrinology (hormone system), Hematology (blood), Nephrology (kidney), and Pulmonology (lung).

### **Radiological Science Program**

School of Health Professions  
607 Lewis Hall  
(573) 884-2623  
Director: Patricia Tew

Radiographers are highly skilled health professionals who work closely with physicians and specialize in the use of x-rays. They provide patient services using a variety of imaging modalities. In addition to conventional x-ray procedures, the radiographer also works with computerized axial tomography (CT), magnetic resonance imaging (MRI), cardiovascular-interventional technology, mammography, bone densitometry, and quality management.

Established in 1960, the Radiography Program is the only baccalaureate level program at a public institution of higher education in Missouri. This discipline provides preparation for leaders in the field by offering a Bachelor of Health Science degree. Graduates have demonstrated their superior achievement through their performance on national certifying examinations with a 100% overall pass rate. After graduating from the program, students may choose to do an additional clinical externship in computerized tomography or magnetic resonance imaging, which will lead to a certificate of completion and eligibility to take the national certifying examination in that area.

#### Mission Statement:

The primary mission of the radiography program is to prepare highly competent, registry eligible professionals in the medical imaging sciences. Our program and curriculum are designed to provide an educational foundation for the advancement into leadership and managerial positions within medical imaging, as well as providing an environment where scholarly activity, professional development, and service are expectations. Our curriculum enables successful graduates to readily interact with a variety of health care and science related fields.

### **Respiratory Therapy Program**

School of Health Professions  
617 Lewis Hall  
(573) 882-9722  
Program Director: Monica Schibig

The University of Missouri Respiratory Therapy Program was established in 1967. The program is credited to be among the country's first baccalaureate degree programs in Respiratory Therapy. The University of Missouri's Respiratory Therapy program prepares graduates for the Advanced Practitioner level, Registered Respiratory Therapist (RRT) and students graduate with a Bachelor of Health Science in Respiratory Therapy.

The Mission of the University of Missouri Respiratory Therapy Program is to coordinate superior classroom, laboratory, and clinical experiences to prepare advanced Respiratory Care Practitioners, develop learners who will effectively engage in professional leadership roles, and provide an environment where research and service are expectations.

## **Faculty**

### Clinical Laboratory Science Program

**Clinical Professor** G. D. Heggie\*  
**Clinical Instructor** S. Starr

### Diagnostic Medical Ultrasound Program

**Clinical Professor** M. M. Hdeib\*

**Clinical Associate Professor** D. W. Clem\*, E. M. Hdeib\*  
**Clinical Assistant Professor** S. Anderson\*, K. Merideth\*

### Nuclear Medicine Program

**Clinical Professor** G. D. Heggie\*  
**Assistant Clinical Professor** M. Feldman

### Radiological Sciences Program

**Clinical Associate Professor** C. Allen  
**Clinical Assistant Professor** M. Sebacher, P. Tew

### Respiratory Therapy

**Clinical Professor** G. D. Heggie\*  
**Associate Clinical Professor** K. S. Moss\*, M. A. Schibig  
**Assistant Clinical Professor** L. M. Lair, J. L. Keely, S. W. Parker

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## **Undergraduate**

- BHS in Clinical and Diagnostic Sciences (p. 544)
  - with emphasis in Clinical Laboratory Science (p. 544)
  - with emphasis in Diagnostic Medical Ultrasound (p. 545)
  - with emphasis in Nuclear Medicine (p. 546)
  - with emphasis in Radiography (p. 548)
  - with emphasis in Respiratory Therapy (p. 549)

## **Graduate**

- MHS in Clinical and Diagnostic Sciences (p. 550)

### **Clinical and Diagnostic Sciences**

School of Health Professions  
409 Lewis Hall  
(573) 884-2994  
Director: Moses Hdeib

The Master of Health Science in Clinical and Diagnostic Sciences is offered by the School of Health Professions, Department of Clinical and Diagnostic Sciences. The Clinical and Diagnostic Program (DMU) is a 35-40 hours per week, 52 weeks per academic year clinical education program.

## **Future Certification and Careers**

Upon successfully completing the requirements of the DMU Program, MHS Graduates will be eligible to apply to the American Registry of Diagnostic Medical Sonographers (ARDMS) for registry in Abdomen, Obstetrics and Gynecology, Vascular Technology and Cardiac Ultrasound.

## **Financial Aid**

Please contact the financial aid office. Some programs require an application and extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.



## BHS in Clinical and Diagnostic Sciences

### Degree Program Description

Clinical laboratory scientists are skilled, certified professionals trained in the theoretical and practical aspects of clinical laboratory medicine – chemistry, hematology, microbiology, immunology, molecular pathology, and blood banking. Clinical Laboratory Scientists have various levels of responsibility - as staff technologists, research technologists, supervisors, managers, or educators -- and can work in a variety of settings, including hospitals, clinics, laboratories, and research centers. For this degree program, students must choose an emphasis area. Refer to the degree program descriptions for the emphasis areas for more details.

### Major Program Requirements

Please refer to the emphasis area pages for degree requirements: Clinical Laboratory Science (p. 544), Diagnostic Medical Ultrasound (p. 545), Nuclear Medicine (p. 546), Radiography (p. 548), Respiratory Therapy (p. 549).

### Semester Plan

Please refer to the emphasis area pages for semester plans: Clinical Laboratory Science (p. 544), Diagnostic Medical Ultrasound (p. 545), Nuclear Medicine (p. 546), Radiography (p. 548), Respiratory Therapy (p. 549).

## BHS in Clinical and Diagnostic Sciences with Emphasis in Clinical Laboratory Science

### Degree Program Description

Clinical laboratory scientists are skilled, certified professionals trained in the theoretical and practical aspects of clinical laboratory medicine - chemistry, hematology, microbiology, immunology, molecular pathology, and blood banking. Clinical Laboratory Scientists have various levels of responsibility - as staff technologists, research technologists, supervisors, managers, or educators -- and can work in a variety of settings, including hospitals, clinics, laboratories, and research centers. Approximately 60 to 70 percent of all medical decisions regarding a patient's diagnosis and treatment, as well as their hospital admission and discharge, are based upon laboratory test results obtained by Clinical Laboratory Scientists. The Clinical Laboratory Science (CLS) program at MU is a unique collaboration with the University of Nebraska Medical Center in Omaha. The CLS program includes three years of prerequisite coursework, and 11 months in the clinical phase of the CLS program. The clinical year begins during the third week of May, with 11 weeks of coursework and clinical lab rotations in a dedicated summer student lab facility at the University of Nebraska's Medical Center in Omaha. After the initial 11 weeks in the program, CLS students return to Columbia and complete their clinical laboratory rotations at one of three clinical sites, which include the University of Missouri Hospital and Clinics, Boyce and Bynum Pathology Laboratories, and Harry S. Truman Memorial Veteran's Hospital. Students graduate with a Bachelor of Health Science degree in Clinical and Diagnostic Sciences with emphasis in Clinical Laboratory Science from the University of Missouri with a Certificate in

Medical Technology from the University of Nebraska Medical Center. Upon completion of the program, students are eligible to take the Medical Technology Licensure examination given by the American Society for Clinical Pathology (ASCP).

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

Professional Certification: Upon completion of the program, students are eligible to take the Medical Technology Licensure examination given by the American Society for Clinical Pathology (ASCP).

#### Major core requirements

Prerequisites		
ENGLISH 1000	Exposition and Argumentation	3
COMMUN 1200	Public Speaking	3
MATH 1100	College Algebra	3
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
Electives		6-8
Writing intensive elective *		3
Humanities electives		6
Social science requirement		
HIST 1100	Survey of American History to 1865	3
or HIST 1200	Survey of American History Since 1865	
or POL_SC 1100	American Government	
Social science/behavioral science requirement		6
MPP 3202	Elements of Physiology	5
Biological sciences elective (at least 16 hours of Biology)		
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
MICROB 3200	Medical Microbiology and Immunology	4
or BIO_SC 3750	General Microbiology	
MICROB 4304	Immunology	2
Physical sciences requirement (at least 16 hours of Chemistry)		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
BIOCHM 3630	General Biochemistry	3
or CHEM 2110	Organic Chemistry II	
Core Requirements		
CL_L_S 4407	Clinical Laboratory Operations	1-4
CL_L_S 4408	Introduction to Clinical Hematology	1-4
CL_L_S 4409	Introduction to Clinical Microbiology	1-4
CL_L_S 4410	Introduction to Clinical Chemistry and Urinalysis	1-4
CL_L_S 4411	Introduction to Clinical Immunoematology	1-4
CL_L_S 4412	Clinical Laboratory Science Theory, Application and Correlation	5
CL_L_S 4413	Clinical Endocrinology and Toxicology	1-4
CL_L_S 4414	Chemistry I	4
CL_L_S 4415	Chemistry II	3
CL_L_S 4416	Clinical Hematology I	4

CL_L_S 4417	Clinical Hematology II	3
CL_L_S 4418	Clinical Microbiology I	4
CL_L_S 4419	Clinical Microbiology II	3
CL_L_S 4420	Clinical Immunology	1
CL_L_S 4422	Immunoematology I	3
CL_L_S 4423	Immunoematology II	2
CL_L_S 4442	Clinical Immunoematology Laboratory Practicum I	1-4
CL_L_S 4443	Clinical Immunoematology Laboratory Practicum II	1-4
CL_L_S 4444	Clinical Core Laboratory Practicum	1-4
CL_L_S 4445	Clinical Core Laboratory Practicum II	1-4
CL_L_S 4448	Clinical Microbiology Laboratory Practicum I	1-4
CL_L_S 4449	Clinical Microbiology Laboratory Practicum II	1-4
CL_L_S 4970	Clinical Laboratory Management I	2
CL_L_S 4980W	Clinical Lab Management II - Writing Intensive	3

Total Credits 127-165

\* Depending on course, may count toward another requirement in addition to the Writing Intensive Requirement.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
HLTH_SCI 1000	3 CHEM 1320	4
MATH 1100	3 ENGLISH 1000	3
PSYCH 1000	3 BIO_SC 1500	5
HIST 1100, 1200, or POL_SC 1100	3 Humanities	3
Elective	1-3	
13-15		15

Second Year		
Fall	CR Spring	CR
CHEM 1330	4 BIO_SC 2300	4
STAT 1200 or 1300	3 MICROB 3200	4
BIO_SC 2200	4 HLTH_SCI 3900W	3
Humanities	3 Behavior/Social Science Course (level 2000+)	3
14		14

Third Year			
Fall	CR Spring	CR Summer	CR
CHEM 2100	3 MPP 3202	5 CL_L_S 4407	2
CDS 2190	3 CHEM 2110 or BIOCHM 3630	3 CL_L_S 4408	2
MICROB 4304	2 IS_LT 1111	1 CL_L_S 4409	2
COMMUN 1200	3 Humanities	3 CL_L_S 4410	1
		CL_L_S 4411	1
11		12	8

Fourth Year		
Fall	CR Spring	CR
CL_L_S 4413	1 CL_L_S 4412	5

CL_L_S 4414	2 CL_L_S 4415	3
CL_L_S 4416	2 CL_L_S 4417	3
CL_L_S 4418	2 CL_L_S 4419	3
CL_L_S 4420	1 CL_L_S 4423	2
CL_L_S 4422	2 CL_L_S 4443	1
CL_L_S 4442	1 CL_L_S 4445	1
CL_L_S 4444	1 CL_L_S 4449	1
CL_L_S 4448	1 CL_L_S 4980W	3
CL_L_S 4970	2	
15		22

Total Credits: 124-126

**NOTE:** Third Year - Summer to be completed in Omaha.

## BHS in Clinical and Diagnostic Sciences with Emphasis in Diagnostic Medical Ultrasound

### Degree Program Description

Ultrasonography, commonly called sonography, is a diagnostic medical procedure that uses high-frequency sound waves to produce dynamic visual images of organs, tissues, or blood flow inside the body. This type of procedure is often referred to as a sonogram or ultrasound scan. Ultrasonography can be used to examine many parts of the body, such as the abdomen, breasts, female reproductive system, superficial structures, prostate, heart, and blood vessels. Ultrasonography can record capture size, function, structure and any pathological lesions with real time tomographic images in 2D, 3D. The professionals who perform these procedures are known as sonographers or ultrasound technologists. There are several areas of specialization in the field of ultrasound: Abdomen, Obstetrics/Gynecology, Echocardiography, and Vascular technology. The Diagnostic Medical Sonographer performs an essential role in the process of data gathering and synthesis required to reach a diagnosis. Ultrasound is a profession requiring a high degree of independence, skill, judgment and knowledge. Sonographers work in hospitals, clinics, private physician offices and other medical facilities performing examinations in their areas of specialization. The Diagnostic Medical Ultrasound (DMU) Program offers multiple educational options.

### Major Program Requirements

The Diagnostic Medical Ultrasound (DMU) Program offers multiple educational options.

Any student interested in applying to the DMU Program should seek advisement as soon as possible to assure that all general education and prerequisite courses including the criteria for application have been completed.

Students must complete the courses listed below in addition to degree and university requirements (p. 32), which include university general education (p. 33) requirements.

#### Major core requirements

Prerequisites		
ENGLISH 1000	Exposition and Argumentation	3
PSYCH 1000	General Psychology	3
HIST 1100	Survey of American History to 1865	3
or HIST 1200	Survey of American History Since 1865	

or POL_SC 1100	American Government	
COMMUN 1200	Public Speaking	3
CHEM 1320	College Chemistry I	4
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
SOCIOL 1000	Introduction to Sociology	1-3
or RU_SOC 1000	Rural Sociology	
PHYSICS 1210	College Physics I	4
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
ESC_PS 4170	Introduction to Applied Statistics	3
or STAT 1200	Introductory Statistical Reasoning	
or STAT 1300	Elementary Statistics	
MATH 1100	College Algebra	3
MPP 3202	Elements of Physiology	5
DMU 1000	Introduction to Diagnostic Medical Ultrasound	1
CDS 2190	Medical Terminology	3
CDS 4480	Clinical Ethics	3
or HLTH_SCI 4480	Clinical Ethics	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
Humanities Course		3
Humanities, social science or behavioral science course (2000-level or higher)		3
<b>Core requirements</b>		
DMU 4001	Topics in Diagnostic Medical Ultrasound	3
DMU 4200	Principles of Diagnostic Medical Ultrasound	3
DMU 4234	Clinical Pathophysiology	3
DMU 4309	Normal Ultrasound Clinical	5
DMU 4311	Pathological Images of Ultrasound	3
DMU 4312	Sectional Anatomy	3
DMU 4313	Ultrasound Physics	3
DMU 4314	Abdominal Ultrasound	5
DMU 4318	Gynecology Ultrasound	3
DMU 4320	Obstetrics Ultrasound	3
DMU 4322	Superficial Organs Ultrasound	3
DMU 4325	Ultrasound Clinical Pharmacology and Contrast Agents	3
DMU 4326	Vascular Ultrasound Physics, Instrumentation and Hemodynamics	3
DMU 4330	Vascular Ultrasound Lab	3
DMU 4332	Vascular Ultrasound	4
DMU 4338	Cardiac Ultrasound, Principles and Hemodynamics	3
PHIL 2440	Medical Ethics	3
DMU 4941	Ultrasound Clinical I	7
DMU 4943	Ultrasound Clinical III	6
DMU 4944	Vascular Ultrasound Clinical IV	7
DMU 4993	Ultrasound Clinical II	8
Total Credits		142-144

### Professional Certification

Upon successfully completing the requirements of the program, BHS graduates are eligible to apply to the American Registry of Diagnostic Medical Sonographers (ARDMS) for certification in Abdomen, Obstetrics and Gynecology and Vascular Technology.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
PSYCH 1000	3 DMU 1000	1
MATH 1100	3 ENGLISH 1000	3
HIST 1100, 1200, or POL_SC 1100	3 SOCIOL 1000	3
CHEM 1320	4 BIO_SC 1010 & BIO_SC 1020	5
	Humanities	3
	13	15

Second Year			
Fall	CR Spring	CR Summer	CR
COMMUN 1200	3 CDS 2190	3 CDS 4480 or HLTH_SCI 3900W	3
PHYSICS 1210	4 MPP 3202	5 DMU 4200	3
PTH_AS 2201 & PTH_AS 2203	5 HLTH_SCI 3900W	3 DMU 4312	3
	ESC_PS 4170, STAT 1200, or STAT 1300	3	
	Humanities (level 2000+)	3	
	12	17	9

Third Year			
Fall	CR Spring	CR Summer	CR
DMU 4309	5 DMU 4234	3 DMU 4941	7
DMU 4311	3 DMU 4314	5	
DMU 4313	3 DMU 4318	3	
DMU 4315	3 DMU 4320	3	
DMU 4325	3 DMU 4322	3	
	17	17	7

Fourth Year		
Fall	CR Spring	CR
DMU 4326	3 DMU 4001	3
DMU 4943	6 DMU 4330	3
DMU 4993	8 DMU 4332	4
	DMU 4944	7
	17	17

Total Credits: 141

\*\* DMU 1000 Introduction to Diagnostic Medical Ultrasound required for application to the DMU Program. Prospective students may enroll in the fall semester or the spring semester.

## BHS in Clinical and Diagnostic Sciences with Emphasis in Nuclear Medicine

## Degree Program Description

The nuclear medicine technologist is concerned with the use of radioactivity for patient diagnosis, monitoring of treatment and in some cases the treatment itself. The nuclear medicine technologist uses radioactive compounds to produce images, treat diseases and to analyze biologic specimens. The curriculum incorporates the fundamentals needed for specialization as a nuclear medicine professional. Accreditation of the program is granted by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

## Major Program Requirements

The following are MU courses. Students transferring from other institutions should contact the program director to select appropriate prerequisite courses for admission. Students must complete these courses in addition to major, degree and University requirements (p. 32), including University general education (p. 33) requirements.

## Emphasis Core Requirements

### Prerequisites to the nuclear medicine emphasis

ENGLISH 1000	Exposition and Argumentation	3
HIST 1100	Survey of American History to 1865	3
PSYCH 1000	General Psychology	3
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory (or BIO_SC 1500)	5
SOCIOL 1000 or ANTHRO 1000	Introduction to Sociology General Anthropology	3
MATH 1100 or MATH 1400	College Algebra Calculus for Social and Life Sciences I	3
COMMUN 1200	Public Speaking	3
STAT 1200 or STAT 1300 or ESC_PS 4170	Introductory Statistical Reasoning Elementary Statistics Introduction to Applied Statistics	3
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 4600	Introduction to Radiochemistry with Lab	3
PHYSICS 1210	College Physics I	4
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
NUCMED 1000	Orientation to Nuclear Medicine	1
CDS 2190	Medical Terminology	3
CDS 4480 or PHIL 2440 or HLTH_SCI 4480	Clinical Ethics Medical Ethics Clinical Ethics	3
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
<b>Core requirements for the nuclear medicine emphasis</b>		
NUCMED 3255	Orientation to Clinical Practice	2
NUCMED 3256	Clinical Nuclear Medicine I	2
NUCMED 3263	Morphological Correlations in Nuclear Medicine I	3
NUCMED 4232	Clinical In Vitro	3
NUCMED 4268W	Clinical Nuclear Medicine II - Writing Intensive	3

NUCMED 4269	Clinical Nuclear Medicine III	1
NUCMED 4299	Morphological Correlations in Nuclear Medicine II	3
NUCMED 4330	PET in Nuclear Medicine	3
NUCMED 4327	Nuclear Medicine Instrumentation	3
NUCMED 4329	Radiopharmaceuticals in Nuclear Medicine	3
NUCMED 4940	Clinical In Vivo I	6
NUCMED 4941	Clinical In Vivo II	7
RA_SCI 3160	Radiologic Physics	3
RA_SCI 4110	Sectional Anatomy	3
RA_SCI 4150	Computed Tomography: Physics and Procedures	5
CDS 3460	Cardiovascular and Pulmonary Diagnostic Applications I	3
CDS 4328	Radiation Safety and Biology	4
CDS 4460	Cardiovascular and Pulmonary Diagnostic Applications II	3
CDS 4985	Healthcare Organization and Leadership	3
Total Credits		127

## Professional Certification

Upon completion of the program, students are eligible to take the national certifying examinations given by the Nuclear Medicine Technology Certification Board. Students may also pursue credentials offered through the American Registry of Radiologic Technologists.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR	
NUCMED 1000	1 ENGLISH 1000	3	
PSYCH 1000	3 COMMUN 1200	3	
MATH 1100 or 1400	3 CHEM 1320	4	
BIO_SC 1010 & BIO_SC 1020 (or BIO_SC 1500)	5 PTH_AS 2201 & PTH_AS 2203	5	
Humanities	3		
		15	15
Second Year			
Fall	CR Spring	CR	
STAT 1200 or 1300	3 HIST 1100	3	
PHYSICS 1210	4 CHEM 2100	3	
CHEM 1330	4 MPP 3202	5	
CDS 2190	3 Behavioral/Social Science (level 2000+)	3	
HLTH_SCI 3900W	3 Humanities 2000+ Level Course	3	
		17	17
Third Year			
Fall	CR Spring	CR Summer	CR
CDS 4328	4 CDS 3460	3 CDS 4085	3
NUCMED 3255	2 CDS 4480	3 CDS 4460	3
NUCMED 3263	3 CHEM 4600	3 NUCMED 4232	3

NUCMED 4327	3 NUCMED 3256	2	
RA_SCI 3160	3 NUCMED 4299	3	
	NUCMED 4329	3	
		15	17
			9

Fourth Year			
Fall	CR Spring	CR	
CDS 4985	3 NUCMED 4269	1	
NUCMED 4268W	3 NUCMED 4330	3	
NUCMED 4940	6 NUCMED 4941	7	
RA_SCI 4110	3 RA_SCI 4150	5	
		15	16

Total Credits: 136

## BHS in Clinical and Diagnostic Sciences with Emphasis in Radiography

### Degree Program Description

Radiologic technologists are highly skilled medical imaging professionals who work closely with physicians to perform procedures used to diagnose, monitor, and treat disease. They provide patient services using a variety of imaging modalities such as general x-ray, magnetic resonance imaging (MRI), computerized axial tomography (CT-scan), cardiovascular-interventional technology, mammography, bone densitometry, and quality management. Students finish their general education requirements and program prerequisites (biology, chemistry, anatomy, physiology, medical terminology, and statistics) during their freshman and sophomore years. The professional phase of the program then begins and consists of six consecutive semesters of classroom courses integrated with clinical experiences at several facilities in Columbia, MO. The program places an emphasis on active learning and provides many opportunities to develop skills needed for future education and career advancement. Upon graduation students are well-prepared to sit for the national registry exam in general diagnostic imaging. An advanced imaging clinical externship is available to MRI and CT students who wish to gain competency in those areas and become registered in MRI or CT. Graduates may work in a variety of settings including hospitals, clinics, imaging centers, mobile services, research centers, and industry as staff technologists, specialty technologists, supervisors, managers, applications specialists, researchers, or educators. Hospital settings give technologists an opportunity to choose working hours around the clock, throughout the entire 7-day week and may require on-call hours.

### Major Program Requirements

Accreditation of the program is granted by:

The Joint Review Committee on Education in Radiologic Technology  
 20 North Wacker Drive, Suite 2850  
 Chicago, Illinois 60606-3182  
 (312) 704-5300  
 mail@jrcert.org

Students transferring from other institutions should contact the program director to select appropriate prerequisite courses for admission. Students must complete these courses in addition to major, degree and

University requirements (p. 32), including University general education requirements (p. 33).

### Emphasis core requirements

#### PREREQUISITES FOR RADIOGRAPHY EMPHASIS

MATH 1100	College Algebra	3
ENGLISH 1000	Exposition and Argumentation	3
HLTH_SCI 1000	Introduction to the Health Professions	3

#### Humanities and Fine Arts

COMMUN 1200	Public Speaking	3
Humanities (Elective)		6

#### Behavioral/Social Sciences

HIST 1100	Survey of American History to 1865	3
	or HIST 1200 Survey of American History Since 1865	
	or POL_SC 1100 American Government	
PSYCH 1000	General Psychology	3
Behavior Sciences (Elective)		3

#### Biological/Physical Sciences

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
	or BIO_SC 1500 Introduction to Biological Systems with Laboratory	
CHEM 1320	College Chemistry I	4
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
STAT 1200	Introductory Statistical Reasoning	3
	or STAT 1300 Elementary Statistics	
	or ESC_PS 4170 Introduction to Applied Statistics	
CDS 2190	Medical Terminology	3

#### CORE REQUIREMENTS FOR RADIOGRAPHY EMPHASIS

RA_SCI 3110	Radiography Procedures I	2
RA_SCI 3120	Fundamentals of Radiography	3
RA_SCI 3130	Basic Radiographic Skills	2
RA_SCI 3140	Principles in Radiographic Exposure I	3
RA_SCI 3150	Radiologic Pharmacology	3
RA_SCI 3160	Radiologic Physics	3
RA_SCI 3170	Imaging Modalities	2
RA_SCI 3180	Radiography Procedures II	2
RA_SCI 3190	Radiography Procedures III	3
RA_SCI 4110	Sectional Anatomy	3
RA_SCI 4140	Magnetic Resonance Imaging: Physics and Procedures	5
	or RA_SCI 4150 Computed Tomography: Physics and Procedures	
RA_SCI 4947	Radiography Overview	3
RA_SCI 4980W	Imaging Pathology - Writing Intensive	3
RA_SCI 3941	Clinical Education I	3
RA_SCI 3942	Clinical Education II	3
RA_SCI 4943	Clinical Education III	3
RA_SCI 4944	Clinical Education IV	3
RA_SCI 4945	Clinical Education V	3
CDS 3460	Cardiovascular and Pulmonary Diagnostic Applications I	3
CDS 4328	Radiation Safety and Biology	4
CDS 4440	Organization and Administration	3
CDS 4460	Cardiovascular and Pulmonary Diagnostic Applications II	3

HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
Total Credits		120

## Professional Certification

Upon completion of the program, students are eligible to sit for the national certifying exam given by the American Registry of Radiologic Technologists.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR	
HLTH_SCI 1000	3 COMMUN 1200	3	
Humanities (Elective)	3 ENGLISH 1000	3	
BIO_SC 1010 & BIO_SC 1020 (or BIO_SC 1500)	5 PSYCH 1000	3	
MATH 1100	3 CHEM 1320	4	
	14	13	
Second Year			
Fall	CR Spring	CR Summer	CR
Humanities	3 MPP 3202	5 RA_SCI 3110	2
HIST 1100 or POL_SC 1100	3 STAT 1200, 1300, or ESC_PS 4170	3 RA_SCI 3120	3
PTH_AS 2201 & PTH_AS 2203	5 Behav / Social Science	3 RA_SCI 3130	2
CDS 2190	3 Humanity (Elective)	3	
	14	14	7
Third Year			
Fall	CR Spring	CR Summer	CR
RA_SCI 3150	3 RA_SCI 3190	3 CDS 4460	3
RA_SCI 3160	3 RA_SCI 4110	3 RA_SCI 4943	3
RA_SCI 3180	2 RA_SCI 3170	2	
RA_SCI 3941	3 CDS 3460	3	
RA_SCI 3140	3 RA_SCI 3942	3	
	14	14	6
Fourth Year			
Fall	CR Spring	CR	
RA_SCI 4944	3 RA_SCI 4945	3	
CDS 4328	4 RA_SCI 4140 or 4150 <sup>+</sup>	5	
CDS 4440	3 RA_SCI 4947	3	
HLTH_SCI 3900W	3 RA_SCI 4980W	3	
	13	14	

Total Credits: 123

+ Course is taught solely on the internet.

# BHS in Clinical and Diagnostic Sciences with Emphasis in Respiratory Therapy

## Degree Program Description

Respiratory care is a diverse, growing, health profession with extensive patient contact, often with the critically ill. Respiratory therapists administer prescribed respiratory care and life support to patients with deficiencies and abnormalities of the cardiopulmonary system. They work in many settings requiring a considerable degree of independent clinical judgment under the direct or indirect supervision of a physician. The two-year, professional phase of the program begins the summer semester of the junior year. Students complete lecture and laboratory courses designed to develop knowledge and skills necessary for application to the clinical settings. Required courses in management, research, respiratory physiology and pharmacology, pathology and cardiology are integrated with the respiratory therapy curriculum. The final semester of the program consists entirely of clinical externships and online coursework. Students may select affiliated hospitals outside the Columbia area for this clinical experience or remain in Columbia. The MU RT program has a satellite campus at Mercy Hospital in St. Louis, Missouri. Accreditation of the program is granted by the Commission on Accreditation for Respiratory Care (CoARC) [www.coarc.com](http://www.coarc.com) (<http://www.coarc.com>).

## Major Program Requirements

The following are MU courses. Students transferring from other institutions should contact the program director to select appropriate courses for admission. Students must complete the courses listed below in addition to degree and University requirements, which include University general education requirements.

### Major core requirements

Prerequisites		
RS_THR 1000	Introduction to Respiratory Therapy (Optional)	1
ENGLISH 1000	Exposition and Argumentation	3
SOCIOL 1000	Introduction to Sociology (or another qualifying Behavioral / Social Science)	3
PSYCH 1000	General Psychology	3
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory (or BIO_SC 1500)	5
HIST 1100 or HIST 1200 or POL_SC 1100	Survey of American History to 1865 Survey of American History Since 1865 American Government	3
MATH 1100	College Algebra	3
COMMUN 1200	Public Speaking	3
PHYSICS 1210	College Physics I	4
CHEM 1320	College Chemistry I	4
CDS 2190	Medical Terminology	3
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MICROB 2800	Microbiology for Nursing and Health Professions	4
or MICROB 3200	Medical Microbiology and Immunology	
MPP 3202	Elements of Physiology	5
ESC_PS 4170	Introduction to Applied Statistics	3
Additional Humanities		6
Core requirements		
CDS 3200	Essentials of Pathology	2
CDS 3460	Cardiovascular and Pulmonary Diagnostic Applications I	3
CDS 4440	Organization and Administration	3

CDS 4460	Cardiovascular and Pulmonary Diagnostic Applications II	3
CDS 4500	Emergency and Disaster Management in Healthcare	1
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
RS_THR 3000	Fundamentals of Respiratory Care	1
RS_THR 3220	Equipment and Techniques	5
RS_THR 3290	Cardiopulmonary Pharmacology	2
RS_THR 3420W	Principles of Mechanical Ventilation - Writing Intensive	3
RS_THR 3440	Mechanical Ventilation Lab	3
RS_THR 3941	Clinical Practice I	2
RS_THR 3942	Clinical Practice II	4
RS_THR 3943	Clinical Practice III	2
RS_THR 4020	Perinatal/Neonatal Respiratory Care	3
RS_THR 4040	Respiratory Pathophysiology	5
RS_THR 4220	Community and Patient Education I	1
RS_THR 4240	Pulmonary Rehabilitation	3
RS_THR 4420	Pediatric Respiratory Care	3
RS_THR 4620	Pulmonary Function Technologies	2
RS_THR 4930	Current Issues in Respiratory Care	3
RS_THR 4940	Clinical Practice IV	5
RS_THR 4973	Clinical Practice V	4
RS_THR 4983	Clinical Practice VI	4
RS_THR 4993	Clinical Practice VII	5
Total Credits		133

### Professional Credentialing / Licensure

After graduation, students are eligible to take the credentialing exams offered by the National Board for Respiratory Care. Graduates will also be required to apply for licensing in the state in which they choose to work.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR Spring	CR	
MATH 1100	3 HLTH_SCI 1000	3	
PSYCH 1000	3 CHEM 1320	4	
HIST 1100, 1200, or POL_SC 1100	3 ENGLSH 1000	3	
BIO_SC 1010 & BIO_SC 1020	5 ESC_PS 4170 or STAT 1200	3	
Humanities	3 COMMUN 1200	3	
		17	16
Second Year			
Fall	CR Spring	CR Summer	CR
CDS 2190	3 MPP 3202	5 RS_THR 3000 (online)	1
PHYSCS 1210	4 MICROB 3200	4	
RS_THR 1000	1 SOCIOL 1000 <sup>(or another behavioral / social science)</sup>	3	

PTH_AS 2201 & PTH_AS 2203	5 Humanities Course (level 2000 or higher)	3	
Humanities	3		
		16	15
<b>Third Year</b>			
Fall	CR Spring	CR Summer	CR
RS_THR 3220	5 CDS 3460	3 CDS 4460	3
RS_THR 3240: Assessment and Therapeutics Lab (not available until Summer/Fall 2018)	3 RS_THR 3420	3 RS_THR 3943	2
RS_THR 3290	2 RS_THR 3440	3 RS_THR 4220	1
RS_THR 3941	2 RS_THR 3942	4 RS_THR 4240	3
RS_THR 4040	5 RS_THR 4020	3	
		17	16
<b>Fourth Year</b>			
Fall	CR Spring	CR	
CDS 4440	3 RS_THR 4930	3	
CDS 4500	1 RS_THR 4973	4	
HLTH_SCI 3900W	3 RS_THR 4983	4	
RS_THR 4420	3 RS_THR 4993	5	
RS_THR 4620	2		
RS_THR 4940	5		
		17	16
Total Credits: 140			

## MHS in Clinical and Diagnostic Sciences

### Degree Requirements

Graduate students must maintain a 3.0 grade point average in all courses required for the degree. Failure to achieve a semester cumulative grade point average of 3.0 in required courses will result in delay of graduation or dismissal from the program. Students are expected to maintain full-time enrollment in the sequenced curriculum and complete the degree requirements as outlined in the course of study.

#### Admission Contact Information

Dr. Moses Hdeib hdeibm@health.missouri.edu  
 406 Lewis Hall  
 Columbia, MO 65211  
 (573) 884-2994

### Admission Criteria

Deadline for spring entrance: December 1

- Minimum TOEFL scores:  
 The minimum TOEFL score for the Diagnostic Medical Ultrasound Program is 100 in the new scoring model. This is equivalent to a paper-based score of 600. Test of Written English (TWE) - 4.5
- Minimum GRE score: check with Program Director of Graduate Studies
- Undergraduate GPA minimum: 3.00 (A=4.0) for the last 60 hours of college work

Potential applicants who have all the prerequisites for admission to the program should submit their application early (before November) in the fall of the academic year in order to be considered for early acceptance with start in the following spring semester. Please contact the director of graduate studies.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents
- GRE scores

*To the Diagnostic Medical Ultrasound Program:*

- Departmental Application
- Transcripts

## For More Information

Moses Hdeib, MD, PhD, RDMS, RDCS, RVT  
Diagnostic Medical Ultrasound  
406 Lewis Hall  
Columbia, MO 65211  
573-884-2994 or send an e-mail Dr. Hdeib: hdeibm@health.missouri.edu

## Communication Science and Disorders

Stacy Wagovich, Chair  
School of Health Professions  
301 Lewis Hall  
(573) 884-2940  
mucsd@health.missouri.edu

### Advising Contact

Jill S. Diener or Lindsey Hagglund  
(573) 882-8011

Communication Science and Disorders includes the study of normal language, speech, and hearing across the life span, as well as communication disorders that result from biological, environmental, and behavioral factors. Communication Science and Disorders includes the professions of speech-language pathology and audiology.

Speech-language pathologists evaluate the speech and language of children and adults to determine whether problems exist in such areas as voice, articulation, fluency, and receptive or expressive language. They also plan and carry out programs for the treatment of these problems. Audiologists evaluate hearing, identify hearing loss, and participate in the rehabilitation of persons with hearing impairments.

The professions of speech-language pathology and audiology require master's or doctoral degrees. Acceptance to an undergraduate program does not guarantee acceptance to a graduate program. Refer to the Graduate Catalog for information about the MHS degree (p. 553).

## Faculty

**Associate Professor** J. C. Goodman\*\*, S. A. Wagovich\*\*

**Assistant Professor** R. Botezatu\*, M. Dietrich\*\*, E. S. Kelley\*\*, M. Kuruvilla\*\*

**Associate Clinical Professor** D. R. Fritz\*, L. B. Lawrence\*, B. A. McLay\*

**Assistant Clinical Professor** C. Baker, G. Hull, G. Nolan

**Clinical Instructor** L. M. Frye

### Research Associate Professor Emerita L. S. Day\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Communication Science and Disorders (p. 552)

## Graduate

- MHS in Communication Science and Disorders (p. 553)
  - with emphasis in Speech-Language Pathology (p. 554)

Shannon Martin  
301 Lewis Hall  
(573) 884-2940

<https://healthprofessions.missouri.edu/communication-science-and-disorders/degrees/master-of-health-science-csd/>

## About Communication Science and Disorders

The field of Communication Science and Disorders, or CSD, encompasses the related but distinct disciplines of speech-language pathology (SLP), audiology, and speech, language, and hearing sciences (SLHS). Speech-language pathologists and audiologists are professionals educated in human communication and its disorders. Speech-language pathologists diagnose and treat disorders such as delayed language development, stuttering, articulation, and voice problems. Audiologists specialize in the prevention, identification, assessment, and rehabilitation of hearing disorders. Speech, language, and hearing scientists are professionals concerned with exploring trends in the communication sciences, as well as developing strategies for improving or adding to the knowledge base within the fields of speech-language pathology and audiology.

MU established its first independent master's and doctoral programs in speech-language pathology and audiology in the 1940s. The MU master's degree program in speech-language pathology has been continuously accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology since 1966. An active local chapter of the National Student Speech Language Hearing Association is sponsored by the program.

The master's degree prepares students for national certification in speech-language pathology and for professional clinical practice in both health care and educational settings. The doctoral degree involves a program of research and advanced study beyond the clinical master's degree in preparation for a career in research and college teaching or administration.

## Career Opportunities

A wide variety of work settings are available to speech-language pathologists and audiologists. Possibilities range from hospitals, clinics, and rehabilitation centers to schools, colleges and universities, government agencies, and private practice. Speech, language, and hearing scientists work primarily in colleges and universities, research labs and government agencies. Professional certification in speech-



language pathology and audiology is awarded by the American Speech-Language-Hearing Association (ASHA). The master's degree, which is the entry-level degree for speech-language pathologists, typically takes two years beyond the undergraduate degree. Additional prerequisite coursework is required for students with undergraduate degrees outside the field. Students wishing to pursue a career in audiology will need to attend a program that offers clinical a doctorate in audiology (AuD), the entry-level degree for audiologists.

## Facilities and Resources

The department uses many cooperative facilities in Columbia, both on and off the MU campus, as clinical and scientific resources. Among these are the University Hospitals and Clinics, Rusk Rehabilitation Center, Ellis Fischel Cancer Center, Truman Memorial Veterans Hospital, Adult Day Connection, Assistive Technology Evaluation Center, Thompson Center for Autism and Neurodevelopmental Disorders, and Columbia Public Schools.

Other cooperative facilities are available both within and outside the State. The department operates the MU Speech and Hearing Clinic, a diagnostic and treatment center serving individuals with communication disorders from the campus and the community, the MU Robert G. Combs Language Preschool, and the Accent Modification and Pronunciation Program. In addition, there are many research opportunities for students in the laboratories of individual faculty where they may gain experience with sophisticated equipment for research and clinical evaluation in normal and disordered speech, language, and hearing. A master's thesis option is available to students interested in conducting research.

## Funding

All graduate students are considered for available scholarships, fellowships, work-study grants, traineeships and graduate teaching and research assistantships.

# BHS in Communication Science and Disorders

## Degree Program Description

Communication Science and Disorders (CSD) includes the study of normal language, speech and hearing across the life span, as well as communication disorders that result from biological, environmental, and behavioral factors. The CSD major is the first step in preparing for careers in the professions of speech-language pathology and audiology. Speech-language pathologists evaluate the speech and language of children and adults to determine whether problems exist in such areas as voice, articulation, fluency, and receptive or expressive language, and they plan and carry out the treatment of these problems. Audiologists evaluate hearing, identify hearing loss, and participate in the rehabilitation of persons with hearing impairments. The CSD undergraduate curriculum fully prepares students for graduate study in either of these fields. (The professions of speech-language pathology and audiology require masters or doctoral degrees.) The CSD undergraduate coursework provides students with a broad understanding of the scientific bases of speech, language, and hearing, the different types of communication disorders, and the types of diagnostic and therapeutic methods utilized in the field. Undergraduate students in the CSD department at MU benefit from a low student-faculty ratio, practical clinical experience in our language preschool, our accent modification

program, and our research labs led by outstanding faculty, and a well-established student organization.

## Major Program Requirements

Students are required to apply to the Communication Science and Disorders major. Applications for admission into the BHS program are considered once a year, and they must be submitted by February 1 of the student's sophomore year. (Note: Later applications will be considered if open seats remain in the upcoming junior class.) Applicants must have completed at least 42 hours of college credit before applying, and students who are admitted must have completed 60 hours of college credit before beginning coursework as Communication Science and Disorders majors. A minimum GPA of 2.75 on a four-point scale and a composite score of 22 or above on the ACT are required for acceptance into the BHS program. Meeting the minimum criteria and declaring a major of pre-Communication Science and Disorders do not guarantee acceptance into the program.

In addition to university (p. 32), college, and degree requirements, including university general education (p. 33), students must complete the following:

### Major core requirements

ENGLISH 1000	Exposition and Argumentation	3
COMMUN 1200	Public Speaking	3
PSYCH 1000	General Psychology	3
PSYCH 2410	Developmental Psychology	3
MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

### Social Sciences Requirement

HIST 1100	Survey of American History to 1865	3
or HIST 1200	Survey of American History Since 1865	
or POL_SC 1100	American Government	

### Biological Science Requirement

Select one of the following:		5
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	
BIO_SC 1500	Introduction to Biological Systems with Laboratory	

### Physical Science Requirement

PHYSICS 1150	Concepts in Physics	3-4
or PHYSICS 1210	College Physics I	
or CHEM 1100	Atoms and Molecules with Lab	
One Biology, Chemistry or Physics lab required		1
Humanities Electives		6

### Communication science and disorders courses

C_S_D 1060	Human Language	3
C_S_D 2120	Survey of Communication Disorders	3
C_S_D 3010	American Phonetics	3
C_S_D 3020	Normal Language Development	3
C_S_D 3210	Anatomy and Physiology of the Speech Mechanism	3
C_S_D 3220	Speech Acoustics	2
C_S_D 3230	Hearing Science	3
C_S_D 4020	Language Disorders in Children	3

C_S_D 4030	Language Disorders of Adults	2
C_S_D 4320	Disorders of Phonology and Articulation	3
C_S_D 4210	Fluency Disorders	2
C_S_D 4220	Voice Disorders	1
C_S_D 4330	Introduction to Audiology	3
C_S_D 4430	Neurophysiology for Speech, Language, and Hearing	3
C_S_D 4900	Clinical Observation in Communication Disorders	2

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
HLTH_SCI 1000*	3 HIST 1100, 1200, or POL_SC 1100	3
PSYCH 1000	3 ENGLISH 1000	3
Humanities	3 COMMUN 1200	3
BIO_SC 1010	3 CHEM 1100	3
MATH 1100	3 PSYCH 2510*	3
	15	15
Second Year		
Fall	CR Spring	CR
C_S_D 1060	3 C_S_D 2120	3
PSYCH 2410	3 STAT 1200	3
C_S_D 4050	3 C_S_D 1100*	5
Humanities	3 FINPLN 1183*	1
Elective*	3 Elective*	3
	15	15
Third Year		
Fall	CR Spring	CR
C_S_D 3210	3 C_S_D 3010	3
C_S_D 3220	2 C_S_D 3020W	3
C_S_D 4430	3 C_S_D 3230	3
LINGST 4600*	3 C_S_D 2150*	3
C_S_D 1200*	5 LINGST 4610*	3
	16	15
Fourth Year		
Fall	CR Spring	CR
C_S_D 4020W	3 C_S_D 4220	1
C_S_D 4030	2 C_S_D 4320	3
C_S_D 4210	2 C_S_D 4340	3
C_S_D 4330	3 C_S_D 4900	2
PSYCH 3140*	3 C_S_D 4945*	3
Elective*	1 Elective*	3
	14	15

Total Credits: 120

\* Denotes elective coursework. These specific courses are not required, though the credit hours are required to reach the University requirements of 120 total hours.

## MHS in Communication Science and Disorders

### Plan of Study

MHS candidates are required to complete a minimum of 48 semester credit hours in graduate-level courses with grades of B- or higher. No fewer than 24 credit hours must be earned in 8000/9000-level course work offered by the program. A maximum of 9 credit hours in clinical practicum courses may be counted toward the 48-hour requirement. Additional credit hours are required to meet clinical practicum requirements for certification and licensure in the field.

### Thesis Option

The student may choose the thesis option for the master's degree; work toward the thesis may count for up to six semester hours of credit.

### Prerequisite Coursework

All applicants to the MHS program in Communication Science and Disorders with an emphasis in Speech-Language Pathology must have completed, or be in the process of completing, standard prerequisite course work in CSD. Any prospective applicant with an undergraduate degree in a major field other than Communication Science and Disorders should contact the Department prior to submitting an application to the MHS program. Prerequisite course work must be approved by the CSD Director of Graduate Studies prior to application. Many options exist for completing prerequisite course work nationwide. Please contact the Department for more information.

### Examination

During the final semester of course work, we expect master's degree candidates to achieve a passing score on the PRAXIS II Examination in Speech-Language Pathology. This exam serves as the comprehensive examination for the degree. See the program's online Graduate Student Handbook for additional information.

### Admission Contact Information

Shannon Martin [mucsd@missouri.edu](mailto:mucsd@missouri.edu)  
301 Lewis Hall; Columbia, MO 65211  
(573) 884-2940

### Admission Criteria

Deadline for Summer entrance (required for all applicants): February 1

- Minimum Undergraduate GPA: 3.0 (on last 60 credit hours of course work)
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100*	600

\* Minimum TOEFL (iBT) score of 100, with minimum score of 28 on speaking

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000 (preferred)	

On or After August 1, 2011

300 (preferred)

## Required Application Materials

All applicants to the MHS program in Communication Science and Disorders with an emphasis in Speech-Language Pathology must apply through the Communication Sciences and Disorders Centralized Application Service (CSDCAS) at [www.csdcas.org](http://www.csdcas.org). The CSDCAS Applicant Portal Link will open on August 2, 2017 to begin accepting applications for the 2018-19 academic year. Additional information about the application process may be found on the Communication Science and Disorders MHS Application (<https://healthprofessions.missouri.edu/communication-science-and-disorders/degrees/master-of-health-science-csd/#application-process>) web page, which includes the correct institution code for submitting GRE scores to CSDCAS.

Personal interviews may be requested.

Students who are accepted into the MHS program and commit to attending the University of Missouri will be required to complete the MU Graduate School's online application which includes an additional fee. Information will be provided when admission is offered.

## Admission Process

The current graduate admission process in Speech-Language Pathology is highly competitive nationwide. All MHS admission decisions are made by the Departmental Graduate Admissions Committee.

## Financial Aid from the Program

All applicants accepted for admission to the MHS program will be considered for departmental financial aid.

## MHS in Communication Science and Disorders with Emphasis in Speech-Language Pathology

The Master of Health Science (MHS) degree program prepares students for professional practice in speech-language pathology. Students in this program receive a strong academic and clinical background in current theory and application in the field of communication disorders from faculty who are committed to excellence in teaching and who are involved in clinical and basic research. Candidates for the MHS degree must complete a minimum of 48 credit hours of graduate coursework plus at least 375 hours of clinical practicum that is supervised by certified clinical faculty. In addition to the MU Speech and Hearing Clinic, the city of Columbia and surrounding communities in mid-Missouri provide for a wide range of clinical practicum opportunities as well as a diverse client population. Students who wish to may also pursue clinical practicum experiences in other geographical locations during their final semester in the program. A thesis option is also available for students interested in research and/or further study toward the Doctor of Philosophy degree.

The MHS degree in CSD typically takes students two full years to complete if their baccalaureate degree is in communication science and disorders. If their undergraduate study was in another field, the degree program requires at a minimum 30 additional credit/semester hours of prerequisite coursework. This coursework may be completed through any college or university that offers an undergraduate degree in CSD and must include courses in both basic communication sciences and some communication disorders. It is recommended that the student have their

prerequisite coursework approved by the Department's graduate program director prior to application to the MHS degree program. Applicants do not have to complete all prerequisite coursework before applying or starting in the MHS program. All students must have successfully completed a baccalaureate degree (in some field) before beginning the MHS program in Communication Science and Disorders. For more information, contact the Department at [mucsd@health.missouri.edu](mailto:mucsd@health.missouri.edu).

MHS graduates are required to meet all academic and clinical requirements for the Certificate of Clinical Competence (CCC) awarded by the American Speech-Language Hearing Association (ASHA). A passing score of 600 on the PRAXIS II Speech-Language Pathology examination is required for graduation from the MHS program in CSD. In addition to serving as the comprehensive examination for masters candidates in CSD, the PRAXIS II is also required for the Certificate of Clinical Competence, for Missouri professional licensure, and for Missouri school certification as a speech language specialist. For over 20 years, 100% of all graduates from MU's CSD program have passed this national exam and our mean and median scores are significantly higher than the national averages. In addition, graduates of the program have enjoyed excellent job opportunities upon graduation, with many having more than one job offer before finishing their masters program.

The CSD MHS program at MU is fairly small and selective. Students benefit from a very low student-faculty ratio, close supervision in the MU Speech and Hearing Clinic, and a challenging yet supportive learning environment. Faculty in CSD are easily accessible, and strong student-faculty relationships are easily developed.

The CSD department welcomes all visitors interested in meeting our faculty and students and touring our facilities. If you would like to visit, we recommend that you schedule an appointment by calling the Department office at 573-882-3873 or e-mailing us at [mucsd@health.missouri.edu](mailto:mucsd@health.missouri.edu).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MHS in Communication Science and Disorders (<http://gradschool.missouri.edu/academics/programs/communication-science-and-disorders/master-of-health-science-emphasis-in-speech-language-pathology.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Health Science

R. Hogan, Chair  
School of Health Professions  
501 Clark Hall  
(573) 882-8422  
[hoganr@health.missouri.edu](mailto:hoganr@health.missouri.edu)

The Department of Health Sciences (DHS) is part of the School of Health Professions (SHP), which serves the citizens of Missouri through its outstanding research, community service clinics, and the education of students in the areas of health literacy and health promotion. Faculty in DHS teach courses for the health science program and are actively

involved in a wide range of interdisciplinary research. Our faculty provide expertise in several domains including public health, psychology, sociology, medical anthropology, education, and social work. Faculty research covers a wide range of topics including health promotion, health communication, decision support, health disparities for disadvantaged groups, and access to healthcare. Our research also spans a number of substantive areas including Autism Spectrum Disorders, breast cancer, HIV/AIDS, aging, and adolescent health.

Students can only earn the BHS in Health Science concurrently with the Doctor of Physical Therapy (p. 562) if they have been admitted through the Department of Physical Therapy's early admission program option. Students who choose to pursue this option are strongly encouraged to work with their advisor to ensure completion of degree requirements.

## Faculty

**Professor Teaching** D. Hume\*

**Associate Professor** E. Schatz\*, V. Shaffer, M. Teti

**Associate Clinical Professor** R. Hogan

**Associate Teaching Professor** B. Blackburn, K. Flynn Peters, M.

Kuhnert, L. Saffran

**Assistant Professor** C. Altman, N. Cheak-Zamora\*, J. Chen, H. Choi, A.

Kabel\*, W. Majee

**Assistant Teaching Professor** B. Blackburn, R. Bowman, D. Gerhart, C.

Orbann, M. Vetter-Smith

**Instructor** J. Wintemberg

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Health Science (p. 555)
  - with emphasis in Rehabilitation Sciences (p. 559)
  - with emphasis in Pre-Professional (p. 558)
  - with emphasis in Leadership & Policy (p. 558)
  - with emphasis in Health & Wellness Services (p. 557)

The Department of Health Sciences' BHS in Health Science degree program is for students who wish to enter non-clinical health careers such as medical case management, corporate wellness, human services, medical sales, pharmaceutical manufacturing and distribution, and more. Graduates of the Health Science degree program may also be qualified to enter either graduate or professional health science programs such as Occupational Therapy, Physical Therapy, Health Administration and Public Health. The Health Science program requires physical, biological, behavioral and social sciences to provide students with an education in foundational sciences, human function, health research, service and policy.

The department offers the Bachelor of Health Science in Health Science (BHS). Students who start at the University of Missouri or declare the health science degree in Fall 2016 or later must declare an emphasis area upon declaring the major. Students in the Mizzou Online program will not be required to declare an emphasis area, though declaring an emphasis area may be an option depending on the student's interests and background.

## Departmental Requirements

Courses may be delivered using traditional or distance delivery methods. The Health Science degree program credits must include a minimum of 120 university-level credit hours, including: general education (p. 33) coursework, core required courses that comprise a minimum of 20 credit hours, professional emphasis requirements, 18 hours of approved, required electives that complement the student's intended pathway.

Students are required to file a graduation plan for the Health Science degree by the time they have completed 60 university-level credit hours, including all MU and transfer credits. Students should meet with their academic advisor to discuss the graduation plan, and then file their plan prior to early registration for the fall and spring semesters. Students who transfer from another institution or another school/college at MU with 60 or more hours must file their graduation plan within the first semester of enrollment in the Health Science program.

## Residency Requirement

There is a residency requirement for Health Science majors. Students must complete, at minimum, their last 30 hours of coursework for the degree as declared Health Science majors in the School of Health Professions. The 30 hour residency requirement applies to students who wish to declare an emphasis area, as well. Students must be in the Health Science major at the beginning of a semester to include the hours in the residency requirement. Residency requirement hours for students transferring into the major during the semester will begin the following semester.

## Admission to the BHS in Health Science

The BHS in Health Science Program does not require an application. Students may declare the major, and emphasis area, by indicating it on the MU admission application (for new students), completing a transfer of division form (for current MU students), or notifying their academic advisor of their intention to declare a Health Science major (for current SHP students). There is a 2.0 MU, cumulative and term GPA requirement to declare a major in Health Science. The cumulative GPA is calculated using all MU and transfer coursework. Students must maintain the 2.0 GPA, term and cumulative, to remain in the Health Science program. Students who do not maintain the required 2.0 term and cumulative GPA will receive communication regarding probation or ineligible to re-enroll status. Students who fail to achieve the GPA requirement may continue in the program for two probationary semesters.

## Graduate

While MU does not offer graduate degrees specifically in health sciences, the University does offer post-baccalaureate opportunities in a number of related areas, both within the School of Health Professions, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## BHS in Health Science

### Degree Program Description

A Health Science major is for students who are interested in non-clinical health careers and for those interested in graduate or professional health science programs. Non-clinical health career options include medical case management, corporate wellness, human services, medical sales, pharmaceutical manufacturing and distribution, and more. Graduates

holding the BHS in Health Sciences may also be qualified to enter either graduate or professional health science programs, such as physical therapy, public health, chiropractic medicine, health informatics and hospital administration. Health Sciences majors choose one of four sub-plans. These sub-plans include: Rehabilitation Sciences, for students pursuing physical therapy, occupational therapy, chiropractic, orthotics/prosthetics, applied behavioral analysis and similar degrees; Pre-Professional, for students who are pre-medicine, dentistry, pharmacy, physician assistant studies, optometry and related graduate/professional programs that require an undergraduate degree; Leadership and Policy, for students who are interested in pursuing non-clinical pathways after graduation, through graduate programs in health administration or working in areas such as health informatics, sales, program coordination and support areas in healthcare; and Health and Wellness Services, for students who wish to pursue health promotion, wellness programming, non-profit work as well as students who wish to pursue accelerated nursing after graduation with the health science degree. The health sciences curriculum includes courses in public health, health literacy, healthcare leadership and management, healthcare policy and funding, and clinical ethics. The capstone course sequence includes a required internship experience appropriate for the chosen sub-plan. Students may choose a health sciences focused Study Abroad experience to meet the requirement of the capstone course.

## Major Program Requirements

- Students must maintain the 2.0 GPA, term and cumulative, to remain in the Health Sciences program. Students who fail to achieve a 2.0 GPA may stay in the program for two probationary semesters, and if they fail to earn a 2.0 term or cumulative GPA after the two probationary semesters, students must transfer out of the Health Sciences program.
- All required core and elective coursework for the BHS in Health Sciences program, including requirements outside the department, must be completed with a grade of C- or higher.
- Students may repeat a core required course one time.
- Students must complete all university requirements, including general education (p. 33), and Departmental Requirements (p. 555), in addition the degree requirements below.
- Students may only repeat a core required course one time.

## Capstone Requirement

The BHS capstone is comprised of two courses: HLTH\_SCI 4975 and HLTH\_SCI 4985. HLTH\_SCI 4975 offers ways to complete the capstone experience through internships. The internship will be approved by the internship advisor and faculty internship coordinator. Students may find their own internship experience or work with the course instructor/ internship advisor to identify an appropriate placement given interests and goals.

Students may choose from:

- an internship at an agency, company, or corporation of their choice. For an internship to be approved as a capstone experience, it must help students solidify and explore areas of concentration. Internships must have prior approval from the Health Sciences Internship advisor;
- service learning project which allows a student to serve approximately 50 clock hours in an organization. This can be

arranged with the Internship advisor or through the Office of Service Learning on campus, and

- an approved study abroad program

## Required Core Courses

### Required Core Courses

HLTH_SCI 1000	Introduction to the Health Professions	3
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	3
HLTH_SCI 4300	Health Care in the United States	3
or HLTH_SCI 4300H	Health Care in the United States - Honors	
HLTH_SCI 4975	Internship in Health Sciences	1-6
HLTH_SCI 4985	Healthcare Organization and Leadership	3
HLTH_SCI 4480	Clinical Ethics	3

### General Education Requirements

MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
ENGLSH 1000	Exposition and Argumentation (or equivalent)	3
or ENGLSH 1000H	Honors Exposition English	

### Biological, Physical, and Mathematical Sciences requirement (9 or more credits)

#### Biological Science

BIO_SC 1010	General Principles and Concepts of Biology	
& BIO_SC 1020	and General Biology Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	

#### Physical Science

#### Mathematics Science

STAT 1200	Introductory Statistical Reasoning	
or STAT 1300	Elementary Statistics	

Math Reasoning Proficiency Course Typically fulfilled by one of the following:

STAT 1200	Introductory Statistical Reasoning	
STAT 1300	Elementary Statistics	
CHEM 1320	College Chemistry I	

PHYSICS 1210	College Physics I	4
PHYSICS 1220	College Physics II	4

### Behavioral and Social Sciences (9 or more credits):

#### Behavioral Science

#### Social Science

HIST 1100	Survey of American History to 1865	
HIST 1200	Survey of American History Since 1865	
POL_SC 1100	American Government	

Or other approved course

### Humanities and Fine Arts (9 or more credits required from 2 different areas)

12 or more credits of a single foreign language may be used to fulfill this requirement

### Distribution of Content:

Students must have at least one 2000 level or above course in two of three areas:

1. Biological/Physical/Mathematical Science
2. Behavioral/Social Science
3. Humanities/Fine Arts

### BHS Electives

Students must complete 18 hours of approved elective courses.  
 At least 9 credit hours must be from 3000/4000 level courses.  
 Students must complete course work in at least two out of these three thematic areas: Social/Behavioral; Medical/Biological; Administrative/Leadership.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
HLTH_SCI 1000	3 HIST 1100, 1200, or POL_SC 1100	3
MATH 1100	3 ENGLISH 1000	3
Humanities Course*	3 Humanities course	3
BIO_SC 1010	3 CHEM 1320	4
SOCIOL 1000	3 BIO_SC 1020	2
	15	15
Second Year		
Fall	CR Spring	CR
CHEM 1330 <sup>†</sup>	4 Humanities course	3
Humanities course	3 STAT 1200	3
HLTH_SCI 3300	3 PTH_AS 2201 <sup>#</sup>	3
CDS 2190	3 PTH_AS 2203 <sup>‡</sup>	2
PSYCH 1000	3 Elective	3
	16	14
Third Year		
Fall	CR Spring	CR
MPP 3202	5 HLTH_SCI 4480	3
HLTH_SCI 4300	3 HLTH_SCI 3900 (Writing Intensive)	3
Writing Intensive Course	3 Elective Course <sup>^</sup>	3
Elective Course*	3 CDS 3200	2
HLTH_SCI 2100	1 Elective Course <sup>^</sup>	3
	Elective Course <sup>^</sup>	1
	15	15
Fourth Year		
Fall	CR Spring	CR
HTH_PR 4250 <sup>#</sup>	3 PHYSCS 1220	4
PHYSCS 1210	4 HLTH_SCI 4985	3
HLTH_SCI 4975*	3 Elective Course <sup>^</sup>	3
Elective Course*	3 Elective Course <sup>^</sup>	3
Elective Course*	3 Elective Course <sup>^</sup>	1
	16	14

Total Credits: 120

\* Denotes elective coursework. These specific courses are not required, though the credit hours are required to teach the University requirement of 120 total hours.

<sup>^</sup> BIO\_SC 1500: Intro Biological Systems with Lab can be taken in lieu of BIO\_SC 1010 and BIO\_SC 1020.

<sup>#</sup> Denotes Health Sciences elective coursework. These specific courses will count towards the 18 hours required for completion of the Health Science Degree program.

## BHS in Health Science with Emphasis in Health & Wellness Services

### Degree Program Description

The health and wellness services emphasis will prepare students for application to clinical or graduate programs in fields such as public health, accelerated nursing, or health education and promotion. The health and wellness services emphasis may also prepare students who have appropriate work experience as an undergraduate to work in fields such as health and human services non-profit organizations and corporate health promotion and wellness programming. The health and wellness emphasis services area includes 20 hours of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships for the health and wellness services emphasis include: study abroad in India or South Africa, health promotion, physical fitness and nutritional services through WELLAWARE at Boone Hospital Center, Safe Kids Columbia, and Case Management at Lutheran Family and Children's Services.

### Major Program Description

In addition to University of Missouri requirements, all health science emphasis areas require the following core required courses:

HLTH_SCI 1000	Introduction to the Health Professions	3
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	3
HLTH_SCI 4300	Health Care in the United States	3
HLTH_SCI 4480	Clinical Ethics	3
HLTH_SCI 4975	Internship in Health Sciences	1-6
HLTH_SCI 4985	Healthcare Organization and Leadership	3

The following courses are required to fulfill the professional emphasis requirement for the health science degree with a health and wellness services emphasis:

BIO_SC 1010	General Principles and Concepts of Biology	3
BIO_SC 1020	General Biology Laboratory	2
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
CDS 2190	Medical Terminology	3
COMMUN 1200	Public Speaking	3
H_D_FS 2400	Principles of Human Development	3-4
HLTH_SCI 3400	Global Public Health and Health Care Systems	3
HLTH_SCI 3600	Health Promotion Programs I: Assessment and Planning	3
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

In addition to the courses above, students must choose one health literacy course:

HLTH_SCI 4400	Culture and Health Literacy for the Health Professions	3
HLTH_SCI 4410	Humanism and Health Literacy	3
HLTH_SCI 4420	Health Literacy and Behavioral Compliance	3

And, one course from the following:

BIO_SC 2100	Infectious Diseases	3
MPP 3202	Elements of Physiology	5
MICROB 2800	Microbiology for Nursing and Health Professions	4
MICROB 3200	Medical Microbiology and Immunology	4
PTH_AS 2201	Human Anatomy Lecture	3
NEP 2380	Diet Therapy for Health Professionals	3

## Semester Plan

Students are strongly encouraged to work with an academic advisor in the School of Health Professions to develop an individualized eight-semester plan based on strengths, interests and career goals.

## BHS in Health Science with Emphasis in Leadership & Policy

### Degree Program Description

The leadership and policy emphasis in the health science major prepares students to enter careers in health administration, informatics, or sales. The leadership and policy emphasis may also prepare students for graduate studies in health administration, informatics, public health, policy or law. The leadership and policy emphasis area includes 20 hours of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships include health administration, health consultant, clinical analysis and strategic planning at RehabCare, Health Literacy Missouri, Institute for People, Place and Possibility, Tiger Institute and Cerner Corporation.

### Major Program Requirements

HLTH_SCI 1000	Introduction to the Health Professions	3
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	3
HLTH_SCI 4300	Health Care in the United States	3
HLTH_SCI 4480	Clinical Ethics	3
HLTH_SCI 4975	Internship in Health Sciences	1-6
HLTH_SCI 4985	Healthcare Organization and Leadership	3

The following courses are required to fulfill the professional emphasis requirement for the health science degree with a policy and leadership emphasis:

BIO_SC 1010	General Principles and Concepts of Biology	3
BIO_SC 1020	General Biology Laboratory	2
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
CDS 2190	Medical Terminology	3
CHEM 1100	Atoms and Molecules with Lab	3

or CHEM 1320	College Chemistry I	
COMMUN 1200	Public Speaking	3
ECONOM 1014	Principles of Microeconomics	3
or AG_EC 1041	Applied Microeconomics	
HLTH_SCI 3400	Global Public Health and Health Care Systems	3
HLTH_SCI 3600	Health Promotion Programs I: Assessment and Planning	3
HLTH_SCI 4400	Culture and Health Literacy for the Health Professions	3
HLTH_SCI 4500	Health Care Management	3
HLTH_SCI 4510	Essential Tools for the Health Care Leader: A Problem-Based Approach	3
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

In addition, students must choose one course from the following options:

BIO_SC 2100	Infectious Diseases	3
MPP 3202	Elements of Physiology	5
PTH_AS 2201	Human Anatomy Lecture	3
MICROB 2800	Microbiology for Nursing and Health Professions	4
MICROB 3200	Medical Microbiology and Immunology	4
NEP 2380	Diet Therapy for Health Professionals	3

## Semester Plan

Students are strongly encouraged to work with an academic advisor in the School of Health Professions to develop an individualized eight-semester plan based on strengths, interests and career goals.

## BHS in Health Science with Emphasis in Pre-Professional

### Degree Program Description

The pre-professional emphasis in the health science major prepares students to apply for graduate and professional programs in medicine, dentistry, pharmacy, physician assistant studies, optometry and related areas. The pre-professional emphasis may also prepare students who have appropriate work experience as an undergraduate to work for clinical research companies, medical or pharmaceutical sales or other non-clinical health careers that require a background in science and knowledge of health care. The pre-professional emphasis area includes 20 hours of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships for the pre-professional emphasis include: Missouri Telehealth Network, MedZou Community Health Center, PhysAssist, and Scribe America.

### Major Program Requirements

In addition to University of Missouri requirements, all health science emphasis areas require the following core required courses:

HLTH_SCI 1000	Introduction to the Health Professions	3
HLTH_SCI 2100	Health Sciences Seminar	1

HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	3
HLTH_SCI 4300	Health Care in the United States	3
HLTH_SCI 4480	Clinical Ethics	3
HLTH_SCI 4975	Internship in Health Sciences	1-6
HLTH_SCI 4985	Healthcare Organization and Leadership	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2030 or CHEM 2100	Survey of Organic Chemistry Organic Chemistry I	3
MPP 3202 or BIO_SC 3700	Elements of Physiology Animal Physiology	5
PHIL 2440	Medical Ethics	3
PHYSICS 1210	College Physics I	4
PSYCH 1000	General Psychology	3
PTH_AS 2201	Human Anatomy Lecture	3
PTH_AS 2203	Human Anatomy Laboratory	2
STAT 1200 or STAT 1300 or ESC_PS 4170	Introductory Statistical Reasoning Elementary Statistics Introduction to Applied Statistics	3

## Semester Plan

Students should meet with an academic advisor in the School of Health Professions to discuss an individualized 8-semester plan based on their career goals, strengths and interests.

## BHS in Health Science with Emphasis in Rehabilitation Sciences

### Degree Program Description

The rehabilitation science emphasis prepares students for application to graduate programs in fields such as occupational therapy, physical therapy, chiropractic, applied behavior analysis, orthotics/prosthetics and similar degrees. The rehabilitation science emphasis may also prepare students who have appropriate work experience as an undergraduate to work as applied behavior analysis implementers, coaches for alternative community training organizations. The rehabilitation science emphasis area includes 20 hours of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships for the rehabilitation science emphasis include: Therapeutic Equine Center, MU Adaptive Gymnastics, MU Thompson Center for Autism and Neurodevelopmental Disorders, Mizzou Therapy Services, Wonderland Camp.

### Major Program Requirements

HLTH_SCI 1000	Introduction to the Health Professions	3
HLTH_SCI 2100	Health Sciences Seminar	1

HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	3
HLTH_SCI 4300	Health Care in the United States	3
HLTH_SCI 4480	Clinical Ethics	3
HLTH_SCI 4975	Internship in Health Sciences	1-6
HLTH_SCI 4985	Healthcare Organization and Leadership	3
BIO_SC 1010	General Principles and Concepts of Biology	3
BIO_SC 1020 or BIO_SC 1500	General Biology Laboratory Introduction to Biological Systems with Laboratory	2
CDS 2190	Medical Terminology	3
CHEM 1320	College Chemistry I	4
COMMUN 1200	Public Speaking	3
H_D_FS 2400	Principles of Human Development	3
PSYCH 1000	General Psychology	3
PSYCH 2510	Survey of Abnormal Psychology	3
MPP 3202	Elements of Physiology	5
STAT 1200 or STAT 1300 or ESC_PS 4170	Introductory Statistical Reasoning Elementary Statistics Introduction to Applied Statistics	3

## Semester Plan

Students should meet with an academic advisor in the School of Health Professions to discuss an individualized 8-semester plan based on their career goals, strengths and interests.

## Occupational Therapy

Department of Occupational Therapy  
School of Health Professions  
801B Clark Hall  
Columbia, Missouri 65211  
(573) 882-3988

### Advising Contact

MUOT@health.missouri.edu

### Scholarship Information Contact

<https://healthprofessions.missouri.edu/student-services/scholarships/>

Occupational therapists are skilled health professionals who provide services to individuals across the lifespan to maximize their independence in meaningful everyday activities. Occupational therapists use research, scientific evidence, and a holistic perspective to incorporate an individual's valued occupations into the intervention process.

The mission of the Department of Occupational Therapy is to improve the health and well-being of society by assisting people to optimize their participation in everyday life occupations.

We achieve this mission through the integration of our:

- Professional education of clinically innovative occupational therapists prepared to meet the dynamic occupational needs of people and communities across the lifespan;
- Steadfast commitment to service to our community and our profession;
- Evidence-based practice; and



- Commitment to scholarship, discovery and clinical research to advance our profession.

To become a registered occupational therapist, an entry-level master's degree is required.

The Department of Occupational Therapy no longer offers an undergraduate degree program. The final cohort of students accepted into the previously combined bachelor's / master's program began coursework in Summer 2016 and will complete undergraduate coursework in Fall 2017.

Effective with the admissions cycle that begins in July 2017 for Summer 2018 admission, all applicants must complete a bachelor's degree (in any major), along with necessary program prerequisites, prior to beginning professional coursework in the Department of Occupational Therapy.

Department accreditation is granted by the Accreditation Council for Occupational Therapy Education of the American Occupational Therapy Association, 4720 Montgomery Lane, Bethesda, MD 20814-3425, (301) 652-2682.

## Faculty

**Assistant Clinical Professor** T. Bolton\*, W. Henderson\*, W. Janes\*\*

**Assistant Professor** R. Proffitt\*\*

**Associate Clinical Professor** L. Lowery\*\*

**Associate Professor** T. Wolf\*\*

**Associate Teaching Professor** C. Gateley\*\*

**Distinguished Professor** W. Dunn\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Pre-Occupational Therapy (p. 560)

The last cohort for BHS in Pre-OT will be graduating in 2019. No further cohorts will be accepted for a combined Master's program. Beginning with applications in the summer of 2017 for the graduating class of 2020, applicants will need to have a bachelor's degree by the start of the Summer semester that they would begin coursework.

## Graduate

- MOT in Occupational Therapy (p. 560)

Department of Occupational Therapy  
School of Health Professions  
801B Clark Hall, Columbia, MO 65211  
(573) 882-3988; FAX (573) 884-2610  
<https://healthprofessions.missouri.edu/occupational-therapy/>

The department will offer a 2-year post-baccalaureate entry graduate program accepting applications in the summer of 2017, beginning coursework in the Summer of 2018 and graduating in the Spring of 2020.

Applicants will need to have a bachelor's degree by the start of the Summer semester that they would begin coursework.

Graduate courses are only offered to students enrolled in the program. The degree program is approved to meet accreditation requirements

requiring a graduate degree. Contact the Department of Occupational Therapy for more information regarding the degree.

## Accreditation & Certification

The Department of Occupational Therapy is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association, 4720 Montgomery Lane, Bethesda, MD, 20814-3425, (301) 652-2682.

Graduates are eligible to sit for the national certification examination administered by the National Board for Certification in Occupational Therapy (NBCOT), Inc. 12 South Summit Ave., Suite 100, Gaithersburg, MD 20877-4150, telephone (301) 990-7979; Fax (301) 869-8492.

## Financial Aid from the Program

Check the School of Health Professions website at <https://healthprofessions.missouri.edu/student-services/scholarships/> for scholarship information.

## BHS in Pre-Occupational Therapy

The Department of Occupational Therapy no longer offers an undergraduate degree program. The final cohort of students accepted into the previously combined bachelor's / master's program began coursework in Summer 2016 and will complete undergraduate coursework in Fall 2017.

Effective with the admissions cycle that begins in July 2017 for Summer 2018 admission, all applicants must complete a bachelor's degree (in any major), along with necessary program prerequisites, prior to beginning professional coursework in the Department of Occupational Therapy.

## MOT in Occupational Therapy

### Requirements for Masters Degree in Occupational Therapy

The Department of Occupational Therapy offers the Master of Occupational Therapy degree as the terminal degree of the program. All students must complete the prerequisite courses and meet the admission requirements to apply. Prospective students will apply for entry into the program during their final year of undergraduate coursework or after they have completed a baccalaureate degree. However, in either case a baccalaureate degree must be completed prior to beginning coursework during the following summer semester. The masters degree is required to become certified and licensed to practice as an Occupational Therapist.

Bethany Kendrick, Office Support Assistant II  
801B Clark Hall; Columbia, MO 65211  
573-884-6365

### Admission Criteria

Application Deadline for Summer 2018 entrance: January 15, 2018

- Minimum GPA: cumulative 3.3 or higher (4.0=A)
- Minimum TOEFL scores: (must have been completed in the last two years)

## Minimum English Proficiency Requirements

Internet-based test (iBT)	Paper-based test (PBT)
Total Score: 100, Reading: 20, Listening: 21, Speaking: 26, Writing: 17	Total Score: 600, Reading: 55, Listening: 55, Speaking: N/A, Writing: 55

## IELTS Academic

Item	Score
Total Score	7
Reading	6.5
Listening	6.5
Speaking	8
Writing	6

- Completion of all prerequisites at a grade of B- or better
- 30 hours of observation with a licensed Occupational Therapist
- Completion of all required application materials
- Acceptance to program

## Required Application Materials

- Go to <https://healthprofessions.missouri.edu/occupational-therapy/about/admissions/> for departmental application forms (available July 1 - Jan. 15)
- All applications will be submitted through the Occupational Therapy Centralized Application System (OTCAS (<https://otcas.liaisoncas.com/applicant-ux/#/login>))
- Observation Forms and supplemental fee

## Physical Therapy

K. Gibson, Chair  
 Department of Physical Therapy  
 School of Health Professions  
 801 Clark Hall  
 (573) 882-7103  
 Fax: (573) 884-8369  
<https://healthprofessions.missouri.edu/physical-therapy/>

Physical Therapy involves the evaluation and treatment of physical disability and pain that may result from injury, disease or developmental disability. Prevention of disability and public education are also roles of the physical therapist. Physical therapists use tests and measurements to assess body system dysfunction and determine diagnosis and treatment. Daily living skills, including work, are also addressed.

The University of Missouri offers a Doctor of Physical Therapy degree. No master's degree or terminal undergraduate degree in Physical Therapy are available.

## Admissions

### Doctor of Physical Therapy Program, Regular Admissions

Most students admitted to the Doctor of Physical Therapy program will have a baccalaureate degree. Students who are interested in pursuing application to the Doctor of Physical Therapy program are encouraged to work on an undergraduate degree that will allow them to fulfill application requirements.

### Doctor of Physical Therapy Program, Early Admissions

Admission to the Doctor of Physical Therapy program may be available to a small group of students who have completed at least 90 credit hours, completed at least six full-time semesters of residential course work, all MU general education requirements and have shown excellent academic progress. Students who gain early admission to the Doctor of Physical Therapy program will be awarded the Bachelor of Health Science in pre-professional physical therapy upon completing one year of coursework in the physical therapy program.

Information regarding the admissions procedures and curriculum for the Doctor of Physical Therapy (p. 562) program can be found on the graduate tab.

## Faculty

**Emeritus Professor** M. Brown\*, M. A. Minor\*

**Teaching Professor** K. Gibson\*

**Clinical Professor** C. C. Abbott\*

**Associate Professor** E. A. Dannecker\*\*, T. M. Guess, S. P. Sayers\*\*

**Associate Teaching Professor** T. Briedwell\*, K. Gibson\*, M. S.

Hargrove\*, J. Krug\*, D.E. Martin\*

**Assistant Professor** J. Craggs

**Assistant Teaching Professor** J. Bridges\*, A. Campbell\*, E. Prost\*, K. Stephens\*, B. Willis\*

**Assistant Clinical Professor** J. B. Mann

**Instructor** C. A. Blow\*, A. C. Connell\*, N. J. Dietz\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Pre-Professional Physical Therapy (p. 562)

## Graduate

- DPT in Physical Therapy (p. 562)

Physical Therapy Doctoral Degree Program

School of Health Professions

801 Clark Hall

573-882-7103

573-884-8369 (fax)

<https://healthprofessions.missouri.edu/physical-therapy/>

Students who enter the MU Physical Therapy program will complete a Doctor of Physical Therapy (DPT) degree program.

## Careers

The DPT degree is an entry-level clinical degree that prepares the student to enter the field of physical therapy as a general practitioner with a background in musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems.

## Financial Aid from the Program

Students may apply for scholarships during the professional phase of the program. Check the program website or ask the program contact for availability and details.

## BHS in Pre-Professional Physical Therapy

### Degree Program Description

Physical Therapy involves the evaluation and treatment of physical disability and pain that may result from injury, disease or developmental disability. Prevention of disability and public education are also roles of the physical therapist. Physical therapists use tests and measurements to assess body system dysfunction and determine diagnosis and treatment. Daily living skills, including work, are also addressed. The University of Missouri offers a Doctor of Physical Therapy degree. This degree is granted to some students who gain Advanced Admission to the Doctor of Physical Therapy program. Students may not major in the BHS in Preprofessional Physical Therapy unless they have applied and been accepted for Advanced Admission to the Doctor of Physical Therapy program. No master's degree or terminal undergraduate degree in Physical Therapy are available.

### Major Program Requirements

Advanced Admission grants students the opportunity to apply to the DPT program during the junior year and enter the DPT program after completing 90 credit hours of college level coursework. Students who seek to gain early admission to the DPT program must complete a minimum of three years (six fall/spring semesters or 12 quarters of full-time enrollment) of residential coursework on a college campus prior to starting the DPT program. To be eligible to apply for advanced admission, students must have a 3.5 cumulative GPA. Students accepted for the early admission program must complete 90 credit hours including 2 writing intensive (WI) courses, the MU general education requirements and the DPT core required courses prior to beginning their studies in the DPT program. At the time of application, students may be enrolled in no more than 2 DPT core required courses.

### Semester Plan

A semester plan for this program is not available.

## DPT in Physical Therapy

### Degree Requirements

All students admitted must maintain a 3.0 grade point average with no grade below C (2.0) in courses required for the degree. Failure to achieve a semester or professional cumulative grade point average of 3.0 in required courses will result in probation or dismissal from the program. Students are expected to maintain full-time enrollment in the curriculum and complete the degree requirements as outlined in the course of study. Any exception must be approved by departmental faculty. Students must demonstrate the personal behaviors and characteristics associated with optimal patient welfare and professional trust.

## Prerequisites for the Doctoral Degree

**Note:** The DPT program accepts students to begin the professional program only for summer terms, which begin in June.

Admission to the DPT program is available through regular admission (applicants will have a bachelor's degree prior to beginning the professional program) or through an early admission option that allows students to enter the professional program with 90 credit hours.

Regular applicants must have at least a 3.0 GPA in the core required courses and the cumulative GPA in the last 60+ credit hours.

On-campus interviews are required for admission to the professional program.

Students who enter without a bachelor's degree must have satisfied the MU general education and graduation requirements and taken two Writing Intensive courses at MU. These applicants must possess a 3.5 GPA.

Applicants are notified of the selection committee's decision by March.

All students are strongly encouraged to contact the School of Health Professions Student Affairs Office for advisement and planning well in advance of application.

Admission to the program is selective.

[Back to Top \(p. \)](#)

### Plan of Study

The professional program is offered in sequential blocks and requires full-time enrollment for three academic years (including summer sessions), beginning in the summer session following acceptance. The curriculum contains foundational and clinical sciences combining traditional lectures and course work, laboratory sessions, problem-based learning classes and clinical education. More than 200 clinical sites in Missouri and beyond are available for supervised clinical education.

A graduate must pass the National Physical Therapy Examination to receive a license to practice in the United States. The program is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). Graduates are eligible for licensure anywhere in the United States.

#### Admission Contact Information

Beverly Denbigh  
School of Health Professions  
801 Clark Hall  
573-882-7103  
573-884-8369 (fax)

### Application and Admission Information

All applicants will apply to the Graduate Studies online admission process. Graduate School applications must be submitted and complete by January 17th.

The departmental application will be uploaded as supplemental materials during the on-line admission process.

Students who are admitted without a degree will receive a bachelor's degree at completion of the first year.

All students are strongly encouraged to contact the department office for advisement and planning well in advance of application.

## Admission Criteria

Fall deadline: N/A

Summer deadline: January 17

- Minimum TOEFL scores:

Internet-based test (iBT) Area	iBT Score	Paper-based test (PBT) Area	PBT Score
Reading	20	Listening	55
Listening	21	Structure/Written	55
Speaking	26	Reading	55
Writing	17		
TOTAL	100	TOTAL	600

- Minimum GPA: 3.0

## Required Application Materials

*To Graduate Studies:*

- All required Graduate School documents/application fee

*To the Program* <https://healthprofessions.missouri.edu/physical-therapy>

- Uploaded Departmental application/application fee
- 2 letters of recommendation as specified by the application instructions
- Curriculum Vitae (résumé) as specified by the application instructions
- Unofficial transcripts (year of application, fall grades must be recorded on transcript)
- GRE scores must be sent to MU

## Public Health

Public health is an exciting field of work dedicated to protecting and improving the health and well-being of communities, particularly those seen as the most vulnerable. While a doctor treats people who are sick, public health practitioners try to *prevent* people from getting sick or hurt in the first place, and promote wellness by encouraging healthy behaviors.

## Faculty

**Professor** K. Hagglund\*\*, M. C. Hosokawa\*, M. Sable\*

**Associate Professor** B. Beerntsen\*, J. Nicholson-Crotty, C. Reddy\*, M. Yu\*\*

**Assistant Professor** N. Cheak-Zamora\*, W. Majee\*, J. McElroy\*, P. Pithua\*, S. Potochnick\*, M. Teti\*

**Associate Teaching Professor** D. Hume\*

**Assistant Teaching Professor** S. Lee

**Clinical Assistant Professor** L. Schultz

**Instructor** L. Phillips, L. Saffran\*

**Professor Emeritus** K. Libbus

**Adjunct Instructor** L. Cooperstock, L. Evans, C. Jenkins, V. Nguyen, L. Porth, D. Pratt, C. Sale

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Public Health (p. 563)

The mission of the Bachelor of Health Science in Public Health is to teach students to advance public health knowledge, promote healthy behaviors and environments, address and eliminate health disparities, and prevent disease. We value:

- Health as a right, and strive to reduce or eliminate inequity and injustice that affects the health and dignity of all people;
- Diversity as a strength in our education, research, and work as the right thing to do and the best strategy to engage and help the communities we care about;
- Interdisciplinary collaboration as the key to creatively solving today's challenging health issues;
- Critical thinking to forge new solutions.

Admission to the BHS in Public Health program requires:

- Successful completion of 60 hours (junior standing)
- Minimum of 2.75 GPA in first 60 hours
- Grade of B- or better in HLTH\_SCI 3300
- Grade of C or better in Statistics courses
- Completed application packet
- Two recommendations (names and contact only)
- Commitment to the program's mission and core values

For more information contact Program Director, Dr. Michelle Teti ([tetim@health.missouri.edu](mailto:tetim@health.missouri.edu)), with questions.

## Graduate

- MPH in Public Health (p. 565)
  - emphasis in Health Promotion and Policy (p. 566)
  - emphasis in Veterinary Public Health (p. 566)
- Graduate Certificate in Public Health (p. 565)

**Program Director:** Kristofer Hagglund

The MPH Program has two emphasis areas Health Promotion and Policy or Veterinary Public Health; dual degrees with Public Affairs, Journalism, and Veterinary Medicine; and a graduate certificate. This public health coursework reflects the University of Missouri's strength in the health professions, social work, nursing, medicine, veterinary medicine, and arts and sciences. Appropriate for students with a wide variety of undergraduate degrees including social work, political science, biology, communication, and related fields.

802 Lewis Hall

573-884-6844

<http://publichealth.missouri.edu/>

## BHS in Public Health

### Degree Program Description

Public health includes activities needed to promote and protect the health of people and the communities where they live. While doctors treat people who are sick, the field of public health is organized around trying to prevent illness and injuries in the first place; and promote healthy behavior. People in the field of public health work to assure the conditions in which people can be healthy by tracking disease and outbreaks,

preventing injuries, and studying how and why some people are more likely to suffer from poor health and health inequities than others. The many facets of public health include speaking out for laws or policies that promote smoke-free indoor air, school nutrition, and seat belts; collecting and disseminating education about how to stay healthy, and offering science-based solutions to health problems - among others.

The Bachelor of Health Science in Public Health degree prepares student for introductory careers in all core areas of public health, such as health education, epidemiology, health policy, and environmental health. The courses introduce students to key concepts, theories, problems, and solutions in public health, and also focus on the links between public health and social justice and human rights.

## Major Program Requirements

General Education Requirements		46
ENGLSH 1000	Exposition and Argumentation	3
COMMUN 1200	Public Speaking	3
MATH 1100	College Algebra	3
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
Humanities Courses		6
History/Political Science for Missouri Government Requirement		3
BIO_SC 1010	General Principles and Concepts of Biology	5
& BIO_SC 1020	and General Biology Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
STAT 2200	Introductory Statistical Methods	1
Approved Writing Intensive courses		6
one at 1000+ level		
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	
Approved Social/Behavioral Science courses*		9
MICROB 2800	Microbiology for Nursing and Health Professions	4
or MICROB 3200	Medical Microbiology and Immunology	
<b>Major Requirements</b>		<b>54</b>
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 3600	Health Promotion Programs I: Assessment and Planning	3
HLTH_SCI 4300	Health Care in the United States	3
HLTH_SCI 3900	Introduction to The Research Process and Evidence Base	3
HLTH_SCI 3400	Global Public Health and Health Care Systems	3
HLTH_SCI 4500	Health Care Management	3
Ethics in Public Health (course still in development)		3
Principles of Environmental Health (course still in development)		3
Introduction to Epidemiology (course still in development)		3
Social and Behavioral Sciences in Public Health (course still in development)		3
Public Health Internship (course still in development)		
Public Health Capstone (course still in development)		3
Required Public Health Electives from following options (with 9 credit hours at 3000-level or higher):		18
HLTH_SCI 3500	Mental Health	
HLTH_SCI 4480	Clinical Ethics	
HLTH_SCI 4410	Humanism and Health Literacy	

HLTH_SCI 4420	Health Literacy and Behavioral Compliance
HLTH_SCI 4400	Culture and Health Literacy for the Health Professions
CDS 4500	Emergency and Disaster Management in Healthcare
PSYCH 3830	Health Psychology
RU_SOC 1175	The Health of People in Local Communities
SOCIOL 3000	Urban Sociology
NEP 2222	Landscape of Obesity
NEP 4590	Community Nutrition
COMMUN 2100	Media Communication in Society
COMMUN 4530	Health Communication
POL_SC 1400	International Relations
POL_SC 2700	Comparative Political Systems
POL_SC 2800	Liberty, Justice and the Common Good
SOC_WK 4330	Addiction Treatment and Prevention
SOC_WK 4400	Domestic Violence
ESC_PS 4170	Introduction to Applied Statistics
<b>Free Elective Credits</b>	<b>20</b>

\* Students must have at least one course at the 2000-level or above in two of three areas: 1) Biological/Physical/Mathematical Science, 2) Behavioral/Social Science, and 3) Humanities/Fine Arts.

## Semester Plan

Below is a sample plan of study for the BHS in Public Health.

First Year		
Fall	CR Spring	CR
General Education	15 General Education	15
	15	15
Second Year		
Fall	CR Spring	CR
General Education	15 General Education	12
	HLTH_SCI 3300	3
	15	15
Third Year		
Fall	CR Spring	CR
Social and Behavioral Sciences in Public Health (course still in development)	3 HLTH_SCI 3900	3
Principles of Environmental Health (course still in development)	3 HLTH_SCI 3600	3
HLTH_SCI 3400	3 HLTH_SCI 4300	3
Health Science Elective	3 Health Science Elective	3
One additional course (general education or elective)	3 One additional course (general education or elective)	3
	15	15
Fourth Year		
Fall	CR Spring	CR
HLTH_SCI 4500	3 Public Health Capstone (course still in development)	3
Introduction to Epidemiology (course still in development)	3 Public Health Internship (course still in development)	3
Ethics in Public Health (course still in development)	3 Health Science Elective	3

Health Science Elective	3 One additional course (general education or elective)	3
One additional course (general education or elective)	3 One additional course (general education or elective)	3
		15

Total Credits: 120

## Graduate Certificate in Public Health

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Admission

Students wishing to pursue a Graduate Certificate in Public Health should complete the Office of Graduate Studies' online application (standardized test scores are not required). Certificate candidates must provide the MPH Program's Personal Data Sheet and official transcripts to the MPH Program.

### About the Certificate

This 12-credit-hour program provides students with the core public health education that they need to enhance their professional knowledge. The certificate program includes the following courses:

- P\_HLTH 7150 Principles of Public Health
- P\_HLTH 8150 Human Health and the Environment, P\_HLTH 8920 Social and Behavioral Sciences in Public Health, or P\_HLTH 8921 Assessment of Population Health and Field Epidemiology
- An approved Health Statistics course
- One approved elective

### Applying to the Graduate Certificate Program

Students who complete the Graduate Certificate in Public Health with a minimum grade of B in each of the four courses will be recommended for admission to the Master of Public Health (MPH) program should they wish to continue their studies. The course credits earned for the graduate certificate will be credited toward the MPH degree. To apply click here (<https://healthprofessions.missouri.edu/mph/about/admission>).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/public-health-graduate-certificate/pub-health-ge/Gedt.html>.

## MPH in Public Health

### MPH Application and Admission Information

Admission Contact Information  
 MPH Program ([mumphprogram@missouri.edu](mailto:mumphprogram@missouri.edu))  
 802 Lewis Hall  
 Columbia, MO 65211

573-884-6844  
<http://publichealth.missouri.edu/>

The Master of Public Health (MPH) is the standard professional degree recognized throughout the world for public health practice. The MPH program at the University of Missouri trains practitioners, teachers, researchers, and administrators to plan, implement, and evaluate programs aimed at enhancing health in human populations through organized effort on the local, state, and national level.

All public health students are educated in the core domains of public health and participate in a supervised internship in a public health agency. The combination of course work and practical experience produces individuals who are highly qualified to enter the public health workforce.

The MPH curriculum is drawn from a variety of collaborating academic programs and units. Public health coursework reflects the University of Missouri's strength in the health professions, social work, journalism, public affairs, nursing, medicine, veterinary medicine, and arts and sciences.

### Degrees

The MPH is available in two emphasis areas:

- Health Promotion and Policy ([http://publichealth.missouri.edu/programs\\_health\\_promo\\_pol.php](http://publichealth.missouri.edu/programs_health_promo_pol.php))
- Veterinary Public Health ([http://publichealth.missouri.edu/programs\\_vet\\_pub\\_health.php](http://publichealth.missouri.edu/programs_vet_pub_health.php))

Four dual degrees are also offered:

- MPH/Doctor of Veterinary Medicine ([http://publichealth.missouri.edu/programs\\_mphdvm.php](http://publichealth.missouri.edu/programs_mphdvm.php))
- MPH/Master of Public Affairs ([http://publichealth.missouri.edu/programs\\_mphmpa.php](http://publichealth.missouri.edu/programs_mphmpa.php))
- MPH/Master of Arts, Journalism ([http://publichealth.missouri.edu/programs\\_mphma.php](http://publichealth.missouri.edu/programs_mphma.php))
- MPH/Master of Social Work ([http://ssw.missouri.edu/msw\\_dual.html](http://ssw.missouri.edu/msw_dual.html))

### Thesis Option

The Masters Thesis Research (P\_HLTH 8090) requires independent research aimed at discovery and/or development of elements or relationships derived from a public health theory. A formal written report using guidelines established by the MU Graduate School is required. Masters Thesis Research enables the student to use the research process in a systematic inquiry of elements and relationships within public health theory. MU Graduate School Guidelines for the Thesis Process is available at: <http://gradschool.missouri.edu/academics/thesis-dissertation/process/index.php>.

The Master's Thesis Project provides students with the opportunity to:

- generate a research question within a theory,
- formulate and implement a research design, and
- make recommendations for replication, revisions, or future investigations.

### Application Deadlines

- Fall semester: June 1
- Spring semester: October 1
- Summer semester: April 1

- International students\*: May 1 (fall semester)
- \* International applicants will only be accepted for Fall Semester admission, unless the applicant is currently a University of Missouri (MU) student enrolled in another full-time program.

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS overall score: 6.0
- Minimum GRE score: not set
- Minimum GPA: 3.0 in last 60 hours of undergraduate coursework

## Required Application Materials

For more information to apply click here (<https://healthprofessions.missouri.edu/mph/about/admission>).

## MPH in Public Health with Emphasis in Health Promotion and Policy

This program combines a thorough knowledge of behavior change theory and program planning and evaluation with valuable knowledge of how policy decisions are influenced and made. Particularly attractive to students with undergraduate degrees in psychology, social work, political science, communications and other related fields. For more information about this program, please visit: [http://publichealth.missouri.edu/programs\\_health\\_promo\\_pol.php](http://publichealth.missouri.edu/programs_health_promo_pol.php).

### Required Courses

P_HLTH 7150	Principles of Public Health	3
P_HLTH 7160	Interdisciplinary Perspectives in Global Health	3
P_HLTH 8420	Principles of Epidemiology	3
STAT 7020	Statistical Methods in the Health Sciences	3
P_HLTH 7952	Research Methods in Public Health	3
P_HLTH 8150	Human Health and the Environment	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
P_HLTH 8980	Public Health Internship	1-99
PUB_AF 8170	Public Policy Processes and Strategies	3
P_HLTH 8300	Health Care in the United States	3
P_HLTH 8001	Topics in Public Health	1-3
NURSE 8930	Health Program Design and Management	3
P_HLTH 8953	Evaluating Global Public Health Programs	3
P_HLTH 8970	Public Health Capstone	3

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradschool.missouri.edu/academics/programs>) and the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of

Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MPH in Public Health with Emphasis in Veterinary Public Health

Students in this emphasis area receive training in zoonotic disease prevention, food safety and other emerging issues in animal and human health. An ideal complement for an undergraduate degree in animal science, biology or related fields. For more information about this program please visit: [http://publichealth.missouri.edu/programs\\_vet\\_pub\\_health.php](http://publichealth.missouri.edu/programs_vet_pub_health.php).

### Required Courses

P_HLTH 7150	Principles of Public Health	3
P_HLTH 7160	Interdisciplinary Perspectives in Global Health	3
STAT 7020	Statistical Methods in the Health Sciences	3
P_HLTH 8150	Human Health and the Environment	3
P_HLTH 8260	Emergency Preparedness	3
V_M_S 8431	Research Methods and Data Analysis	2
V_PBio 8455	Epidemiology and Biostatistics	2
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
P_HLTH 8980	Public Health Internship	1-99
P_HLTH 8300	Health Care in the United States	3
P_HLTH 8620	Emerging Zoonoses Diseases	3
V_PBio 8458	Veterinary Public Health	2
P_HLTH 8001	Topics in Public Health	1-3
NURSE 8930	Health Program Design and Management	3
P_HLTH 8953	Evaluating Global Public Health Programs	3
P_HLTH 8971	Veterinary Public Health Capstone	1-99

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradschool.missouri.edu/academics/programs>) and the Office of Graduate Studies (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## Additional Minors and Certificates - Health Professions

There are no additional certificates or minors for the School of Health Professions at this time.

## College of Human Environmental Sciences

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### Administration

James "Sandy" Rikoon, Emeritus Dean  
Bea Smith, Dean Emeritus  
Jo Britt-Rankin, Associate Dean for Human Environmental Sciences Outreach and Extension  
Jung Ha-Brookshire, Associate Dean for Research and Graduate Studies  
Victoria Shahan, Student Services Director

### Academic Advising Contact

Victoria Shahan  
106 Gwynn Hall  
(573) 882-6424  
HESStudentServices@missouri.edu  
<http://hes.missouri.edu>

### Scholarship Information Contact

Office of Advancement  
121 Gwynn Hall  
(573) 882-5142  
umchesdevelopment@missouri.edu

The College of Human Environmental Sciences addresses human needs and enhances individual and family life in a diverse and global society by conducting advanced research, preparing professionals and providing outreach.

The college is unique among its peers in its comprehensive use of professional advisory boards, whose members are leaders in business, government, education and the social services. These experts provide guidance and support from their specialized fields to students and faculty and contribute powerful perspectives to curriculum development.

### Undergraduate

- Admissions (p. 567)
- Advising (p. 567)
- Career Services (p. 567)

### Admissions

Undergraduate students may enter the College of Human Environmental Sciences as freshmen. Some programs have requirements beyond those of the University. An entering freshman has the first year to explore the departments and the college as well as the combinations of subject areas for positions in fields such as design, health and welfare, business, industry and government.

All freshmen and transfer students entering the College of Human Environmental Sciences enroll in GN\_HES 1100 Introduction to Human Environmental Sciences or SOC\_WK 1110 Introduction to the Social Work Major. These courses emphasize career decision-making, provide an orientation to the campus and the college, and bring into focus the role of a professional in the improvement of the quality of life for individuals, families, and communities.

### Transfer Student Application

#### Human Environmental Sciences

Students in another MU school or college, or from another UM System campus, must have a cumulative GPA and term GPA of 2.0 or better to be eligible for admission to the College of Human Environmental Sciences. For students who transfer to the UM System from another institution and then apply for transfer into the college, transcripts are re-evaluated by the college to determine what courses will apply to the degree.

A student ineligible to enroll in another school or college may not enroll in the College of Human Environmental Sciences during the period of ineligibility. An appeal for admission may be made after the period of ineligibility is over.

#### School of Social Work

Undergraduate students who have been admitted to the University after attending another college may request a social work major. Those who have completed more than 55 credits need a GPA of 2.5 or higher on all college work attempted.

### Advising

Professional advising staff in the Student Services Office assist the students in planning their college programs.

Students earning credit from another institution will have transfer equivalencies evaluated by faculty for course work in their professional program. Transfer work is evaluated by the Office of Admissions for General Education credit. The HES Office of Student Services determines how transferred courses fit into a particular degree program.

It is the student's responsibility to initiate a graduation check to be certain that all requirements are met. The request for graduation should be submitted to the HES Student Services Office the semester preceding graduation. The application is available online at: [http://hes.missouri.edu/students\\_evalforgrad.html](http://hes.missouri.edu/students_evalforgrad.html)

### Career Services

Career services cover a spectrum of career programs. These include business, education and agriculture career services offices on the campus. The Student Services Office and individual advisors provide information regarding procedures. Career exploration and preparation information may be obtained in the Career Center as well.

### Graduate

The College of Human Environmental Sciences (HES) addresses human needs and enhances individual and family life in a diverse and global society by conducting advanced research. HES faculty have earned national and international research reputations while building programs that are valued by private citizens, government, business and industry, and human services agencies. The College has more than 400 graduate students enrolled in a variety of master's and doctoral degrees. Graduate certificates and online study are other academic options in several disciplinary areas.

Architectural Studies

Human Development & Family Science

Nutrition & Exercise Physiology



Personal Financial Planning

Textile & Apparel Management

Social Work

The School of Social Work (<http://ssw.missouri.edu>), housed within the College, offers a CSWE accredited Master of Social Work (MSW) Program that prepares competent, effective and ethical social work professional leaders for social change. The PhD program prepares students as educators and researchers with knowledge and skills to inform policy making, program development and evaluation, and research on clinical practice issues.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the Office of Graduate Studies. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column. For a look at the College's online graduate degree programs, see Mizzou Online.

## Architectural Studies

R. B. Tofle, Chair  
College of Human Environmental Sciences  
137 Stanley Hall  
(573) 882-7224  
<http://arch.missouri.edu>

Architectural Studies advances scholarship by making connections between people and place, and between interior design and architecture. Our work prepares graduates to become lifelong, problem-solving designers of the built environment.

We utilize the arts and the sciences to understand, create, and enhance built environments for people. Our work can be placed between the world of physical realities and the imaginary.

The Department of Architectural Studies offers a Bachelor of Science in Human Environmental Sciences with emphasis areas of either Interior Design (p. 571) or Architectural Studies (p. 570). A Minor in Architectural Studies (p. 573) is also offered. A list of online undergraduate courses ([http://arch.missouri.edu/academics\\_online.html](http://arch.missouri.edu/academics_online.html)) is provided at the Department's website.

The Department offers the Master of Arts (p. 573), the Master of Science (p. 575), and the PhD (p. 595) with the College of Human Environmental Sciences. Approximately one half of the graduate students in the program are distance learners engaged in online study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)).

Through teaching, research, and service, faculty and students seek to add exemplary value to the quality of the built environment for the diverse people it serves in a multicultural society. We conduct systematic inquiry into 1) the design process, 2) its products, 3) the interaction between people and the built environment, and 4) the implications of digital technologies for the above. The program advances the interdisciplinary nature of interior design, architecture, the human sciences and aesthetics to improve quality of life for the public good.

## Faculty

**Professor** B. Schwarz\*\*, R. B. Tofle\*\*

**Associate Professor** B. Balakrishnan\*\*

**Assistant Professor** L. Cole\*\*

**Associate Teaching Professor** M. Goldschmidt\*

**Assistant Teaching Instructor** L. Bartlett\*, R. Walsh\*

**Professor Emeritus** R. Helmick\*

**Associate Professor Emeritus** G. Hennigh, R. G. Phillips

**Assistant Professor Emerita** P. Hildebrand

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSHES in Architectural Studies (p. 570)
  - with emphasis in Architectural Studies (p. 570)
  - with emphasis in Interior Design (p. 571)
- Minor in Architectural Studies (p. 573)

## The Program

### *Connecting people and place / interior design and architecture*

Our mission is to advance scholarship in making connections between people and place, and between interior design and architecture. Our work prepares graduates to become lifelong, problem-solving designers of the built environment.

Through teaching, research, and service, faculty and students conduct systematic inquiry into 1) the design process, 2) its products, 3) the interaction between people and the built environment, and 4) the implications of digital technologies for the above. The program highlights the interdisciplinary interaction between interior design, architecture, the human sciences and aesthetics to improve quality of life for the public good.

For professional development and career information see *Careers in Interior Design* ([http://arch.missouri.edu/resources\\_pd.html](http://arch.missouri.edu/resources_pd.html)) and *Careers in Architectural Studies* ([http://arch.missouri.edu/resources\\_arch.html](http://arch.missouri.edu/resources_arch.html)).

## Coursework

Coursework includes studios and coursework centering on the synthesis of functional, technological, aesthetic and symbolic attributes of interior design and architecture emphasizing physical environments that support human needs and aspirations.

## Minor

Architectural Studies students may receive a minor in Entrepreneurship with required courses in Architectural Studies, an internship, and an additional 4 credits of specified coursework. See *Undergraduate Minor in Entrepreneurship* (p. 722) for more information.

Students who are non-majors may receive a **Minor in Architectural Studies** with 15 credits.

## Online Study

See the Department's web sites for online study: *Online Study for Undergraduates* ([http://arch.missouri.edu/academics\\_online.html](http://arch.missouri.edu/academics_online.html)).

## Admission to Professional Program Studio Sequence

Students apply for admission to the professional program studio sequence required for undergraduate majors. Portfolio review and applications are submitted in May of each year. More information about portfolio review and the application process can be found at the department website ([http://arch.missouri.edu/academics\\_ugadmit.html](http://arch.missouri.edu/academics_ugadmit.html)).

## Laptop Computer Requirements

A laptop computer is required when admitted to the professional program studio sequence. See department website ([http://arch.missouri.edu/resources\\_computing.html](http://arch.missouri.edu/resources_computing.html)) for recommended specifications.

## Academic Advising Contact

Victoria Shahan, Director  
Office of Student Services  
106 Gwynn Hall  
(573) 882-6424  
[hesstudentservices@missouri.edu](mailto:hesstudentservices@missouri.edu)  
<http://hes.missouri.edu/>

## Scholarship Information Contact

Office of Advancement  
122 Gwynn Hall  
(573) 882-5142  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

## Graduate

- MS in Architectural Studies (p. 575)
  - with emphasis in Design with Digital Media (p. 576)
  - with emphasis in Environment and Behavior (p. 576)
- MA in Architectural Studies (p. 573)
  - with emphasis in Design with Digital Media (p. 574)
  - with emphasis in Environment and Behavior (p. 574)

The College offers a PhD in Human Environmental Sciences with an emphasis in Architectural Studies (p. 595).

## The Program

For both the MA and MS, the student's program of study must include a minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent). Fifteen of the 30-hour minimum must be selected from courses numbered at 8000 or 9000 level; no more than 40% of the 30-hour credit requirement can be satisfied by Research, Readings and Problems coursework.

The MA is a non-thesis option culminating in a creative project. The MS culminates in a thesis meeting University thesis requirements (<http://gradstudies.missouri.edu/academics/thesis-dissertation/process>).

In consultation with one's graduate advisor, each student is required to enroll in selected "core" courses appropriate to her/his degree program. The academic program should be established in consultation with one's advisor.

## Professional Opportunities

Career opportunities for master's and doctoral graduates of the Department and College include leadership positions in design and

consulting practices in industry, government and education; and academic and administrative positions in higher education and research.

The MA degree leads to career opportunities in design firms, computer graphic enterprises, retail establishments, corporate institutions and consultancy. Graduates contribute their skill to design of commercial, institutional, corporate and health care facilities, as well as residential settings. They collaborate with related design professionals providing solutions to social and environmental problems.

Graduates of the MS and PhD degree programs pursue academic and professional careers integrating design theory with their research skills.

See Career Information for Graduate Students ([http://arch.missouri.edu/resources\\_careers.html](http://arch.missouri.edu/resources_careers.html)) and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>).

## Online Study

On-campus and distance-learners are taught by the same accomplished professors. This is a fully *integrated model* of online instruction with established quality. The Department of Architectural Studies offers 100% online graduate education:

- Master of Arts ([http://arch.missouri.edu/academics\\_masters.html#page\\_MA](http://arch.missouri.edu/academics_masters.html#page_MA)) in the emphasis areas of Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) and Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)).
- Master of Science ([http://arch.missouri.edu/academics\\_masters.html#page\\_MS](http://arch.missouri.edu/academics_masters.html#page_MS)) in the emphasis areas of Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) and Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)).
- Doctor of Philosophy ([http://arch.missouri.edu/academics\\_phd.html](http://arch.missouri.edu/academics_phd.html)) in HES and in the concentration\* areas of Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) and Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)).
- Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html))\* as stand-alone coursework or as part of a masters or doctorate.
- Stand-alone courses for non-degree (<http://gradschool.missouri.edu/admissions/eligibility-process/non-degree-applicants>) graduate students. Students select online courses from an extensive menu for professional advancement. Up to 12 credit hours of graduate credit taken as a non-degree graduate student may be applied to a graduate degree program upon approval of the academic program if the student is accepted.

\* concentrations will not appear on diplomas or transcripts

Graduate courses are delivered as:

- Asynchronous or Synchronous. Asynchronous coursework is completed independently according to the provided schedule. Synchronous courses will include real-time discussion during arranged weekly class periods.
- Semester-based or self-paced online.

See MizzouOnline (<http://online.missouri.edu/course-search>) for online offerings open for registration.

## Architectural Studies Graduate Degrees

Graduate students select one of two areas of emphasis: 1) Environment and Behavior studies with a creative project leading to an MA degree and with research leading to the MS and PhD degrees OR 2) Design with Digital Media studies leading to the MA, MS and PhD degrees. The graduate program builds on Architectural Studies course work and a core of courses in design theory, research methods, graduate seminars, research and readings in digital media and environment and behavior.

## Design Research Concentration

The Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) is developed for

- Designers engaged in architecture, interior design, graphic, or interaction design who require applied research skills from companies/organizations.
- Researchers with a background in social sciences, anthropology etc. who conduct research for creative product development in industry -- Healthcare IT companies, Engineering etc.
- Business and market professionals to advance understanding of design research for marketing.

## Graduate Program Requirements

The academic program should be developed in consultation with an advisor. See MU Graduate Studies (<http://gradstudies.missouri.edu>) website for guidelines and requirements regarding course work and role of committee. Students are required to self-report academic performance, degree program milestones and related achievements in scholarship, research and creative work on an annual basis. Students complete this Annual Report (<http://gradstudies.missouri.edu/academics/progress/graduate-student-progress-system.php>) at an online Graduate Student Progress System (<https://gsps.missouri.edu>).

## Financial Aid from the Program

Limited teaching and/or research assistantships and scholarships are available to graduate students. GTA appointments are available to resident graduate students and are based on the match between the department's needs and candidate's background. See Financial FAQs ([http://arch.missouri.edu/academics\\_faqqgrad.html](http://arch.missouri.edu/academics_faqqgrad.html)) on department web site.

## BSHES in Architectural Studies

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### Degree Program Description

Architectural Studies promotes connections between people and place, and between interior design and architecture with the intention of preparing graduates to become lifelong designers of the built environment. Students in this program conduct systematic inquiry into the design process, sustainable products and practices, the interaction between people and the built environment, and digital technologies. The program highlights research as it advances the interdisciplinary interaction between interior design, architecture, the human sciences and aesthetics to improve quality of life for the public good. Following the freshman year students must submit a portfolio of their work for acceptance into the professional phase of the program.

## Major Program Requirements

The BSHES in Architectural Studies connects interior design, architecture, the human sciences and aesthetics to improve quality of life. Students are engaged in the processes, procedures, observations, and techniques of design.

The BSHES is offered with two emphasis area options: Interior Design (p. 571) and Architectural Studies (p. 570). Both emphasis areas focus on the development of environmental designs for human living, work, and leisure. The Interior Design emphasis results in a terminal bachelor's degree accredited by the Council of Interior Design Accreditation (CIDA). The Architectural Studies emphasis is a pre-architecture bachelor's degree or pre-professional option and students continue their education with the M Arch to become practicing architects.

Some courses in the Professional Program area double count for General Education (p. 33) requirements. See degree information at the emphasis level.

## Semester Plan

Refer to the Semester Plans at the emphasis level.

## BSHES in Architectural Studies with Emphasis in Architectural Studies

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### Degree Program Description

The Architectural Studies emphasis is a four-year, professional baccalaureate program preparing students for professional roles in the design and construction industry and also for application to professional M Arch (Masters of Architecture) programs. See Opportunity for Employment ([http://arch.missouri.edu/academics\\_arch.html](http://arch.missouri.edu/academics_arch.html)), Careers in Architectural Studies ([http://arch.missouri.edu/resources\\_arch.html](http://arch.missouri.edu/resources_arch.html)), and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>). Students benefit from the enriched academic research environment and the emphasis on the thinking and making of physical environments that address the needs and aspirations of people. The program strives to blur the boundaries between architecture and interior design by stressing the inside experience of people in buildings. Students interested in becoming a licensed architect continue their education by completing in other architectural programs. Alumni are admitted to many highly ranked graduate programs throughout the U.S. With coursework being part of a CIDA (<http://accredit-id.org>) Accredited Interior Design Program, pre-architecture students may be eligible for the NCIDQ (<https://www.cidq.org>) examination upon graduation. For more information see Careers in Interior Design ([http://arch.missouri.edu/resources\\_pd.html](http://arch.missouri.edu/resources_pd.html)) with links to professional organizations and regulations. See Architectural Studies web page for more highlights ([http://arch.missouri.edu/home\\_welcome.html](http://arch.missouri.edu/home_welcome.html)) of program.

## Major Program Requirements

### Coursework

Students complete University of Missouri general education coursework that includes physics and calculus. Professional design coursework is in the following content areas: basic creative development, design planning and analysis, design communication, technical knowledge, history of art/architecture/interiors, business, and design theory.

### Studio Description

It is the design studio setting where learning by doing is experienced and realized. The studio is a collaborative and cooperative learning environment emphasizing personal intellectual development as well as content learning. Course work includes studios and coursework centering on the synthesis of functional, technological, social, aesthetic and symbolic attributes architecture that support human needs and their aspirations. See Studio Description ([http://arch.missouri.edu/academics\\_arch.html](http://arch.missouri.edu/academics_arch.html)) on the department website for more information.

### Degree Requirements

<b>Basic Creative Development</b>		9
ARCHST 1100	Visual Design	3
ARCHST 2315	Introduction to Building Systems Laboratory	1
ARCHST 2316	Advanced Building Systems Lab	2
ARCHST 3100	Color and Light	3
<b>Design Planning and Analysis</b>		25
ARCHST 2811	Studio I	4
ARCHST 3182	Studio II	4
ARCHST 4815	Construction Documents and Building Information Modeling Studio	4
ARCHST 4823	Architectural Studio III	4
ARCHST 4824	Architectural Studio IV	4
ARCHST 4860	Programming for Thesis Design Studio	1
ARCHST 4990	Thesis Design Studio	4
<b>Design Communication</b>		12
ART_DRAW 1050	Drawing I	3
ARCHST 1200	Architectural Drafting and Working Drawings	3
ARCHST 2230	Design Communication I	3
ARCHST 3230	Advanced Design Communication Using BIM	3
<b>Technical Knowledge</b>		25
ARCHST 2220	Introduction to CAD	3
ARCHST 2310	Building Systems	3
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 4320	Materials, Methods and Products	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4333	Compliance and Specifications	3
MATH 1400	Calculus for Social and Life Sciences I	3
PHYSICS 1210	College Physics I	4
<b>History of Art, Architecture and Interiors</b>		9
ARCHST 4430	Guiding Design with Historic Preservation	3
ARCHST 4435	History of the Designed Environment to 1750	3
ARCHST 4440	Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution	3
<b>Business</b>		3
ARCHST 4710	Design Business Practices	3
<b>Design Theory</b>		12
ARCHST 1600	Fundamentals of Environmental Design	3
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 2620	People, Places and Design	3
ARCHST 3600	Environmental Analysis	3

**Electives to total 125 credits minimum**

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Also, view degree program requirements ([http://hes.missouri.edu/documents/degree\\_sheets/arch/ArchitecturalStudiesDegreeProgram.pdf](http://hes.missouri.edu/documents/degree_sheets/arch/ArchitecturalStudiesDegreeProgram.pdf)) at the department's web site.

First Year		
Fall	CR Spring	CR
American History or Government (also Soc/Beh Science)	3 ARCHST 1600W	3
ARCHST 1100	3 ARCHST 2315	1
ARCHST 1200	3 ARCHST 2620	3
ARCHST 2100	3 ART_DRAW 1050	3
ENGLISH 1000	3 MATH 1100	3
GN_HES 1100	1 HES Foundation	3
	16	16
Second Year		
Fall	CR Spring	CR
ARCHST 2220	3 ARCHST 2230	3
ARCHST 2310	3 ARCHST 3100	3
ARCHST 2316	2 ARCHST 2323	3
ARCHST 2811	4 ARCHST 3182	4
ARCHST 4430	3 MATH 1400 (MRP)	3
	15	16
Third Year		
Fall	CR Spring	CR
ARCHST 3230	3 ARCHST 4323 (MRP)	3
ARCHST 3600W	3 ARCHST 4333	3
ARCHST 4320	3 ARCHST 4824	4
ARCHST 4823	4 ARCHST 4860	1
ARCHST 4435	3 PHYSICS 1210	4
	16	15
Fourth Year		
Fall	CR Spring	CR
ARCHST 4710	3 ARCHST 4440	3
Electives	6 ARCHST 4815	4
ARCHST 4990	4 Electives	8
HES Foundation	3	
	16	15

Total Credits: 125

## BSHES in Architectural Studies with Emphasis in Interior Design

### Degree Program Description

The Interior Design emphasis is a four-year, professional baccalaureate program accredited by the Council for Interior Design Accreditation (CIDA). The program's purpose is to improve quality of life and protect human health, safety, and welfare through the design of the interior environment. The NCIDQ definition (<https://www.cidq.org>) clarifies the scope of the services and tasks of the profession. Curriculum incorporates signature characteristics of interior design such as furniture, fixtures, and equipment, color, and interior materiality. The program benefits from its enriched academic research environment with

outstanding faculty. Emphasizing the thinking and making of spaces, our interior design program stresses the inside of buildings and those experiences that help to create peoples' individual meaning in life. the program prepares students for entry-level interior design practice and advanced study in multi-faceted profession. For more information on professional advancement and examples of opportunities see Careers in Interior Design ([http://arch.missouri.edu/resources\\_pd.html](http://arch.missouri.edu/resources_pd.html)) with links to professional organizations and regulations. Also see post-graduate placements at Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>). See Architectural Studies for web page for highlights ([http://arch.missouri.edu/home\\_welcome.html](http://arch.missouri.edu/home_welcome.html)) of program.

## Major Program Requirements

### Coursework

Students complete University of Missouri general education coursework and professional interior design coursework in the following content areas: basic creative development, design planning and analysis, design communication, technical knowledge, history of art/architecture/interiors, business, and design theory.

### Studio Description

It is the design studio setting where learning by doing is experienced and realized. The studio is a collaborative and cooperative learning environment emphasizing personal intellectual development as well as content learning. Course work includes studios and coursework centering on the synthesis of functional, technological, social, aesthetic and symbolic attributes of interior design that support human needs and their aspirations. See Studio Description ([http://arch.missouri.edu/academics\\_id.html](http://arch.missouri.edu/academics_id.html)) on the department website for more information.

### Application for Professional Program

## Degree Requirements

<b>Basic Creative Development</b>		9
ARCHST 1100	Visual Design	3
ARCHST 2315	Introduction to Building Systems Laboratory	1
ARCHST 2316	Advanced Building Systems Lab	2
ARCHST 3100	Color and Light	3
<b>Design Planning and Analysis</b>		25
ARCHST 2811	Studio I	4
ARCHST 3182	Studio II	4
ARCHST 4813	Interiors Studio III	4
ARCHST 4814	Interiors Studio IV	4
ARCHST 4815	Construction Documents and Building Information Modeling Studio	4
ARCHST 4860	Programming for Thesis Design Studio	1
ARCHST 4990	Thesis Design Studio	4
<b>Design Communication</b>		12
ART_DRAW 1050	Drawing I	3
ARCHST 1200	Architectural Drafting and Working Drawings	3
ARCHST 2230	Design Communication I	3
ARCHST 3230	Advanced Design Communication Using BIM	3
<b>Technical Knowledge</b>		18
ARCHST 2220	Introduction to CAD	3
ARCHST 2310	Building Systems	3
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 4320	Materials, Methods and Products	3

ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4333	Compliance and Specifications	3
<b>History of Art, Architecture and Interiors</b>		9
ARCHST 4430	Guiding Design with Historic Preservation	3
ARCHST 4435	History of the Designed Environment to 1750	3
ARCHST 4440	Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution	3
<b>Business</b>		3
ARCHST 4710	Design Business Practices	3
<b>Design Theory</b>		12
ARCHST 1600	Fundamentals of Environmental Design	3
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 2620	People, Places and Design	3
ARCHST 3600	Environmental Analysis	3

**Electives - to equal 125 credit minimum total for the program**

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
GN_HES 1100	1 ARCHST 1600	3
ARCHST 1100	3 ARCHST 2315	1
ARCHST 1200	3 ARCHST 2620	3
ARCHST 2100	3 ART_DRAW 1050	3
ENGLISH 1000	3 MATH 1100	3
American History or Government (also Soc/Beh Sci)	3 Physical/Biological/Math Science	3
	16	16
Second Year		
Fall	CR Spring	CR
ARCHST 2220	3 ARCHST 2230	3
ARCHST 2310	3 ARCHST 2323	3
ARCHST 2316	2 ARCHST 3100	3
ARCHST 2811	4 ARCHST 3182	4
ARCHST 4430	3 HES Foundation	3
	15	16
Third Year		
Fall	CR Spring	CR
ARCHST 3230	3 ARCHST 4323	3
ARCHST 3600	3 ARCHST 4333	3
ARCHST 4320	3 ARCHST 4814	4
ARCHST 4435	3 ARCHST 4860	1
ARCHST 4813	4 Electives	4
	16	15
Fourth Year		
Fall	CR Spring	CR
ARCHST 4710	3 ARCHST 4440	3
Electives	3 ARCHST 4815	4
ARCHST 4990	4 Electives	8
HES Foundation	3	

Electives	3	
	16	15

Total Credits: 125

## Minor in Architectural Studies

A Minor in Architectural Studies is comprised of 15 credit hours, including ARCHST 1600 Fundamentals of Environmental Design and selection of additional coursework from the list below.

ARCHST 1600	Fundamentals of Environmental Design	3
<b>Electives</b>		12
Select from the following:		
ARCHST 1100	Visual Design	3
ARCHST 1200	Architectural Drafting and Working Drawings	3
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 2220	Introduction to CAD	3
ARCHST 2310	Building Systems	3
ARCHST 2315	Introduction to Building Systems Laboratory	1
ARCHST 2316	Advanced Building Systems Lab	2
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 2620	People, Places and Design	3
ARCHST 3100	Color and Light	3
ARCHST 4320	Materials, Methods and Products	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4411	Study Abroad in Architectural History	1-3
ARCHST 4430	Guiding Design with Historic Preservation	3
ARCHST 4435	History of the Designed Environment to 1750	3
ARCHST 4440	Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution	3
ARCHST 4630	Shaping Human Settlements	3
ARCHST 4700	Place-Making in Community Design	3
ARCHST 4961	Design Research and Service Design	3
ARCHST 4962	Information Visualization and Visual Analytics	3
ARCHST 4964	Design Thinking and Creative Process	3

For exceptional students, with consent of instructor and department approval, additional course work in the department may be selected.

### Online Minor in Architectural Studies

Complete the **Apply for HES Minor form**. See Online Study and Degrees ([http://arch.missouri.edu/academics\\_online.html](http://arch.missouri.edu/academics_online.html)) in Architectural Studies for a listing of online courses currently open for registration. Required ARCHST 1600 may be substituted with ARCHST 2620 for MizzouOnline students.

### Online and Resident General Education Courses

Courses meeting MU General Education (<http://generaleducation.missouri.edu/courses>) requirements (e.g., Humanities, Behavioral Science, and Social Science) are indicated.

## MA in Architectural Studies

### Master of Art

The creative, project-based MA plan of study is preparation for advanced careers in the design professions and higher education. The non-thesis project is conducted in one or two areas: (1) environment and behavior

or (2) design with digital media. The MA project may be an architectural representation culminating in a visual project or an environmental design problem culminating in a design solution.

Also see the Department web site for additional information: Masters Programs ([http://arch.missouri.edu/academics\\_masters.html](http://arch.missouri.edu/academics_masters.html)), Emphasis Areas (<http://arch.missouri.edu/graduate.html>), Online Study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)), Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>), and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>).

## Environment and Behavior Emphasis

The Environment and Behavior focuses on the multifaceted relationships between people and their physical, social, and cultural environments. Environment-behavior research explores a variety of environments, linking them to a range of behavioral concerns. This program is suitable for persons who seek careers in research, consulting, and/or teaching in architecture, interior design, and related environmental design disciplines.

### Current study areas in environment and behavior include:

- Sustainable Design
- Design Education
- Social and Cultural Bases of Design
- Place Attachment
- Environments for Learning
- History of the Designed Environment
- Analysis of Building Types
- Aesthetics of Design
- Inclusive Design/Accessibility
- Environment and Aging
- Housing and Neighborhood Design
- Programming, Design and Post-Occupancy Evaluation

Contact Dr. Ruth Tofle ([http://arch.missouri.edu/faculty\\_tofle.html](http://arch.missouri.edu/faculty_tofle.html)) for more information about the department's graduate program or the emphasis in environment and behavior.

## Design with Digital Media Emphasis

The Design with Digital Media curriculum is structured to promote thought and work that crosses traditional lines between disciplines and challenges students to consider non-standard approaches to the computer as a creative and expressive medium. Study of technology, art and design is balanced with inquiry grounded in conceptual, critical, social, cultural and historical considerations.

Design with Digital Media, as an integral part of the design process, focuses on graphic ideation and the application of computer technology for architecture, interior and related disciplines.

### Current study areas in the digital media program include:

- Design computing and cognition
- Design process using digital media and creativity research
- Virtual reality (VR) and augmented reality (AR) technologies for design visualization
- Advanced visualization technologies for environment-behavior simulation
- Building Information Modeling (BIM)

- Building Simulation
- Human-computer interaction aspects of digital tools for design

The culmination of the degree is a written and/or visual project employing computer applications for design methods. Applicants interested in the Design with Digital Media option should contact the coordinator of Design with Digital Media Dr. Bimal Balakrishnan ([http://arch.missouri.edu/faculty\\_balakrishnan.html](http://arch.missouri.edu/faculty_balakrishnan.html)) for course content and research proposals.

## Design Research Concentration

A Design Research concentration is offered for:

- Designers engaged in interior design, architecture, graphic or interaction design who require applied research skills from companies/organizations.
- Researchers with a background in social sciences, anthropology etc. who conduct research for creative product development in industry -- Healthcare IT companies, Engineering etc.
- Business and market professionals to advance understanding of design research for marketing.

The course work for the concentration is applied to the program of study. For specifics, see Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) on department web site. *Concentrations do not appear on diplomas or transcripts.*

## Admission Contact

Dr. Ruth Tofle ([http://arch.missouri.edu/faculty\\_tofle.html](http://arch.missouri.edu/faculty_tofle.html))  
137 Stanley Hall; Columbia, MO 65211  
(573) 882-7224

## Admission Criteria

Fall deadline: January 15

Minimum GPA: 3.0

Minimum TOEFL scores: The Department adopts minimum campus language requirements (<http://gradstudies.missouri.edu/admissions/eligibility-process/international/language-requirements.php#English>) as described by the Office of Graduate Studies.

Internet-based test (iBT)	Paper-based test (PBT)
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

## Required Application Materials

See Application and Admission ([http://arch.missouri.edu/academics\\_gradadmit.html](http://arch.missouri.edu/academics_gradadmit.html)) for Department's graduate admission requirements.

Apply online to the Office of Graduate Studies (<http://gradstudies.missouri.edu>).

## MA in Architectural Studies with Emphasis in Design with Digital Media

MU's Design with Digital Media program attracts a diverse group of talented, intellectually engaged graduate students for interdisciplinary and trans-disciplinary exploration in the digital arts. The curriculum enables students to investigate innovative approaches to contemporary

theory and practice, and fosters both individual inquiry and high-level collaboration. The primary objective of the program is to prepare creative critical thinkers to become leaders in their fields.

Structured to promote thought and work that crosses traditional lines between disciplines, the Digital + Media curriculum challenges students to consider non-standard approaches to the computer as a creative and expressive medium. Study of technology, art and design is balanced with inquiry grounded in conceptual, critical, social, cultural and historical considerations.

Design with Digital Media, as an integral part of the design process, focuses on graphic ideation and the application of computer technology for architecture, interior and related disciplines. This program of study has an emphasis on design with digital media leading to the MA degree.

### Current study areas in the digital media program include:

- Design computing and cognition
- Design process using digital media and creativity research
- Virtual reality (VR) and augmented reality (AR) technologies for design visualization
- Advanced visualization technologies for environment-behavior simulation
- Building Information Modeling (BIM)
- Building Simulation
- Human-computer interaction aspects of digital tools for design

See resources in our immersive visualization lab, the **ilab** ([http://arch.missouri.edu/resources\\_ilab.html](http://arch.missouri.edu/resources_ilab.html)), and the **ilab web site**. (<http://arch.missouri.edu/ilab>)

The culmination of the degree is a written and/or visual project employing computer applications for design methods. Applicants interested in the Design with Digital Media option should contact the coordinator of Design with Digital Media, Dr. Bimal Balakrishnan ([http://arch.missouri.edu/faculty\\_balakrishnan.html](http://arch.missouri.edu/faculty_balakrishnan.html)), for course content and research proposals. Also see the Department's website (<http://arch.missouri.edu>) and the Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Admissions

Applicants are required to meet the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MA in Architectural Studies with Emphasis in Environment and Behavior

The Environment and Behavior focus is on the multifaceted relationship between people and their physical, social and cultural environments. Environment-behavior research explores a variety of environments, linking them to a range of behavioral concerns. This program is suitable

for persons who seek careers in research, consulting, and/or teaching in architecture, interior design, and other environmental design disciplines.

A design project leads to the MA degree.

### Focus areas in environment and behavior include:

- Sustainable Design
- Design Education
- Social and Cultural Bases of Design
- Place Attachment
- Environments for Learning
- History of the Designed Environment
- Analysis of Building Types
- Aesthetics of Building Types
- Inclusive Design/Accessibility
- Environment and Aging
- Housing and Neighborhood Design
- Programming, Design and Post-Occupancy Evaluation

Contact Dr. Ruth Tofle ([http://arch.missouri.edu/faculty\\_tofle.html](http://arch.missouri.edu/faculty_tofle.html)) for more information. Also see the Department web site (<http://arch.missouri.edu>) and the Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

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## MS in Architectural Studies

### Master of Science

The MS may be a research-based study or a design and research-based professional review design project. The MS culminates in a thesis meeting University thesis requirements. The MS plan of study is in preparation for advanced professional practice or preparation for the doctoral degree.

Research is conducted in one of two emphasis areas: (1) environment and behavior or (2) design with digital media. Within each of these emphasis areas, specific course work is chosen on the basis of subject matter and the type of research method selected: quantitative, qualitative or a combination of both.

Also see the Department web site for additional information: Masters Programs ([http://arch.missouri.edu/academics\\_masters.html](http://arch.missouri.edu/academics_masters.html)), Emphasis Areas (<http://arch.missouri.edu/graduate.html>), Online Study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)), Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>), and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>).

## Environment and Behavior Emphasis

The Environment and Behavior emphasis area focuses on the multifaceted relationships between people and their physical, social, and cultural environments. Environment-behavior research explores a variety of environments, linking them to a range of behavioral concerns. This program is suitable for persons who seek careers in research, consulting, and/or teaching in architecture, interior design, and related environmental design disciplines.

### Current study areas in environment and behavior include:

- Sustainable Design
- Design Education
- Social and Cultural Bases of Design
- Place Attachment
- Environments for Learning
- History of the Designed Environment
- Analysis of Building Types
- Aesthetics of Design
- Inclusive Design/Accessibility
- Environment and Aging
- Housing, Neighborhood Design, and Cultural Landscapes
- Programming, Design and Post-Occupancy Evaluation

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## Design Research Concentration

The Design Research Concentration can be applied toward the program of study. The concentration is of interest to:

- Designers engaged in interior design, architecture, graphic or interaction design who require applied research skills from companies/organizations.
- Researchers with a background in social sciences, anthropology etc. who conduct research for creative product development in industry -- Healthcare IT companies, Engineering etc.
- Business and market professionals to advance understanding of design research for marketing.

For more information, see Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) on the department's web site.

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Design with Digital Media, as an integral part of the design process, focuses on graphic ideation and the application of computer technology

for architecture, interior and related disciplines. This program of study has an emphasis on design with digital media leading to MS and PhD degrees.

### Current study areas in the digital media program include:

- Design computing and cognition
- Design process using digital media and creativity research
- Virtual reality (VR) and augmented reality (AR) technologies for design visualization
- Advanced visualization technologies for environment-behavior simulation
- Building Information Modeling (BIM)
- Building Simulation
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A design project leads to the MS and PhD degrees.

### Current study areas in environment and behavior include:

- Sustainable Design
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- Environments for Learning
- History of the Designed Environment

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- Analysis of Building Types
- Aesthetics of Design
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## Dietetics

### Department Chair

Christopher Hardin  
204 Gwynn Hall  
(573) 882-4288  
[hardinc@missouri.edu](mailto:hardinc@missouri.edu)  
<http://ns.missouri.edu>

### Dietetics and Exercise Physiology Office

204 Gwynn Hall  
(573) 882-4288  
FAX: (573) 884-4885

### Advising/Admission Contact

Tammy Conrad  
201 Gwynn Hall  
(573) 882-1144  
[conradt@missouri.edu](mailto:conradt@missouri.edu)

A registered dietitian (RD) or registered dietitian nutritionist (RDN) has completed education and training established by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) (<http://www.eatrightacend.org/ACEND>). In order to be eligible to become a RD/RDN, one must complete required coursework and supervised practice from an ACEND accredited dietetics program and pass the national Registration Examination for Dietitians. The RD/RDN holds a minimum of a bachelors degree. It has been proposed that in 2024 the profession of dietetics will become masters entry-level.

The department offers a Bachelor of Human Environmental Sciences in Nutritional Sciences with an emphasis in Nutrition and Foods, followed by entry into the Masters of Science in Dietetics.

## Faculty

**Professor** K.L. Fritsche\*\*, C. D. Hardin\*\*, J. A. Kanaley\*\*, E. J. Parks\*\*  
**Associate Professor** S. Ball\*\*, S. Gable\*\*, P. S. Hinton\*\*, C. A. Peterson\*\*, R. S. Rector\*\*

**Assistant Professor** J. Limberg\*, J. Padilla\*, V. Vieira-Potter\*

**Assistant Research Professor** K. Keller

**Teaching Assistant Professor** L. Hudson\*, M. Raedeke\*, J. Schnell\*, D. Smith

**Joint Faculty** M. J. Petris\*\*, L. Pulakat\*\*

**Adjunct Faculty** F. W. Booth\*, J. A. Ibdah\*\*, D. Lubahn\*\*, F. Nassir\*\*, S. Sayers

**Adjunct Instructor** J. B. Mann, T. Roberts, R. Sharp, D. Showers, M. Stevens, J. Thyfault\*\*

**Extension Faculty** J. Britt-Rankin\*, C. Gabel, S. Mills-Gray

**Professor Emeritus** D. E. Brigham\*, R. P. Dowdy\*, L. Hillman\*, P. M. Landhuis\*, M. McDonald, B. L. O'Dell, T. R. Thomas\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

The College of Human Environmental Sciences offers a bachelors degree in BSHES in Nutritional Sciences with an emphasis in Nutrition and Foods (p. 603). Only students who successfully complete prerequisites, have been admitted to the Coordinated Program and completed all undergraduate requirements for the Coordinated Program will receive this emphasis area for the bachelor's degree. The completion of this bachelor's degree only does not allow the student to be eligible to take the national Registration Examination for Dietitians. Furthermore, it is not a didactic program in dietetics. No verification statement is given after completion of only the bachelor's degree. Students who receive this degree emphasis and are in good academic standing will transition seamlessly to the Coordinated Program's fifth year master's program.

Application requirements to the CP are posted each year on the department's webpage at <http://ns.missouri.edu/>. Applications are due in January. To be eligible to apply, the applicants must have a minimum 3.2 GPA and have completed or be able to complete the first four semesters of courses listed under the course requirements for nutrition and foods ([http://ns.missouri.edu/nutrition\\_foods.html](http://ns.missouri.edu/nutrition_foods.html)). The student must be enrolled in or already have completed NEP 2340 and BIOCHM 3630 at the time the CP application is submitted. Students must achieve a final course grade of B- or better in both, or equivalent transfer course approved by faculty. Failure to meet the criteria may result in forfeiture of a space in the Coordinated Program. Accepted Students must also successfully pass background checks, a drug screen and submit the required health records prior to starting the program.

## Graduate

- MS in Dietetics (p. 578)

The College of Human Environmental Sciences offers a Master of Science degree in Dietetics. This degree is only for students accepted in the Coordinated Program in Dietetics. See BSHES in Nutritional Sciences with emphasis in Nutrition and Foods (p. 603) for application information and criteria. The Coordinated Program is a five year program, in which student's receive a bachelor's in year four and a master's degree in year five. The required supervised practice occurs in years 3-5. An MS in Dietetics will occur in year five. After acceptance to the Coordinated Program, students must successfully complete their BSHES, MS and all supervised practice within the Coordinated Program,

in order to receive their verification statement. Both the BSHES and MS must be conferred as evidenced by their MU transcripts to be eligible to receive the verification statement. The verification statement is required for eligibility to take the national Registration Examination for Dietitians.

Requirements for program continuation during the master's year will be posted on the Nutrition and Exercise Physiology website (<http://ns.missouri.edu>).

## MS in Dietetics

### Degree Requirements

The Coordinated Program in Dietetics requires a minimum of 30 hours of graduate courses in the program. Students must maintain a 3.0 GPA.

### Sample Plan of Study

The following courses are required for this degree. Changes in course requirements may occur, as the program is required to meet the accreditation standards.

First Year			
Fall	CR Spring	CR	
BIO_SC 1500 or 1010 <i>and</i> 1020	5 ENGLISH 1000	3	
GN_HES 1100	1 CHEM 1320	4	
MATH 1100	3 HLTH_SCI 1000	3	
PSYCH 1000	3 Hist. or Pol Sc	3	
HES Foundation Course (recommend HDFS 1600 OR 1610)	3 Humanities (recommend PHIL 1150 or PHIL 2440)	3	
	15	16	
Second Year			
Fall	CR Spring	CR	
CHEM 2030	3 BIOCHM 3630 (B- or better required)	3	
CHEM 2130	2 CDS 2190	3	
MPP 3202	5 COMMUN 1200	3	
NEP 2380	3 NEP 1995	3	
HES Foundation Course (recommend FINPLN 2183)	3 NEP 2340 (B- or better required)	3	
	16	15	
Third Year			
Fall	CR Spring	CR Summer	CR
MANGMT 3000	3 NEP 2450	3 ESC_PS 4170	3
NEP 3360	2 NEP 3290	1 NEP 3400	1
NEP 4340	3 NEP 3390	2 NEP 3590	1
NEP 4360	3 NEP 4280	3	
NEP 4590	3 Humanities (WI) Supporting Elective	3	
	14	15	5
Fourth Year			
Fall	CR Spring	CR	
F_S 4310	4 MPP 4204	5	
PTH_AS 2201	3 NEP 3370	3	
NEP 4290	2 NEP 4370	3	
NEP 4950	2 NEP 4951	1	

Supporting Elective	3 NEP 8340	3
	14	15
Fifth Year		
Fall	CR Spring	CR
ESC_PS 7200	3 Professional Development (course proposal pending)	1
HMI 7430	3 Medical Nutrition Therapy (course proposal pending)	2
NEP 7380	2 Practice of Dietetics SPE (course proposal pending)	10
Medical Nutrition Therapy SPE (course proposal pending)	4	
NEP 7385	1	
	13	13

Total Credits: 151

### Thesis/Non-Thesis Requirements

This is a professional program and will not require a Thesis, but will require a comprehensive exam.

### Admissions

The College of Human Environmental Sciences offers a Master of Science degree in dietetics. This degree is only for students accepted in the Coordinated Program in Dietetics. See BSHES in Nutritional Sciences with an emphasis in Dietetics at [http://ns.missouri.edu/nutrition\\_foods.html](http://ns.missouri.edu/nutrition_foods.html) for application information and criteria. The Coordinated Program is a five year program, in which students receive a bachelor's in year four and a master's degree in year five. The required supervised practice occurs in years 3-5. An MS in Dietetics will occur in year five. After acceptance to the Coordinated Program, students must successfully complete their BS, MS and all supervised practice within the Coordinated Program, in order to receive their verification statement.

The verification statement is required for eligibility to take the national Registration Examination for Dietitians.

Requirements for program continuation during the master's year will be posted on the Nutrition and Exercise Physiology website (<http://ns.missouri.edu>).

### Exercise Physiology

#### Department Chair:

Christopher Hardin  
204 B Gwynn Hall  
(573) 882-4288  
[hardinc@missouri.edu](mailto:hardinc@missouri.edu)  
<http://ns.missouri.edu>

#### Dietetics and Exercise Physiology Office

204 Gwynn Hall  
(573) 882-4288  
Fax: (573) 884-4885

#### Director of Graduate Studies

Jill Kanaley

204 D Gwynn Hall  
 (573) 882-2519  
 kanaleyj@missouri.edu  
 http://ns.missouri.edu

**Admission Contact Information**

Ben Sauro  
 204 Gwynn Hall  
 573-882-4288  
 saurob@missouri.edu  
 http://ns.missouri.edu/

**Faculty**

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- Assistant Research Professor** K. Keller
- Teaching Assistant Professor** L. Hudson\*, M. Raedeke\*, J. Schnell\*, D. Smith
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\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

**Undergraduate**

While MU does not offer undergraduate degrees specifically in exercise physiology, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Human Environmental Sciences, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

**Graduate**

- PhD in Exercise Physiology (p. 579)

**About the Program**

The **Exercise Physiology PhD program** is designed to provide advanced training in both the basic and applied aspects of exercise, physical activity and physical inactivity. Currently, the research focus is to examine the mechanisms by which physical activity levels and/or exercise modulate risk and development of obesity, type 2 diabetes, and overall metabolic and cardiovascular diseases using both animal models and human subjects, and to be able to translate the findings into the clinical or applied setting. Graduate students will receive training in laboratory research, seminar preparation, scientific writing, problem solving and grant writing. Graduate studies at the University of Missouri offer the advantage of interdisciplinary exercise research that is facilitated

by numerous collaborations at the many research centers at MU. In addition, the Exercise Physiology research program collaborates closely with other units on campus including the Department of Biomedical Sciences in the Vet School, and the Departments of Internal Medicine and Medical Pharmacology and Physiology in the School of Medicine among others.

**The Exercise Physiology Graduate Program offers a PhD degree.**

This exercise physiology degree is designed to prepare students for careers in exercise physiology or exercise physiology/nutrition. The curriculum has a scientific basis with core courses in exercise physiology, nutrition, biochemistry, and physiology. Teaching and research assistantships are available on a competitive basis.

**PhD in Exercise Physiology**

**Degree Requirements**

The PhD program requires a minimum of 72 hours beyond the bachelor's degree. A committee of 4 faculty members must approve all graduate courses, including those from other universities. The graduate course work includes 15 hours in exercise physiology, plus coursework in physiology, nutrition and biochemistry. Research requirements include NEP 7500 (9 hours of research projects) and NEP 9090 (12 hours dissertation). One semester of teaching experience is required, as is participation on a major external grant proposal. NEP 8850 Advanced Exercise Physiology A is used as your competency course and the student must earn a B or better. If the student has a similar course in their transfer courses from a masters, then another course will be used - this must be approved by the graduate director and committee.

Note: Specific Masters courses (36 hours maximum) may be counted on the doctoral program at the discretion of the student's committee (3 members in dept., 1 member outside). Target ~ 72 hours beyond B.S.)

**Sample Plan of Study**

Because students in the PhD program are from a wide variety of circumstances, and pursue the PhD at different paces, a sample plan of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

**Exercise Science (Major Field)**

NEP 7001	Topics in Nutritional Science and Exercise Physiology	1-99
NEP 7500	Research in Nutritional Sciences and Exercise Physiology	1-99
NEP 7970	Sports Nutrition	2
NEP 8850	Advanced Exercise Physiology	3

**Physiology Area (1st support area)**

MPP 7310	Mammalian Cell Function	3
MPP 9430	Cardiovascular Physiology	3
NEP 8870	Exercise Metabolism	3
V_BSCI 8420	Veterinary Physiology	5
V_BSCI 9435	Molecular Exercise Biology	3

**Nutrition (2nd support area)**

BIOCHM 7270	Biochemistry	3
BIOCHM 7272	Biochemistry	3
NEP 7340	Human Nutrition II Lecture	3
NEP 8085	Problems in Nutritional Sciences and Exercise Physiology	1-99

NEP 8310	Nutritional Biochemistry of Lipids	3
NEP 8340	Nutrition in Human Health	3
<b>Research and Statistics</b>		
ESC_PS 9620	Qualitative Methods in Educational Research II	3
ESC_PS 8830	Quantitative Analysis in Educational Research I	3
3rd Advanced Statistic or Design Course		
<b>Other Courses</b>		
AN_SCI 8420	Endocrinology	3
AN_SCI 9442	Vitamins and Minerals	4
V_BSCI 9467	Neural Cardiorespiratory Control	3
NEP 9090	Doctorate Research in Nutritional Sciences and Exercise Physiology	1-99

## Qualifying Process

NEP 8850 Advanced Exercise Physiology is used as your competency course and the student must pass with the grade of B or better. If the student comes in with a master's course similar to NEP 8870, then another course can be used as the competency course and will be approved by the committee and graduate director (e.g. NEP 8870 Exercise Metabolism).

## Comprehensive Examination Process

Candidacy for a doctoral degree is established by passing the comprehensive examination. The comprehensive examination includes written and oral sections and is completed as the candidate is completing the prescribed coursework.

## Dissertation Requirements

The dissertation must be written on a subject approved by the candidates doctoral program committee, must embody the results of original and significant investigation and must be the candidates own work.

All dissertation defenses shall be open to the general faculty. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

## Admissions

**Deadline for Fall entrance: Dec 30**

### Minimum TOEFL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

### Minimum GRE Scores

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to Aug. 1, 2011	500	500	3.5
On or after Aug. 1, 2011	150	150	3.5

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Exercise Physiology (<http://gradschool.missouri.edu/academics/programs/exercise-physiology/phd-in-exercise-physiology.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility->

[process/minimum-requirements.php](http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php)). Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you applied.

**Exercise and Physiology Program Applicants** must have a 3.00 undergraduate GPA, a 3.5 graduate GPA and meet the minimum GRE scores to be admitted. TOEFL scores are required from international applicants. Specific information can be found on the department website: [http://ns.missouri.edu/grad\\_admission.html](http://ns.missouri.edu/grad_admission.html)

Complete instructions for applying to the program can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

## Human Development and Family Studies

Jean M. Ispa, Co-Chair  
406 Gentry Hall  
(573) 882-2796  
Lawrence Ganong, Co-Chair  
405 Gentry Hall  
(573) 882-6852  
<http://hdfs.missouri.edu>

### Initial Advising Contact

HES Student Services Office  
106 Gwynn Hall  
(573) 882-6424  
[hesstudentservices@missouri.edu](mailto:hesstudentservices@missouri.edu)  
<http://hes.missouri.edu>

### Director of Undergraduate Studies

**and Child Life Program Coordinator & Advisor**  
Nora Hager  
312 Gentry Hall  
(573) 884-5997  
[hager@missouri.edu](mailto:hager@missouri.edu)

### HDFS Instructor

**and Family & Lifespan Development Advisor**  
Kelly Warzinik  
2 Gentry Hall  
(573) 882-3521  
[warzinikk@missouri.edu](mailto:warzinikk@missouri.edu)

### Child Development Laboratory Director

**and Child Development & Education Advisor**  
Michelle Mathews  
28 Stanley  
(573) 882-3999  
[mathewsm@missouri.edu](mailto:mathewsm@missouri.edu)

### Scholarship Information Contact

Nancy Schultz  
122 Gwynn Hall  
(573) 882-5142  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

## Faculty

**Millsap Professor** G. Carlo\*\*

**Professor** L. Ganong\*\*, J. M. Ispa\*\*

**Associate Professor** C. Proulx\*\*, R. Ravert\*\*, D. Rudy\*\*

**Assistant Professor** J. Benson\*, T. Bordere\*, C. Garneau\*, S. Killoren\*\*, A. Landor\*, L. Manfra\*\*, F. Palermo\*

**Assistant Teaching Professor** A. Lester\*, M. Mathews\*

**Instructor** N. Hager, K. Warzinik

**Child Development Laboratory Instructor** E. Angst, E. Geyer, P. Storey

**Child Development Laboratory Assistant Instructor** S. L. Garton, K. Heim, S. Kean, J. A. Moore, E. Morrow, M. Poindexter, M. Pons, B. York

**Child Development Associate Teachers** W. Cornell, L. Hays, C. Shanks

**Adjunct Affiliated Faculty** A. Ball, L. Driskal-Hawxby, M. Herzog\*, R. Horstmeier, R. Johnson, M. Lehman, T. Meuser\*, C. Pruett, K. Wallace, J., S. Wright, L. Waint

**Curators Professor Emerita** M. Coleman\*\*

**Professor Emerita** K. Thornburg\*

**Dean and Professor Emeritus** S.R. Jorgensen\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSHES in Human Development and Family Studies (p. 582)
  - with emphasis in Child Development and Education (p. 583)
  - with emphasis in Child Life Specialist (p. 583)
  - with emphasis in Early Childhood Education in a Mobile Society (p. 585)
  - with emphasis in Family and Consumer Sciences Education (p. 585)
  - with emphasis in Family and Lifespan Development (p. 586)
- Minor in Human Development and Family Studies (p. 587)

The Department of Human Development and Family Science (HDFS) combines basic understanding of human development with preparation for professional service to individuals and families. Career opportunities are primarily found in human service agencies serving children, adolescents, older adults, parents and families. The human development and family studies major also prepares the student for graduate study in HDFS and related fields.

The department offers the BS HES with a major in Human Development and Family Science. The student working with children and/or adults is encouraged to maximize the resources offered by the family. The student concerned with the quality of family life must also recognize the intricate spiral of changing needs in the developing individual. Students in the HDFS major must select one of the emphasis areas listed above. (Note: Emphasis areas appear on transcripts but not on diplomas.)

## Graduate

- MA in Human Development and Family Studies (p. 588)
  - with emphasis in Early Childhood Development (p. 589)
  - with emphasis in Family and Community Services (Great Plains IDEA) (p. 589)
  - with emphasis in Family Studies (p. 590)
  - with emphasis in Gerontology (p. 590)
  - with emphasis in Lifespan Development (p. 591)

- with emphasis in Youth Development (p. 591)

- MS in Human Development and Family Studies (p. 592)
  - with emphasis in Early Childhood Development (p. 593)
  - with emphasis in Family and Community Services (Great Plains IDEA) (p. 594)
  - with emphasis in Family Studies (p. 593)
  - with emphasis in Lifespan Development (p. 594)

### Graduate Admission Contact Information

Ashlie Lester [lester@missouri.edu](mailto:lester@missouri.edu)

411 Gentry Hall

573-882-1301

**Director of Graduate Studies:** Ashlie Lester

The College also offers a PhD in Human and Environmental Sciences with an emphasis Human Development and Family Studies (p. 596).

They also offer Graduate Certificates in the following related areas: Youth Development Specialist (p. 628), Youth Development Program Management and Evaluation (p. 628) and Gerontology (p. 628).

The Department of Human Development and Family Science offers Master of Arts (applied emphasis) and Master of Science (research emphasis; on-campus only) degrees. The MA and MS degrees prepare students for positions in junior college or college teaching and leadership in public and private human service institutions. The MS degree also provides research training toward the PhD degree.

Selected in 2002 and again in 2007 as the Most Outstanding Graduate Department on campus, we have a nationally recognized faculty whose research productivity consistently has been ranked in the top 5% of the 235 family studies programs across the country. Our department houses former journal editors as well as a past president of the National Council of Family Relations.

We have a well-established mentoring program, which begins as soon as the student is accepted into HDFS. We actively prepare our students to become successful academic scholars both in terms of research and teaching. The range of careers for which we prepare our students is unparalleled. Since 2000, our program has placed more faculty into research extensive family studies departments than any other program in the U.S. We also prepare PhDs and master's students for applied careers in administration, program evaluation, and program development. Our alumni have positions with universities and colleges in the United States, Canada, and Korea. We have developed an outstanding reputation as a place to study individual and family diversity and multiculturalism across the life course. Because we define diversity and multiculturalism broadly, our focus is on the multitude of ways that individuals and families may differ, including, but not limited to race, ethnicity, socioeconomic status, age, family structure, nationality, geographic location, and sexual orientation.

## Financial Aid from the Department

All applicants for the on-campus program are automatically considered for assistantships, fellowships, and other funding packages. Check the HDFS website or ask the program contact for additional details.

## About the Master's Degrees

The Department of Human Development and Family Science offers Master of Arts (applied emphasis) and Master of Science (research emphasis; on-campus only) degrees. The MA and MS degrees prepare

students for positions in junior college or college teaching and leadership in public and private human service institutions. The MS degree also provides research training toward the PhD degree.

### Areas of Study

On-campus students selecting the MA or MS degree may specialize in family studies, child life, early childhood development, life span development, or a dual-degree program in HDFFS and the School of Law. Online students may select an MA specializing in gerontology, youth development, or family and community services.

### Master's Plan of Study Options

Programs are structured to provide students with an integration of theoretical perspectives, empirical research training, and practical experiences. The number of hours required for each master's degree is as follows:

- Family Studies: 36 hours
- Child Life: 30 (fast track) or 36 hours
- Early Childhood: 36 hours
- Life Span: 36 hours
- Gerontology: 36 hours
- Youth Development: 36 hours
- Family and Community Services: 36 hours
- Dual MSorMA/JD: approximately 113 hours

### About the PhD

The Department of Human Development and Family Science PhD degree prepares students for careers in research, college or university teaching, or leadership positions in public and private human service institutions.

### PhD Plan of Study

Students selecting the doctoral degree work with members of their doctoral committee to create an individualized plan of study tailored to their specific research interests. Over the course of their degree program, all doctoral students will complete coursework in theory, research methods, HDFFS content, statistics, and a collateral area. (The collateral area consists of 9-15 credit hours taken in other academic units to complement and enhance their studies in HDFFS). In addition, all doctoral students are required to enroll in six credit hours of research practicum, three credit hours of teaching practicum, and a minimum of 12 credit hours of research for their dissertation. A sample plan of study can be found on the HDFFS website (<http://hdfs.missouri.edu/>).

### About the Online Certificate Programs

The Department of Human Development and Family Science offers three online graduate certificates with specialization in youth development, youth development program management and evaluation and gerontology.

**Note:** Courses taken for any of the above certificate programs may be applied toward the related online MA degrees in youth development and gerontology. Up to 12 credits of coursework from the courses taken for any of the certificate programs may be applied toward their related online MA degrees described above.

For more information please follow the link to the certificate of interest (p. 626).

## BSHES in Human Development and Family Studies

### Degree Program Description

The Human Development and Family Studies program is developed from a base of human development and family science courses. It is essential for the student working with children, adolescents or adults to understand and to be able to maximize the resources offered by the family. It is equally important for the student concerned with the quality of family life to recognize the intricate spiral of changing needs in the growing individual. Students must choose an emphasis area.

### Major Program Requirements

Majors in all of the emphasis areas in HDFFS must complete the core courses below:

**Grade of 2.0 (C) or better required in these core classes:**

Major Program Requirements		16
H_D_FS 1600	Foundations of Family Science	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>1</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive	4
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3

<sup>1</sup> Statistics should be taken prior to H\_D\_FS 2200.

Child Development Laboratory Courses such as H\_D\_FS 3500, H\_D\_FS 3700, and H\_D\_FS 4971 have prerequisites and require the consent of the instructor. Students must have full HDFFS status. Because enrollment is limited, students must see the HDFFS advisor to be placed on the waiting list a minimum of two semesters before anticipated enrollment. Students in Family and Lifespan Development may substitute another practicum experience with consent of department advisor.

In addition to the required courses, the degree program is completed with courses selected from within the department, from other areas in the College of Human Environmental Sciences, and from the social sciences and allied professional fields such as education, recreation, business and health. For some students, courses in the arts, humanities, or biological sciences may be appropriate.

### Background Checks, Health Screenings and Other Required Elements:

It is essential that HDFFS majors develop professional relationships with vulnerable populations, thus during the course of the degree program, and prior to beginning any practical or clinical education experience, students are required to:

- pass multiple criminal background checks
- pass mandatory drug screens
- pass other qualification checks required by the practical or clinical education sites
- provide proof of health insurance coverage
- provide proof of required immunizations
- provide proof of student professional liability insurance coverage

The student is responsible for all costs incurred with these requirements. Failure to provide appropriate documentation, or pass required checks prior to the beginning of practical or clinical experiences may result in dismissal from the degree program in HDFS.

## Semester Plan

Refer to the Semester Plans designed for each emphasis area.

# BSHES in Human Development and Family Studies with Emphasis in Child Development and Education

## Degree Program Requirements

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

#### A. Requirements in H D FS

Subject area requirements in HDFS		62
H_D_FS 1600	Foundations of Family Science *	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>1</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families *	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive *	4
H_D_FS 2510	Observation, Assessment, and Curriculum Planning	4
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive *	3
H_D_FS 3450	Health, Safety and Nutrition	3
H_D_FS 3500	Infant-Toddler Practicum *	6
H_D_FS 3600	Partnering with Parents and Families	3
H_D_FS 3700	Preschool Practicum *	6
H_D_FS 4420	Environmental Influences on Lifespan Cognition	3
H_D_FS 4570	Development and Administration of Child Services Programs *	3
H_D_FS 4610	Stress and Resilience in Families	3
or H_D_FS 4700	Children and Families in Poverty	
H_D_FS 4720	Child and Family Advocacy	3
H_D_FS 4971	Child Development and Education Capstone	9

#### B. Requirements in related areas

STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or ESC_PS 4170	Introduction to Applied Statistics	
SPC_ED 4300	Introduction to Special Education	3

#### C. Supporting Coursework (from HDFS and related areas). See advisor for list of acceptable supporting courses.

Supporting Coursework	3
Supporting Coursework	3
Supporting Coursework	3

#### D. General Electives 4-6

\* Student must earn 2.00 (C) or better in course.

<sup>1</sup> Statistics should be taken prior to H\_D\_FS 2200.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
GN_HES 1100	1 MATH 1100	3
ENGLSH 1000	3 H_D_FS 2400W	4
H_D_FS 1600	3 Bio Science w/ lab	5
PSYCH 1000	3 SOCIOL 1000	3
Humanities	3	
General Elective	3	
		16

Second Year		
Fall	CR Spring	CR
Statistics	3 H_D_FS 2200	3
H_D_FS 3050	3 H_D_FS 2300	3
COMMUN 1200	3 H_D_FS 2510	4
Humanities	3 H_D_FS 3150W	3
H_D_FS 3450	3 NEP 1034 or 2222	3
		15

Third Year		
Fall	CR Spring	CR
H_D_FS 3500	6 General Elective	3
American History or Government	3 H_D_FS 4610 or 4700	3
H_D_FS 4420	3 H_D_FS 3700	6
Supporting Course	3 FINPLN 2183	3
		15

Fourth Year		
Fall	CR Spring	CR
H_D_FS 3600	3 H_D_FS 4971	9
H_D_FS 4570	3 H_D_FS 4720	3
SPC_ED 4300	3 Science	1
Supporting Course	3	
Supporting Course	3	
		15

Total Credits: 120

# BSHES in Human Development and Family Studies with Emphasis in Child Life Specialist

## Degree Program Description

The Child Life Specialist emphasis area prepares graduates to provide for the socioemotional needs, and support the optimum growth and development of children and their families in a variety of health care settings. Child life specialists use therapeutic play, psychological preparation, and coping skills interventions to help reduce the anxiety and stress related to illness, disability, hospitalization and medical



procedures. Through a family-centered care approach, they provide parents and other family members reassurance and emotional support, help them understand psychosocial needs, and provide tools to help them minimize psychological trauma. Courses focus on understanding normal and exceptional child and family development, effective methods of working with children and families, as well as integration of theory and research into hands-on clinical practice experiences. In addition to a 100-hour practicum experience (selection is on a competitive, space-available basis) at MU's Children's Hospital, the student's last semester is spent off-campus completing a 14 to 16 week clinical internship in a pediatric hospital setting. Students who successfully complete the degree program are prepared to take the Child Life Professional Certification Exam presented by the Child Life Certification Committee.

## Major Program Requirements

This academic emphasis requires that students successfully complete child life volunteer, practicum, and clinical internship experiences to attain this degree, as well as be eligible to take the Child Life Professional Certification Examination to obtain the CCLS credential. Clinical education sites require that students provide proof of health insurance, up-to-date immunizations, and student professional liability insurance. Students must also pass mandatory drug screens, criminal background checks, and any other required qualification checks prior to beginning any clinical education experience in child life.

Failure to provide appropriate documentation, or pass drug screens and criminal background checks prior to the beginning of these experiences may result in dismissal from the child life degree program in HDFS. The student is responsible for all costs incurred with these qualification checks.

Students must complete all university requirements (p. 32), including general education (p. 33), **in addition to** the degree requirements below. All courses in sections A-B below are required.

A. Requirements in HDFS		65-68
H_D_FS 1600	Foundations of Family Science *	3
H_D_FS 2200	Research Methods in Human Development and Family Science * <sup>4</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families *	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive *	4
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive *	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3500	Infant-Toddler Practicum *	6
H_D_FS 3600	Partnering with Parents and Families	3
H_D_FS 3700	Preschool Practicum *	6
H_D_FS 3800	Children's Play	3
H_D_FS 4085	Problems in Human Development and Family Science (Child Life Volunteering) <sup>3</sup>	1
H_D_FS 4100	Children in Health Care Settings	3
H_D_FS 4110	Child Life Theory and Practice	3
H_D_FS 4130	Child Life Practicum <sup>1</sup>	3
H_D_FS 4400	Childhood Death and Bereavement	3
H_D_FS 4720	Child and Family Advocacy	3
or H_D_FS 4700	Children and Families in Poverty	
Supporting Coursework - See advisor for list of course options		3-6

H_D_FS 4993	Internship in Human Development and Family Science <sup>2</sup>	15
<b>B. Requirements in Related Areas</b>		<b>15</b>
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
PHIL 2440	Medical Ethics	3
PTH_AS 2201	Human Anatomy Lecture	3
PTH_AS 2203	Human Anatomy Laboratory	2
CDS 2190	Medical Terminology	3
STAT 1200	Introductory Statistical Reasoning *****	3
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or ESC_PS 4170	Introduction to Applied Statistics	

\* Student must earn 2.00 (C) or better in course.

- Students are admitted to H\_D\_FS 4130 on a competitive, space-available basis. Interview applications are considered the semester before the student wishes to take H\_D\_FS 4130. Student must have attained a 3.2 CUM GPA to be eligible to interview, in addition to completing coursework requirements. See advisor for more information.
- Students are admitted to H\_D\_FS 4993 after successful completion of H\_D\_FS 4130 (grade of 3.0/B or higher). Students must be selected by hospitals outside of Columbia through a student-initiated competitive application process. All other coursework must be completed prior to beginning the clinical internship.
- Should be completed prior to end of sophomore year.
- Statistics should be taken prior to H\_D\_FS 2200.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
GN_HES 1100	1 H_D_FS 2300	3
ENGLISH 1000	3 BIO_SC 1010	3
PSYCH 1000	3 MATH 1100	3
Humanities	3 SOCIOL 1000	3
H_D_FS 1600	3 H_D_FS 2400W	4
	13	16
Second Year		
Fall	CR Spring	CR
H_D_FS 3050	3 CDS 2190	3
HIST or POL SC	3 H_D_FS 2200	3
COMMUN 1200	3 H_D_FS 3500	6
H_D_FS 4085	1 H_D_FS 3150W	3
STAT	3 PTH_AS 2203	2
PTH_AS 2201	3	
	16	17
Third Year		
Fall	CR Spring	CR
H_D_FS 4100	3 H_D_FS 4110	3
NEP 1034	3 H_D_FS 3430	3
FINPLN 2183	3 H_D_FS 4700 or 4720	3
H_D_FS 3700	6 H_D_FS 4130	3

	H_D_FS 4400	3
		15
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR Spring</b>	<b>CR</b>
PHIL 2440	3 H_D_FS 4993	15
H_D_FS 3600	3	
Supporting Coursework	3	
General Elective	1-3	
H_D_FS 3800	3	
	13-15	15

Total Credits: 120-122

## BSHES in Human Dev. & Family Studies with Emphasis in Early Childhood Education in a Mobile Society

### Degree Program Description

This online bachelor's of science degree prepares students to work in the field of early childhood education. This program emphasizes the following areas: Child development, growth, and learning; Early education curricula and frameworks; Learning activities, technology use, and other experiences for young children; Family and community influences on children; Challenges facing families in today's world; Assessment of children and environments; Professional and ethical standards; Hands-on experiences and clinical practice. Upon completion of the program, students are qualified to work in various early education and care settings serving children from birth through eight years in a wide variety of community and military settings, including early education centers and preschools, family and home care settings, Head Start and Early Head Start programs, and before/after school programs.

### Major Program Requirements

The program is offered by Human Development and Family Science faculty in conjunction with other university partners as part of the Great Plains IDEA. Interested applicants will apply for admission to this program through the undergraduate admissions office at the University of Missouri and to the Department of Human Development and Family Science. Courses will be taught by University of Missouri faculty and by scholars from other Great Plains IDEA institutions, including Iowa State University, Michigan State University, Oklahoma State University, South Dakota State University, Texas Tech University, and University of Nebraska-Lincoln. Your degree will be awarded by the University of Missouri.

### Applying

To be admitted, you must already have completed at least 30 credits general education requirements earning at least a 2.5 grade point average (GPA). These hours must include a Human Lifespan Development course or equivalent.

For information about applying to this program, visit Mizzou Online (<http://online.missouri.edu/degreeprograms/human-development/early-care-education/howtoapply.aspx>).

### Contact Information

Please contact the Human Environmental Sciences Student Services office at HESstudentservices@missouri.edu or Ehren Oncken, the undergraduate enrollment counselor at Mizzou Online, at (800) 609-3727, with questions about this program.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
H_D_FS 1600	3 H_D_FS 2400W	4
MATH 1100	3 H_D_FS 3450	3
ENGLISH 1000	3 SOCIO 1000	3
PSYCH 1000	3 Biological Science w/Lab	5
General Elective	3	
	15	15

Second Year		
Fall	CR Spring	CR
H_D_FS 3050	3 H_D_FS 3250	3
H_D_FS 3150	3 H_D_FS 3550	3
H_D_FS 3350	3 H_D_FS 3650	3
FINPLN 2183	3 American History/Government	3
PSYCH 3010	3 ESC_PS 4170	3
	15	15

Third Year		
Fall	CR Spring	CR
H_D_FS 3950	3 H_D_FS 3750	3
H_D_FS 4150	3 H_D_FS 4250	3
H_D_FS 4350	3 H_D_FS 4450	3
Supporting Coursework	3 Humanities	3
SOCIO 3310W	3 Science	1
	Supporting Coursework	3
	15	16

Fourth Year		
Fall	CR Spring	CR
H_D_FS 3350	3 H_D_FS 4750	6
H_D_FS 4550	3 General Electives	5
H_D_FS 4650	3 Supporting Coursework	3
Humanities	3	
Supporting Coursework	3	
	15	14

Total Credits: 120

## BSHES in Human Development and Family Studies with Emphasis in Family and Consumer Sciences Education

### Degree Program Description

Family and Consumer Sciences Education emphasis, prepares students to teach family and consumer sciences from birth to grade 12 in

public schools. Students take required coursework in nutrition, child development, interpersonal relationships, personal finance, interior design, consumer behavior and courses from the College of Education required to become a certified teacher for middle school or high school.

## Major Program Requirements

This academic emphasis requires that students successfully complete field experiences and a student teaching internship. Public schools require that students provide proof of up-to-date immunizations and professional liability insurance. Criminal background checks and other qualifications may be required depending on the school.

Due to changes from the Missouri Department of Elementary and Secondary Education (DESE) that affect certification beginning in 2017, new students are not being accepted into this program at this time.

## Semester Plan

There is not a semester plan built for this emphasis area.

# BSHES in Human Development and Family Studies with Emphasis in Family and Lifespan Development

## Degree Program Description

In the Family and Lifespan Development emphasis, students become familiar with theory and research about families and individuals across the lifespan. Coursework focuses on bio-psycho-social development, family functioning, and interpersonal relationships in relevant settings such as at home, in child care, at school, and in the work place. Diversity is emphasized through examining multicultural families and diverse family structures and processes, and variations in individual development and relationships associated with such factors as gender, race, ethnicity, social class and health status. Opportunities are available for the practical application of theory and research in working with individuals, families, schools, and communities.

## Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

A. Requirements in Related Areas		56-62
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or ESC_PS 4170	Introduction to Applied Statistics	
PHIL 1100	Introduction to Ethics	3
or PHIL 2440	Medical Ethics	
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
or RU_SOC 1000	Rural Sociology	
B. Requirements in H D FS		
H_D_FS 1600	Foundations of Family Science *	3
H_D_FS 2200	Research Methods in Human Development and Family Science * <sup>1</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families *	3

H_D_FS 2400W	Principles of Human Development - Writing Intensive <sup>1</sup>	4
H_D_FS 2450	Human Sexuality Across the Life Span	3
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive *	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3440	Adulthood and Aging	3
H_D_FS 3500	Infant-Toddler Practicum	3-6
or H_D_FS 3700	Preschool Practicum	
or H_D_FS 3730	Field Training Practicum	
H_D_FS 4610	Stress and Resilience in Families	3
or H_D_FS 4700	Children and Families in Poverty	
H_D_FS 4620	Family Interaction	3
H_D_FS 4640	Interpersonal Relationships	3
H_D_FS 4970W	Families and Lifespan Development Capstone - Writing Intensive <sup>2</sup>	4
H_D_FS 4993	Internship in Human Development and Family Science	3-6

C. HDFS Related Electives		
Select 21 credits from the following:		21
H_D_FS 1610	Intimate Relationships and Marriage	3
H_D_FS 3085	Problems in Human Development and Family Science	1-3
or H_D_FS 4085	Problems in Human Development and Family Science	
H_D_FS 3090	Research Experience in Human Development and Family Science	1-6
H_D_FS 3500	Infant-Toddler Practicum (if not taken as a required course - see requirements in HDFS above)	6
H_D_FS 3600	Partnering with Parents and Families	3
H_D_FS 3700	Preschool Practicum (if not taken as a required course - see requirements in HDFS above)	6
H_D_FS 3730	Field Training Practicum (if not taken as a required course - see requirements in HDFS above)	3
H_D_FS 3800	Children's Play	3
H_D_FS 4090	Advanced Research in Human Development and Family Science	1-6
H_D_FS 4200	Latino/a Youth and Families	3
H_D_FS 4300	Black Families	3
H_D_FS 4420	Environmental Influences on Lifespan Cognition	3
H_D_FS 4570	Development and Administration of Child Services Programs	3
H_D_FS 4610	Stress and Resilience in Families (if not taken as a required course - see requirements in HDFS above)	3
H_D_FS 4630	The Process of Divorce	3
H_D_FS 4680	Family Communication	3
H_D_FS 4700	Children and Families in Poverty (if not taken as a required course - see requirements in HDFS above)	3
H_D_FS 4720	Child and Family Advocacy	3
H_D_FS 4001	Topics in Human Development and Family Science	1-6

In addition, students may select up to 6 hours of advisor-approved courses from related disciplines such as Anthropology, Black Studies, Communication Studies, Educational, School and Counseling Psychology, Psychology, Sociology, and Women's and Gender Studies. (0-6 credits). **The student must obtain academic advisor approval prior to enrolling in these courses.**

Students may plan a program of study which will help prepare them for earning the **Certified Family Life Educator (CFLE)** credential from the National Council on Family Relations. Consultation with the student's academic advisor is recommended to determine the current requirements for this credential.

- \* Students must earn a 2.0 (C) or better in these courses.  
H\_D\_FS 1600 must be taken before H\_D\_FS 2300 or any 3000/4000-level H\_D\_FS course.
- <sup>1</sup> Statistics should be taken prior to HDFS 2200.
- <sup>2</sup> Cannot be completed until successful completion of H\_D\_FS core courses and H\_D\_FS 3430, H\_D\_FS 3440 and 12 credit from H\_D\_FS 4610, H\_D\_FS 4620, H\_D\_FS 4630, H\_D\_FS 4640 and H\_D\_FS 4700 or consent of instructor. 3 credit hours of these 3000/4000-level courses can be concurrent with H\_D\_FS 4970.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ENGLISH 1000	3 H_D_FS 2400W	4
GN_HES 1100	1 HDFS Related Elective	3
H_D_FS 1600	3 Humanities	3
NEP 1034	3 MATH 1100	3
PSYCH 1000	3 SOCIOL 1000	3
General Education Science	3	
	16	16
Second Year		
Fall	CR Spring	CR
Statistics	3 H_D_FS 2200	3
H_D_FS 2300	3 H_D_FS 3150W	3
H_D_FS 3050	3 H_D_FS 3430	3
COMMUN 1200	3 Related Elective	3
PHIL 1100 or 2440	3 Am History or Government	3
	15	15
Third Year		
Fall	CR Spring	CR
H_D_FS 3440	3 H_D_FS 4620	3
H_D_FS 3730	3 H_D_FS 4610 or 4700	3
HDFS Related Elective	3 H D FS Related Elective	3
FINPLN 2183	3 HDFS Related Elective	3
General Elective	3 General Education Science	3-5
	15	15-17
Fourth Year		
Fall	CR Spring	CR
H_D_FS 2450	3 H_D_FS 4700	3
H_D_FS 4640	3 H_D_FS 4970W	4
H_D_FS 4993	3-6 H D FS Related Elective	3

H D FS Related Elective	3 General Elective	3
General Elective	3 General Elective	3
	15-18	16

Total Credits: 123-128

## Minor in Human Development and Family Studies

Undergraduate students interested in obtaining a minor in HDFS should fill out the **online application**, located on the College of Human Environmental Sciences website.

**Students must meet the minor requirements in place at the time of application, thus the application should be submitted when they begin taking courses for the minor in HDFS, and before all of the required courses are complete.**

To earn a minor in HDFS, an undergraduate student must successfully complete 15-16 credit hours of coursework, as indicated in the two groups listed below.

### REQUIRED COURSES

Students must successfully complete all 3 of the following courses:

H_D_FS 1600	Foundations of Family Science	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400	Principles of Human Development <sup>1</sup>	3-4
or H_D_FS 2400W	Principles of Human Development - Writing Intensive	
Total Credits		9-10

### CHOOSE TWO COURSES FROM THE LIST BELOW

Students must choose and successfully complete 2 courses from the list below: <sup>2</sup>

H_D_FS 1610	Intimate Relationships and Marriage	3
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3440	Adulthood and Aging	3
H_D_FS 4610	Stress and Resilience in Families	3
H_D_FS 4620	Family Interaction	3
H_D_FS 4630	The Process of Divorce	3
H_D_FS 4640	Interpersonal Relationships	3
H_D_FS 4700	Children and Families in Poverty	3
Total Credits		6

### TOTAL CREDITS FOR MINOR IN HDFS: 15-16

Students seeking to earn a minor in HDFS must earn the minimum of a C (2.0) grade in each course selected for the minor – no exceptions. Pass/fail graded courses will not be accepted.

<sup>1</sup> HDFS 2400 is offered in two different formats - writing intensive (4 credits), and non-writing intensive (3 credits); either format will fulfill the requirements of the Minor in HDFS.

<sup>2</sup> Some courses on this list may require specific pre-requisites and/or instructor consent. Please see the Enrollment Information and Course Description in myZou for more information.

A total of 6 hours of transfer credit from other colleges or universities outside of the University of Missouri – Columbia will be accepted for the minor in HDFS, provided the transfer courses are a direct equivalent to MU HDFS courses.

A minor must be completed and awarded at the same time as the MU undergraduate degree (i.e., minors cannot be claimed after graduation). Once an HDFS minor is awarded, a student cannot return to MU to complete a second undergraduate major in HDFS.

Students cannot earn a major and a minor in HDFS.

## MA in Human Development and Family Studies

Admission Contact Information  
 Ashlie Lester [lestera@missouri.edu](mailto:lestera@missouri.edu)  
 411 Gentry; Columbia, MO 65211  
 573-882-1301

### Admission Criteria for Campus Programs

Fall deadline: December 15  
 Spring deadline: November 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	50th percentile	50th percentile	50th percentile
On or After August 1, 2011	50th percentile	50th percentile	50th percentile

\*Some exceptions are made

- Minimum GPA: 3.0 for last 60 hours Required Application Materials for Campus Programs (submitted online via the online application system)
- Application form
- 3 letters of recommendation from people who can speak to applicant’s potential to do graduate work (e.g., professors, advisors).
- GRE score (and TOEFL score for international applicants)
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Admission Criteria for Online Programs

- No Admission Deadlines (We guarantee processing of complete applications received at least two months prior to the beginning of the expected term of admission. This will give admitted students adequate time to enroll in coursework.)
- Minimum GPA: 3.0 for last 60 hours

### Required Application Materials for Online Programs

submit online via the online application system ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad))

- Application form
- 3 letters of recommendation from people who can speak to applicant’s potential to do graduate work (e.g., professors, advisors).
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Plan of Study Options

Programs are structured to provide students with an integration of theoretical perspectives, empirical research training, and practical experiences. The number of hours required for each master’s degree is as follows:

- Family Studies: 36 hours
- Child Life: 30 (fast track) or 36 hours
- Early Childhood: 36 hours
- Life Span: 36 hours
- Gerontology: 36 hours
- Youth Development: 36 hours
- Family and Community Services: 36 hours
- Dual MSorMA/JD: approximately 113 hours Research

Master’s of Arts students may complete a comprehensive exam, an internship H\_D\_FS 8972 for up to six credit hours, or, for on-campus students only, a project (H\_D\_FS 8090), for up to six credit hours. The project option is no less scholarly than a thesis, but usually has an applied focus. For instance, a project may involve designing a program and developing curriculum materials (e.g., instructional videotapes, websites, resource manuals). Internships are often conducted off-campus and must be negotiated with the student’s advisor and approved by the student’s faculty committee. Students completing the comprehensive exam option must take additional elective course credit. For more detailed information, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### Satisfactory Progress

Satisfactory progress is based on the student maintaining a sufficient GPA according to the student’s program or funding guidelines and completing all degree forms and milestones according to departmental timelines. For a detailed description of the department’s description of a satisfactory rate of academic progress, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### Time Limits for Masters’ Degree Completion

Students working toward the master’s degree have 5 years from the semester the first course is taken in which to complete all degree requirements. Extensions for one additional year to complete the degree may be granted with submission of a detailed plan for completion, including a timetable. Students must be making progress toward

completion when they apply for the extension. A maximum of two extensions may be granted.

## Background Checks, Health Screenings and Other Required Elements:

It is essential that HDFS majors develop professional relationships with vulnerable populations, thus during the course of the degree program and prior to beginning any practical or clinical education experience, students are required to:

- pass multiple criminal background checks
- pass mandatory drug screens
- pass other qualification checks required by the practical or clinical education sites
- provide proof of health insurance coverage
- provide proof of required immunizations
- provide proof of student professional liability insurance coverage

The student is responsible for all costs incurred with these requirements. Failure to provide appropriate documentation, or pass required checks prior to the beginning of practical or clinical experiences may result in dismissal from the degree program in HDFS.

## MA in Human Development and Family Studies with Emphasis in Early Childhood Development

The Early Childhood Development program is planned for students who wish to focus their professional preparation on children as they develop, influence, and are influenced by a variety of environments.

### 1. Statistics and research methods (6 hours)

H_D_FS 8200	Research Methods in Human Development and Family Science
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### 2. Core content (24 hours)

#### a. Family functioning and human development (12 hours)

H_D_FS 8640 & H_D_FS 8012	Family Interaction and Family Dynamics and Intervention
H_D_FS 8210	Theories of Human Development
H_D_FS 8420	Cognitive Development
H_D_FS 8440	Social and Emotional Development

#### b. Electives\* (12 hours)

H_D_FS 7257	Aging and the Family
H_D_FS 7300	Black Families
H_D_FS 7610	Stress and Resilience in Families
H_D_FS 7630	The Process of Divorce
H_D_FS 7640	Interpersonal Relationships
H_D_FS 7720	
H_D_FS 8220	Family Theories
H_D_FS 8235	Administration and Program Management
H_D_FS 8300	Advanced Seminar on Multicultural Families
H_D_FS 8460	Life Course Perspective
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention
H_D_FS 8620	Work and Family
H_D_FS 8630	Gendered Relations in Families
H_D_FS 8770	Poverty

H_D_FS 8710	Children, Families and Public Policy
LTC 8600	Home-School Partnerships: Working with Families

LTC 8610	Issues in Early Childhood Education and Curriculum Practices
LTC 8612 & SPC_ED 8495	and ((courses must be taken concurrently))

LTC 8900	Seminar in Curriculum and Instruction
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\* Or any advisor approved graduate level course

### 3. Independent effort (3-6 hours)

H_D_FS 8090	Research in Human Development and Family Science
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H_D_FS 8972	Internship in Human Development and Family Science
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or MISC 8999	Graduate Examination*
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\* No credit offered for the exam.

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MA in Human Development and Family Studies with Emphasis in Family and Community Services (Great Plains IDEA)

The mission of the Human Development and Family Studies Master's degree emphasis in Family and Community Sciences may be summed up in three words – **Understand, Deliver, Manage**. The goal of the new Family and Community Services online MA option in Human Development and Family Studies is to create alumni capable of **Understanding family**, interpersonal, and community dynamics in order to help individuals and their families through education, resource management, and effective service **delivery**. In addition, graduates of this degree option will acquire knowledge and skills in program and agency management.

The Family and Community Services MA emphasis consists of 36 credit hours, including the 10 core courses shown below. For the remaining 6 credits students may choose from: (a) 6 credits of electives and a capstone examination, (b) 3 credits of electives and a 3 credit internship, or (c) 6 credits of an internship. Elective courses will be offered annually. Exams and internships will include an independently produced paper and an oral examination by the student's MA committee.

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate

admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both Office of Graduate Studies and the degree program to which you've applied.

#### Required Courses

H_D_FS 7600	Resilience in Families	3
H_D_FS 7640	Interpersonal Relationships	3
H_D_FS 7650	Family Crisis Intervention	3
H_D_FS 7690	Family Resource Management	3
H_D_FS 8012	Family Dynamics and Intervention	3
H_D_FS 8100	Foundations and Principles of Family and Community Services	3
H_D_FS 8510	Parenting Education	3
H_D_FS 8520	Lifespan Development	3
H_D_FS 8235	Administration and Program Management	3
H_D_FS 8238	Program Design, Implementation and Evaluation	3

#### Independent Effort

H_D_FS 8972	Internship in Human Development and Family Science	1-99
or MISC 8999	Graduate Examination*	

#### Suggested Electives

H_D_FS 7233	Basic Grant Development and Management	3
H_D_FS 8087	Seminar in Human Development and Family Science (Families in Poverty)	1-99
H_D_FS 8234	Adolescents and their Families	3

\* No credit offered for the exam.

## MA in Human Development and Family Studies with Emphasis in Family Studies

### 1. Statistics and research methods (6 hours)

H_D_FS 8200	Research Methods in Human Development and Family Science	
Any advisor-approved statistics course 7000 level or above		

### 2. Core content (21 hours)

#### a. Family interaction and functioning (6 hours)

H_D_FS 8640	Family Interaction	
H_D_FS 7640	Interpersonal Relationships	

#### b. Family structures, forms, and variations (9 hours)

H_D_FS 7300	Black Families	
H_D_FS 7630	The Process of Divorce	
H_D_FS 8087	Seminar in Human Development and Family Science	
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention	

#### c. Family theory (3 hours)

H_D_FS 8220	Family Theories	
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#### d. Electives\* (3 hours)

H_D_FS 7257	Aging and the Family	
H_D_FS 7610	Stress and Resilience in Families	
H_D_FS 7720		
H_D_FS 8300	Advanced Seminar on Multicultural Families	

H_D_FS 8420	Cognitive Development	
H_D_FS 8620	Work and Family	
H_D_FS 8630	Gendered Relations in Families	
H_D_FS 8710	Children, Families and Public Policy	
* Or any advisor approved graduate level course		

### 3. Human development (3 hours)

H_D_FS 8440	Social and Emotional Development	
H_D_FS 8460	Life Course Perspective	
H_D_FS 8210	Theories of Human Development	
H_D_FS 8450	Adolescence and Emerging Adulthood	
H_D_FS 8470	Identity Development	

### 4. Legal issues (3 hours)

LAW 5575	Family Law	
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### 5. Independent effort (3-6 hours)

H_D_FS 8090	Research in Human Development and Family Science	
H_D_FS 8972	Internship in Human Development and Family Science	
or MISC 8999	Graduate Examination*	

\* No credit offered for the exam.

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both Office of Graduate Studies and the degree program to which you've applied.

## MA in Human Development and Family Studies with Emphasis in Gerontology

The Master's program (MA only) is designed to prepare professionals who are either working directly with older people or are involved in education and research related to the elderly. Professionals offering direct services often are involved in health promotion programs; directing intergenerational activities; managing senior centers or retirement communities; counseling older people and their families; and helping people plan for retirement.

#### Required Courses

H_D_FS 7252	Adult Development	3
H_D_FS 7255	Aging Policy	3
H_D_FS 7256	Environments and Aging	3
H_D_FS 7257	Aging and the Family	3
H_D_FS 8251	Perspectives in Gerontology	3
H_D_FS 8253	Physical Health in Aging	3
H_D_FS 8254	Gerontology Research Methods and Program Evaluation	3
H_D_FS 8258	Professional Seminar in Gerontology	3
Comprehensive Exam or		
H_D_FS 8972	Internship in Human Development and Family Science	1-99

**Suggested Electives**

H_D_FS 7259	Mental Health and Aging	3
H_D_FS 7260	Women and Aging	3
H_D_FS 7261	Biological Principles of Aging	3
or any advisor approved course		

*NOTE: Up to 6 credits can be transferred from other graduate programs if the courses are deemed relevant by your advisor.*

For admission requirements, refer to the Office of Graduate Studies' website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development-family-studies>) and the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MA in Human Development and Family Studies with Emphasis in Lifespan Development

The Master's-level Lifespan Development program is designed for students who have an interest in human development over the life course. Course work focuses on the principles of development, with special emphasis on the importance of context.

**1. Statistics and research methods (6 hours)**

H_D_FS 8200	Research Methods in Human Development and Family Science
Any advisor-approved statistics course 7000 level or above	

**2. Human development (3 hours)**

H_D_FS 8210	Theories of Human Development
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**3. Core content (15 hours)**

**a. Lifespan development (12 hours)**

H_D_FS 7257	Aging and the Family
H_D_FS 8440	Social and Emotional Development
H_D_FS 8420	Cognitive Development
H_D_FS 8460	Life Course Perspective
H_D_FS 8450	Adolescence and Emerging Adulthood

**b. Family interaction and functioning (3 hours)**

H_D_FS 8640	Family Interaction
H_D_FS 8012	Family Dynamics and Intervention
H_D_FS 8220	Family Theories
H_D_FS 7610	Stress and Resilience in Families
H_D_FS 7640	Interpersonal Relationships

**4. Electives\* (6-9 hours)**

H_D_FS 7720	
H_D_FS 8300	Advanced Seminar on Multicultural Families
H_D_FS 8470	Identity Development
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention
H_D_FS 8620	Work and Family
H_D_FS 8630	Gendered Relations in Families
H_D_FS 8710	Children, Families and Public Policy

H\_D\_FS 8770 Poverty

\*Or any advisor approved graduate level course

**5. Independent effort (3-6 hours)**

H_D_FS 8090	Research in Human Development and Family Science
H_D_FS 8972	Internship in Human Development and Family Science
or MISC 8999	Graduate Examination*

\* No credit offered for the exam.

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development-family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MA in Human Development and Family Studies with Emphasis in Youth Development

An estimated 17,000 organizations (e.g., 4-H, Boys and Girls Clubs, Boys Scouts and Girls Scouts) currently serve more than 30 million young people, and national trends are moving away from focusing on problems and behavior correction, instead favoring a positive approach that focuses on developing the strengths of youth. The 36 credit master's degree program (MA) consists of 9 required core courses (25 credits), 5-11 credits of electives, and either a comprehensive exam or an internship experience totaling 2-6 credits. Core courses offered within the program include eight 3-credit courses and a 1-credit professional-development seminar.

**Required:**

H_D_FS 7231	Foundations of Youth Development	1
H_D_FS 8234	Adolescents and their Families	3
H_D_FS 8235	Administration and Program Management	3
H_D_FS 8236	Federal and State Policies that Impact Youth Development	3
H_D_FS 8237	Youth Cultures and the Cultures of Youth	3
H_D_FS 8238	Program Design, Implementation and Evaluation	3

Comprehensive Exam

**OR**

H_D_FS 8972	Internship in Human Development and Family Science	2-6
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**Suggested Electives\*:**

H_D_FS 7001	Topics in Human Development and Family Science (Substance Use)	3
H_D_FS 7001	Topics in Human Development and Family Science (Global Perspectives)	3

\* Or Any Advisor-Approved Course



*NOTE: Up to 6 credits can be transferred from other graduate programs if the courses are deemed relevant by your advisor.*

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MS in Human Development and Family Studies

Admission Contact Information  
 Ashlie Lester, [lester@missouri.edu](mailto:lester@missouri.edu)  
 411 Gentry; Columbia, MO 65211  
 573-882-1301

### Admission Criteria for Campus Programs

Fall deadline: December 15  
 Spring deadline: November 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	50th percentile	50th percentile
On or After August 1, 2011	50th percentile	50th percentile

\*Some exceptions are made

- Minimum GPA: 3.0 for last 60 hours  
 Required Application Materials for Campus Programs (submitted online via the online application system)
- Application form
- 3 letters of recommendation from people who can speak to applicant's potential to do graduate work (e.g., professors, advisors).
- GRE score (and TOEFL score for international applicants)
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Admission Criteria for Online Programs

- No Admission Deadlines (We guarantee processing of complete applications received at least two months prior to the beginning of the expected term of admission. This will give admitted students adequate time to enroll in coursework.)
- Minimum GPA: 3.0 for last 60 hours

## Required Application Materials for Online Programs

submit online via the online application system ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad))

- Application form
- 3 letters of recommendation from people who can speak to applicant's potential to do graduate work (e.g., professors, advisors).
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

## Plan of Study Options

Programs are structured to provide students with an integration of theoretical perspectives, empirical research training, and practical experiences. The number of hours required for each master's degree is as follows:

- Family Studies: 36 hours
- Child Life: 30 (fast track) or 36 hours
- Early Childhood: 36 hours
- Life Span: 36 hours
- Gerontology: 36 hours
- Youth Development: 36 hours
- Family and Community Services: 36 hours
- Dual MSorMA/JD: approximately 113 hours Research

Master's of Science students must complete a thesis (H\_D\_FS 9090 ). Students who wish to pursue the thesis must petition the department's graduate faculty for approval. The thesis requires testing a hypothesis or exploring a research question. Student will submit and orally defend the thesis to their committee. For more detailed information, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

## Research

Based on their chosen degree option and whether they are pursuing the MS or MA degree, master's students may write a thesis (H\_D\_FS 9090), complete a project (H\_D\_FS 8090), or do an internship (H\_D\_FS 8972) for up to six credit hours. The thesis requires testing a hypothesis or exploring a research question. The project option is no less scholarly than a thesis, but usually has an applied focus. For instance, a project may involve designing a program and developing curriculum materials (e.g., instructional videotapes, websites, resource manuals). Internships are often conducted off-campus and must be negotiated with the student's advisor and approved by the student's faculty committee. Students who wish to pursue the thesis option must petition the department's graduate faculty for approval. Students completing a thesis earn a Master of Science degree. Those completing a project or internship earn the Master of Arts. For more detailed information, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

## Satisfactory Progress

Satisfactory progress is based on the student maintaining a sufficient GPA according to the student's program or funding guidelines and completing all degree forms and milestones according to departmental timelines. For a detailed description of the department's description

of a satisfactory rate of academic progress, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

## Time Limits for Masters' Degree Completion

Students working toward the master's degree have 5 years from the semester the first course is taken in which to complete all degree requirements. Extensions for one additional year to complete the degree may be granted with submission of a detailed plan for completion, including a timetable. Students must be making progress toward completion when they apply for the extension. A maximum of two extensions may be granted.

## MS in Human Development and Family Studies with Emphasis in Early Childhood Development

The Early Childhood Development program is planned for students who wish to focus their professional preparation on children as they develop, influence, and are influenced by a variety of environments.

### 1. Statistics and research methods (6 hours)

H_D_FS 8200	Research Methods in Human Development and Family Science
-------------	--

Any advisor-approved statistics course 7000 level or above

### 2. Core content (24 hours)

#### a. Family functioning and human development (12 hours)

H_D_FS 8640	Family Interaction
or H_D_FS 8012	Family Dynamics and Intervention
H_D_FS 8210	Theories of Human Development
H_D_FS 8420	Cognitive Development
H_D_FS 8440	Social and Emotional Development

#### b. Electives\* (12 hours)

H_D_FS 7257	Aging and the Family
H_D_FS 7300	Black Families
H_D_FS 7610	Stress and Resilience in Families
H_D_FS 7630	The Process of Divorce
H_D_FS 7640	Interpersonal Relationships
H_D_FS 7720	
H_D_FS 8220	Family Theories
H_D_FS 8235	Administration and Program Management
H_D_FS 8300	Advanced Seminar on Multicultural Families
H_D_FS 8460	Life Course Perspective
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention
H_D_FS 8620	Work and Family
H_D_FS 8630	Gendered Relations in Families
H_D_FS 8770	Poverty
H_D_FS 8710	Children, Families and Public Policy
LTC 8600	Home-School Partnerships: Working with Families
LTC 8610	Issues in Early Childhood Education and Curriculum Practices
LTC 8612 & SPC_ED 8495	and (must be taken concurrently)

LTC 8900 Seminar in Curriculum and Instruction

Electives\* (12 hours)

### 3. Thesis (3-6 hours)

H_D_FS 9090	Research in Human Development and Family Science
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For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MS in Human Development and Family Studies with Emphasis in Family Studies

### 1. Statistics and research methods (6 hours)

H_D_FS 8200	Research Methods in Human Development and Family Science
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Any advisor-approved statistics course 7000 level or above

### 2. Core content (21 hours)

#### a. Family interaction and functioning (6 hours)

H_D_FS 8640	Family Interaction
or H_D_FS 8012	Family Dynamics and Intervention
H_D_FS 7640	Interpersonal Relationships

#### b. Family structures, forms, and variations (9 hours)

H_D_FS 7300	Black Families
H_D_FS 7630	The Process of Divorce
H_D_FS 8770	Poverty
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention

#### c. Family theory (3 hours)

H_D_FS 8220	Family Theories
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#### d. Electives\* (3 hours)

H_D_FS 7257	Aging and the Family
H_D_FS 7610	Stress and Resilience in Families
H_D_FS 7720	
H_D_FS 8300	Advanced Seminar on Multicultural Families
H_D_FS 8420	Cognitive Development
H_D_FS 8620	Work and Family
H_D_FS 8630	Gendered Relations in Families
H_D_FS 8710	Children, Families and Public Policy

\* Or any advisor approved graduate level course

### 3. Human development (3 hours)

H_D_FS 8440	Social and Emotional Development
H_D_FS 8460	Life Course Perspective
H_D_FS 8210	Theories of Human Development
H_D_FS 8450	Adolescence and Emerging Adulthood
H_D_FS 8470	Identity Development
H_D_FS 8510	Parenting Education

**4. Legal issues (3 hours)**

LAW 5575 Family Law

**5. Thesis (3-6 hours)**

H\_D\_FS 9090 Research in Human Development and Family Science

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## MS in Human Development and Family Studies with Emphasis in Family and Community Services (Great Plains IDEA)

The department is no longer accepting applications to this program.

## MS in Human Development and Family Studies with Emphasis in Lifespan Development

The Master's-level Lifespan Development program is designed for students who have an interest in human development over the life course. Course work focuses on the principles of development, with special emphasis on the importance of context.

**1. Statistics and research methods (6 hours)**

H\_D\_FS 8200 Research Methods in Human Development and Family Science

Any advisor-approved statistics course 7000 level or above

**2. Human development (3 hours)**

H\_D\_FS 8210 Theories of Human Development

**3. Core content (15 hours)**

**a. Lifespan development (12 hours)**

H\_D\_FS 7257 Aging and the Family

H\_D\_FS 8440 Social and Emotional Development

H\_D\_FS 8420 Cognitive Development

H\_D\_FS 8460 Life Course Perspective

H\_D\_FS 8450 Adolescence and Emerging Adulthood

**b. Family interaction and functioning (3 hours)**

H\_D\_FS 8640 Family Interaction

H\_D\_FS 8012 Family Dynamics and Intervention

H\_D\_FS 8220 Family Theories

H\_D\_FS 7610 Stress and Resilience in Families

H\_D\_FS 7640 Interpersonal Relationships

**4. Electives\* (6-9 hours)**

H\_D\_FS 7720

H\_D\_FS 8300 Advanced Seminar on Multicultural Families

H\_D\_FS 8470 Identity Development

H\_D\_FS 8610 Remarriage & Stepfamilies: Development, Dynamics, & Intervention

H\_D\_FS 8620 Work and Family

H\_D\_FS 8630 Gendered Relations in Families

H\_D\_FS 8710 Children, Families and Public Policy

H\_D\_FS 8770 Poverty

\*Or any advisor approved graduate level course

**5. Thesis (3-6 hours)**

H\_D\_FS 9090 Research in Human Development and Family Science

For admission requirements, refer to the Office of Graduate Studies website for the minimum qualifications for the degree program (<http://gradstudies.missouri.edu/academics/programs/human-development--family-studies>) and the Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

## Human Environmental Sciences

### Human Environmental Sciences Extension Specialist

A student who plans to be an extension specialist may choose a subject-matter area of interest. In addition, a master's degree in a subject-matter area generally is required in Missouri.

The student must fulfill the requirements for the chosen major while pursuing the extension objective. Additional electives can be chosen from such areas as adult education, communications and the social sciences.

### Faculty

**Professor** L. Ganong\*\*, J. Ispa\*\*, B. Schwarz\*\*, R. B Tofle\*\*

**Millsap Professor** G. Carlo\*\*

**Associate Professor** D. Rudy\*\*, D. L. Sharpe\*\*

**Assistant Professor** B. Balakrishnan\*\*, S. Killoren \*\*, L. Manfra\*\*, C. Proulx\*\*, R. Ravert\*\*, R. Yao\*

**Assistant Teaching Professor** M. Goldschmidt\*, S. L. Green-lvey, F. Palermo\*

**Assistant Research Professor** M. Herzog\*

**Associate State Personal Finance Specialist** B. Procter, L. Schrader, A. Zumwalt

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in human environmental sciences, the University does offer baccalaureate opportunities in a number of related areas, both within the College of

Human Environmental Sciences, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- PhD in Human Environmental Sciences (p. 595)
  - with emphasis in Architectural Studies (p. 595)
  - with emphasis in Human Development and Family Studies (p. 596)
  - with emphasis in Personal Financial Planning (p. 597)
  - with emphasis in Textile and Apparel Management (p. 597)

**Director of Graduate Studies:** Jung Ha-Brookshire

137 Stanley Hall  
(573) 882-7224

## PhD in Human Environmental Sciences

Students are required to pick an emphasis area to obtain the PhD in Human Environmental Sciences. Please see the individual emphasis degree requirement pages (p. 595) for more information.

## PhD in Human Environmental Sciences with Emphasis in Architectural Studies

### The Program

The Doctor of Philosophy (PhD) degree is designed for individuals who are interested in acquiring the knowledge and skills needed to conduct substantive, innovative, and original research that contributes to the theoretical and methodological foundation of architecture and interior design, and the dissemination of this research through teaching, publication, and practice. To this end, the curriculum is structured so students move gradually from overview of architectural research to the identification and pursuit of major and minor areas of specialization and, finally, to highly specialized original dissertation research. This framework promotes stimulating intellectual discourse among individuals with varying research philosophies and interests.

Both faculty and students interact within this framework to develop an enhanced understanding of how specialized research contributes to the definition and evolution of an improved theoretical and methodological basis for architectural studies.

Doctoral study in Architectural Studies, College of Human Environmental Sciences, is research-based and expands knowledge in the “major” areas of either environment and behavior or design with digital media. The major area is defined as that area of specialization in the doctoral program within which the student is expected to write his/her dissertation.

Students will choose a “supportive cognate area” which is intended to reinforce the development of an understanding of the discipline. Supporting cognate area courses are selected from a broad spectrum of disciplines providing students with the opportunity to design an individualized program of study that capitalizes on their unique interests and talents.

A Design Research concentration is offered for:

- Designers engaged in interior design, architecture, graphic or interaction design who require applied research skills from companies/organizations.
- Researchers with a background in social sciences, anthropology etc. who conduct research for creative product development in industry -- Healthcare IT companies, Engineering etc.
- Business and market professionals to advance understanding of design research for marketing.

The course work for the concentration is applied to the program of study. For specifics, see Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) on Department website.

Also see the Department website for additional information: Master Programs ([http://arch.missouri.edu/academics\\_masters.html](http://arch.missouri.edu/academics_masters.html)), Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)), Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)), Online Study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)), Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>) and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>).

### Degree Requirements

The University of Missouri requires a minimum of 72 semester hours beyond the baccalaureate degree for the PhD. Coursework from the Design Research concentration can be applied to the program of study. The doctoral program committee provides departmental approval of the student’s plan of study (Form D-2), a list of the courses and the credit to be earned in each of them, which will, when completed:

- Prepare the student for research or scholarly investigation in the chosen field of study.
- Satisfy the credit-hour and residency requirement of the department.
- Satisfy any special requirements (collateral field, other special research skills) imposed by the department.
- Satisfy the Graduate School’s requirement for a minimum of 15 hours of course work at the 8000/9000 level (exclusive of research, problems and independent study experiences).

The committee also recommends to the vice provost/dean, as part of the plan of study, any request for transfer of graduate credit. The student must substantially complete the course work outlined in the plan of study to the satisfaction of the doctoral program committee and the Graduate School before being declared ready for the comprehensive examination.

The research-based plan of study leads to the written doctoral dissertation. The dissertation is distinctive because it demonstrates the ability to conceive of and execute scholarly research, and it makes a contribution of new knowledge to the discipline. Research is conducted in one of the two interest areas — Environment and Behavioral studies ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) or Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)). Specific course work is chosen based on subject matter and the type of research method selected— quantitative, qualitative or a combination of both.

PhD students must complete a final oral examination by an approved faculty committee.

In order to pass the examination, and thus qualify as the basis for the award of the PhD degree, the dissertation should have the following attributes:

- It demonstrates authority in the candidate’s field and shows evidence of command of knowledge in relevant fields;
- It shows that the candidate has a thorough grasp of the appropriate methodological techniques and an awareness of limitations;
- It makes a distinct contribution to knowledge because of the originality of the approach and/or interpretation of the findings and, in some cases, the discovery of new facts;
- It demonstrates an ability to communicate research findings effectively in the professional arena and in an international context;
- It is a careful, rigorous and sustained piece of work demonstrating that a research “apprenticeship” is complete and the holder should be admitted to the community of scholars in the discipline.

## Admissions

### Admission Contact

Dr. Ruth Tofle (tofler@missouri.edu)  
142C Stanley Hall; Columbia, MO 65211  
573-882-6035

### Admission Criteria

Fall deadline: January 15  
Minimum GPA: 3.0

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

### Required Application Materials

See Application and Admission ([http://arch.missouri.edu/academics\\_gradadmit.html](http://arch.missouri.edu/academics_gradadmit.html)) for Department’s graduate admissions criteria. Apply online at the Office of Graduate Studies (<http://gradstudies.missouri.edu>).

## PhD in Human Environmental Sciences with Emphasis in Human Development and Family Studies

Admission Contact Information  
Ashlie Lester (lester@missouri.edu)  
411 Gentry  
Columbia, MO 65211  
573-882-1301

The Department of Human Development and Family Science emphasis in the Human Environmental Sciences PhD degree prepares students for careers in research, college or university teaching, or leadership positions in public and private human service institutions.

### Admission Criteria

Fall deadline: December 15

Spring deadline: November 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	50th percentile	50th percentile
On or After August 1, 2011	50th percentile	50th percentile

\* Some exceptions are made.

- Minimum GPA: 3.0 for last 60 hours

### Required Application Materials

Submit via the apply yourself system

- Application form
- 3 letters of recommendation from people who can speak to applicant’s potential to do graduate work (e.g., professors, advisors)
- GRE score (and TOEFL score for international applicants)
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Plan of Study

Students selecting the doctoral degree work with members of their doctoral committee to create an individualized plan of study tailored to their specific research interests. Over the course of their degree program all doctoral students are required to enroll in six credit hours of research practicum, three credit hours of teaching practicum, and complete coursework in theory, research methods, statistics, and their collateral area. In addition, all doctoral students complete a minimum of 12 credit hours of research for their dissertation. A sample plan of study can be found on the HDFS website (<http://hdfs.missouri.edu/>).

### Qualifying Process for Doctoral Students

To be officially admitted to the HDFS doctoral program, students generally must have completed a master’s degree in HDFS or a related field, although exceptions are granted.

### Satisfactory Progress

Satisfactory progress is based on the student maintaining a sufficient GPA according to the student’s program or funding guidelines and completing all degree forms and milestones according to departmental timelines. For a detailed description of the department’s description of a satisfactory rate of academic progress, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### PHD Comprehensive Matriculation Exam

The comprehensive exam consists of two parts. Part I involves an in-house written and oral examination over

1. theory, methods, and statistics,
2. the student’s area of specialization and core content, and

3. the student's collateral area.

The advisor is responsible for collecting questions from all five committee members, constructing the exam, and getting approval for the final version of the exam from available committee members. It is expected that the written exam will take the student no longer than 8 hours (e.g., two half-days or one full day) to complete. The written exam will be assessed by the committee and the student will meet with the committee for an oral defense of the written exam. If this part of the exam is passed the student moves to Part II of the comprehensive exam, which involves writing a grant pre-proposal and, if approved, a full grant proposal as outlined in the HDFS Graduate Handbook. For a detailed description of the comprehensive exam timeline please refer to the Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

## Admission to Candidacy

After students pass Parts I and II of the comprehensive examination, they complete the D3 form to apply to the Division of Graduate Studies for admission to doctoral candidacy. Following admission to candidacy, students complete a prospectus for the dissertation project. The prospectus includes a pertinent review of the literature, statement of the problem, the purpose of the proposed study, description of the research design, and discussion of the specific means by which the data will be analyzed. Subsequently, the dissertation committee will meet to evaluate, request revisions to, and approve the student's dissertation prospectus.

## Time Limits on Degree Completion

A graduate degree represents current knowledge of the field as of the date the degree is granted. Limitations have therefore been set regarding the number of years to finish the degree. Doctoral students have 6 years in which to complete degree requirements. The clock starts the semester that the first class beyond the master's degree is taken. The comprehensive exam must be completed no later than by the end of the fourth year of study. HDFS doctoral students have only three years after passing the comprehensive examination to complete the doctoral degree.

## Petitions for Extension

On petition of the candidate, an extension of 1 year may be granted by the HDFS graduate faculty. The student may petition for no more than two one-year extensions. Therefore, a doctoral student may have no more than 5 years, including two one-year extensions, to complete the doctoral degree after passing the comprehensive exam. On petition of the candidate and the candidate's department, an extension of this time limit may be granted by the Graduate School.

## PhD in Human Environmental Sciences with Emphasis in Personal Financial Planning

College of Human Environmental Sciences  
239 Stanley Hall  
573-882-9343  
<http://pfp.missouri.edu/>

The doctoral program is designed to develop skill in the evaluation and generation of research that advances the disciplines engaged in Personal Financial Planning, such as Personal Finance, Family Economics, Consumer Economics, Corporate Finance, Law, among others. This

program prepares students for careers in university research and teaching, government, Extension, or public policy evaluation.

## Application Deadlines

Fall deadline: February 1

Spring deadline: October 1

## Admission Criteria

- Minimum TOEFL scores (for ESL applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

We also accept IELTS scores

Item	Score
International English Language Testing System (IELTS)	6.5

- Minimum GPA: 3.0 in last 60 hours

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents
- 3 letters of recommendation
- GRE or GMAT scores
- Statement of Purpose
- Official transcripts

## PhD in Human Environmental Sciences with Emphasis in Textile and Apparel Management

Admission Contact Information  
Leona Nichols ([nicholslm@missouri.edu](mailto:nicholslm@missouri.edu))  
137 Stanley Hall; Columbia, MO 65211  
573-882-7317  
[http://tam.missouri.edu/grad\\_PhD.html](http://tam.missouri.edu/grad_PhD.html)

## Application Deadlines

Fall deadline: February 1 (January 15 for early financial support considerations)

Spring deadline: September 1

## Admission Criteria

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree from an accredited college or university in textile and apparel management or related field. Those with unrelated majors will need to do make-up work
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
79	550

- Recommended Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	500/500	160
On or After August 1, 2011	153/144	3.0

## Required Application Materials

To the Graduate School:

- All required Graduate School documents
- Statement of professional objectives (upload to application)
- Departmental application (upload through the Graduate School application or send directly to department)
- Three letters of recommendation (upload preferred, or send directly to department)
- Official transcripts from every college or university you have attended
- GRE Scores
- Latest vitae or résumé
- TOEFL scores if international student
- A digital design portfolio if pursuing design research

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Nutrition and Exercise Physiology

**Department Chair:** Christopher Hardin

204 Gwynn Hall  
 (573) 882-4288  
 hardinc@missouri.edu  
 http://ns.missouri.edu

**Nutrition and Exercise Physiology Office**

204 Gwynn Hall  
 (573) 882-4288  
 Fax: (573) 884-4885

**Director of Graduate Studies - Exercise Physiology**

Jill Kanaley  
 204 D Gwynn Hall  
 (573) 882-2519  
 kanaleyj@missouri.edu  
 http://ns.missouri.edu

**Director of Graduate Studies - Nutritional Sciences**

Pamela Hinton  
 124 McKee  
 (573)882-4137  
 hintonp@missouri.edu

**Admission Contact Information**

Ben Sauro  
 204 Gwynn Hall  
 573-882-44288  
 saurob@missouri.edu

## Faculty

**Professor** K. L. Fritsche\*\*, C. D. Hardin\*\*, J. A. Kanaley\*\*, E. J. Parks\*\*

**Associate Professor** S. Ball\*\*, S. Gable\*\*, P. S. Hinton\*\*, C. A. Peterson\*\*, R. S. Rector\*\*

**Assistant Professor** J. Limberg\*, J. Padilla\*, V. Vieira-Potter\*

**Assistant Research Professor** Keller, K

**Teaching Assistant Professor** L. Hudson\*, M. Raedeke\*, J. Schnell\*, D. Smith

**Joint Faculty** M. J. Petris\*\*, L. Pulakat\*\*

**Adjunct Faculty** F. W. Booth\*, J. A. Ibdah\*\*, D. Lubahn\*\*, F. Nassir\*\*, S. Sayers

**Adjunct Instructor** J. B. Mann, T. Roberts, R. Sharp, D. Showers, M. Stevens, J. Thyfault\*\*

**Extension Faculty** J. Britt-Rankin\*, C. Gabel, S. Mills-Gray

**Professor Emeritus** D. E. Brigham\*, R. P. Dowdy\*, L. Hillman\*, P. M. Landhuis\*, M. McDonald, B. L. O'Dell, T. R. Thomas\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in exercise physiology, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Human Environmental Sciences, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Nutrition and Exercise Physiology (p. 598)
  - with emphasis in Exercise Physiology (p. 598)
  - with emphasis in Nutritional Sciences (p. 600)

## MS in Nutrition and Exercise Physiology

The MS in Nutrition and Exercise Physiology has two emphasis areas. Please see the emphasis area pages in Nutritional Sciences (p. 600) and in Exercise Physiology (p. 598) for degree information.

## MS in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology

### About the Program

The graduate program in Nutrition and Exercise Physiology is designed to provide advanced training in both the basic and applied aspects of exercise, physical activity and physical inactivity. Currently, the research focus is to examine the mechanisms by which physical activity levels and/or exercise modulate risk and development of obesity, type 2 diabetes, and overall metabolic and cardiovascular diseases using both animal models and human subjects, and to be able to translate the findings into the clinical or applied setting. Graduate students will receive training in laboratory research, seminar preparation, scientific writing, problem

solving and grant writing. Graduate studies at the University of Missouri offer the advantage of interdisciplinary exercise research that is facilitated by numerous collaborations at the many research centers at MU. In addition, the Exercise Physiology research program collaborates closely with other units on campus including the Department of Biomedical Sciences in the Vet School, and the Departments of Internal Medicine and Medical Pharmacology and Physiology in the School of Medicine among others.

Exercise physiology faculty seek to develop new knowledge in the area of exercise training, exercise metabolism, and obesity. The current focus of the program is physical inactivity, exercise and nutrition strategies for weight management and the prevention of lifestyle related diseases. The mission of the Exercise Physiology Graduate Program is to train graduate students who will provide professional leadership and research developments in areas of human health and sports conditioning.

The curriculum has a scientific basis with core courses in exercise physiology, nutrition, biochemistry, and physiology. Exercise physiology research emphasizes human studies, but other exercise models are available on campus, including the pig (Vet. Biomedical Sci.) and the rat (Medical School and VA).

## Degree Requirements

Students in Nutrition and Exercise Physiology emphasis will choose between two options for final completion: thesis or internship. The course curriculum will be the same for both options. Students will complete a minimum of 36 credits of graduate coursework beyond the bachelor's degree. For a full explanation of the thesis/non-thesis options, see section below on Thesis/Non-Thesis Requirements (p. 599) or view the information on the programs website: <http://ns.missouri.edu/exphy.ma.html>.

Prerequisite courses for the program are a B or better in General Chemistry, Physiology, Human Anatomy, Kinesiology and Physiology of Exercise. Biochemistry, Organic Chemistry and Nutrition are recommended.

### Required Graduate Courses

ESC_PS 8850	Quantitative Foundations in Educational Research	3
NEP 7001	Topics in Nutritional Science and Exercise Physiology (Exercise Endocrinology )	3
NEP 7001	Topics in Nutritional Science and Exercise Physiology (Preventive and Therapeutic Exercise Physiology or Advanced Exercise Testing and Prescription)	3
NEP 7500	Research in Nutritional Sciences and Exercise Physiology ( mandatory for thesis track; optional for internship track)	3
NEP 7840	Cardiovascular Health and Fitness	3
NEP 8001	Topics in Nutritional Sciences and Exercise Physiology (Cardiovascular Disease and Exercise)	3
NEP 8087	Masters Seminar in Nutritional Sciences and Exercise Physiology	1
NEP 8090	Masters Research in Nutritional Sciences and Exercise Physiology	4
or NEP 8095	Internship in Exercise Physiology	
NEP 8850	Advanced Exercise Physiology	3
<b>Must take a minimum of 2 of the following courses:</b>		
NEP 7340	Human Nutrition II Lecture (biochem. prereq.)	3

NEP 8030	Etiology of Obesity	3
NEP 8870/MPP 9431	Exercise Metabolism	3
V_BSCI 9435	Molecular Exercise Biology	3
Suggested Electives (other classes may be accepted)		
NEP 7200	Sports Performance and Conditioning	3
NEP 7970	Sports Nutrition	2
NEP 7500	Research in Nutritional Sciences and Exercise Physiology	3
NEP 8340	Nutrition in Human Health	3
BIOCHM 7270	Biochemistry	3
Select to give 36 hours total		

## Thesis/Non-Thesis Requirements

### 1. Internship Option

This option is oriented toward improving a practitioner's professional proficiency in the applied aspects of exercise physiology. The program of study will include courses and learning experiences that will develop the student's knowledge in the theoretical aspects of exercise physiology.

They will be required to complete an approved internship (300 hours minimum) which will provide them with experience in an applied or clinical setting. The student is responsible for identifying and securing the internship. Students selecting this option will graduate with the some preparation for credentialing from organizations including the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). Completion of this degree as well as obtaining certification will prepare students for careers such as registered clinical exercise physiologists, strength and conditioning coaching, personal trainer or wellness coach, health/fitness instructor, as well as in other health professions.

### 2. Thesis Option

This option is research-oriented, focusing on designing and conducting research in exercise physiology. The program of study will include courses and learning experiences that will maximize a student's progress in developing lab skills and critical thinking that will enable the student to continue his/her education in a research-oriented area. The thesis option requires a minimum of 36 hours of graduate credit. A written thesis, based upon original research, that is the student's own work and that demonstrates a capacity for research and independent thought is required. In addition, the graduate student must present their thesis research in a seminar that is open to the general faculty and successfully defend their thesis to their committee.

## Admissions

**Exercise Physiology Program Applicants** must have a 3.0 undergraduate GPA and competitive GRE scores to apply. TOEFL scores are required from international applicants. Entering MS students are expected to have a B or better in undergraduate training in biology, chemistry, anatomy/physiology, and exercise physiology. It is also advantageous to have nutrition, biochemistry and organic chemistry, but not required. Courses should be taken at an accredited institution.

Applications to our graduate programs should be **submitted by December 30th**. While applications received after that date will still be considered, there is no guarantee that we will have space for additional students. Admission at the beginning of spring semester is possible, but limited.



## Minimum TOFEL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

## Minimum GRE Scores

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to Aug. 1, 2011	500	500	3.5
On or after Aug. 1, 2011	150	150	3.5

Complete instructions on the application process can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

# MS in Nutrition and Exercise Physiology with Emphasis in Nutritional Sciences

## About the Program

The Nutritional Sciences Graduate Program provides training in the distinct core nutrition knowledge described by the Graduate Nutrition Education Committee of the American Society for Nutrition: general research skills; structure and biochemical and metabolic functions of nutrients and other dietary constituents; food, diets, and supplements; nutritional status assessment; nutrition and disease; nutrition interventions and policies; and, analytical skills. Graduate students also receive training in laboratory research, seminar preparation and delivery, scientific writing, problem solving and research grant writing. Graduate study in Nutritional Sciences at the University of Missouri offers the advantage of interdisciplinary nutrition research that is facilitated via the many research centers at MU, including Food for the 21st Century (F21C), the Botanical Center, the Life Sciences Center and MU Nutritional Center for Health (MUNCH). The graduate program is administered by the Department of Nutrition and Exercise Physiology in association with the College of Human Environmental Sciences, the College of Agriculture, Food and Natural Resources, and the School of Medicine.

## Degree Requirements

The program consists of a total of 30 hours of credit beyond the bachelor's degree, of which 15 credits must be at the 8000 or 9000 level; no more than 40 percent of the 30-hour credit requirement can be satisfied by a combination of special investigations, Research, Readings and/or Problems courses. The master of science degree is awarded in part for the completion of a thesis. The thesis is based upon original research, that is student's own work and that demonstrates a capacity for research and independent thought is required. In addition, the graduate student must present their thesis research in a seminar that is open to the general faculty and successfully defend their thesis to their committee.

The minimum department course requirements for the master of science degree are:

AN_SCI 9442	Vitamins and Minerals	4
BIOCHM 7270 & BIOCHM 7272	Biochemistry and Biochemistry	6
NEP 7340	Human Nutrition II Lecture	3

NEP 8087	Masters Seminar in Nutritional Sciences and Exercise Physiology	1
NEP 8090	Masters Research in Nutritional Sciences and Exercise Physiology	4
NEP 8310	Nutritional Biochemistry of Lipids	3
NEP 8340	Nutrition in Human Health	3
Statistics		6
Total Credits		30

## Thesis/Non-Thesis Requirements

The M.S. program in Nutritional Sciences only offers a thesis option.

Students earning this degree must provide a written thesis, based upon original research, that is student's own work and that demonstrates a capacity for research and independent thought. In addition, the graduate student must present their thesis research in a seminar that is open to the general faculty and successfully defend their thesis to their committee.

## Admissions

Complete instructions on the application process can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

## Minimum TOFEL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

## Minimum GRE Scores

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to Aug. 1, 2011	500	500	3.5
On or after Aug. 1, 2011	150	150	3.5

## Nutritional Sciences

### Department Chair

Christopher Hardin  
204 Gwynn Hall  
(573) 882-4288  
[hardinc@missouri.edu](mailto:hardinc@missouri.edu)  
<http://ns.missouri.edu>

### Emphasis areas and Program Directors

**Nutrition and Foods:** Nikki Raedeke [raedekem@missouri.edu](mailto:raedekem@missouri.edu)  
**Nutrition and Fitness:** Jill Kanaley [kanaleyj@missouri.edu](mailto:kanaleyj@missouri.edu)  
**Nutritional Sciences (pre-med) or Minor:** Catherine Peterson [petersonca@missouri.edu](mailto:petersonca@missouri.edu)

### Advising Contact

Tammy Conrad  
201 Gwynn Hall  
(573) 882-1144  
[conradt@missouri.edu](mailto:conradt@missouri.edu)

### HES Student Service Office

Victoria Shahan  
106 Gwynn Hall  
(573) 882-6424  
[hesstudentservices@missouri.edu](mailto:hesstudentservices@missouri.edu)

<http://hes.missouri.edu>

#### Scholarship Contact

122 Gwynn Hall  
(573) 882-5142  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

## Faculty

**Professor** K.L. Fritsche\*\*, C. D. Hardin\*\*, J. A. Kanaley\*\*, E. J. Parks\*\*  
**Associate Professor** S. Ball\*\*, S. Gable\*\*, P. S. Hinton\*\*, C. A. Peterson\*\*,  
R. S. Rector\*\*

**Assistant Professor** J. Limberg\*, V. Vieira-Potter\*, J. Padilla\*

**Assistant Research Professor** K. Keller

**Teaching Assistant Professor** J. Bean\*, L. Hudson\*, M. Raedeke\*, D. Smith

**Joint Faculty** M. J. Petris\*\*, L. Pulakat\*\*

**Adjunct Faculty** F. W. Booth\*, P. Fadel, J. A. Ibdah\*\*, C. H. Lu, D. Lubahn\*\*, F. Nassir\*\*, S. Sayers

**Adjunct Instructor** J. B. Mann, T. Roberts, R. Sharp, D. Showers, M. Stevens, J. Thyfault\*\*

**Extension Faculty** J. Britt-Rankin\*, C. Gabel, S. Mills-Gray

**Professor Emeritus** D.E Brigham\*, R. P. Dowdy\*, L. Hillman\*, P. M. Landhuis\*, M. McDonald, B. L. O'Dell, T. R. Thomas\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSHES in Nutritional Sciences (p. 601)
  - with emphasis in Nutrition and Fitness (p. 602)
  - with emphasis in Nutrition and Foods (p. 603)
  - with emphasis in Nutritional Sciences (p. 604)
- Minor in Nutritional Sciences (p. 605)

The program leading to the BS in Human Environmental Sciences with a major in Nutritional Sciences offers designated emphasis areas in nutrition and fitness, nutrition and foods, and nutritional sciences. Two minors are available: a minor in Nutritional Sciences and a minor in Wellness. The Nutritional Sciences minor is intended for students majoring in food science, biological sciences, biochemistry, health sciences or related fields and the minor in Wellness is intended for both non-science and science students interested in course work focused on empowering them to make informed decisions related to lifelong personal nutrition and exercise choices. The department administers graduate programs in nutrition and exercise physiology, nutritional sciences and exercise physiology.

Students who want to explore the major can take NEP 1034 Introduction to Human Nutrition or NEP 1340 Introduction to Exercise and Fitness or NEP 1485 Career Exploration in Exercise Science or NEP 2380 Diet Therapy for Health Professionals.

The department has a set GPA requirement for students entering each program. The specific requirements can be found on our department website <http://ns.missouri.edu>

Nutrition and Foods - This is a Professional Coordinated Program. Admission is competitive and application requirements include a

minimum cumulative grade point average of 3.2 on a 4.0 scale and completion of the pre-requisite courses listed on the sample plan. Students must earn a B- or higher in both NEP 2340 and BIOCHM 3630 in order to progress into the Coordinated Program. Admission into the Coordinated Program is limited to a maximum of 20 students per year. The professional program requires three years of course work after completion of all prerequisites and university general education (p. 33) requirements. Only students who successfully complete prerequisites, have been admitted to the Coordinated Program and completed all undergraduate requirements for the Coordinated Program will receive this emphasis area for the bachelor's degree. The completion of this bachelor's degree only does not allow the student to be eligible to take the national Registration Examination for Dietitians. Furthermore, it is not a didactic program in dietetics. No verification statement is given after completion of only the bachelor's degree. Students who receive this degree emphasis and are in good academic standing will transition seamlessly to the Coordinated Program's fifth year master's program.

Nutrition and Fitness - students may transfer into the program as pre-N&F, but will be unable to take the upper level courses until they advance into the program. To advance, a student must earn a minimum 2.65 CUM GPA after 30 credit hours, including completion of \*\*CHEM 1320, \* BIO\_SC 1010/BIO\_SC 1020 or BIO\_SC 1500, \*\*MATH 1100 or equivalent,\* NEP 1340 and Physiology (\*MPP 3202) or Anatomy (\*PTH\_AS 2201).

\* Classes require a C or better.

\*\* Classes require a C- or better.

Nutritional Sciences (pre\_Med) - After the first semester, students who transfer into the Nutritional Sciences Program are required to have a minimum GPA of 2.65 and be enrolled in at least one required biology, chemistry, physics, or biochemistry course to be eligible.

## Graduate

Information on our graduate degrees can be found under the following listings:

Nutrition Area Program (p. 714) (PhD)

Nutrition and Exercise Physiology (p. 598) (MS)

Dietetics (p. 578)

Exercise Physiology (p. 579) (PhD)

The catalog provides a complete list of degree options (p. 17) at the University of Missouri.

## BSHES in Nutritional Sciences

### Degree Program Description

Nutritional Sciences focuses on the utilization of nutrients and other dietary components by humans for growth maintenance, and reproduction, in both normal and disease states. Upon becoming a Nutritional Science major, students have three emphasis to choose from. The field of nutritional sciences requires a strong background in biology, chemistry, physiology and biochemistry to allow understanding of the mechanisms through which dietary factors are digested, absorbed, transported, metabolized and used by tissues and cells. The Nutritional Sciences Program offers significant opportunities for undergraduate research. Students majoring in Nutritional Sciences will be well prepared

for health-related careers such as medicine and nursing, as well as for graduate study in nutritional sciences.

## Major Program Requirements

The BSHES in Nutritional Sciences is offered with three emphasis options: Nutrition and Fitness, Nutrition and Foods, and Nutritional Sciences. All degree requirements are listed at the emphasis level.

## Semester Plan

Refer to the Semester Plans in the emphasis areas.

# BSHES in Nutritional Sciences with Emphasis in Nutrition and Fitness

## Degree Program Description

Graduates of this program are prepared for employment in fitness and community nutrition or to continue in graduate studies in a variety of areas, including exercise science. Many students move into the health professions fields from this degree or seek out additional certifications. This is a rapidly expanding area with opportunities in corporate and commercial industries, government and non-profit sectors. Typical employment responsibilities include fitness assessment, lifestyle intervention education, health and wellness, exercise supervision and program administration. Students also use this degree as a base to apply to programs in Physical Therapy, Occupational Therapy, Physicians Assistant or Graduate School. Our graduates are also qualified to sit for the following certifications without any additional courses beyond our core requirements: ACSM Certified Exercise Physiologist (ACSM EP-C), ACSM Certified Personal Trainer (ACSM CPT), ACSM Certified Group Exercise Instructor (ACSM GEI), NSCA Certified Personal Trainer, NSCA Certified Strength & Conditioning Coach, ACE Certified Personal Trainer.

## Major Program Requirements

Students desiring to declare Nutrition and Fitness as a major are required to have earned a minimum overall GPA of 2.65, including completion of the following courses or their equivalents with a minimum grade as noted: "C" or higher in Biology (BIO\_SC 1010/BIO\_SC 1020 or BIO\_SC 1500), MPP 3202 Elements of Physiology and PTH\_AS 2201 Human Anatomy Lecture and NEP 1340 Introduction to Exercise and Fitness. And a "C-" or higher in CHEM 1320 College Chemistry I, CHEM 2030 Survey of Organic Chemistry and MATH 1100 College Algebra.

BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1500	General Principles and Concepts of Biology and General Biology Laboratory Introduction to Biological Systems with Laboratory	5
CHEM 1320	College Chemistry I	4
MATH 1100	College Algebra	3
MPP 3202	Elements of Physiology	5
NEP 1340	Introduction to Exercise and Fitness	3
PTH_AS 2201	Human Anatomy Lecture	3

Prior to achieving these requirements, students will be considered "Pre-Nutrition and Fitness" and are not eligible to take upper-level Nutrition and Fitness courses. Students must complete all university requirements

(p. 32), including general education (p. 33), in addition to the degree requirements below.

## Science Foundation

BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1500	General Principles and Concepts of Biology and General Biology Laboratory Introduction to Biological Systems with Laboratory	5
BIOCHM 3630	General Biochemistry	3
CHEM 1320	College Chemistry I	4
CHEM 2030	Survey of Organic Chemistry	3
CHEM 2130	Organic Laboratory I (recommended)	2
MPP 3202	Elements of Physiology	5
PTH_AS 2201	Human Anatomy Lecture	3
PTH_AS 2203	Human Anatomy Laboratory (recommended)	2
STAT 1200 or STAT 1300 or STAT 1400 or ESC_PS 4170	Introductory Statistical Reasoning Elementary Statistics Elementary Statistics for Life Sciences Introduction to Applied Statistics	3

## Emphasis Core Requirements

### Nutritional Sciences

NEP 2340	Human Nutrition I	3
NEP 2380	Diet Therapy for Health Professionals	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 4970	Nutrition Capstone: Sports Nutrition	2

### Exercise Physiology

HTH_PR 4250	Human Kinesiology	3
NEP 1340	Introduction to Exercise and Fitness	3
NEP 1485	Career Exploration in Exercise Science	1
NEP 3450	Activity Throughout the Lifespan	3
NEP 3550	Corporate, Community, and Personal Fitness	3
NEP 3850	Physiology of Exercise	3
NEP 4200	Sports Performance and Conditioning	3
NEP 4860	Exercise Prescription	3
COMMUN 1200	Public Speaking	3

### Supporting Area

A minimum of three different classes must be taken from the following list of courses. Only one course can be taken outside of the NEP area. Be sure to check for course prerequisites before enrolling.

### Electives to equal 120 credit minimum

Organic chem lab, anatomy lab and internships are available and highly recommended.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		CR
Fall	CR Spring	CR
GN_HES 1100	1 ENGLISH 1000	3
BIO_SC 1500 or 1010 <i>and</i> 1020	5 CHEM 1320	4
MATH 1100	3 NEP 1485	1
NEP 1340	3 Hist or Pol Sc	3
HES Foundation Course	3 Humanities	3
15		14

Second Year		
Fall	CR Spring	CR
CHEM 2030	3 BIOCHM 3630	3
CHEM 2130 (recommended)	2 MPP 3202	5
COMMUN 1200	3 NEP 2340	3
PTH_AS 2203 (recommended)	2 Social/Behavioral (recommend NEP 2222)	3
PTH_AS 2201	3	
Social/Behavioral (PSYCH 1000)	3	
	16	14
Third Year		
Fall	CR Spring	CR
NEP 2380	3 NEP 2450	3
NEP 3450	3 NEP 3550	3
NEP 3850	3 NEP 4200	3
Statistics Course	3 Elective	3
Humanities	3 Supporting Area	3
	15	15
Fourth Year		
Fall	CR Spring	CR
HTH_PR 4250	3 NEP 4860	3
NEP 4970	2 Supporting Area	3
Supporting Area	3 Electives	9
Electives	5	
HES Foundation Writing Intensive	3-4	
	16-17	15

Total Credits: 120-121

## BSHES in Nutritional Sciences with Emphasis in Nutrition and Foods

### Degree Program Description

The program in Nutrition and Foods prepares students to integrate and apply the principles of the biomedical sciences and food and nutrition sciences to design and manage effective nutrition programs in a variety of settings. Nutritional Sciences with emphasis in Nutrition and Foods is a five- year BS-MS program. During the first two years of the curriculum, students develop a foundation in science and general education. This is followed by a three year course of study devoted to professional courses and supervised practice (fieldwork). The program prepares students to become registered dietitian nutritionists (RDN). RDN's specialize in applied nutrition and work in a variety of practice settings, such as hospitals and clinics, schools, business and industry, private practice and public health clinics.

### Major Program Requirements

The College of Human Environmental Sciences offers a bachelors degree in BSHES in Nutritional Sciences with a emphasis in Nutrition and Foods. Only students who successfully complete prerequisites, have been admitted to the Coordinated Program in Dietetics and complete all undergraduate requirements for the Coordinated Program in Dietetics will receive this emphasis area for the bachelor's degree. The completion of this bachelor's degree only does not allow the student to be eligible to

take the national Registration Examination for Dietitians. Furthermore, it is not a didactic program in dietetics. No verification statement is given after completion of only the bachelor's degree. Students who receive this degree emphasis, an are in good academic standing and meet program requirements will transition seamlessly to the Coordinated Program's fifth year master's program.

The professional program requires three years of course work after completion of all prerequisites and university general education requirements. Students accepted into the Coordinated Program will receive academic course work and supervised practice during years 3-5. Admission is limited to a maximum of 20 students per year.

Application requirements to the CP are posted each year on the department's webpage at <http://ns.missouri.edu/> Applications are due in January. To be eligible to apply, the applicants must be admitted to the university, have a minimum 3.2 GPA and have completed or be able to complete the first four semesters of courses listed below. The student must be enrolled in or already have completed NEP 2340 and BIOCHM 3630 at the time the CP application is submitted. Students must achieve a final course grade of B- or better in both, or equivalent transfer course approved by faculty. Failure to meet the criteria may result in forfeiture of a space in the Coordinated Program. Accepted students must also successfully pass background checks, drug screens and submit the required health records prior to starting the Coordinated Program.

The program is accredited by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics. For additional information, please go to <http://ns.missouri.edu/>.

Students must complete all university and College of Human Environmental Sciences requirements, including general education (p. 33), in addition to the degree requirements below.

### Emphasis Core Requirements

#### Pre-Professional Requirements

BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1500	General Principles and Concepts of Biology and General Biology Laboratory Introduction to Biological Systems with Laboratory	5
CHEM 1320	College Chemistry I	4
CHEM 2030 & CHEM 2130	Survey of Organic Chemistry and Organic Laboratory I	5
BIOCHM 3630	General Biochemistry	3
CDS 2190	Medical Terminology	3
COMMUN 1200	Public Speaking	3
HLTH_SCI 1000	Introduction to the Health Professions	3
NEP 1995	Nutritional Food Science	3
MPP 3202	Elements of Physiology	5
NEP 2340	Human Nutrition I	3
NEP 2380	Diet Therapy for Health Professionals	3
PSYCH 1000	General Psychology	3
H_D_FS 1600 or H_D_FS 1610	Foundations of Family Science Intimate Relationships and Marriage	3
FINPLN 2183	Personal and Family Finance	3

#### Area of Competence

ESC_PS 4170	Introduction to Applied Statistics	3
F_S 4310	Food Chemistry and Analysis	4
MANGMT 3000	Principles of Management	3
MPP 4204	Medical Pharmacology	5

PTH_AS 2201	Human Anatomy Lecture	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 3290	Food Service I: Supervised Practice Experience	1
NEP 3360	Nutritional Assessment Supervised Practice Experience	2
NEP 3370	Nutrition Therapy I: Supervised Practice Experience	3
NEP 3390	Teaching and Counseling Techniques in Nutrition	2
NEP 3400	Teaching & Counseling Techniques in Nutr. Supervised Practice Exp	1
NEP 3590	Community Nutrition Supervised Practice Experience	1
NEP 4290	Food Serv. II: Adv. Food Service Manage. Supervised Practice Exp	2
NEP 4280	Food Service Management	3
NEP 4340	Human Nutrition II Lecture	3
NEP 4360	Nutritional Assessment	3
NEP 4370	Nutrition Therapy I	3
NEP 4590	Community Nutrition	3
NEP 4950	Capstone: Research in Nutritional Sciences	2
NEP 4951	Nutrition Research Communication	1
NEP 8340	Nutrition in Human Health	3
Select 2 supporting electives from the list of approved courses on your degree sheet		6
Humanities (Writing Intensive)		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

Note: Changes in course requirements may occur, as the program is required to meet accreditation standards.

First Year		
Fall	CR Spring	CR
GN_HES 1100	1 CHEM 1320	4
HES Foundation Course (recommend	3 ENGLISH 1000	3
H_D_FS 1600 or H_D_FS 1610)		
PSYCH 1000	3 HLTH_SCI 1000	3
BIO_SC 1500 or 1010 <i>and</i> 1020	5 Humanities (PHIL 1150 or PHIL 2440 recommended)	3
MATH 1100	3 HIST or POL_SC course	3
	15	16

Second Year			
Fall	CR Spring	CR Summer	CR
CHEM 2030	3 BIOCHM 3630	3 NEP 1995 (optional)	3
CHEM 2130	2 CDS 2190	3	
MPP 3202	5 COMMUN 1200	3	
NEP 2380	3 NEP 1995	3	

HES Foundation Course (FINPLN 2183 is recommended)	NEP 2340	3
	13	15
		3

Third Year			
Fall	CR Spring	CR Summer	CR
MANGMT 3000	3 Humanities (WI)	3 NEP 3400	1
NEP 3360	2 NEP 2450	3 NEP 3590	1
NEP 4340	3 NEP 3290	1 ESC_PS 4170	3
NEP 4360	3 NEP 3390	2	
NEP 4590	3 NEP 4280	3	
	Supporting Elective	3	
	14	15	5

Fourth Year		
Fall	CR Spring	CR
F_S 4310	4 MPP 4204	5
NEP 4290	2 NEP 3370	3
NEP 4950	2 NEP 4370	3
PTH_AS 2201	3 NEP 4951	1
Supporting Elective	3 NEP 8340	3
	14	15

Fifth Year		
Fall	CR Spring	CR
ESC_PS 7200	3 Professional Development (course proposal pending)	1
HMI 7430	3 Medical Therapy course (course proposal pending)	2
NEP 7380	2 Practice of Dietetics course (course proposal pending)	10
NEP 7385	1	
Medical Nutrition Therapy course (course proposal pending)	4	
	13	13

Total Credits: 151

## BSHES in Nutritional Sciences with Emphasis in Nutritional Sciences

### Degree Program Description

Nutritional Sciences is the study of the utilization of nutrients and other dietary components by humans for growth maintenance and reproduction, in both normal and disease states. The field of nutritional sciences requires a strong background in biology, chemistry, physiology and biochemistry to allow understanding of the mechanisms through which dietary factors are digested, absorbed, transported, metabolized and used by tissues and cells. Students majoring in Nutritional Sciences will be well prepared for health-related careers such as medicine, pharmacy and dentistry, as well as for graduate study in

nutritional sciences. The Nutritional Sciences Program offers significant opportunities for undergraduate research.

## Major Program Requirements

To transfer into the nutritional sciences program after their first semester on campus, students are required to have a minimum overall GPA of 2.65 and be enrolled in at least one required biology, chemistry, physics, or biochemistry course or one required NEP course.

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

### Science Foundation

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110 & CHEM 2130	Organic Chemistry II and Organic Laboratory I	5
PHYSICS 1210 & PHYSICS 1220	College Physics I and College Physics II	8-10
or PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	

### Math and Statistics

MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
ESC_PS 4170	Introduction to Applied Statistics	3

### Core Curriculum

NEP 2340	Human Nutrition I	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 4340	Human Nutrition II Lecture	3
NEP 4360	Nutritional Assessment	3
NEP 4950	Capstone: Research in Nutritional Sciences	2
NEP 4951	Nutrition Research Communication	1
BIOCHM 4270	Biochemistry	3
BIOCHM 4272	Biochemistry	3
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
COMMUN 1200	Public Speaking	3
MPP 3202	Elements of Physiology	5
or BIO_SC 3700	Animal Physiology	

Choose a minimum of 10 hours from selected courses in biochemistry, chemistry, food science, medical pharmacology and physiology, nutritional sciences or molecular microbiology and immunology

### Electives to equal 120 credit minimum

Additional courses may be required to meet college requirements or career objectives. On-campus research internships are available and highly recommended.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### First Year

Fall	CR Spring	CR
GN_HES 1100	1 BIO_SC 1500	5
CHEM 1320	4 CHEM 1330	4

ENGLISH 1000	3 Professional Elective	3-5
Hist or Pol Sc	3 Social/Behavioral Science (PSYCH 1000)	3
MATH 1400 or 1500	3-5	
	14-16	15-17

### Second Year

Fall	CR Spring	CR
BIO_SC 2200	4 BIO_SC 2300	4
CHEM 2100	3 CHEM 2110	3
HES Foundation Course (WI)	CHEM 2130	2
Humanities (recommend PHIL 2440 Medical Ethics)	3 NEP 2340	3
Elective	3 Social/Behavioral Science	3
	13	15

### Third Year

Fall	CR Spring	CR
BIOCHM 4270	3 BIOCHM 4272	3
MPP 3202 or BIO_SC 3700	5 ESC_PS 4170	3
NEP 4360	3 PHYSICS 1220	4
PHYSICS 1210	4 NEP 2450	3
	Humanities	3
	15	16

### Fourth Year

Fall	CR Spring	CR
NEP 4340	3 COMMUN 1200	3
NEP 4950	2 NEP 4951	1
Elective	HES Foundation Course	
Professional Electives	2 Professional Electives	3
Elective	4 Elective	3
	11	10

Total Credits: 109-113

## Minor in Nutritional Sciences

The minor in nutritional sciences is intended for students majoring in biological sciences, biochemistry, health and exercise sciences or related fields.

Minor core requirements consist of a minimum of 15 hours of nutrition (not exercise/fitness) courses, including NEP 2340: Human Nutrition I, plus 12 hours from the list of approved nutrition courses. Prerequisites apply to some classes and will be enforced.

**To apply for the nutrition minor**, use the online application form ([http://hes.missouri.edu/students\\_minorapp.php](http://hes.missouri.edu/students_minorapp.php)) available on the Human Environmental Sciences Student Services website: [http://hes.missouri.edu/students\\_minorapp.php](http://hes.missouri.edu/students_minorapp.php)

NOTE: You will need to meet with Dr. Peterson, NEP Director of Undergraduate Studies, **before** you submit your application. She can be reached at [petersonca@missouri.edu](mailto:petersonca@missouri.edu).

### Minor core requirements

NEP 2340	Human Nutrition I (spring only)	3
Plus 1 course from the following list of approved nutrition courses:		3
NEP 1310	Food and Cultures of the World	
NEP 2222	Landscape of Obesity (spring only)	
NEP 4360	Nutritional Assessment (fall only)	

Plus 2 courses selected from the following list of approved nutrition courses: 6

NEP 2380	Diet Therapy for Health Professionals
NEP 4340	Human Nutrition II Lecture (fall only)
NEP 4370	Nutrition Therapy I (spring only)

Plus 1 course selected from the following list of approved nutrition courses: 3

NEP 2450	Nutrition Throughout the Life Span (spring, summer)
NEP 4380	Nutrition Therapy II (fall)
NEP 4590	Community Nutrition (fall only)

**Total Credits** 15

## Personal Financial Planning

Frances C. Lawrence, PhD, Chair  
 College of Human Environmental Sciences  
 241 Stanley Hall  
 (573) 882-7836  
<http://pfp.missouri.edu>

### Advising Contacts

Victoria Shahan  
 106 Gwynn Hall  
 (573) 882-6424  
[hesstudentservices@missouri.edu](mailto:hesstudentservices@missouri.edu)  
<http://hes.missouri.edu>

Starla Ivey, PhD  
 239D Stanley Hall  
 (573) 882-6270  
[iveysl@missouri.edu](mailto:iveysl@missouri.edu)

### Scholarship Information Contact

HES Development Office  
 122 Gwynn Hall  
 (573) 882-5142  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

## Admissions

To be admitted to the Personal Financial Planning emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.5, based on at least 50 credits attempted. To be admitted to the Financial Counseling emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.25, based on at least 50 credits attempted. To be admitted to the Personal Financial Management Services emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.0, based on at least 50 credits attempted.

Students who wish to pursue a Personal Financial Planning emphasis must earn a grade of B- (2.7) or better, in FINPLN 2183 and a grade of C (2.0) or better in FINPLN 3283 to move to the professional program; all other emphasis areas must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

## Faculty

**Professor** F. Lawrence\*\*

**Associate Professor** D. L. Sharpe\*\*, R. Yao\*\*

**Assistant Professor** A. Rabanni\*

**Teaching Assistant Professor** S. Ivey

**Extension Assistant Professor** G. McCaulley, A. Zumwalt

**Extension Professor** C. Crawford

**Emeritus Professor** P. Lieurance, E. Metzner, R. O. Weagley

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSHEs in Personal Financial Planning (p. 607)
  - with emphasis in Financial Counseling (p. 608)
  - with emphasis in Personal Financial Management Services (p. 608)
  - with emphasis in Personal Financial Planning (p. 609)
- Certificate in Personal Financial Planning (p. 610)
- Minor in Personal Financial Management Services (p. 612)

The program leading to the BS in Human Environmental Sciences with a major in Personal Financial Planning offers designated emphasis areas in personal financial planning, personal financial management services, and financial counseling.

### PERSONAL FINANCIAL PLANNING

PFPP allows graduates to sit for the comprehensive Certified Financial Planner™ examination to earn the right to use the CFP® designation. Coursework includes principles of personal financial planning, investments, insurance, taxation, retirement planning, and estate planning, complemented by courses that develop an understanding of the economic and social contexts within which clients make financial decisions. Graduates excel in providing client-centered financial management advice.

To be admitted to the Personal Financial Planning emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.5, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Planning emphasis must earn a grade of B- (2.7) or better, in FINPLN 2183 and a grade of C (2.0) or better in FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### PERSONAL FINANCIAL MANAGEMENT SERVICES

PFMS is a popular degree option that prepares students to work with individuals and families in a wide range of financial service occupations, from insurance, investments, or banking to financial counseling, education, or a social change occupation. This degree program gives graduates a broad understanding of household financial management. Many students choose to complement this degree with a minor in business, finance, marketing, accounting, economics, social work, or other related program.

To be admitted to the Personal Financial Management Services emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.0, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Management Services emphasis must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program.

A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### **FINANCIAL COUNSELING**

Financial Counseling brings together a sound knowledge of personal finance with a solid background in counseling, utilizing the expertise of our colleagues in the School of Social Work and the Department of Human Development and Family Studies. Besides preparing students to work with individuals and families in a wide range of financial service occupations, this emphasis area develops the tools a financial professional needs to help address the human issues often accompanying financial problems. In addition, graduates may take the exam that leads to earning the Accredited Financial Counselor (AFC) designation, which is offered through the Association for Financial Counseling and Planning Education (AFCPE) (<http://www.afcpe.org>).

To be admitted to the Financial Counseling emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.25, based on at least 50 credits attempted. Students who wish to pursue a Financial Counseling emphasis must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### **MINOR**

The Minor in Personal Financial Management Services is intended for students interested in course work focused on empowering them to make more informed decisions related to lifelong personal finance choices.

### **UNDERGRADUATE CERTIFICATE PROGRAM**

Also, an undergraduate certificate in Personal Financial Planning has been approved by both the Missouri Coordinating Board for Higher Education and the Certified Financial Planner Board of Standards, Inc..

Those who complete the certificate are eligible to sit for the CERTIFIED FINANCIAL PLANNER examination, upon graduation with a bachelor's degree. This program must have a University of Missouri cumulative GPA of at least a 2.5 upon application.

Students who want to explore the major can take FINPLN 2083 Financial Planning Careers and FINPLN 2183 Personal and Family Finance.

## **Graduate**

- MS in Personal Financial Planning (p. 610)
  - with emphasis in Consumer and Family Economics (p. 611)
  - with emphasis in Personal Financial Planning (p. 612)
- Certificate in Personal Financial Planning (p. 612)

The College also offers a PhD in Human Environmental Sciences with an emphasis in Personal Financial Planning (p. 597).

Personal Financial Planning Graduate Programs  
College of Human Environmental Sciences  
239 Stanley Hall  
573-882-9343  
<http://pfp.missouri.edu/>

**Director of Graduate Studies:** Rui Yao, PhD, CFP

Individuals and families today bear an ever-growing responsibility for achieving and sustaining financial and economic success across their life span. Never has there been a greater need for well-trained professionals who can help individuals and families make informed and effective financial and economic decisions. In addition, research that helps to

evaluate and recommend public policies that influence the economic opportunities and futures of individuals and families is in high demand.

Graduate course work in Personal Financial Planning at the University of Missouri analyzes household and consumer economic conditions and behavior, evaluating the interrelationships between households and markets with a focus on improving social policy. Students' programs are designed to develop professional competencies and interests. A resident doctoral and two masters programs are available. Online graduate offerings may be viewed at [http://pfp.missouri.edu/graduate\\_distance.html](http://pfp.missouri.edu/graduate_distance.html).

## **Certification Information**

Degrees registered with the Certified Financial Planner Board of Standards Inc. include: a graduate Certificate in Personal Financial Planning and an Applied Master's Degree.

Financial planning course work could also be completed as a doctoral program that is registered with the Certified Financial Planner Board of Standards Inc.

## **Financial Aid**

If you wish to be considered for internal assistantships, fellowships or other funding packages, check the program website or contact the director of graduates studies, Rui Yao ([yaor@missouri.edu](mailto:yaor@missouri.edu)) for details.

## **Faculty Areas of Study**

Students have opportunity to work closely with department faculty who are widely recognized professionals in various aspects of personal financial planning and consumer and family economics. Faculty research interests cover a broad spectrum of financial and economic issues, including, but not limited to college savings and affordability, retirement savings, health care financing, risk analysis, labor supply and household production choices, consumer behavior, consumer expenditure patterns, consumer credit use, insurance demand, and low-income financial literacy. More information is available at: <http://pfp.missouri.edu/research.html>.

## **Contacts**

Voronica Bonaparte, Department Contact  
Interim, Department Chair  
Rui Yao, Director of Graduate Studies  
Deanna L. Sharpe, GPIDEA/Online Program and CFP Program Director  
Starla Ivey, Professional Development Undergraduate Academic Advisor  
Abed Rabbani, Assistant Professor  
Interim, Director of the Office for Financial Success and Missouri Center for Economic Education

## **BSHES in Personal Financial Planning**

### **Degree Program Description**

Personal Financial Planning prepares students to play a role in improving the financial well-being of individuals and families by providing affordable, unbiased education and counseling in all areas of personal finance. The curriculum emphasizes the complimentary relationship between factors that affect financial decisions and economics and financial analysis techniques. Graduates excel in providing client-centered financial management advice, and are employed as financial planners, Extension



agents, and consultants or counselors in financial, social, educational, legal, and government agencies.

## Major Program Requirements

The BSHES in Personal Financial Planning offers three emphasis areas: Personal Financial Planning, Financial Counseling, and Personal Financial Management Services. Professional program requirements are listed at the emphasis level.

### Semester Plan

A sample plan of study has not been designed for this major. Students should contact the academic department for assistance with academic planning.

## BSHES in Personal Financial Planning with Emphasis in Financial Counseling

### Degree Program Description

Financial Counseling emphasis brings together a sound knowledge of personal finance with a solid background in counseling. Courses cover personal finance, social work, and human development and family science. In addition to preparing students to work with individuals and families in a wide range of financial service occupations, this emphasis area develops tools needed to help address the human issues often accompanying financial problems. Students may prepare for the Certified Retirement Counselor® (CRC®) or Certified Retirement Administrator® (CRA®) designation, or take the exam that leads to earning the Accredited Financial Counselor (AFC) designation.

### Major Program Requirements

#### Professional Program

#### Departmental Core Requirements

FINPLN 2083	Financial Planning Careers *	1
FINPLN 2183	Personal and Family Finance *	3
FINPLN 3282	Financial Counseling *	3
FINPLN 3283	Financial Planning: Computer Applications *	3
FINPLN 4187	Tax Planning	3
FINPLN 4188	Community Agencies and Volunteerism	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
FINPLN 4387	Consumer and Household Economics	3
Total Credits		28

#### Supporting Coursework

ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics *	3
or AG_EC 1042	Applied Macroeconomics	
ECONOM 3229	Money, Banking and Financial Markets	3
MANGMT 3540	Introduction to Business Law	3
MATH 1400	Calculus for Social and Life Sciences I	3

PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
ACCTCY 2036	Accounting I	3
or ACCTCY 2010	Introduction to Accounting	
STAT 2500	Introduction to Probability and Statistics I	3
Total Credits		27

### Professional Specialization Requirements

FINPLN 4993	Internship in Personal Financial Planning	3
H_D_FS 4610	Stress and Resilience in Families	3
H_D_FS 4620	Family Interaction	3
H_D_FS 4630	The Process of Divorce	3
SOC_WK 2000	Exploration in Social and Economic Justice	3
or SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	
SOC_WK 4710	Social Justice and Social Policy	3
Total Credits		18

\* Requires a grade of C (2.0) or higher.

## BSHES in Personal Financial Planning with Emphasis in Personal Financial Management Services

### Degree Program Description

Personal Financial Management Services prepares students to work with individuals and families in a wide range of financial service occupations, from insurance, investments, or banking to financial counseling, education, or a social change occupation. This degree program gives graduates a broad understanding of household financial management. Many students choose to complement this degree with a minor in business, finance, marketing, accounting, economics, social work, or other related program. Students may prepare for the Certified Retirement Counselor® (CRC®) or Certified Retirement Administrator® (CRA®) designation, or take the exam that leads to earning the Accredited Financial Counselor (AFC) designation. Graduates will work with individuals and families in a wide range of financial service occupations, including insurance, investments, banking, financial counseling, education, or a social change occupation.

### Major Program Requirements

#### Professional Program

The Professional Program is comprised of three areas listed below: departmental core requirements, supporting coursework, and professional specialization courses. To be admitted to the Personal Financial Management Services emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.0, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Management Services emphasis areas must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

## Departmental Core Requirements

FINPLN 2083	Financial Planning Careers *	1
FINPLN 2183	Personal and Family Finance *	3
FINPLN 3282	Financial Counseling *	3
FINPLN 3283	Financial Planning: Computer Applications *	3
FINPLN 4187	Tax Planning	3
FINPLN 4188	Community Agencies and Volunteerism	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
FINPLN 4387	Consumer and Household Economics	3
Total Credits		28

## Supporting Coursework

ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics *	3
or AG_EC 1042	Applied Macroeconomics	
ECONOM 3229	Money, Banking and Financial Markets	3
MANGMT 3540	Introduction to Business Law	3
MATH 1400	Calculus for Social and Life Sciences I	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
ACCTCY 2036	Accounting I	3
or ACCTCY 2010	Introduction to Accounting	
STAT 2500	Introduction to Probability and Statistics I	3
Total Credits		27

## Professional Specialization Requirements

These courses are selected by students from a list of approved courses to complement their degree (courses can be found on our departmental website <http://pfp.missouri.edu> or your specific degree audit). Track suggestions are provided below based on student interests (but are not required). At least nine hours of the Professional Specialization Electives must be at the 3000 level or higher. Contact the Student Services Office of the College of Human Environmental Sciences or your departmental advisor to focus your additional credits in a specific area. (NOTE: Tracks will not appear on diploma or transcript.)

Total Credits		18
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**Suggested Tracks:** Students may choose a track to help complete their eighteen hours of Professional Specialization Electives. Students are strongly encouraged to focus coursework in area(s) that complements career goals and academic interests. As a reminder, at least nine hours of the Professional Specialization Electives must be at the 3000 level or higher. (NOTE: Tracks will not appear on diplomas or transcripts.)

### Real Estate Track

FINANC 3000	Corporate Finance	3
FINANC 4500	Principles of Real Estate	3
FINANC 4510	Real Estate Appraisal	3
or FINANC 4520	Real Estate Finance and Investment	
Additional Approved Credits		9

### Personal Investments Track

FINANC 3000	Corporate Finance	3
FINANC 4020	Investments	3

FINANC 4220	Portfolio Management	3
Additional Approved Credits		9

### Relationship Banking Track

FINANC 3000	Corporate Finance	3
FINANC 4030	Financial Intermediaries and Markets	3
FINANC 4130	Management of Financial Institutions	3
Additional Approved Credits		9

### Sales Marketing Track

MRKTNG 3000	Principles of Marketing	3
MRKTNG 4220	Consumer Behavior	3
MRKTNG 4380	Buying and Supply Chain Management	3
Additional Approved Credits		9

### Benefits Administration Track

MANGMT 3000	Principles of Management	3
MANGMT 4020	Human Resource Management	3
MANGMT 4220	Compensation Theory and Practice	3
Additional Approved Credits		9

### Consumer Behavior Research Track

MRKTNG 3000	Principles of Marketing	3
MRKTNG 4050	Marketing Research	3
MRKTNG 4220	Consumer Behavior	3
Additional Approved Credits		9

### General Economics Track

ECONOM 3251	Theory of the Firm	3
ECONOM 4351	Intermediate Microeconomics	3
ECONOM 4353	Intermediate Macroeconomics	3
ECONOM 4325	The International Monetary System	3
Additional Approved Credits		9

### Generalist Track

Eighteen hours can be selected from a list of approved courses to complement their degree (courses can be found on our departmental website <http://pfp.missouri.edu> or your specific degree audit). Other courses can be approved by the departmental advisor or other faculty member. As a reminder, at least nine of the eighteen hours of Professional Specialization Requirement hours must be at the 3000 level, or above.

\* Requires a grade of C (2.0) or higher.

## Semester Plan

A sample plan is not currently available. Contact the department for additional information.

# BSHES in Personal Financial Planning with Emphasis in Personal Financial Planning

## Degree Program Description

The Personal Financial Planning degree program is registered with the Certified Financial Planner Board of Standards, Inc. allowing graduates to sit for the comprehensive Certified Financial Planner™ examination to earn the right to use the CFP® designation. Coursework includes principles of personal financial planning, investments, insurance, taxation, retirement planning, and estate planning, complemented by courses that develop an understanding of the economic and social contexts within which clients make financial decisions. Graduates excel in

providing client-centered financial management advice. Students may prepare for the Certified Retirement Counselor® (CRC®) or Certified Retirement Administrator® (CRA®) designation, or take the exam that leads to earning the Accredited Financial Counselor (AFC) designation. Graduates are employed as financial planners, Extension agents, and consultants or counselors in financial, social, educational, legal, and government agencies.

Graduates must complete education requirements, pass a national professional exam, obtain professional experience, and agree to adhere to the professional code of ethics before being able to use the CFP® marks.

## Major Program Requirements

### Professional Program

The Professional Program is comprised of three areas listed below: departmental core requirements, supporting coursework, and professional specialization courses. To be admitted to the Personal Financial Planning emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.5, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Planning emphasis must earn a grade of B- (2.7) or better, in FINPLN 2183 and a grade of C (2.0) or better in FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### Departmental Core Requirements

FINPLN 2083	Financial Planning Careers *	1
FINPLN 2183	Personal and Family Finance <sup>1</sup>	3
FINPLN 3282	Financial Counseling *	3
FINPLN 3283	Financial Planning: Computer Applications *	3
FINPLN 4187	Tax Planning *	3
FINPLN 4188	Community Agencies and Volunteerism	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive	3
FINPLN 4382	Financial Planning: Risk Management *	3
FINPLN 4383	Financial Planning: Investment Management *	3
FINPLN 4387	Consumer and Household Economics	3
Total Credits		28

### Supporting Coursework

ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics *	3
or AG_EC 1042	Applied Macroeconomics	
ECONOM 3229	Money, Banking and Financial Markets	3
MANGMT 3540	Introduction to Business Law	3
MATH 1400	Calculus for Social and Life Sciences I	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
ACCTCY 2036	Accounting I	3
STAT 2500	Introduction to Probability and Statistics I	3
Total Credits		27

### Professional Specialization Requirements

ACCTCY 2037	Accounting II	3
STAT 3500	Introduction to Probability and Statistics II	3
FINPLN 4386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 4393	Financial Planning: Estate and Gift Planning *	3
FINPLN 4389	Financial Planning: Capstone *	3
FINPLN 4993	Internship in Personal Financial Planning	3
Total Credits		18

<sup>1</sup> Requires a grade of B- (2.7) or higher.

\* Requires a grade of C (2.0) or higher.

### Semester Plan

A sample plan is not currently available. Contact the department for additional information.

## Certificate in Personal Financial Planning

FINPLN 2083	Financial Planning Careers *	1
FINPLN 2183	Personal and Family Finance (Optional) *	3
FINPLN 4187	Tax Planning *	3
FINPLN 4382	Financial Planning: Risk Management *	3
FINPLN 4383	Financial Planning: Investment Management *	3
FINPLN 4386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 4389	Financial Planning: Capstone *	3
FINPLN 4393	Financial Planning: Estate and Gift Planning *	3
Total hours		19-22

\* Requires a grade of C (2.0) or higher.

The undergraduate certificate in Personal Financial Planning has been approved by both the Missouri Coordinating Board for Higher Education and the Certified Financial Planner Board of Standards, Inc. Those who complete the certificate are eligible to sit for the CERTIFIED FINANCIAL PLANNER examination, upon graduation with a bachelor's degree. Students must have a University of Missouri cumulative GPA of at least a 2.5 upon application.

This certificate completes the education requirement to allow one to take the CFP<sup>(r)</sup> examination. For more information on the CFP<sup>(r)</sup> examination, please see <http://www.cfp.net/become-a-cfp-professional/cfp-certification-requirements/cfp-exam-requirement/about-cfp-exam>.

## MS in Personal Financial Planning

### Degree Information

#### Resident Master of Science (thesis option)

The thesis-based Master of Science program requires a minimum of 30 hours. Course work focuses on critical analysis of the interaction of the household sector with the markets for labor, consumer goods and financial products. Emphasis is placed on developing analytical skills. Course work culminates in a master's thesis.

## Five-Year Bachelor of Science/Master of Science Option

The curriculum of this 150-Hour Program provides students with a comprehensive background in financial planning procedures and practice, meeting the Certified Financial Planner Board of Standards' education requirement, allowing a student to sit for the CERTIFIED FINANCIAL PLANNER™ exam. Coursework encompasses root disciplines of economics, mathematics, and statistics and focuses on the interaction between the household and the financial sector. Students will acquire a broad background in business related courses, as well as skills in communication, professional practice, and use of computer information systems.

## Applied Master of Science (non-thesis option)

The Applied Master of Science is a 36-hour program. Course work is designed to complete the education required to sit for the national CERTIFIED FINANCIAL PLANNER™ exam and to broaden the practitioner's understanding of the various factors that can affect and enhance a client's financial security and economic well-being. Coursework culminates in a creative component, providing students an opportunity to integrate theory and practice in exploring or resolving issues related to personal financial planning.

- This degree is also available via distance education through the Great Plains IDEA group. Note, the Great Plains IDEA (<http://www.hsidea.org/programs/ffp>) degree option also requires 36 hours to complete. Please see [http://pfp.missouri.edu/graduate\\_distance.html](http://pfp.missouri.edu/graduate_distance.html) for more information.

## Application Deadlines

Fall deadline: February 1

Spring deadline: October 1

\*Exceptions will be considered on a case by case basis

## Admission Criteria

- Minimum TOEFL scores (for ESL applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

We also accept IELTS scores

Item	Score
International English Language Testing System (IELTS)	6.5

- Minimum GPA: 3.0 in last 60 hours

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents
- 3 letters of recommendation
- GRE or GMAT scores
- Statement of Purpose
- Official transcripts
- Résumé

## MS in Personal Financial Planning with Emphasis in Consumer and Family Economics

### Degree Requirements

Please review the **Resident Research and Policy Master's Degree Program Handbook** or the **Resident Applied Master's Degree Program Handbook**. ([http://pfp.missouri.edu/documents/graduate/Applied\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/Applied_MS_handbook.pdf))

### Sample Plan of Study

Each student's plan of study will vary to some degree, depending on the specific program and the student's background, needs, and career plans. Please review the **Resident Research and Policy Master's Degree Program Handbook** or the **Resident Applied Master's Degree Program Handbook**.

### Thesis/Non-Thesis Track

The resident **Research and Policy Master of Science** track prepares students for college teaching, consumer research positions, social service agencies, extension or other adult education programs, financial services institutions, consumer journalism and other positions in business, the public sector and not-for-profit institutions. Studies culminate in a research-based thesis that may either have a theoretical or applied focus. This masters degree also prepares students for subsequent work on a doctoral degree.

Acceptance to this program requires GRE or GMAT scores that meet department standards. This program requires a minimum of 30 hours to complete.

Download the **Resident Research and Policy Master's Degree Program Handbook**.

The resident **Applied Master of Science** is for students who view the MS as their terminal degree and plan to work as a financial services professional following graduation. The Applied MS focuses on understanding issues and solving practical problems in the financial services industry. An industry-relevant capstone research project, rather than a thesis, is required for graduation.

Acceptance to this program requires GRE or GMAT scores that meet department standards. The Applied Master's program is a non-thesis 36-hour program. This program is registered with the Certified Financial Planner Board of Standards, Inc. and is designed to prepare students to sit for the CFP® exam.

Download the **Resident Applied Master's Degree Program Handbook**.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Personal Financial Planning program (<http://gradschool.missouri.edu/academics/programs/personal-financial-planning/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of

Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MS in Personal Financial Planning With Emphasis in Personal Financial Planning

### Degree Requirements

Please review the **Resident Research and Policy Master's Degree Program Handbook** ([http://pfp.missouri.edu/documents/graduate/RP\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/RP_MS_handbook.pdf)) or the **Resident Applied Master's Degree Program Handbook** ([http://pfp.missouri.edu/documents/graduate/Applied\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/Applied_MS_handbook.pdf)).

### Sample Plan of Study

Each student's plan of study will vary to some degree, depending on the specific program and the student's background, needs, and career plans. Please review the **Resident Research and Policy Master's Degree Program Handbook** ([http://pfp.missouri.edu/documents/graduate/RP\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/RP_MS_handbook.pdf)) or the **Resident Applied Master's Degree Program Handbook** ([http://pfp.missouri.edu/documents/graduate/Applied\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/Applied_MS_handbook.pdf)).

### Thesis/Non-Thesis Track

The resident **Research and Policy Master of Science** track prepares students for college teaching, consumer research positions, social service agencies, extension or other adult education programs, financial services institutions, consumer journalism and other positions in business, the public sector and not-for-profit institutions. Studies culminate in a research-based thesis that may either have a theoretical or applied focus. This masters degree also prepares students for subsequent work on a doctoral degree.

Acceptance to this program requires GRE or GMAT scores that meet department standards. This program requires a minimum of 30 hours to complete.

Download the **Resident Research and Policy Master's Degree Program Handbook** ([http://pfp.missouri.edu/documents/graduate/RP\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/RP_MS_handbook.pdf)).

The resident **Applied Master of Science** is for students who view the MS as their terminal degree and plan to work as a financial services professional following graduation. The Applied MS focuses on understanding issues and solving practical problems in the financial services industry. An industry-relevant capstone research project, rather than a thesis, is required for graduation.

Acceptance to this program requires GRE or GMAT scores that meet department standards. The Applied Master's program is a non-thesis 36-hour program. This program is registered with the Certified Financial Planner Board of Standards, Inc. and is designed to prepare students to sit for the CFP® exam.

Download the **Resident Applied Master's Degree Program Handbook**. ([http://pfp.missouri.edu/documents/graduate/Applied\\_MS\\_handbook.pdf](http://pfp.missouri.edu/documents/graduate/Applied_MS_handbook.pdf))

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Personal Financial Planning program ([\[financial-planning/masters.php\]\(http://gradschool.missouri.edu/academics/programs/personal-financial-planning/masters.php\)\) and the minimum requirements of the Graduate School \(<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>\). Because requirements vary, you \*must\* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.](http://gradschool.missouri.edu/academics/programs/personal-</a></p>
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## Graduate Certificate in Personal Financial Planning

The Personal Financial Planning Certificate is an 18 hour non-degree, post-baccalaureate program designed to prepare students to sit for the national CERTIFIED FINANCIAL PLANNER™ exam.

Program applicants must have completed a bachelor's degree. Completing the Personal Financial Planning Certificate satisfies the Certified Financial Planner Board of Standard's education requirement, which is one of four requirements leading to approval to use the CFP® designation. The other three requirements are passing the national exam, meeting an experience requirement and agreeing to adhere to the CFP® code of ethics. The CERTIFIED FINANCIAL PLANNER™ designation is widely recognized as the premier professional designation in the personal financial management services industry. (This certificate is also available via distance education through the Great Plains IDEA group. Please see [http://pfp.missouri.edu/graduate\\_distance.html](http://pfp.missouri.edu/graduate_distance.html) for more information.)

Courses Required for the Applied Master's Degree and the Graduate Certificate in Personal Financial Planning:

FINPLN 7382	Financial Planning: Risk Management	3
FINPLN 7383	Financial Planning: Investment Management	3
FINPLN 7187	Financial Planning: Tax Planning	3
FINPLN 7386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 7393	Financial Planning: Estate and Gift Planning	3
FINPLN 7389	Financial Planning: Capstone	3

### Elective Courses

Since the Personal Financial Planning Certificate is a registered program under the oversight of a professional organization granting a professional designation, all courses are required. Electives may be taken as part of the Applied Master of Science (non-thesis options), the Master of Science (thesis option) and the doctoral programs.

### For more information

Contact Rui Yao, PhD, CFP®, 239B Stanley Hall. Phone: (573) 882-9343 or our administrative assistant at (573) 882-7836. Send an email to Dr. Yao at [yaor@missouri.edu](mailto:yaor@missouri.edu).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/personal-financial-planning-graduate-certificate/pfp-ge/Gedt.html>.

## Minor in Personal Financial Management Services

**Required Courses:**

FINPLN 2083	Financial Planning Careers *	1
FINPLN 2183	Personal and Family Finance *	3
FINPLN 3283	Financial Planning: Computer Applications *	3
FINPLN 4387	Consumer and Household Economics	3
Choose at least two of the following:		6
FINPLN 3282	Financial Counseling *	3
FINPLN 4187	Tax Planning	3
FINPLN 4380	Assessing the American Dream	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
<b>Total Required Credits</b>		<b>16</b>

\* Requires a grade of C (2.0) or higher.

## Social Work

Director of School of Social Work

Dale Fitch, Ph.D., MSSW  
730 Clark Hall  
(573) 884-7405  
fitchd@missouri.edu

Director of Undergraduate Studies (Interim)

Student Services Coordinator and Advising Contact  
Tammy Freelin, MSW  
722 Clark Hall  
(573) 882-1656  
freelint@missouri.edu

Director of Graduate Studies-MSW

Carol A. Snively, PhD, MSW, MA  
702 Clark Hall  
(573) 882-0675  
[http://ssw.missouri.edu/faculty\\_snively.html](http://ssw.missouri.edu/faculty_snively.html)

Director of Graduate Studies-PhD

Mansoo Yu, PhD, MSW, MA  
720 Clark Hall  
(573) 882-4363  
[http://ssw.missouri.edu/faculty\\_yu.html](http://ssw.missouri.edu/faculty_yu.html)

BSW Contact

Kathleen Claxton, Undergraduate Student Support Specialist  
723 Clark Hall  
(573) 884-8795  
claxtonk@missouri.edu

MSW Contact

Crystal Null, Graduate Student Program Specialist  
724 Clark Hall  
(573) 884-9385  
nullc@missouri.edu

PhD Contact

Shannon Mezzanotte, Office Support Staff IV  
724 Clark Hall  
(573) 884-1438  
mezzanottes@missouri.edu

## Faculty

**Professor** C. Galambos\*\*

**Associate Professor** D. Fitch\*\*, C. Peters \*\*, D. Yoon\*\*, M. Yu \*\*

**Assistant Professor** K. Canada\*\*, H. Hsu\*, S. Myers Tlapek \*, K. Preble \*\*, V. Ramseyer Winter\*, E. Robinson\*\*, N. Sanchez\*, A. Thompson\*\*

**Associate Research Professor** L. Tenkku Lepper\*

**Teaching Assistant Professor** S. Cary\*, C. Snively\*,

**Clinical Instructor** A. Aderton\*, R. Bailey \*, T. Freelin\*, R. Freese\*, L. Hilleman\*, A. Lewis\*, J. Piester\*, C. Woods \*

**Emeriti Faculty** M.Kelly\*\*, M. Sable\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSW in Social Work (p. 614)
- Minor in Social Work-Gerontology (p. 616)

**The Bachelor of Social Work (BSW) Program** is a professional program that prepares you for immediate entry into direct human service professional positions, graduate-level education, and life-long learning. BSW-level social workers assist individuals, families, small groups, organizations, and communities to effectively resolve problems, deal with their relationships, and function optimally within their environment. The program provides an educational experience that prepares graduates for a diverse range of career choices and pathways.

The Bachelor of Social Work (BSW) professional program is built upon a rigorous liberal arts foundation that prepares students for general practice in social work. Within this framework, students are prepared to apply a configuration of knowledge, values and skill to a variety of individual, family and community problems to effect positive change.

The School of Social Work is accredited by, and a charter member of, the Council on Social Work Education. BSW students and graduates are eligible for membership in the National Association of Social Workers.

## Departmental Honors

Candidates for Departmental Honors must be students who are admitted to the Professional BSW Program and members of the MU Honors College in good standing. Student must submit a proposal for approval for Social Work Honors and successfully complete SOC\_WK 4971H Undergraduate Field Practicum - Honors.

## Career Opportunities

Jobs in social work are expected to grow faster than average into the 21st century. Through social work's unique person-in-environment focus, BSW graduates are prepared to work effectively with individuals, families, small groups, communities and organizations.

Graduates are employed in many different settings, including nursing homes, hospices, hospitals, home care agencies, family service agencies, children and youth services, aging services, residential treatment programs, domestic violence shelters, criminal justice agencies, schools, and legal services agencies.

## Graduation Requirements

A minimum of 120 credits with a GPA of 2.5 is required for graduation. The requirements include liberal arts foundation courses, professional BSW core courses and general electives. Students are allowed only two grades of a C+ in the professional program.

The Professional BSW core consists of 46 credits. BSW core courses are offered only once each year in sequence and require three semesters to complete. In the third semester of the BSW core, each student will participate in a social service agency for a 400 hour supervised field instruction.

## Admission to the School of Social Work

Students in good academic standing with fewer than 55 hours may declare a social work major. Students are required to complete a range of courses in liberal arts as foundation to the BSW professional program and as electives.

Admission to the BSW Professional Program is competitive. In the spring, students may apply for fall admission to the BSW Professional Program if they meet the following criteria:

1. Completion of at least 42 credits (second semester sophomore status) by the application deadline and
2. Completion of at least 55 credits completed before the beginning of the first semester (fall) of the BSW foundation curriculum
3. Minimum 2.5 cumulative GPA required
4. Completion of required liberal arts prerequisite courses (denoted with \*) with minimum grades in "C" range or higher.
  - Anthropology\* (ANTHRO 1300, ANTHRO 1350, ANTHRO 2030 recommended)
  - BIO\_SC 1010\*
  - College Algebra\*
  - COMMUN 1200\*
  - Economics (macro or micro)\*
  - ENGLSH 1000\*
  - History\* (HIST 1100, HIST 1200, HIST 1400, HIST 2440, HIST 2210, HIST 4000, HIST 4220) OR Political Science\* (POL\_SC 1100, POL\_SC 2100)
  - Philosophy\* (PHIL 1000, PHIL 1100, or PHIL 1200 recommended)
  - PSYCH 1000\*
  - SOCIOL 1000\* or RU\_SOC 1000
5. Submission of BSW Professional Program application, including personal statement response to provided questions and 3 professional references (academic and work-related) is necessary for consideration by early deadline of February 15 or late deadline of May 15.

Students wanting to explore social work as a major may take the following exploratory courses:

SOC_WK 1110	Introduction to the Social Work Major	1
SOC_WK 1115	Social Welfare and Social Work	3
SOC_WK 1200	Criminal Justice	3
SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	3

SOC\_WK 2220W

Human Behavior and the Environment - Writing Intensive

3

## Graduate

- MSW in Social Work (p. 616)
- PhD in Social Work (p. 618)
- Graduate Certificate in Gerontological Social Work (p. 619)
- Graduate Certificate in Military Social Work (p. 620)

College of Human Environmental Sciences  
724 Clark Hall  
573-882-6206  
<http://ssw.missouri.edu/>

**PhD Director of Graduate Studies:** Mansoo Yu  
**MSW Director of Graduate Studies:** Carol Snively

## About the School of Social Work

For over ninety years, social work education has been offered to students at Missouri's premier public institution. The school is proud of its grass roots history: an early pioneer of social work education in 1906, a founding member of the original accrediting body for social work education in 1919, an institution advancing research and scholarship throughout the 20th century, and finally, to its role as an innovator in doctoral education, with a nationally distinctive PhD program emphasizing state social policy.

The mission of the MU School of Social Work is to promote leadership for social and economic justice by preparing students for professional excellence and leadership in practice, research, and policy. Within the context of a land grant institution, the mission of the School of Social Work reflects the University of Missouri's tightly interlocked missions of teaching, research, outreach, and economic development.

## Careers

The nation faces a critical shortage of qualified personnel who possess the rigorous research skills needed to develop, plan, and evaluate social work interventions and the structure of social services. The Master of Social Work (MSW) Program prepares graduates for leadership in professional social work practice within the areas of Advanced Clinical Social Work Practice or Policy, Planning and Administration in Human Services. Doctoral programs in social work are the major resource for social work researchers and scholars. The rapid growth and development in new social work undergraduate and graduate programs throughout the country has also increased the demand for doctoral social work faculty. In recent years, there have been 400-500 doctoral faculty vacancies advertised annually in schools of social work, while the number of graduates has remained at 250-300 per year, with one hundred of those graduates seeking non-academic positions.

## BSW in Social Work

### Degree Program Description

The Bachelor of Social Work (BSW) Program is a professional program that prepares students for immediate entry into direct human service professional positions, graduate-level education, and life-long learning. BSW-level social workers assist individuals, families, small groups, organizations, and communities to effectively resolve problems, deal with their relationships, and function optimally within their environment.

Graduates are employed in many different settings, including nursing homes, hospices, hospitals, home care agencies, family service agencies, children and youth services, aging services, residential treatment programs, domestic violence shelters, criminal justice agencies, schools, and legal services agencies.

## Major Program Requirements

Required Entry-Level Courses: Specific liberal arts requirements for graduation are listed below (\* denotes a prerequisite course to the BSW professional program that must be completed before beginning social work core courses).

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

## Degree Core Requirements

<b>English Composition (grades must be in the "C" range or higher)</b>		
ENGLSH 1000	Exposition and Argumentation *	3
<b>Writing intensive classes</b> <sup>1</sup>		
9		
<b>Humanities (grades must be in the "C" range or higher)</b>		
COMMUN 1200	Public Speaking	3
Select one of the following:		
3		
PHIL 1000	General Introduction to Philosophy	
PHIL 1100	Introduction to Ethics	
PHIL 1200	Logic and Reasoning	
Additional humanities <sup>2</sup>		
3		
<b>Science and Math Reasoning Proficiency (grades must be in the "C" range or higher)</b>		
BIO_SC 1010	General Principles and Concepts of Biology (with a minimum grade in the C range)	3
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
Lab Science AND Physical or Mathematical Science		
9		
Approved for social work students: (Grades must be in the "C" range or higher)		
SOC_WK 4310	Social Statistics	
ESC_PS 4170	Introduction to Applied Statistics	
STAT 1200	Introductory Statistical Reasoning	
STAT 1300	Elementary Statistics	
<b>College Algebra (grades must be in the "C" range or higher)</b>		
MATH 1100	College Algebra <sup>*,3</sup>	3
<b>Social science (grades must be in the "C" range or higher)</b>		
Economics (micro or macroeconomics) *		
3		
Anthropology (student's choice) (Recommend ANTHRO 1300, ANTHRO 1350, ANTHRO 2030) *		
3		
History *		
3		
Political Science *		
3		
*One course from either history or political science must meet the state government requirement; may be satisfied by		
POL_SC 1100	American Government	
or POL_SC 2100	State Government	
HIST 1100	Survey of American History to 1865	
HIST 1200	Survey of American History Since 1865	
HIST 1400	American History	
HIST 2210	Twentieth Century America	
HIST 2440	History of Missouri	
HIST 4000	Age of Jefferson	
HIST 4220	U.S. Society Between the Wars 1918-1945	

HIST 4230	Our Times: United States Since 1945	
<b>Behavioral science (grades must be in the "C" range or higher)</b>		
SOCIOL 1000	Introduction to Sociology *	3
or RU_SOC 1000	Rural Sociology	
PSYCH 1000	General Psychology *	3
SOCIOL 3310	Social Psychology	3
or PSYCH 2310	Social Psychology	
SOC_WK 3320	Understanding Personality in a Social Context	3
or PSYCH 2320	Introduction to Personality	
<b>Exploration of Power, Privilege, &amp; Oppression (6 hours)</b> <sup>4</sup>		
SOC_WK 2000	Exploration in Social and Economic Justice (required course)	3
Choose one additional course from the list of approved options on website.		
3		
<b>Electives to reach 120 credits</b> <sup>5</sup>		
6		
<b>Social work requirements (Students must maintain a 2.5 overall cumulative and obtain no more than two (2) grades of "C+" in required foundation courses to graduate with a BSW Degree)</b>		
SOC_WK 2220W	Human Behavior and the Environment - Writing Intensive	3
SOC_WK 2220	Human Behavior and the Environment (WI)	3
SOC_WK 4710	Social Justice and Social Policy	3
SOC_WK 4711	Social Justice and Social Policy II	3
SOC_WK 4720	Variations in Human Behavior	3
SOC_WK 4730	Introduction to Social Work Practice	3
SOC_WK 4740	Introduction to Community and Organizational Processes	4
SOC_WK 4750	Interaction Skills Workshop	3
SOC_WK 4760	Theory and Practice of Social Group Work	3
SOC_WK 4770	Strategies of Direct Practice	3
SOC_WK 4951W	Research for Social Work Practice - Writing Intensive	3
SOC_WK 4952W	Research Methods for Social Work - Writing Intensive	3
SOC_WK 4970	Senior Professional Seminar	3
SOC_WK 4971	Undergraduate Field Practicum	6
Social work elective (4000-level) in a field of practice		
3		
Total Credits		
121		

- <sup>1</sup> SOC\_WK 2220W, SOC\_WK 4951W, SOC\_WK 4952W are all required courses. No additional courses are required as WI.
- <sup>2</sup> Humanities include art and music history and appreciation classes, classical studies courses, foreign civilization courses, literature courses in English or other languages and religious studies courses. Applied art and music performance courses do not count toward the humanities requirement. Students are urged to check with their advisor before selecting courses.
- <sup>3</sup> One course in humanities or biological, physical or mathematical sciences must be at the 2000 level or higher.
- <sup>4</sup> Exploration of Power, Privilege & Oppression: Select two courses (6 hours) that reflect the cultural diversity of our society; often selected from social work, sociology, anthropology, peace studies, English, religious studies, human development and family science, black studies, and women and gender studies. SOC\_WK 2000 Exploration in Social and Economic Justice, is required as one of the courses. Students are urged to check with their advisor before selecting courses.



<sup>5</sup> In addition to the above liberal arts requirements and the 46-credit Professional BSW Core (inclusive of SOC\_WK 2220), students select electives to reach the total credit requirement. SOC\_WK 1115 Social Welfare and Social Work is strongly recommended.

## Capstone Requirements

All students accepted into the professional BSW program must take SOC\_WK 4971 Undergraduate Field Practicum and SOC\_WK 4970 Senior Professional Seminar to complete their capstone requirement.

## Basic Skills Credit Limitations

No more than 4 credits may be taken from "skills" courses to count toward the required 120 credits. More skill classes may be taken, but will be in excess of the 120 credits. Examples of skills courses are applied art and music performance classes, computer skills, self-defense and first aid.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year		
Fall	CR Spring	CR
ENGLISH 1000*	3 MATH 1100*	3
BIO_SC 1010*	3 SOCIO 1000*	3
BIO_SC 1020	2 ANTHRO 1300, 1350, or 2030 (Preferred. May take other Anthropology course.)	3
PSYCH 1000*	3 COMMUN 1200*	3
SOC_WK 1110 (Elective)	1 SOC_WK 1115 (Elective)	3
History (Constitution)*	3	
	15	15
Second Year		
Fall	CR Spring	CR
SOC_WK 2220W	3 Philosophy (any)*	3
ECONOM 1014 or 1015*	3 SOCIO 3310 or PSYCH 2310	3
SOC_WK 2000W (Required PPO)	3 Humanities (upper level)	3
Power Privilege & Oppression	3 SOC_WK 3320	3
Elective	3 Political Science	3
	15	15
Third Year		
Fall	CR Spring	CR
SOC_WK 4750	3 SOC_WK 4720	3
SOC_WK 4730	3 SOC_WK 4310	4
SOC_WK 4740	4 SOC_WK 4760	3
Field of Practice Elective	3 SOC_WK 4951W	3
SOC_WK 4710	3 SOC_WK 4711	3
	16	16
Fourth Year		
Fall	CR Spring	CR
SOC_WK 4952W	3 Power Privilege & Oppression	3
SOC_WK 4971	6 Elective	3
SOC_WK 4970	3 Elective	3
SOC_WK 4770W	3 Elective	3

Elective	2
15	14

Total Credits: 121

## Minor in Social Work-Gerontology

The Undergraduate Gerontology Minor is designed to provide students with an entry level of knowledge in the field of gerontology. The minor will give participants expanded knowledge in providing services to older adults and their families. The focus of the Gerontology Minor is to build a skill set in understanding the basic foundations of scientific information centered around the process of aging.

The minor is also designed to prepare you with strengths and weaknesses of the aging population, provides an introduction related to paradigms shifts in social, economic and political views, outlines aging as diversity within the population subset to understand impact of power, gives awareness of the effect of death, grief, and loss, explores life skills factors of development, as well as becoming knowledgeable regarding policy, systems, and ethical decision factors of the aging population.

In obtaining the Gerontology Minor you will incur skills that build awareness to aging demographics trends in relationship to retirement, employment, health care, abuse and neglect, accessibility, and shaping life experiences to age successfully.

The minor coursework will allow you to gain further confidence to assist older adults in meeting their needs, where they are in their environment.

### Required Courses

SOC_WK 4480	Helping Strategies with Older Persons	3
SOC_WK 4395	Death, Grief and Loss	3
H_D_FS 3440	Adulthood and Aging	3
Take two of the following:		
SOC_WK 2000	Exploration in Social and Economic Justice	3
HLTH_SCI 4420	Health Literacy and Behavioral Compliance	3
HLTH_SCI 4300	Health Care in the United States	3
SOCIO 4210	Aging and the Life Course	3

## Admission Requirements:

A student must be admitted into the University of Missouri systems seeking to obtain a Bachelor's Degree from a declared academic major. To obtain the Gerontology Minor he/she must complete the minimum 15 credit hours as outlined above from the two designated areas.

*Students must have a 2.5 minimum GPA to apply for and earn the minor.* A minimum grade of "C-" in "required" or "optional" coursework is needed to qualify for the minor. Students seeking approval regarding the Minor may file them in 723 Clark Hall. To obtain additional assistance in outlining the Minor in ways that it will correlate with career major he/she may contact the Director of Undergraduate Studies and the Student Service Coordinator.

## MSW in Social Work

### Admission Contact Information

Crystal Null (nullc@missouri.edu)  
725 Clark Hall; Columbia, MO 65211  
573-884-9385  
<http://ssw.missouri.edu/msw.html>

The University of Missouri’s Master of Social Work (MSW) Program prepares competent, effective and ethical social work professional leaders for social change. The MSW Program emphasizes a commitment to enhancing human well-being by alleviating social problems, embracing diversity and promoting social and economic justice with systems of all sizes through advanced clinical social work practice and policy planning and administration in human services. The MSW program prepares students to promote social and economic justice that responds to the broad economic, social, and cultural needs of the public and private. The MSW Program is fully accredited by the Council on Social Work Education, of which the School of Social Work is a charter member.

## Financial Aid from the Program

Scholarship opportunities are available for full-time and part-time program applicants who meet the early application deadline. A separate Scholarship Application is available on the department website. Submission of the Scholarship Application is due by early application deadline.

## Application Deadlines

Fall deadline: January 15

Spring deadline: September 15

## Admission Criteria

- Minimum GPA: 3.0.
- Bachelor’s degree from an accredited college or university with the applicant’s undergraduate transcript reflecting a sound liberal arts foundation, including courses in the humanities, as well as in the social and behavioral sciences.
- All International students must submit Internet-based (iBT) TOEFL scores or IELTS scores. No waivers will be given.

### Minimum iBT TOEFL scores:

Test Portion	Total Minimum Score
Listening	22
Reading	21
Writing	23
Speaking	26

### Minimum IELTS scores:

Test Portion	Total Minimum Score
Listening	6.5
Reading	6.5
Writing	6
Speaking	8

## Prerequisites

All MSW applicants must complete an approved college level statistics course with a grade of C- or higher before they will be accepted to enroll in the MSW program. SOC\_WK 4310 is the recommended course for University of Missouri students. The following University of Missouri courses are also approved and may be taken in lieu of SOC\_WK 4310: STAT 1200, STAT 1400, STAT 2500, and ESC\_PS 4170. Statistics courses completed at other academic institutions may substitute for University of Missouri statistic courses, pending submission of official transcript and approval by the MSW Program Director. Completion of the statistics course prior to application

submission is preferred and strongly recommended. If an applicant is enrolled in a statistics course at the time of application and accepted into the MSW Program, the acceptance will be “pending successful completion of the approved statistics class”.

**Note:** Priority admission deadline for On-campus and Online, Regular Standing Applicants and Online, Advanced Standing Applicants: January 15. A student qualifies for Regular Standing Admission if s/he has an undergraduate degree in any field other than Social Work. An applicant qualifies for Advanced Standing admission if they have a bachelor’s degree in Social Work earned within the last seven (7) years. Any applicant who applies after the priority deadline will be considered on the rolling admission cycle until April 15.

**Note:** Priority admission deadline for On-campus, Advanced Standing applicants: September 15. An applicant qualifies for Advanced Standing admission if they have a bachelor’s degree in Social Work earned within the last seven (7) years. Any Advanced Standing applicant that applies after the priority deadline of September 15 for spring admission will be considered on a rolling admission cycle until November 15.

Read more about Regular vs. Advanced Standing below.

## Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Studies documents

*To the MSW Program:*

- Personal statement (see department instruction)
- Résumé/CV
- Three letters of reference from persons who can address the applicant’s intellectual ability and interpersonal skills, potential for graduate education, and potential for professional social work practice through observation in an educational or work (paid or volunteer) setting. Letters of reference should not be submitted from friends or family
- Unofficial transcripts
- Advanced standing students only: the most recent copy of your field evaluation (see department instruction)

## Plans of Study

Preparation for professional leadership encompasses two major components:

### Foundation

Develops knowledge and skills related to social interaction, human development, community dynamics, social policy and societal values applicable to generalist social work practice.

### Foundation Courses

SOC_WK 7000	Professional Social Work Practice	1
SOC_WK 7710	Social Policy and Service Delivery in Social Work	3
SOC_WK 7720	Foundations of Human Behavior	3
SOC_WK 7730	Social Work Skills	3
SOC_WK 7740	Large Group Theory	2
SOC_WK 7760	Social Justice Seminar	2
SOC_WK 7952	Research Methods in Social Work	3
SOC_WK 7971	Graduate Field Practicum I	4

## Concentrations

The MSW program offers two concentrations: Advanced Clinical Practice and Policy, Planning and Administration (PP&A). Within these concentrations, students have the opportunity to create a plan of study based on their individual interests and professional goals. Decisions regarding their chosen concentration are made by students in consultation with faculty advisors. A brief description of the two concentrations is as follows:

**Advanced Clinical Social Work Practice:** includes strategies of clinical intervention with socially and economically disadvantaged individuals, families, and small groups in a variety of health, mental health, family and children services, and senior citizen agencies.

### Concentration Courses: Clinical

Advanced Clinical Selective (choose 1 from those offered) *	3
Elective (must be graduate level) *	3
Elective (must be graduate level) *	3
Elective (must be graduate level) +	3
SOC_WK 7770 Strategies of Clinical Social Work Intervention	3
SOC_WK 7780 Fundamentals of Social Work Administration	3
SOC_WK 7820 DSM V and Psychopathology: A Social Work Perspective	3
SOC_WK 8953 Evaluative Research in Social Work	3
SOC_WK 8970 Professional Practice Seminar I	3
SOC_WK 8971 Graduate Field Practicum II	12

\* Elective and clinical selective courses offered will vary from year to year.

+ The third elective course is only required for regular standing students.

**Policy, Planning and Administration in Human Services:** includes intervention strategies that effect change at the organizational, interagency, community, and societal levels to advance social and economic justice for consumers of social and human services and to empower practitioners within those agencies.

### Concentration Courses: Policy, Planning & Administration

Elective (must be graduate level) *	3
Elective (must be graduate level) *	3
Elective (must be graduate level) +	3
SOC_WK 7780 Fundamentals of Social Work Administration	3
SOC_WK 7820 DSM V and Psychopathology: A Social Work Perspective	3
SOC_WK 7920 Advanced Foundations of Human Behavior for Administrators	3
SOC_WK 8350 Management of a Social Agency	3
SOC_WK 8953 Evaluative Research in Social Work	3
SOC_WK 8970 Professional Practice Seminar I	3
SOC_WK 8971 Graduate Field Practicum II	12

\* Elective courses offered will vary from year to year.

+ The third elective course is only required for regular standing students.

## Course Format

On Campus MSW Program courses are primarily offered in-person. A few foundation, concentration and elective courses are offered online through Canvas, a learning management system licensed to the University of Missouri for online courses.

The Online MSW program is designed for part-time study with two courses, typically 6 credit hours of course work, per semester. All courses are offered online through Canvas with the exception of the practicum, which requires 680 hours of supervised work at an approved agency.

### Regular Standing: Non-Social-Work Bachelor's

The regular 60-credit hour degree is appropriate for students who have undergraduate degrees other than accredited social work degrees. The school admits full-time and part-time students to the regular 60-credit hour program at the beginning of the fall semester only.

### Advanced Standing: Bachelor's in Social Work (BSW)

Students who have graduated within the past seven years from a baccalaureate social work program accredited by the Council on Social Work Education may be eligible for the Advanced Standing Program, which is an accelerated 39-credit hour degree.

### Starting Dates

On-campus students admitted to the Regular Standing Program are admitted in fall semester (full-time or part-time study). On-campus students admitted to the Advanced Standing Program are admitted in the spring session. Online students admitted to the Regular and Advanced Standing Programs are admitted for fall semester (part-time).

### Length of Study & Satisfactory Progress

Full-time Regular Standing students take 15 credits each semester and graduate in two years (4 semesters of study). Full-time Advanced Standing students take 3-5 classes each semester (9-15 credits) and graduate in 12-17 months (3 semesters of study). Part-time Regular Standing students take 2-3 classes (6-9 credits) every semester, including summer, and graduate in three years (9 semesters of study). Part-time Advanced Standing students take 2-3 classes (6-9 credits) every semester, including summer, and graduate in two years (6 semesters of study). All students are full-time during their last semester while completing block placement. All students must complete at least eight hours per academic year to maintain a satisfactory rate of progress.

## PhD in Social Work

### Admission Contact Information

Program Contact: Shannon Mezzanotte ([mezzanottes@missouri.edu](mailto:mezzanottes@missouri.edu))  
724 Clark Hall; Columbia, MO 65211  
573-884-1438

PhD Program Director: Dr. Mansoo Yu ([yuma@missouri.edu](mailto:yuma@missouri.edu))  
720 Clark Hall; Columbia, MO 65211  
573-882-4363

PhD Program Website: <http://ssw.missouri.edu/phd.html>

## About the Program

The Doctor of Philosophy (PhD) program in social work focuses on research that informs social welfare policy and practice. It is designed to prepare scholars for research, teaching and program development positions in academic and professional social work practice and policy settings.

## Financial Aid from the Program

Scholarship opportunities are available for full-time program applicants who meet the application deadline. Graduate teaching and research assistantships are also often available. Some forms of support require additional forms from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Admission Criteria

Admission deadline: Midnight January 15

- Minimum GPA: 3.0; 3.5 in graduate study
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- An MSW or related master's is required. Applicants without the MSW must take a minimum of 12 credit hours of MSW course work. This requirement may be waived for applicants with additional graduate work.
- Minimum of two years post-master's practice experience encouraged.

**Note:** These criteria are used flexibly to assess the applicant's potential for study and research in this program.

## Required Application Materials

To the Office of Graduate Studies:

- All required Office of Graduate Studies documents

To the Director of the Doctoral Program in Social Work (via the office of graduate studies online application system):

- Cover letter
- Three letters of recommendation
- CV
- Writing proficiency sample
- Personal statement
- A personal interview is required, and if possible, will be arranged at MU. A Skype interview may be utilized in some cases.

## Plan of Study

The PhD program is available to both persons with a Masters of Social Work (MSW) degree and those with other master's degrees. The curriculum consists of a minimum of 55 post MSW semester credit hours or, for applicants without an MSW, 67 hours. The curriculum is divided among three distinct but highly interrelated elements designed to complement one another in assisting students to achieve the competencies expected of a graduate of this program. A core of social work courses provides the foundation in the traditions and knowledge in the profession and exposure to state-of-the-art research and techniques for the 21st century. Electives from the broad spectrum of social and

behavioral sciences offering available through MU departments provide students with the opportunity to design an individualized plan of study that capitalizes on their unique interests and talents. A strong regimen of research methodology, theory, and policy analysis are designed to prepare students for use of both current and emerging methods of scientific inquiry.

## Graduate Certificate in Gerontological Social Work

The Graduate Certificate in Gerontological Social Work at the University of Missouri is designed to expand the pool of professionals who are qualified to work in settings with older adults and their families. The certificate focuses on practice strategies of social work intervention from micro, mezzo, and macro perspectives.

This certificate will be available to students enrolled in the MU School of Social Work master's program as part of their graduate training as well as a stand-alone certificate to graduate level clinical MSW practitioners and graduate level policy and administration MSW practitioners who wish to augment their knowledge and skills in this area. Approval of the MSW Program Director and Committee, and Director of the Graduate certificate in Gerontological Social Work is required for admission to the certificate program.

Participants in the Gerontological Social Work Certificate program build awareness and expertise for work in settings that serve older adults and their families. Participants are trained in micro, mezzo, macro and clinical strategies known to be effective in work with older adults and their families. An interdisciplinary, multi-level emphasis will be provided in the program since a large component of elder care is the coordination and management of services provided by various disciplines. Course work will utilize a bio-psycho-social-cultural perspective emphasizing the ecological perspective, Lawton's theory of environmental press, resiliency, and the functional age model of family work. In addition, students will build awareness of aging policies and services, and policies that impact persons with disabilities and women.

As a result of earning the Gerontological Social Work Graduate Certificate, practicing MSW's or Post-MSW degree practitioners can expect enhanced employability due to the development of new skills that respond to growing societal need. Current MSW students benefit from the graduate certificate by completing a concentrated course of study on a population group and obtaining specialty training with population/services needing graduate level social workers.

A current MSW student can conveniently earn the Gerontological Social Work Graduate Certificate while completing their MSW. Because all of the Gerontological Social Work Graduate Certificate courses fulfill other requirements for regular standing students in the clinical track, no additional coursework is required for these students. Regular standing students in the PP&A track and advanced standing students in the clinical track will be taking one additional course which will increase their credit hour requirement by 3 hours and advanced standing students in the PP&A track will be taking two additional courses which will increase their credit hour requirement by 6 hours.

The Gerontological SW Grad Certificate consists of 12 credit hours.

### Required Courses

SOC_WK 7480	Helping Strategies with Older Persons	6
SOC_WK 8240	Social Policy for Older Adults	

<b>Choose one:</b>	3
Clinical Selective	
SOC_WK 7490	Family Treatment
SOC_WK 8050	Resiliency and Solution-Focused Practice
SOC_WK 8030	Client Case Management, Networking, and Advocacy
SOC_WK 8040	Narrative Approaches to Social Work Practice

Policy, Planning & Administrative students choose:	
SOC_WK 8210	Disability Rights Advocacy

**Students will choose from a variety of acceptable interdisciplinary courses for fourth class** 3

During the final semester of the MSW Program, the full-time block practicum experience 40 hours/week (680 total hours) is arranged at a setting where students will gain skills practicing with older adults. The Director of Field in conjunction with the Director of the Graduate Certificate in Gerontological Social Work works with students to choose a practicum setting that fits SSW requirements and student interests. Practicing MSWs only complete 12 hours of coursework and are not required to complete an additional practicum experience.

For additional information about the Graduate Certificate in Gerontological Social Work, please contact Dr. Colleen Galambos at galambosc@missouri.edu.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/gerontological-social-work-graduate-certificate/gerontol-sw-ge/Gedt.html>

## Graduate Certificate in Military Social Work

**\*\*The Military Social Work Graduate certificate is not available for the 2017-2018 academic year.\*\***

The School of Social Work offers graduate certificates in Military Social Work and in Gerontological Social Work.

The Graduate Certificate in Military Social Work is designed to expand the pool of professionals who are qualified to work in settings with military personnel, veterans, and their families. The Certificate focuses on clinical practice strategies of social work intervention with military personnel and their families to improve the mental health and health of this population.

This certificate is available both to students enrolled in the MU School of Social Work Masters of Social Work (MSW) Program as part of their graduate training as well as a stand-alone entity to civilian graduate level clinical social work practitioners who wish to augment their knowledge and skills in this area. Only Clinical MSWs and MSW Clinical students will be accepted to the Military SW Graduate Certificate Program. Approval of the MSW Program Director is required for admission into the graduate certificate program.

Because all of the Military Social Work Graduate Certificate courses fulfill other requirements of our MSW program, a student can conveniently earn the Military SW Graduate Certificate while completing their MSW. No additional coursework is required.

The Military SW Grad Certificate consists of 12 credit hours.

**Required courses**

SOC_WK 7340	Military Culture (counts as elective)	3
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SOC_WK 7485	Military Social Work (counts as elective)	3
SOC_WK 8060	Trauma Practice and Crisis Intervention (counts as a clinical selective)	3

**Elective (choose one)**

SOC_WK 8210	Disability Rights Advocacy (counts as elective)	3
SOC_WK 7470	Organizational Issues in Social Work Practices in Child Welfare (counts as elective)	3

During the final semester of the MSW Program, the full-time block practicum experience 40 hours/week (680 total hours) is arranged at a setting where students will gain skills practicing with military personnel, veterans or their families. The Director of Field in conjunction with the Director of the Graduate Certificate in Military Social Work works with students to choose a practicum setting that fits SSW requirements and student interests. Practicing MSWs only complete 12 hours of coursework and are not required to complete an additional practicum experience. For additional information about the Graduate Certificate in Military Social Work, please contact Dr. Carol Snively at [snivelyc@missouri.edu](mailto:snivelyc@missouri.edu).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/military-social-work-graduate-certificate/military-sw-ge/Gedt.html>

## Textile and Apparel Management

Pam Norum, Department Chair and Professor  
 College of Human Environmental Sciences  
 137 Stanley Hall  
 (573) 882-7317  
<http://tam.missouri.edu>

**Advising Contact**

Jaime Mestres  
 122 Stanley Hall  
 (573) 882-6425  
[mestresj@missouri.edu](mailto:mestresj@missouri.edu)

**HES Student Services Office**

Victoria Shahan  
 106 Gwynn Hall  
 (573) 882-6424  
[hesstudentservices@missouri.edu](mailto:hesstudentservices@missouri.edu)  
<http://hes.missouri.edu>

**Scholarship Contact**

HES Development Office  
 122 Gwynn Hall  
 (573) 882-5142  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

## Faculty

**Professor** P. S. Norum\*\*  
**Associate Professor** J. Ha-Brookshire\*\*, J. Parsons\*\*  
**Assistant Professor** N. Jung\*, K. Morris\*, L. Zhao\*  
**Instructor** K. McBee-Black\*, J. Mestres\*  
**Professor Emeritus** K. G. Dickerson, L. E. Wilson\*\*  
**Associate Professor Emeritus** B. Dillard\*, J. H. Prys

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSHES in Textile and Apparel Management (p. 621)
- Minor in Textile and Apparel Management (p. 625)

The Department of Textile and Apparel Management is a global leader focusing on the apparel and textile supply chain. TAM's award-winning faculty is internationally recognized. TAM prepares students for a wide variety of career options such as merchandising, buying, sourcing, product development, technical design, e-retailing or retail operations. The curriculum focuses on leadership, the global supply chain, sustainability, creativity/innovation and technology. Through course work, field study experiences, internships, leadership conferences and student organizations, TAM students develop the marketing and management skills they need to be a top recruit for industry positions.

Students who major in Textile and Apparel Management may choose from several options and tracks:

- Apparel Marketing and Merchandising
- Apparel Product Development
- International Apparel Marketing and Merchandising
- International Apparel Product Development

These tracks are designed to provide students with knowledge and skills necessary to function in the global textile and apparel industry. (Note: Tracks do not appear on transcripts or diplomas). Students majoring in Textile and Apparel Management are required to take a set of core courses (p. 621). Students may not take departmental courses using the Pass/Fail grading option. In addition to college and department requirements, students must meet all University graduation requirements (p. 32) including University general education (p. 33).

Students who want to explore Textile and Apparel Management may take the following classes:

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
T_A_M 1300	Softgoods Retailing	3
T_A_M 2200	Science of Textiles	3
T_A_M 2400	Global Consumers	3

## Graduate

- MA in Textile and Apparel Management (p. 625)
- MS in Textile and Apparel Management (p. 625)

The College also offers a PhD in Human Environmental Sciences with an emphasis Textile and Apparel Management (p. 597).

137 Stanley Hall  
Columbia, MO 65211  
573-882-7317  
<http://tam.missouri.edu/>

**Director of Graduate Studies:** Jung Ha-Brookshire

Graduate programs in textile and apparel management offer the following areas of study: apparel manufacturing management; apparel marketing and merchandising; e-commerce, supply chain management, economic/trade issues related to domestic and global textile and apparel industry; historical and cultural aspects textiles and dress; and consumer marketplace concerns.

## Careers

Career opportunities for graduates exist in many areas, such as higher education, industry analysis, museums, product development, production management and cooperative extension.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## BSHES in Textile and Apparel Management

### Degree Program Description

Textile & Apparel Management (TAM) is a program which focuses on the apparel and textile supply chain. The curriculum focuses on leadership, the global supply chain, sustainability, creativity/innovation and technology. Students have access to the state of the art Apparel Technology Lab. The Apparel Marketing and Merchandising option prepares students for careers in retail management and buying. The Apparel Product Development option prepares students for careers in technical design, sourcing, and pattern making. The International Option prepares students to work in the exciting global textile and apparel industry. Through course work, field study experiences, internships, leadership conferences and student organizations, TAM students develop the skills they need to be a top recruit for industry positions. TAM prepares students for a wide variety of career options such as merchandising, buying, sourcing, product development, technical design, e-retailing or retail operations.

### Major Program Requirements

There are four tracks available in Textile and Apparel Management: (1) Apparel Marketing and Merchandising, (2) International Apparel Marketing and Merchandising, (3) Apparel Product Development, or (4) International Apparel Product Development. These tracks are designed to provide students with knowledge and skills necessary to function in the global textile and apparel industry. Students majoring in TAM may not take departmental courses using the Pass/Fail grading option. In addition to college requirements, students must meet all University graduation requirements (p. 32) including University general education. Some courses in the Professional Program are allowed to double count for General Education requirements (p. 33). This program can be completed in 120 hours. The following courses are required of all students majoring in Textile and Apparel Management (TAM). (NOTE: Tracks do not appear on transcripts or diplomas.)

### Core Requirements

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
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T_A_M 1300	Softgoods Retailing	3
T_A_M 2120	Professional Seminar	1
T_A_M 2200	Science of Textiles	3
T_A_M 2400	Global Consumers	3
T_A_M 2500	Social Appearance in Time and Space	3
T_A_M 3200	Softgoods Quality Evaluation	3
T_A_M 3520	19th and 20th Century Western Dress	3
T_A_M 4110	Global Sourcing	3
T_A_M 4400	The Clothing/Textile Consumer: Research and Analysis	3
Total Credits		28

## Apparel Marketing and Merchandising

T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3700	MultiChannel Retailing in the Digital World	3
or T_A_M 3300	Retail and Merchandising Analysis	
T_A_M 4990	Retail Marketing and Merchandising	3
TAM elective hours		15

### Supporting Course Requirements

CHEM 1100	Atoms and Molecules with Lab	3
ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or AG_EC 1042	Applied Macroeconomics	
ESC_PS 4170	Introduction to Applied Statistics	3
or STAT 1200	Introductory Statistical Reasoning	
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or STAT 2500	Introduction to Probability and Statistics I	
ACCTCY 2010	Introduction to Accounting *	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
FINANC 2000	Survey of Business Finance *	3
MANGMT 3000	Principles of Management *	3
MRKTNG 3000	Principles of Marketing *	3
Business Elective (3000 level course or higher) *		3
Total Credits		51

\* Courses required for the Business Minor (p. 350).

## International Apparel Marketing and Merchandising

T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3700	MultiChannel Retailing in the Digital World	3
or T_A_M 3300	Retail and Merchandising Analysis	
T_A_M 4990	Retail Marketing and Merchandising	3
TAM Elective hours		9

### Supporting Course Requirements

CHEM 1100	Atoms and Molecules with Lab	3
ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or AG_EC 1042	Applied Macroeconomics	
ESC_PS 4170	Introduction to Applied Statistics	3
or STAT 1200	Introductory Statistical Reasoning	

or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or STAT 2500	Introduction to Probability and Statistics I	
ACCTCY 2010	Introduction to Accounting *	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
T_A_M 2810	Think Global: Fundamentals of Globalization and Digital Technologies	3
or T_A_M 4810	Case Studies in an Inter/Multicultural World	
MANGMT 3000	Principles of Management *	3
MRKTNG 3000	Principles of Marketing *	3
PHIL 1100	Introduction to Ethics	3
POL_SC 1400	International Relations	3
Foreign Language (10 hours of the same foreign language)		10
Total Credits		58

\* Courses required for the Business Minor (p. 350). Students must add in FINANC 2000 and a Business Elective (3000 level course or higher).

## Apparel Product Development

T_A_M 2280	Apparel Production	4
T_A_M 2380	Integrated Apparel Design and Production I	3
T_A_M 2480	Apparel and Textile Presentation Techniques	3
T_A_M 2580	Digital Textile and Apparel Applications	3
T_A_M 3380	Integrated Apparel Design and Production II	3
T_A_M 3480	Technical Design	3
T_A_M 4480	Creativity and Problem Solving	3
T_A_M 4980	Apparel Production Management	4

### Supporting Course Requirements

CHEM 1100	Atoms and Molecules with Lab	3
ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or AG_EC 1042	Applied Macroeconomics	
ESC_PS 4170	Introduction to Applied Statistics	3
or STAT 1200	Introductory Statistical Reasoning	
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or STAT 2500	Introduction to Probability and Statistics I	
ACCTCY 2010	Introduction to Accounting *	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
MANGMT 3000	Principles of Management *	3
MRKTNG 3000	Principles of Marketing *	3
Six hours of TAM electives OR Finance 2000 and a Business Elective (3000 level course or higher) *		6
Total Credits		53

\* Courses required for the Business Minor (p. 350).

## International Apparel Product Development

T_A_M 2280	Apparel Production	4
T_A_M 2380	Integrated Apparel Design and Production I	3
T_A_M 2480	Apparel and Textile Presentation Techniques	3

T_A_M 2580	Digital Textile and Apparel Applications	3
T_A_M 3380	Integrated Apparel Design and Production II	3
T_A_M 3480	Technical Design	3
T_A_M 4480	Creativity and Problem Solving	3
T_A_M 4980	Apparel Production Management	4
<b>Supporting Course Requirements</b>		
CHEM 1100	Atoms and Molecules with Lab	3
ECONOM 1014	Principles of Microeconomics *	3
or AG_EC 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or AG_EC 1042	Applied Macroeconomics	
ESC_PS 4170	Introduction to Applied Statistics	3
or STAT 1200	Introductory Statistical Reasoning	
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or STAT 2500	Introduction to Probability and Statistics I	
ACCTCY 2010	Introduction to Accounting *	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
MRKTNG 3000	Principles of Marketing *	3
or MANGMT 3000	Principles of Management	
T_A_M 2810	Think Global: Fundamentals of Globalization and Digital Technologies	3
or T_A_M 4810	Case Studies in an Inter/Multicultural World	
PHIL 1100	Introduction to Ethics	3
POL_SC 1400	International Relations	3
Foreign language (10 hours of the same foreign language)		10
<b>Total Credits</b>		<b>63</b>

\* Courses required for the Business Minor (p. 350). Students must add in FINANC 2000, Business Elective (3000 level course or higher), and take both MRKTNG 3000 and MANGMT 3000.

## Semester Plans

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

## Bachelor of Science in Human Environmental Sciences with a track in Apparel Marketing and Merchandising

First Year		
Fall	CR Spring	CR
T_A_M 1300	3 T_A_M 1200	3
CHEM 1100	3 T_A_M 2200	3
GN_HES 1100	1 COMMUN 1200	3
ENGLSH 1000	3 MATH 1100	3
NEP 1034 or 1340 (Recommended Biological Science)	3 Humanities	3
American History or Government	3	
	16	15
Second Year		
Fall	CR Spring	CR
T_A_M 2400	3 T_A_M 2300 (or General Elective)	3

T_A_M 2500	3 T_A_M 3520	3
ECONOM 1014 or AG_EC 1041	3 ECONOM 1015 or AG_EC 1042	3
HES Foundation	3 Statistics (Recommend ESC_PS 4170)	3
Humanities	3 HES Foundation	3
	General Elective	1
	15	16

Third Year		
Fall	CR Spring	CR
T_A_M 2300 (or General Elective)	3 T_A_M 3700 or 3300	3
T_A_M 3200	3 T_A_M 4110	3
TAM Elective	3 TAM Elective	3
T_A_M 2120	1 TAM Elective	3
ACCTCY 2010, 2026, or 2036	3 General Elective	3
MRKTNG 3000	3	
	16	15

Fourth Year		
Fall	CR Spring	CR
TAM Elective	3 T_A_M 4400	3
FINANC 2000	3 T_A_M 4990	3
MANGMT 3000	3 TAM Elective	3
General Elective	3 Business Elective (level 3000 or higher)	3
General Elective	3	
	15	12

Total Credits: 120

## Bachelor of Science in Human Environmental Sciences with a track in International Apparel Marketing and Merchandising

First Year		
Fall	CR Spring	CR
T_A_M 1300	3 T_A_M 1200	3
CHEM 1100	3 T_A_M 2200	3
GN_HES 1100	1 COMMUN 1200	3
ENGLSH 1000	3 MATH 1100	3
NEP 1034 or 1340 (Recommended Biological Science)	3 Humanities	3
History or Political Science	3	
	16	15

Second Year		
Fall	CR Spring	CR
T_A_M 2400	3 T_A_M 2300 (or General Elective)	3
T_A_M 2500	3 T_A_M 3520	3
ECONOM 1014 or AG_EC 1041	3 ECONOM 1015 or AG_EC 1042	3
PHIL 1100	3 Statistics (Recommended ESC_PS 4170)	3
Foreign Language	5 Foreign Language	5
	17	17



Third Year		
Fall	CR Spring	CR
T_A_M 2300 (or General Elective)	3 T_A_M 3700 or 3300	3
T_A_M 3200	3 T_A_M 4110	3
T_A_M 2810 or 4810	3 TAM Elective	3
T_A_M 2120	1 POL_SC 1400	3
ACCTCY 2010, 2026, or 2036	3 General Elective or FINANC 2000	3
MRKTNG 3000	3	
	16	15

Fourth Year		
Fall	CR Spring	CR
TAM Elective	3 T_A_M 4400	3
TAM Elective	3 T_A_M 4990	3
MANGMT 3000	3 General Elective or Business Elective (level 3000 or higher)	3
HES Foundation	3 HES Foundation	3
	12	12

Total Credits: 120

## Bachelor of Science in Human Environmental Sciences with a track in Apparel Product Development

First Year		
Fall	CR Spring	CR
T_A_M 1200	3 T_A_M 2200	3
T_A_M 1300	3 T_A_M 2280	4
CHEM 1100	3 MATH 1100	3
GN_HES 1100	1 American History or Government	3
ENGLISH 1000	3 Humanities	3
NEP 1034 or 1340 (Recommended Biological Science)	3	
	16	16

Second Year		
Fall	CR Spring	CR
T_A_M 2400	3 T_A_M 2380	3
T_A_M 2480	3 T_A_M 3520	3
T_A_M 2500	3 ECONOM 1015 or AG_EC 1042	3
ECONOM 1014 or AG_EC 1041	3 HES Foundation	3
COMMUN 1200	3 General Elective	3
	15	15

Third Year		
Fall	CR Spring	CR
T_A_M 2580	3 T_A_M 3480	3
T_A_M 3200	3 T_A_M 4110	3
T_A_M 3380	3 FINANC 2000 (or TAM Elective)	3
T_A_M 2120	1 MANGMT 3000	3
ACCTCY 2010, 2026, or 2036	3 Statistics (Recommended ESC_PS 4170)	3
MRKTNG 3000	3	
	16	15

Fourth Year		
Fall	CR Spring	CR
T_A_M 4480	3 T_A_M 4400	3
Business Elective level 3000 or above (or TAM Elective)	3 T_A_M 4980	4
HES Foundation	3 Humanities	3
General Elective	5 General Elective	3
	14	13

Total Credits: 120

## Bachelor of Science in Human Environmental Sciences with a track in International Apparel Product Development

First Year		
Fall	CR Spring	CR
T_A_M 1200	3 T_A_M 2200	3
T_A_M 1300	3 T_A_M 2280	4
CHEM 1100	3 MATH 1100	3
GN_HES 1100	1 American History or Government	3
ENGLISH 1000	3 Humanities	3
NEP 1034 or 1340 (Recommended Biological Science)	3	
	16	16

Second Year		
Fall	CR Spring	CR
T_A_M 2400	3 T_A_M 2380	3
T_A_M 2480	3 T_A_M 3520	3
T_A_M 2500	3 ECONOM 1015 or AG_EC 1042	3
ECONOM 1014 or AG_EC 1041	3 COMMUN 1200	3
Foreign Language	5 Foreign Language	5
	17	17

Third Year		
Fall	CR Spring	CR
T_A_M 2580	3 T_A_M 3480	3
T_A_M 3200	3 T_A_M 4110	3
T_A_M 3380	3 POL_SC 1400	3
T_A_M 2120	1 Statistics (Recommended ESC_PS 4170)	3
ACCTCY 2010, 2026, or 2036	3 General Elective	2
MRKTNG 3000 or MANGMT 3000	3	
	16	14

Fourth Year		
Fall	CR Spring	CR
T_A_M 2810 or 4810	3 T_A_M 4400	3
T_A_M 4480	3 T_A_M 4980	4
PHIL 1100	3 HES Foundation	3
HES Foundation	3 General Elective	2
	12	12

Total Credits: 120

## Minor in Textile and Apparel Management

An undergraduate minor in Textile and Apparel Management is available for students pursuing a major in other departments. Students who wish to complete a minor should declare the minor by completing the form at [http://hes.missouri.edu/students\\_minorapp.html](http://hes.missouri.edu/students_minorapp.html). A minimum of 18 credit hours is required with at least six hours at the 2000 level or above. At least 15 of the 18 total hours must be taken in residence at the University of Missouri. Prerequisites for all courses must be met, or the student must have the permission of the instructor.

### Required Courses:

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
or T_A_M 1300	Softgoods Retailing	
T_A_M 2200	Science of Textiles	3

### Select 12 hours from list below in consultation with a TAM

#### Advisor:

Apparel Industry Studies		
T_A_M 2400	Global Consumers	3
T_A_M 3200	Softgoods Quality Evaluation	3
T_A_M 4110	Global Sourcing	3
T_A_M 4400	The Clothing/Textile Consumer: Research and Analysis	3
T_A_M 4549	International Experiential Learning in Textiles and Apparel	1-99
T_A_M 4949	Field Training in Textiles and Apparel Management	1-99
T_A_M 4998	Experiential Learning in Textiles and Apparel	1-3
Historical/Behavioral Studies in Dress		
T_A_M 2500	Social Appearance in Time and Space	3
T_A_M 2520	History of Western Dress	3
T_A_M 3520	19th and 20th Century Western Dress	3
Apparel Merchandising & Retailing		
T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3700	MultiChannel Retailing in the Digital World	3
T_A_M 3800	Fundamentals of Entrepreneurship	3
T_A_M 4300	Softgoods Brand Management and Promotion	3
T_A_M 4990	Retail Marketing and Merchandising	3
Apparel Product Development		
T_A_M 2280	Apparel Production	4
T_A_M 2380	Integrated Apparel Design and Production I	3
T_A_M 2480	Apparel and Textile Presentation Techniques	3
T_A_M 2580	Digital Textile and Apparel Applications	3

## MA in Textile and Apparel Management

### Admission Contact Information

Leona Nichols ([nicholslm@missouri.edu](mailto:nicholslm@missouri.edu))  
 137 Stanley Hall; Columbia, MO 65211  
 573-882-7317  
[http://tam.missouri.edu/grad\\_MS.html](http://tam.missouri.edu/grad_MS.html)

## Admission Criteria

Fall deadline: February 1 (January 15 for early financial support considerations)

Spring deadline: September 1

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree from an accredited college or university in textile and apparel management or related field. Those with unrelated majors will need to do make-up work
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Recommended Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	500/500	160
On or After August 1, 2011	153/144	3.0

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Studies documents
- Statement of professional objectives (upload to application)
- Departmental application (upload through the Graduate School application or send directly to department)
- Official transcripts from every college or university you have attended
- Three letters of recommendation (upload preferred, or send directly to department)
- GRE Scores
- Latest vitae or résumé
- TOEFL scores if international student

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- Latest vitae or résumé
- GRE Scores
- TOEFL scores if international student
- A digital design portfolio if pursuing design research

## Additional Minors and Certificates - HES

### Undergraduate Minors

- Minor in Financial Literacy for Helping Professionals (p. 626)
- Minor in Social Justice (p. 626)
- Minor in Wellness (p. 627)

### Graduate Certificates

- Certificate in Financial and Housing Counseling (p. 627)
- Certificate in Geriatric Care Management (p. 627)
- Certificate in Gerontology (p. 628)
- Certificate in Youth Development Program Management and Evaluation (p. 628)
- Certificate in Youth Development Specialist (p. 628)

## Minor in Financial Literacy for Helping Professionals

The School of Social Work has collaborated with Personal Financial Planning department within the College of Human Environmental Sciences to develop a minor in Financial Literacy for Helping Professionals. As front line helping professionals encounter clients who face challenging economic situations, skills in addressing those challenges and knowledge of foundational personal finance information will aid in helping clients. Knowledge of predatory lending practices, social welfare policy designed to help the working and non-working poor, and tax strategies to enhance financial situations will be addressed. This minor hopes to embrace the imperative need to educate our graduates on the role of financial literacy for those professionals who will serve others.

Students who complete the financial literacy minor may not refer to themselves as BSW-level social workers upon graduation. Fifteen credits are required to complete the financial literacy minor.

### Minor Requirements

FINPLN 2183	Personal and Family Finance *	3
FINPLN 3282	Financial Counseling *	3
FINPLN 4188	Community Agencies and Volunteerism (taught in spring semester only; students will need to attend a workshop in order to certify for IRS compliance)	3
SOC_WK 4750	Interaction Skills Workshop	3
Select one of the following:		3
SOC_WK 2000	Exploration in Social and Economic Justice	
SOC_WK 4710	Social Justice and Social Policy	
Total Credits		15

\* Completion of these two courses, as well as the proposed curriculum for the minor, will allow the student to sit for the Accredited Financial Counselor Exam.

Note: Satisfactory completion (as defined by C range grade or above) of Microeconomics and College Algebra is required. Satisfactory completion (as defined by C range grade or above) of each required course is necessary in order to attain this minor. This minor is available to students regardless of major.

**The student must have an overall GPA requirement of a 2.5 to apply for the minor.**

This minor is available to students regardless of academic major. A student must complete the application minor information and submit to Student Service Coordinator ([http://ssw.missouri.edu/faculty\\_freelin.html](http://ssw.missouri.edu/faculty_freelin.html)) in Clark Hall for approval. The student must be graduating from a distinct discipline to be eligible for the minor. The minor will be added to the student's myZou record upon completion to be given simultaneously with the degree.

**Support Process:** The student may meet with the Director of Undergraduate Studies and the Student Service Coordinator ([http://ssw.missouri.edu/faculty\\_freelin.html](http://ssw.missouri.edu/faculty_freelin.html)) for advising regarding the Financial Literacy for Helping Professionals minor.

### Application for the Financial Literacy for Helping Professionals Minor

## Minor in Social Justice

The social justice minor is designed to give non-social work majors the opportunity to develop knowledge and understanding about social justice in the person-environment context. Social justice involves the idea that in a perfect world all citizens would have identical social benefits, protections and opportunities regardless of their backgrounds and membership in diverse groups. Recognizing that the world is not perfect, the primary goals for the minor in social justice are to enhance sensitivity to vulnerable and at-risk populations, to provide opportunity for critical review of social policies and the allocation of societal resources and to stimulate interest in advocacy and the planned change process.

Students who complete the social justice minor may not refer to themselves as BSW-level social workers upon graduation.

A minimum of 15 hours, comprised of the courses below, is required to complete the Social Justice minor. Students must have a 2.5 minimum

GPA to apply for and earn the minor. Note that students must earn a grade of C- or higher in all courses and a maximum of 6 credit hours from transfer institutions may be applied toward the Social Justice minor.

#### Minor core requirements

SOC_WK 1115	Social Welfare and Social Work	3
SOC_WK 2220	Human Behavior and the Environment	3
SOC_WK 2000 or SOC_WK 4710	Exploration in Social and Economic Justice Social Justice and Social Policy	3

#### Social work electives

Select two of the following:		6
SOC_WK 4101	Topics in Social Work	
SOC_WK 4330	Addiction Treatment and Prevention	
SOC_WK 4350	Deaf Culture: A Social Work Perspective	
SOC_WK 4360	Working with Minority Youth	
SOC_WK 4370	Delinquency, Corrections and Social Treatment	
SOC_WK 4380	Social Work Practice With Minorities: African-American Emphasis	
SOC_WK 4390	Helping Strategies With Children and Adolescents	
SOC_WK 4400	Domestic Violence	
SOC_WK 4410	Law and Social Work Practice	
SOC_WK 4440	International Social Work Practices and Principles	
SOC_WK 4450	Professional Perspectives on Child Welfare Services in the 21st Century	
SOC_WK 4455	Latino/a Immigrants and Receiving Communities	

Total Credits 15

## Minor in Wellness

The Wellness Minor is intended for both non-science and science students interested in course work focused on empowering them to make informed decisions related to lifelong personal nutrition and exercise choices.

Core requirements consist of a minimum of 15 hours of nutrition and exercise/fitness courses.

#### Required Courses

NEP 1034 or NEP 2340	Introduction to Human Nutrition Human Nutrition I	3
NEP 1340	Introduction to Exercise and Fitness	3
NEP 2450	Nutrition Throughout the Life Span ((check prerequisites) )	3
NEP 3450	Activity Throughout the Lifespan	3

#### Choose at least one of the following (to complete a total of 15 hours)

NEP 2222	Landscape of Obesity	3
NEP 2380	Diet Therapy for Health Professionals	3
NEP 2460	Eating Disorders	2
NEP 3550	Corporate, Community, and Personal Fitness	3
NEP 4200	Sports Performance and Conditioning	3

To apply for the Wellness Minor, use the online application form ([http://hes.missouri.edu/students\\_minorapp.php](http://hes.missouri.edu/students_minorapp.php)) available on the Human Environmental Sciences Student Services website.

## Graduate Certificate in Financial and Housing Counseling

The purpose of the Financial and Housing Counseling Certificate is to develop a student's financial and housing counseling skills and to prepare a student to sit for the Accredited Financial Counselor and Certified Housing Counselor exam offered through the National Association for Financial Planning and Counseling Education. Students with this background would be equipped to provide professional assistance in debt counseling, financial management, and housing finance to those in need. Typical clients would include those with low levels of income and resources, disaster recovery, and military personnel dealing with financial and housing issues related to deployment, relocation.

This certificate is offered as part of the Family Financial Planning programs in the Great Plains Interactive Distance Education Alliance. More information is available at <http://www.gpidea.org/index.html?page=majorsDegreesCourses.html&anchor=programAnchor1>.

#### Contact information:

Dr. Deanna Sharpe  
229 Stanley Hall  
Columbia, MO 65211  
[sharped@missouri.edu](mailto:sharped@missouri.edu)  
573-882-9652

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/financial-and-housing-counseling-graduate-certificate/financial-housing-ge/Gedt.html>

## Graduate Certificate in Geriatric Care Management

The Geriatric Care Management certificate is a web-based, four course certificate designed for those who provide independent case management services to elder Americans or who wish to do so in the future. The certificate provides an educational credential in addition to preparing students to sit for certification examinations given by national credentialing organizations.

#### For more information about certificate, contact:

Dr. Cynthia S. Reeser  
Department of Human Development and Family Studies  
College of Human Environmental Sciences  
314 Gentry Hall  
Columbia, MO 65211  
573-882-5617  
[reeserc@missouri.edu](mailto:reeserc@missouri.edu)

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/geriatric-care-management-graduate-certificate/geriatric-care-ge/Gedt.html>

## Graduate Certificate in Gerontology

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A certificate in gerontology is ideal for professionals in a variety of aging-related fields. Areas include senior-services organizations like centers on aging; senior centers; nursing homes; assisted, independent, and aging-in-place living facilities; non-profit organizations; faith-based groups; and extension educators.

Certificate web site: [http://hdfs.missouri.edu/grad\\_gerontologycertificate.html](http://hdfs.missouri.edu/grad_gerontologycertificate.html)

For information about certificate, contact:  
Department of Human Development and Family Studies  
314 Gentry Hall  
University of Missouri  
Columbia, MO 65211  
[colemanma@missouri.edu](mailto:colemanma@missouri.edu)  
573-882-4035

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/gerontology-graduate-certificate/gerontology-ge/Gedt.html>

## Graduate Certificate in Youth Development Program Management and Evaluation

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A certificate in Youth Development Program Management and Evaluation is ideal for professionals in a variety of youth-related fields. Areas include youth-serving organizations like 4-H; Boys and Girls Club; non-profit organizations; faith-based groups; community recreation facilities; correctional professions; elementary, middle and high school educators; and extension educators.

Certificate web site: [http://hdfs.missouri.edu/grad\\_youthprogram.html](http://hdfs.missouri.edu/grad_youthprogram.html)

For information about certificate, contact:  
Department of Human Development and Family Studies  
College of Human Environmental Sciences  
314 Gentry Hall  
Columbia, MO 65211  
[colemanma@missouri.edu](mailto:colemanma@missouri.edu)  
573-882-4360

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/youth-development-program-management-and-evaluation-certificate/youth-mgmt-eval-ge/Gedt.html>.

## Graduate Certificate in Youth Development Specialist

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A certificate in youth development is ideal for professionals in a variety of youth-related fields. Areas include youth-serving organizations like 4-H; Boys and Girls Club; non-profit organizations; faith-based groups; community recreation facilities; correctional professions; elementary, middle and high school educators; and extension educators.

Certificate web site: [http://hdfs.missouri.edu/grad\\_youthspecialist.html](http://hdfs.missouri.edu/grad_youthspecialist.html)

For information about certificate, contact:  
Department of Human Development and Family Studies  
College of Human Environmental Studies  
314 Gentry Hall  
Columbia, MO 65211  
[colemanma@missouri.edu](mailto:colemanma@missouri.edu)  
573-882-4360

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/youth-development-specialist-graduate-certificate/youth-dev-spec-ge/Gedt.html>.

## School of Journalism

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### Administration

David D. Kurpius, Dean  
Earnest Perry, Associate Dean for Graduate Studies  
Lynda Kraxberger, Associate Dean for Undergraduate Studies and Administration  
Fritz Cropp, Associate Dean for Global Programs

### Contact Information

Advising Contact: (573) 882-1045  
Scholarship Information Contact: <http://journalism.missouri.edu>

Office Address  
Administration, 120 Neff Hall  
(573) 882-4821  
Student Services, 76 Gannett Hall  
(573) 882-1045  
[JournalismStudentServices@missouri.edu](mailto:JournalismStudentServices@missouri.edu)

### About the School

The world's first School of Journalism was established in 1908 at the University of Missouri to strengthen the effectiveness of public communication in a democratic society. The school's first dean, Walter Williams (who went on to become president of the University in 1930) wrote the Journalist's Creed, which stresses the profession's rights and responsibilities as a public trust.

The faculty is committed to educating students in the responsibilities and skills of the professional journalist. It also has a broader commitment to advance the profession of journalism through scholarly research, analysis and criticism and through special programs to serve practitioners. The school also prepares students for careers in corporate communication through its strategic communication emphasis area. Students in that area typically pursue careers in advertising or public relations or in strategic communication, a combination of those fields.

The Missouri Method assures a journalism student will graduate with a broad, liberal education essential for a journalist whose work may span many segments of today's complex society. In addition to a liberal arts education, students complete practical laboratory work in a variety of settings, including a public radio station, a commercial daily newspaper and a network-affiliated television station. The school offers the Bachelor of Journalism, Master of Arts and Doctor of Philosophy degrees, along with cooperative programs with other divisions in the University. It was the first school in the world to offer all three of those degrees.

The Accrediting Council on Education in Journalism and Mass Communication has accredited the undergraduate program and a professional master's degree.

### Undergraduate

- Admissions (p. 629)
- Special Programs (p. 630)
- Academic Regulations (p. 631)
- Advising (p. 632)
- Senior Assessment Program (p. 633)
- Opportunities for Graduate Study on MU Campus (p. 636)

### Admissions

Students must be admitted to the School of Journalism to pursue the Bachelor of Journalism degree. Students are admitted in one of two categories:

#### Directly Admitted Students

A freshman applicant will be directly admitted to the School of Journalism if he or she meets standard MU admissions requirements and any one of the following three criteria:

- Rank in the top 10 percent of the student's high school class.
- Score 29 or higher on the ACT Composite.
- Combined score of 1350 or higher on the math-verbal portions of the SAT.

#### Pre-Journalism A&S Students

Students accepted by MU who do not meet one of the criteria for direct admission are admitted as pre-Journalism students in the College of Arts and Science and apply for admission to Journalism as the student is completing the fifth journalism course, which is either JOURN 2100 News or JOURN 2150 Fundamentals of Multimedia Journalism. That usually occurs in the second semester of the sophomore year as the student is completing 60 credits and all other requirements.

NOTE: All undergraduate admissions to MU are handled by the Office of Undergraduate Admissions, not the School of Journalism, and no exceptions are made to the standards for direct admission to Journalism. A student either meets one of the admissions standards or does not. *There is no appeals process for direct admission.*

However, once accepted to MU as a pre-Journalism student, the student may continue to take the ACT or SAT to try to improve his or her score. If the student receives the necessary score for direct admission, once the score is received by the Admissions Office the student may request a change of admissions status. The new test score must be received by the Admissions Office at least one month before the student is to begin classes at MU. Similarly, a student who was admitted outside the top 10 percent of his or her class but who subsequently achieves top 10 percent standing at the end of the senior year of high school may request a change of admissions status. *No change is possible later than one month before the student begins classes at MU.*

#### Differences in the Admission Categories

Directly admitted students have several advantages over students admitted as pre-Journalism students in the College of Arts and Science. Directly admitted students:

- Advance automatically to upper-class status in Journalism if they maintain a cumulative UM GPA of record of 3.0 or higher upon completion of 60 credit hours and fulfill all other requirements.
- Are guaranteed admission to the upper-class interest area of their choice provided they maintain a cumulative UM GPA of record of 3.0 or higher.

To continue to enjoy these benefits, directly admitted students are expected to maintain a UM cumulative GPA of 3.0 or higher. Students whose GPA fall below 3.0 after completion of 60 credit hours lose these benefits and will transition to another academic unit.

Unlike directly admitted students, pre-Journalism students:

- Are not guaranteed to advance to upper-class status in Journalism if they maintain a cumulative UM GPA of record of 3.0 or higher upon completion of 60 credit hours and after fulfilling all other requirements. Students in this category are accepted on a space-available basis. However, to date no one who has earned a 3.0 cumulative GPA or higher has been rejected, and space has been available. The School merely reserves the right to reject students due to potential program space limitations.
- Are not guaranteed an interest area of choice even with a cumulative GPA of record of 3.0 or higher. Admission to the interest area of choice is dependent upon space availability. To date, no one with a 3.0 GPA or higher has been denied admission into their area of choice.

The School of Journalism is eager to accept hard-working pre-Journalism students who have demonstrated the necessary aptitude and drive to be successful in the upper division interest areas of the program.

## Admission to Upper-Division Interest Area

As noted above, directly admitted students who maintain a UM GPA of record of 3.0 or higher and complete the necessary coursework are automatically admitted to upper-division status and their interest area of choice upon completion of 60 credits and other requirements for upper-division status.

Students who do not meet the criteria for direct admission and directly admitted students who have not maintained a cumulative UM GPA of record of 3.0 or higher must appeal for upper-division status upon completion of 60 credit hours and fulfillment of all other requirements for upper-division status. A Faculty Appeal Committee in each emphasis area will review applications for admission, and admission will be by interest area based on space available in the respective program.

GPA alone will **not** be used to evaluate the application appeals from pre-Journalism students and directly admitted students with UM GPAs below 3.0. In addition to GPA, the committees will consider a student's stated desire to work in the fields of journalism or strategic communication, demonstrated commitment to journalism or strategic communication (as evidenced by work with student or professional media, high school activities or participation in journalism student groups), needs of the profession, etc. For example, it is possible for a student with a 2.87 GPA who has demonstrated strong commitment to the field to be selected over one with a 2.95 GPA who has shown no similar commitment. Students applying through this process must submit a letter of purpose stating a case for admission to an interest area. The letter should not exceed two pages.

The School will attempt to match interests of students applying through the appeal process with openings in the School's various academic disciplines. The School does not guarantee first choice of interest area to students admitted through this process. It may be necessary from time to time to limit enrollment in high-demand areas.

Students who are rejected twice for upper-division status through this process must transfer to another MU academic division and will no longer be considered Journalism or pre-Journalism students. If, however, a student subsequently spends a semester taking non-journalism courses and raises his or her cumulative GPA of record above 3.0, the student may reapply. No such application will be accepted after a student has completed 70 or more hours of college credit.

## Transfer Student Admissions Standards

Transfer students are admitted to upper-division status in Journalism when they complete 60 credit hours, fulfill all prerequisites and establish a cumulative GPA of record of at least 3.0. Completion of all pre-interest course requirements is required for transfer students to qualify for admission. Students who plan to major in Journalism are encouraged to transfer to MU after taking a maximum of 30 credit hours elsewhere.

Transfer students who have completed 60 credit hours and the necessary coursework but who do not have a 3.0 UM GPA of record must provide an appeal packet to a faculty interest area committee. Criteria used in evaluating these applications are similar to those for pre-Journalism applicants and direct admits who do not achieve a 3.0 GPA. The Admissions Committee will review the student's GPA of record as well as a student's stated desire to work in the fields of journalism or strategic communication, demonstrated commitment to journalism or strategic communication (as evidenced by work with student or professional media, high school or community college activities, or participation in journalism student groups), needs of the profession, etc. A transfer student in this category also must submit a letter of purpose stating a case for admission to an interest area. The letter should not exceed two pages.

## Transfer Credit

The Office of Undergraduate Admissions, 230 Jesse Hall, determines transfer equivalencies for the University, including the School of Journalism. Transfer students from other accredited schools and colleges in Missouri should check the MU website to see how coursework will transfer to MU or contact the Office of Admissions. Students should also contact an advisor to see how these courses would apply toward a degree at MU. The School of Journalism can accept up to six journalism credit hours from other accredited journalism programs or from Missouri colleges with which the School of Journalism has working agreements.

Current Missouri journalism students may not transfer journalism courses from other institutions. Many communications courses are similarly rejected and may not be used toward graduation requirements even as electives. Some other courses may not count toward the degree.

## International Admission

**Direct Admission:** In addition to meeting the minimum ACT or SAT score or being ranked in the top 10% the high school class, students must have a minimum score of 100 (internet), 600 (paper) or 250 (computerized) on the Test of English as a Foreign Language (TOEFL) is required for all pre-Journalism and Journalism students whose native language is other than English. Alternatively, students may take the International English Language Testing System (IELTS) exam: overall-7.0, no band score below-6.0.

**Pre-Journalism Admission:** Students not meeting the minimum standards for direct admission and who have met minimum university admission standards can pursue the degree through the pre-journalism track if they meet the following English-language proficiency standards: Minimum Test of English as a Foreign Language (TOEFL) paper-based score of 550 or minimum TOEFL electronic score of 80 or International English Language Testing System (IELTS) band score of 6.5 with minimum section scores of 6.

## Special Programs

The School of Journalism attracts some of the best students at MU. The School encourages high-ability students to enroll in the MU Honors

College (<http://honors.missouri.edu>) and take honors courses whenever possible. Such courses are taught by some of MU's best professors. The School recognizes incoming high-ability students with two special designations and the following benefits:

## Journalism Scholars Program

**Qualifications:** Any incoming freshman journalism major who has a composite ACT score of 29 or higher (or 1290 or higher on the combined math and verbal portions of the SAT) and who ranks in the top 10 percent of his or her high school graduating class qualifies for:

- Direct admission to the Missouri School of Journalism
- Designation as a Missouri Journalism Scholar
- Student's who are eligible for the Honor's College are automatically accepted into the Journalism Scholars program

### Benefits:

- The opportunity to participate in a Freshman Interest Group designed exclusively for Journalism students, space permitting
- Special advisement and programs directed by the school of Journalism's associate dean for undergraduate studies and administration
- Regular meetings with various members of the journalism faculty
- Space permitting, assignment to residence halls set aside for Journalism Scholars
- The opportunity to participate in many on-campus journalism events, and journalism clubs and organizations
- Social activities planned exclusively for Journalism Scholars

## The Walter Williams Scholars Program

The highest-achieving Journalism Scholars win separate designation as Walter Williams Scholars. The Walter Williams Scholars program is named in honor of the school's founding dean, a Missouri newspaper publisher who went on to become president of the University of Missouri. **Qualifications:** To win acceptance into the exclusive circle of top Walter Williams scholars, incoming freshmen must earn an ACT composite score of 33 or higher (1440 or higher on the SAT). They also must rank in the top 20 percent of the high school class (if the school ranks) or must have maintained a high school GPA of at least 3.25 on a 4.0 scale. Admission is by invitation only.

### Benefits:

Walter Williams Scholars are also Journalism Scholars and have all of the rights and privileges enjoyed by that group. Additional benefits include:

- Placement in a special Freshman Interest Group, space permitting
- Assigned individual faculty mentors
- A \$1,000 scholarship that can be used for study abroad or in our New York or Washington programs. The scholarship can be used at any time before graduation
- Automatic admission to the one-year BJ/MA program at the School of Journalism, which allows students to complete their graduate degree in one year rather than two. Admission is contingent upon the following criteria:
  - Maintenance of a 3.25 GPA in your journalism coursework and for your cumulative average, throughout your undergraduate career
  - Submission of a complete MA application, including payment of the application fee, and with two (out of three) of your letters

of recommendation from journalism faculty. You do not need to take the GRE. Details can be found on the Master's Application Checklist: <http://journalism.missouri.edu/programs/masters/admissions/>

## Academic Regulations

### Dual-Degree - Bachelor of Arts/Bachelor of Journalism

To receive two bachelor's degrees, a Bachelor of Arts and a Bachelor of Journalism, a student must complete a minimum of 132 credits and complete all of the specific requirements for both degrees. Normally, a minimum of one additional semester is required for both degrees. Each candidate for a dual degree is assigned an advisor in the School of Journalism and in the additional academic unit.

### Science and Agricultural Journalism

The College of Agriculture, Food and Natural Resources, in cooperation with the School of Journalism, offers an inter-divisional Bachelor of Science degree in Science and Agricultural Journalism. This is not considered a dual degree. For more information, see the College of Agriculture, Food and Natural Resources (p. 47) in this catalog.

### Credit Restrictions

Students may enroll in a maximum of 10 journalism credits each semester without permission from the associate dean for undergraduate studies.

### Capstone Course

All students must complete a capstone course during their last 45 hours of study. Each interest area provides a course(s) to fulfill this university requirement.

### Independent Study

Mizzou Online offers a variety of courses that can be taken on your own through correspondence or online. Many of the courses can be used to satisfy degree requirements. Students may enroll themselves for as many as 3 hours per semester of online semester based or self-paced (9 months) courses. Any more than 3 hours per semester will have to be approved by an academic advisor.

### Standards for Academic Performance

The School of Journalism is a challenging and rigorous environment in which students are expected to maintain high standards of academic achievement. In general, the faculty expects each student to maintain a GPA of 3.0 or higher to be considered in good standing. The academic standing guidelines are categorized by completed credit hours. Each category has a specific requirement to ensure students are making progress to achieving a 3.0 GPA. The credit hour classifications include University of Missouri courses, transfer courses, advanced placement credit and other credits by examination. While the credit hours from all of these sources are included in the following categories, only the grades in courses completed in the University of Missouri system will be computed for GPA purposes.

Students who do not meet the following standards will be dismissed from the School of Journalism and will not be permitted to re-enroll.

#### 0-29 credit hours

A student admitted directly to the School of Journalism as a freshman must maintain a cumulative MU GPA of at least 2.5.



**30-69 credit hours**

A student admitted directly to the School of Journalism as a freshman must maintain a cumulative MU GPA of at least 2.75.

**70 credit hours**

Students with 70 or more credit hours who have not been admitted to their interest area will be dismissed from the School of Journalism.

**Minimum Grade in Journalism Courses**

Students must repeat any required journalism course in which they do not earn a grade of C- or higher. A student who fails to achieve a C- or better during the second attempt will be permanently dismissed from the School of Journalism for lack of acceptable progress.

Students may be readmitted only with the consent of the faculty chair of the student's interest area and the associate dean for undergraduate studies. Before recommending approval for the student to re-enroll, the faculty chair will consult with the instructor or instructors of record in the required course to determine the likelihood of that student passing the course on the third attempt. The faculty chair will make a recommendation to the associate dean, who shall make the final decision to readmit or deny admission to the School of Journalism.

**Satisfactory/Unsatisfactory Courses**

Students have the option to enroll in courses on a satisfactory/unsatisfactory basis instead of a traditional letter grade basis. A maximum of one non-journalism course per semester may be taken on a satisfactory/unsatisfactory basis. A satisfactory grade is defined as equivalent to the letter grade of C- or higher.

Journalism courses are not usually graded on a satisfactory/unsatisfactory basis. If a required course, or a course being used to satisfy a specific requirement, is taken in this manner the School of Journalism will compute it in the GPA as a "C."

**Probation, Suspension and Dismissal****First Time Freshmen****GPA is between 0.50 – 1.99**

First semester freshman journalism students are placed on final probation when their first term GPA is between 0.50 and 1.99. Students may remain on final probation no more than one term. They regain good standing when their term and cumulative GPAs are 2.0 or higher.

**GPA is below 0.50**

First semester freshman journalism students are dismissed and become ineligible to enroll for a period of one calendar year when their first term is below 0.50.

**All Students****Probation**

Journalism students are placed on probation when either their journalism major course, term or cumulative GPA falls below 2.0. Students may remain on probation no more than one term. They regain good standing when their journalism major course, term and cumulative GPAs are 2.0 or higher.

**Suspension**

Students are suspended and become ineligible to enroll for a period of one regular semester when their journalism major course, term or cumulative GPA is below 1.5, when they pass less than one-half of their work in any term or when they are on probation and their term GPA is 2.0 or lower.

**Dismissal**

Students are dismissed and become ineligible to enroll for a period of one calendar year when their journalism major course, term or cumulative GPA is below 1.0, when they pass less than one-fourth of their work in any term or when they fail to perform their academic duties. Students may be placed on academic probation and may be declared ineligible to enroll if they neglect their academic duties.

**Excessive Incomplete Grades**

A student may be placed on probation, suspended or dismissed for excessive incompletes at the discretion of the associate dean for undergraduate studies. In such cases, the associate dean shall set a time limit for successful completion of all the courses in which the student has an incomplete. The time limit will not exceed one calendar year from the scheduled completion of the course and may be of shorter duration. The associate dean also may place limitations on the number of additional credits hours in which the student may enroll until the incomplete grades are resolved. If the student fails to finish the required courses within the time limit set by the associate dean, the student is subject to dismissal.

**Readmission**

A student who has been declared ineligible to enroll may be readmitted only on the approval of the dean of the school or college in which the student desires to enroll. As a condition of readmission, the dean may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. If the student, after readmission, again becomes ineligible to re-enroll, his or her ineligibility normally is considered permanent.

**Ethics of Journalism**

The School of Journalism is committed to the highest standards of academic and professional ethics and expects its students to adhere to those standards. Students should be familiar with the Code of Ethics of the Society of Professional Journalists and adhere to its restrictions. Students are expected to observe strict honesty in academic programs and as representatives of school-related media. Should any student be guilty of plagiarism, falsification, misrepresentation or other forms of dishonesty in any assigned work, that student may be subject to a failing grade from the instructor and such disciplinary action as may be necessary under university regulations.

**Non-Journalism Majors**

Students from other divisions with junior or higher standing may take non-laboratory courses in journalism without being admitted to the school. Permission of the journalism academic unit is required. Courses directly related to the skills in the media are usually not open to students while they are undergraduates in other disciplines. Students from other schools or colleges admitted to journalism courses are expected to meet the course prerequisites and grade point averages required of students in the School of Journalism.

**Advising**

Students directly admitted to Journalism as freshmen have a full-time academic advisor in the school.

Pre-Journalism students receive academic advising from the College of Arts and Science. Students admitted to an interest area in the school have a full-time academic advisor in the school and a faculty advisor from their selected emphasis area. Students are expected to seek the advice of the academic advisor in the selection of courses. The faculty advisor provides career counseling and specific journalism related issues.

The school provides advising worksheets so that students can maintain a record of academic course work. The worksheets are used by the student and advisor to plan the student's program. Students are responsible for determining an appropriate schedule of courses each semester; however, the course schedule should be approved by the student's advisor. The responsibility for meeting admission and graduation requirements rests with the student.

## Senior Assessment Program

In 1994 the Missouri General Assembly initiated a required assessment of all college seniors in the state. The Missouri School of Journalism, in consultation with the MU Office of the Provost, implemented an ongoing senior assessment program. One key component has been the feedback of external reviewers who have substantial experience in the areas being evaluated. The professionals conduct one-on-one interviews with students, critique portfolios and evaluate other relevant evidence of student preparedness and readiness. Their summaries are used by faculty groups to help guide various approaches to teaching and learning.

In May 2016 the Missouri School of Journalism re-evaluated its senior assessment program. The updated approach builds on the professional review model with the addition of a survey and an exit exam.

The components of the senior assessment program are as follows:

### Student Exit Survey

Each May and December the School conducts a comprehensive exit survey of all graduating seniors. The goal is to determine student attitudes and the degree to which the program emphasizes the values and competencies defined by the School and the Accrediting Council on Education in Journalism and Mass Communication. The student exit survey is conducted in the two weeks prior to graduation. The survey also provides the School with initial data about graduates' career placement and destination plans.

### Student Exit Exam

Students complete an exit exam to measure student knowledge related to ACEJMC core values and competencies. Students take the 26-question exam in their required capstone courses.

### Emphasis Area Reviews

Each emphasis area sets its own learning objectives and a timeline for review of student work during students' final semester. Emphasis area reviews typically require students to produce a portfolio that encompasses a sampling of their best professional work whether from journalism courses, extra-curricular activities, internships or other work experience. All emphasis area reviews rely on external reviewers and industry professionals to assess student learning and advise on methods for improving the program.

### Convergence:

Graduating seniors complete a **digital portfolio** with a home page, resume, links to best work and evidence of proficiency in more than one area of journalism. Portfolio completion is required in students' capstone class and portfolios are evaluated by external reviewers.

### Convergence Journalism Learning Goals

- Convergence faculty endorse the ACEJMC professional values and competencies that prepare convergence students to work in a diverse global and domestic society.
- Convergence faculty provide a curriculum that embraces traditional journalistic values while employing new technology and strategies

to create original multimedia content for targeted audiences. By design, the core curriculum focuses on providing students with hands-on experiences to operate in deadline-driven and collaborative environments. Through convergence interest areas and electives, students gain increased understanding and skill in one area of specialization.

### Successful graduates should be able to:

- Pitch a story idea or creative concept to a supervisor, future employer, or potential investor
- Understand, articulate and employ traditional journalistic values in telling a story
- Write effectively for multiple audiences
- Demonstrate proficiency in more than one content production technique (e.g. audio, video, text, photojournalism, data visualization)
- Demonstrate mastery in one area of specialization (data visualization, reporting for radio, television, print or digital outlets, producing for traditional, online, mobile or social media platforms, photojournalism, etc)
- Use digital tools and techniques to produce targeted content for distribution on all relevant platforms
- Engage users through effective application of social media and audience analytics.

### Through their capstone experience undergraduate students will:

- Demonstrate their ability to use a quantitative or qualitative research method for the purpose of studying a specific objective on a team project
- Design and deliver an effective project presentation
- Identify their personal brand and effectively present themselves to a potential employer in person and through an online portfolio.

### Magazine:

Graduating seniors complete a **digital portfolio** that includes a resume and clips. Each portfolio is reviewed by an evaluator who completes an assessment scorecard, which is returned to the student. External reviewers include magazine industry professionals who provide individual feedback to students and overall comments to the magazine faculty as a whole.

### Magazine Journalism Learning Goals

- The magazine program/emphasis area is designed for students interested in reporting, writing, editing, designing or publishing magazines, both in print and digital platforms.

### As a result of their experience in the magazine emphasis area students or graduate models should know or apply:

- A context for skills development. Graduates should have a thorough appreciation for and understanding of the role of the media. Graduates must understand the history and cultural environment in which they will be applying those skills.
- A grasp of professional ethics. Graduates should understand that their choice of a career has made them beneficiaries of a public trust. They should have a sober appreciation of the power they wield and be sensitive to the influence of publicity on the lives of subjects.
- Different concepts, theories and research methods. They should be able to think critically, creatively and independently and be able to assess the work they and fellow journalists produce for quality, accuracy, fairness and tone.

- An understanding of diversity including gender, race, ethnicity, sexual orientation and other areas. Such knowledge is indispensable in serving our audiences and communities. Graduates should seek and appreciate diverse perspectives and experiences.
- Current tools and technologies appropriate for the magazine, publication or media outlet in which they work. They should also demonstrate agility in adjusting to the ever-changing nature of the industry.

**Successful magazine graduates should be able to do the following:**

- Report, research and gather information through primary and secondary sources as well as demonstrate solid interviewing skills and news judgment.
- Write correctly and clearly stories of varied scope, length and style.
- Excel in all aspects of editing from collaborating with members of the staff or team to story pitching and issue planning, making assignments, editing stories on both macro and micro levels, fact checking, packaging and production. Editing also includes audio, video and other multimedia.
- Understand basic design principles and the importance of layout, presentation and packaging in storytelling.
- Consider the numerous ways to present stories, including but not limited to audio, video, charts or infographics. Explore avenues for stories to find audiences, including but not limited to social media and using data from digital analytics.
- Serve the interests of the reader, maintain a magazine brand and understand aspects of publishing including audience, circulation, advertising, printing and distribution.

**Photojournalism:**

Graduating seniors submit **digital portfolios** containing work completed in the last two years of their course work. Portfolios contain primarily students' visual reporting (still photography, video and multimedia) as well as reporting samples, editing samples and design samples, if the student has taken design courses. Students also participate in a 45-minute, one-on-one interview with a visiting professional.

Interviews allow for an assessment of a student's readiness to enter the job market and provide a forum for students' personal comments about their educational experience. Assessors use a scorecard to grade student work, with copies provided to each student and photojournalism faculty.

**Photojournalism Learning Goals**

**Students in the Photojournalism undergraduate emphasis area or the graduate models should know or be able to apply:**

- Advanced knowledge of photojournalism to produce story telling visual reportage and editing techniques for print and digital platforms
- Ethical and legal considerations in visual newsgathering and dissemination
- Knowledge of and ability to gather information through interviewing, records research and statistical analysis
- How journalism has influenced, and will continue to influence, the world
- The role of journalism in a multicultural democracy, and visual communication informs citizenry
- Understanding of the interplay between social media and traditional media and its uses and relevance in today's news landscape.

**In addition, photojournalism students should be able to:**

- Analyze, synthesize and present information under the pressure of deadline
- Gather and disseminate news within ethical guidelines, and in the public interest
- Construct news and information in creative and original ways that avoid any hint of plagiarism
- Be transparent in all journalistic functions and develop decision-making capabilities that withstand public scrutiny
- Understanding how to create news hierarchies through editing, design and presentation
- Develop visual literacy and technical skills to enhance the presentation and delivery of news across all forms of print and digital platforms
- Foster diversity and societal understanding through newsgathering and dissemination

**Print and Digital:**

Graduating seniors submit a **digital portfolio** that includes at least 10 samples of their work; an essay describing an ethical dilemma faced during the course of practicing journalism at a school-affiliated publication or during an internship; and a resume. The work must include one sample of multimedia. Students are then matched with outside professionals, based on their career interests. (public affairs reporting, sports, infographics, copy editing, designing, etc.) The professionals review the material and spend about a half-hour with the student by phone or video conferencing. They then complete a student assessment scorecard. The chair reviews the scorecards and sends them to the faculty along with any observations about themes or trends.

**Print and Digital News Learning Goals**

- The goals for students in the Print and Digital News group conform to the ACEJMC's core competencies.

**Students in the Print and Digital News undergraduate emphasis area or the graduate models should be able to:**

- Analyze, synthesize and present information under the pressure of deadline
- Gather and disseminate news within ethical guidelines, and in the public interest
- Construct news and information in creative and original ways that avoid any hint of plagiarism
- Be transparent in all journalistic functions and develop decision-making capabilities that withstand public scrutiny
- Understand how to create news hierarchies through editing, design and presentation
- Understand audiences and foster conversation within and among them
- Develop visual literacy and technical skills to enhance the presentation and delivery of news across all forms of print and digital platforms
- Foster diversity and societal understanding through news gathering and dissemination

**Radio-Television:**

Graduating seniors complete **digital portfolios** that include their resumes, written work and video clips. News executives from major television companies representing approximately 400 television newsrooms across the country visit campus to conduct one-on-one interviews and portfolio evaluations with each student. Evaluators provide

verbal critiques to students and written assessment and commentary to faculty.

### **Radio-Television Journalism Learning Goals**

**Students in the Radio-Television undergraduate emphasis area or the graduate models should be able to:**

- Research for story or newscast by applying internet tools, background information, and using in-person interviews
- Gather facts by using a wide range of diverse sources, established sources that lead to new sources and techniques that yield or reveal extraordinary information
- Write using conversational language, short sentences and techniques specific to video and sound
- Produce video using basic techniques of video composition such as sequences, lighting and matched action
- Tell stories using various angles and techniques to emphasize important and timely elements in a story
- Recognize ethical issues and how to avoid sensationalism
- Use news judgment to determine the relative value of stories in a digitally-driven 24-hour news cycle

### **Strategic Communication:**

Students **interview** with at least one working professional in the field who assesses the student's **resume** and **portfolio**, along with overall career readiness. During these one-on-one interviews of all strategic communication students, assessors ask students to describe their experiences in the School and in Strategic Communication.

### **Strategic Communication Learning Goals**

- The Strategic Communication emphasis area fosters theory and practice in nine specialties and teaches the linkages among those specialties. Interest areas are Account Management, Art Direction, Copywriting, Digital Strategy, Media Planning, Public Relations, Research, Sports and Entertainment promotion, and Video Storytelling. All specialty areas share common learning goals and competencies.

**Students in the Strategic Communication undergraduate emphasis area or the graduate models will have the knowledge and ability to:**

- Understand and conduct high level and ethically executed primary and secondary research using both qualitative and quantitative methods
- Think critically about the potential ethical implications of persuasion in media
- Communicate in ways that are respectful and inclusive with regard to people's ethnicity, disabilities, gender, religion, country of origin, or sexual orientation
- Write and use images and video to communicate clearly, effectively, and ethically on a range of strategic communication media platforms
- Effectively use current technology in Strategic Communication and in their specialty areas
- Apply ethical and legal principles governing communication in a free society and understand the historical origins of such principles and practices
- Engage in strategic thinking in addressing opportunities and problems in strategic communication practice

- Work in effective teams in classes and for fee-paying clients (Mojo Ad and AdZou capstones)

**Students in individual specialties have additional specific goals:**

### **Account Management**

Professionals in Account Management lead and manage a brand's strategic communication planning and execution. They may have this role in agencies, not-for-profits, government, and corporations.

**Graduates will have the ability to:**

- Conduct and/or apply research to client opportunities and problems
- Manage the relationships among all of the stakeholders in a strategic communication initiative
- Manage and assist in the development and presentation of audience insights

### **Art Direction**

Art directors, graphic artists, and visual designers communicate using visual elements, and deploy their work through print, digital, visual, and experiential means.

**Graduates will have the ability to:**

- Use the power of visuals to communicate quickly and effectively following principles of good design
- Understand the importance of strategy in developing visual communication
- Apply the current terminology and tools of art direction

### **Copywriting**

Copywriters create persuasive messages for multiple platforms that are targeted toward specific audiences and have the power to break through cluttered media environments.

**Graduates will have the ability to:**

- Develop messages that are on strategy and creative
- Communicate benefits versus product or service features
- Work with designers developing effective messaging

### **Digital Strategy**

Digital strategists use research, analytics, and online metrics in planning and executing campaigns and complementing larger initiatives.

**Graduates will have the ability to:**

- Use research, analytics, mobile, social, and emerging digital tools
- Develop digital promotions that synchronize with larger strategic campaign tactics and objectives
- Apply high-level technological skills to problem solving

### **Research**

Researchers in strategic communication have strong expertise in understanding consumer psychology and behavior of target audiences.

**Graduates will have the ability to:**

- Apply the rules and requirements of social scientific and marketing research
- Understand and select optimal theories and methodologies for different research questions

- Properly evaluate ethical issues in conducting research on human subjects

### Media Planning

Media planners use research and analysis in determining where, when and how often a brand will deploy strategies and tactics in communicating with target audiences.

#### Graduates will have the ability to:

- Utilize the latest analysis techniques to creating strategies and evaluative criteria
- Identify optimal combinations of media tactics to achieve best results at the lowest cost
- Identify ethical issues related to privacy, behavioral targeting, location-based marketing, etc.

### Public Relations

Public relations practitioners utilize a range of strategies and tactics including the “PESO” approach: Paid, Earned, Shared/Social, and Owned. They not only use traditional publicity tactics through news and other media, but also DTC, social media, and other approaches.

#### Graduates will have the ability to:

- Understand the strategic mix promotions and PR’s role in that mix
- Understand and advise regarding other PR functions including events, risk and crisis communication, and internal communication
- Identify the range of stakeholders PR professionals may work with including employees, vendors, financial communities, government and policymakers, and opinion leaders

### Sports and Entertainment Promotion

Specialists in sports and entertainment promotion work in several areas. This includes sports organizations and teams as well as music, film, theater, television, cable, and other entertainment properties.

#### Graduates will have the ability to:

- Understand the unique characteristics of different sports and entertainment brands
- Strategically deploy brand benefits through sports and entertainment venues, tie-ins, and other tactics
- Target audience segments for appropriate sports and entertainment related campaigns

### Video Storytelling

Video storytellers design and create video content for a wide range of media platforms and devices. They craft such videos using strategies to increase brand visibility and sales through search, sharing, and mobile applications.

#### Graduates will have the ability to:

- Create brand videos that contribute to overall campaign strategies
- Plan, shoot, and edit high quality videos
- Quickly produce accurate, engaging, and informative stories aimed at target audiences

### ACEJMC Learning Goals and Outcomes:

The School strongly adheres to the learning competencies and values defined by the **Accrediting Council on Education in Journalism and Mass Communication** which states that irrespective of a student’s particular specialization all graduates should be able to:

- understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and to assemble and petition for redress of grievances;
- demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
- demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
- demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
- understand concepts and apply theories in the use and presentation of images and information;
- demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
- think critically, creatively and independently;
- conduct research and evaluate information by methods appropriate to the communications professions in which they work;
- write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
- critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
- apply basic numerical and statistical concepts;
- apply current tools and technologies appropriate for the communications professions in which they work, and to understand the digital world.

## Opportunities for Graduate Study on MU Campus

The five-year combined bachelor/master degree program was designed for students in the Missouri School of Journalism who desire a graduate education after the undergraduate program is complete. Students in the program complete requirements as outlined for the Bachelor of Journalism degree and then spend one more year (approximately 12 months) to earn a master’s degree. The program requires students to carry an intensive load (12-15 credits) each semester. Course work in the program builds on the undergraduate program and enhances student’s skills and understanding of the chosen area of journalism. At the present time, areas include strategic communication, newspaper design, broadcast management, computer-assisted reporting and magazine areas such as magazine writing and magazine design.

## Graduate

### About Our Graduate Programs

The University of Missouri’s School of Journalism is the recognized leader for graduate study in journalism and strategic communication, having awarded the first master’s and doctoral degrees in journalism in 1921 and 1934, respectively.

The Missouri Method is the time-honored process of journalism and strategic communication education: Graduate students gain valuable research-based, managerial experience while honing tactical skills. We operate the only network affiliate (NBC) television station in the country used to train journalism students. We publish a community daily

newspaper (not a campus paper), and we operate four major web sites, a local magazine and an international magazine. Students also may train at our campus-based NPR affiliate. Our strategic communication students design media campaigns for local and national clients. Examples: Our students have created advertising and public relations campaigns for Nokia, Apple, Dr Pepper, Anheuser-Busch, Duncan Hines, DuPont, Dow Chemical, Kinko's, Eastman Kodak and many other leading international brands. Graduate studies in CAFNR are taking an innovative, high-tech approach to traditional agriculture, food and natural resources. Our students are highly engaged with expert faculty mentors who are impacting the future with findings on health breakthroughs, sustainable agriculture techniques and food safety. Prospective students are able to choose from a range of academic programs consistently recognized for excellence.

Note: Prospective graduate students must apply to both the degree program of interest and to the MU Office of Graduate Studies. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

We operate educational programs in Washington, D.C., New York, and Brussels where many of our students carry out their capstone projects or do research. We also partner with educational programs around the world.

Our 80+ faculty members have earned impressive credentials from years of working in journalism and strategic communication. School resources include an extensive journalism library and Freedom of Information Center, Center for Advanced Social Research, and the Stephenson Research Center, named for the late William Stephenson, known globally as the inventor of Q-methodology.

## Journalism

The world's first School of Journalism was established in 1908 at the University of Missouri to strengthen the effectiveness of public communication in a democratic society. The school's first dean, Walter Williams (who went on to become president of the University in 1930) wrote the Journalist's Creed, which stresses the profession's rights and responsibilities as a public trust.

The faculty is committed to educating students in the responsibilities and skills of the professional journalist. It also has a broader commitment to advance the profession of journalism through scholarly research, analysis and criticism and through special programs to serve practitioners. The school also prepares students for careers in corporate communication through its strategic communication emphasis area. Students in that area typically pursue careers in advertising or public relations or in strategic communication.

The Missouri Method assures a journalism student will graduate with a broad, liberal education essential for a journalist whose work may span many segments of today's complex society. In addition to a liberal arts education, students complete practical laboratory work in a variety of settings, including a public radio station, a commercial daily newspaper and a network-affiliated television station. The school offers the Bachelor of Journalism, Master of Arts and Doctor of Philosophy degrees, along with cooperative programs with other divisions in the University. It was the first school in the world to offer all three of those degrees.

The Accrediting Council on Education in Journalism and Mass Communication has accredited the undergraduate program and a professional master's degree.

## Administration

David D. Kurpius, Dean  
Earnest Perry, Associate Dean for Graduate Studies  
Lynda Kraxberger, Associate Dean for Undergraduate Studies and Administration  
Fritz Cropp, Associate Dean for Global Programs

Advising Contact: (573) 882-1045  
Scholarship Information: <http://journalism.missouri.edu>

Office Address  
Administration, 120 Neff Hall  
(573) 882-4821  
Student Services, 76 Gannett Hall  
(573) 882-1045  
[journalismstudentservices@missouri.edu](mailto:journalismstudentservices@missouri.edu)

## Faculty

### Journalism Studies Faculty

**Professor** S. A. Davidson\*\*  
**Professor (Professional Practice)** B. Cochran\*, D. Mason\*, M. M. Steffens\*  
**Librarian III** D. Camer  
**Associate Professor** Fritz Cropp\*\*, K. Greenwood\*\*, E. L. Perry Jr.\*\*,  
Y. Volz\*\*, T. Vos\*\*  
**Associate Professor (Professional Practice)** L. Bruzzese\*, M. Horvit\*,  
R. Kelley\*  
**Assistant Professor** B. Johnson\*, C. Mislán\*\*, R. Thomas\*\*  
**Assistant Professor (Professional Practice)** W. Allen\*, B. Horvit\*  
**Emeritus Faculty** D. Brenner, B. Brooks, P. R. Brooks, G. P. Kennedy\*,  
E. Lambeth\*, D. R. Moen\*, W. Pippert, B. H. Winfield

### Convergence Journalism Faculty

**Professor (Professional Practice)** L. S. Kraxberger\*, R. Smith\*  
**Associate Professor** M. L. McKean\*  
**Associate Professor (Professional Practice)** M. Hinojosa\*, D. S. Rice,  
A. Simons\*  
**Assistant Professor (Professional Practice)** R. Greene\*, J. Slivka\*  
**Emeritus Faculty** R. D. Mills\*

### Print and Digital News Faculty

**Professor** J. M. Banaszynski\*  
**Professor (Professional Practice)** D. L. Herzog\*, M. M. Jenner  
**Associate Professor** C. Bentley\*, T. A. Warhover\*  
**Associate Professor (Professional Practice)** J. Abbott\*, E. K. Brixey,,  
L. Johnston\*, K. Reed\*, J. T. Schneller, S. C. Swafford\*  
**Assistant professor (Professional Practice)** M. Dulin, E. C. Stephens  
**Librarian II** N. Johnson

### Magazine Journalism Faculty

**Professor (Professional Practice)** J. Fennell  
**Associate Professor** A. Hinnant\*\*, F. B. Hudson\*\*  
**Associate Professor (Professional Practice)** A. Heiss, J. L. Rowe\*, P. Williams  
**Assistant Professor (Professional Practice)** S. S. Hiles, H. Lamb

**Emeritus Faculty** M. K. Blakely, J. L. Colbert, D. Ranly, B. Scott, S. R. Weinberg\*

## Photo Journalism Faculty

**Professor (Professional Practice)** R. Reed\*, D. L. Rees  
**Associate Professor (Professional Practice)** J. S. Bell\*, K. Greenwood\*\*  
**Assistant Professor (Professional Practice)** B. Kratzer  
**Emeritus Faculty** B. Kuykendall, C. Z. Smith

## Radio-Television Journalism Faculty

**Professor** D. Kurpius\*\*  
**Professor (Professional Practice)** B. Cochran  
**Associate Professor (Professional Practice)** K. S. Collins, E. Frogge, L. Hammock, J. D. Nevalga, R. A. Reeves\*, A. M. Romero\*, S. Woelfel\*  
**Assistant Professor (Professional Practice)** R. Famuliner, J. Greber, J. Kranzberg  
**Emeritus Faculty** R. A. Gafke\*, R. G. Gelatt, G. Kyle, C. Warner, L. Wilkins

## Strategic Communication Faculty

**Professor** G. T. Cameron\*\*, M. E. Duffy\*\*, S. L. Rodgers\*\*  
**Professor (Professional Practice)** S. T. Heiman\*, J. Sterling\*  
**Associate Professor** C. M. Frisby\*\*  
**Associate Professor (Professional Practice)** F. Corridori, J. Stemmler, M. Swanson\*  
**Assistant Professor** S. Lee\*\*  
**Assistant Professor (Professional Practice)** B. Best, J. Flink, J. Flink, H. Higginbotham  
**Emeritus Faculty** R. Bratek, W. H. Chang, H. B. Hager\*, B. Humphreys, S. Kopcha, G. M. Leshner\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BJ in Journalism (p. 640)
  - with emphasis in Convergence Journalism (p. 641)
  - with emphasis in Magazine Journalism (p. 643)
  - with emphasis in Photojournalism (p. 644)
  - with emphasis in Print and Digital News (p. 645)
  - with emphasis in Radio-Television (p. 647)
  - with emphasis in Strategic Communication (p. 649)
- Minor in Journalism (p. 650)

Undergraduate students in the School of Journalism pursue their degrees in one of six Emphasis Areas approved by the University Board of Curators and the Missouri Coordinating Board of Higher Education. These are Convergence Journalism, Magazine Journalism, Photojournalism, Print and Digital News, Radio-Television Journalism, and Strategic Communication. Degrees are awarded only in one of those six areas.

Each Emphasis Area, however, has separate tracks that permit students to prepare for employment in more specialized fields. These are called

Interest Areas, and students select from more than 30 choices among these. Interest Areas do not appear on transcripts or diplomas, although the transcript coursework should provide evidence of competency in the appropriate area.

Administratively, the School of Journalism is divided into Faculties, not Departments as in most other Schools and Colleges at MU. For administrative purposes, all Interest Areas are assigned to one of those Faculties except for two International Interest Areas, which are administered by the School of Journalism's Global Programs Office. International programs, however, merely indicate an international interest. The degree is still awarded under the appropriate Emphasis Area.

To ensure maximum flexibility for students, the School also offers an Individually Designed Interest Area. Working with three faculty members, and with the approval of the associate dean for undergraduate studies, a student can design his or her program by selecting from the School's robust offerings of more than 100 courses. Students who pursue this option must do so within accrediting guidelines and within one of the six approved Emphasis Areas.

Students who desire more information on a particular program should see an Academic Advisor or seek out a member of the supervising Faculty, which is indicated following the description of the Interest Area.

Students interested in one of the international programs should seek out an advisor in the Global Programs Office. Interdisciplinary Programs, those that cross traditional media boundaries or depend on skills-based coursework from other MU divisions, are assigned to one of the School's Faculties as indicated.

## Degree with Honors Requirements

Graduation with honors is based on the grade point average during the final 60 graded credits in residence. *Cum laude* requires 3.5, *magna cum laude* 3.7, and *summa cum laude* 3.9. The student must have a minimum of 60 credits in residence at MU to be considered for graduation with honors. The School computes the grades to three decimal points and does not round up. A student must request consideration for graduation with honors when applying for graduation.

Kappa Tau Alpha is a journalism honorary society that accepts the top 10 percent of each graduating class. Qualifying students are sent a letter with details about the society and are recognized at the journalism graduation ceremony.

## Individually Designed Interest Area

Students who cannot find a match with one of the existing Interest Areas may work with the faculty to construct a tailored Interest Area to meet their educational objectives. To do this, students work with a faculty mentor and at least two other faculty members to design a course plan using existing courses in the School of Journalism, relevant courses outside the School and no more than six credits of Problems, Topics or Communications Practice courses. The student will enroll and be granted a degree in the emphasis area that aligns with their faculty mentor. Students are not able to tailor an Interest Area in Strategic Communication due to the large volume of enrollment. Students wishing to pursue an individually designed Interest Area should start by seeing a journalism advisor in 76 Gannett Hall.

### Electives to Achieve the Interest Area's Goal

The student must complete 16 hours of elective journalism courses mutually agreed to in advance by the student and the three supervising faculty members. These courses must form a coherent plan that leads to competency in the targeted area of expertise and must fit within one of the approved Emphasis Areas of the School.

**Journalism or Non-Journalism Electives (6 Non-Journalism Credits)** 6

In consultation with the faculty mentor, the student should choose a minimum of six non-journalism credits that complement the program's objectives. For example, if a student were to design a program in some aspect of entrepreneurial journalism, six or more credits in business courses might be desirable. In the absence of relevant courses for the targeted interest area, these credits become general electives for students.

**Capstone** 3

Students pursuing this interest area should choose from among the School's available capstone courses to find one that best meets the model's objectives. In the absence of a clear choice, JOURN 4990: Journalism and Democracy, is recommended. Students also are required to complete an upper-division Writing Intensive (WI) course. Some capstones carry WI designation. Others may be found in the journalism curriculum or outside the school.

**Approval Procedure**

Students who wish to construct a special interest area must submit a program proposal form before completing 70 total credits. After meeting with the three faculty members chosen to oversee progression through the program, the student will submit the form - complete with the signatures of the student and the three supervising faculty members - to the Associate Dean for Undergraduate Studies. The student must gain approval of the tailored program from the associate dean before beginning the program.

**Total Credits for the Degree and their Breakdown**

Students pursuing a tailored program must complete 120 credits to include:

- Completion of all Pre-Interest courses
- 44-48 journalism credits
- minimum of 72 non-journalism credits

**Graduate**

- MA in Journalism (p. 650)
  - with emphasis in Health Communication (p. 652)
  - with emphasis in Interactive Media (p. 652)
  - with emphasis in Media Management (p. 653)
  - with emphasis in Strategic Communication (p. 653)
- PhD in Journalism (p. 654)

School of Journalism  
179 Gannett Hall  
573-882-4852

**Master's Programs**

There are two options available for Master's Programs in Journalism. Students who wish to pursue a traditional on-campus experience, should refer to the MA in Journalism page (p. 650). The above emphasis areas are not available for on-campus students. Students may also wish to pursue the online Master's program. Online students have the option

of obtaining an MA in Journalism with any of the emphasis areas listed above.

**About Journalism's Graduate Degree Programs**

The Missouri School of Journalism awarded the first master's and doctoral degrees in journalism in 1921 and 1934, respectively. The master's and doctoral programs at the School enjoy superb reputations, both among scholars and among practitioners in news, advertising, public relations and strategic communication.

For the master's program, Missouri Journalism offers a complete set of real-media experiences. We operate the only network affiliate (NBC) television station in the country used to train journalism students. We publish a community daily newspaper (not a campus paper), and we operate several major web sites, a local magazine and an international magazine. Students also may train at our campus-based NPR affiliate.

Our strategic communication students design media campaigns for local and national clients through our two student-run advertising agencies, MOJO Ad and Adzou. Our students have created advertising and public relations campaigns for Nokia, Apple, Dr Pepper, Anheuser-Busch, Duncan Hines, DuPont, Dow Chemical, Kinko's, Eastman Kodak and many other leading international brands.

We operate educational programs in Washington, D.C., New York, and Brussels where many of our students carry out their capstone projects or do research. We also partner with educational programs around the world.

**Graduate Minor in Law and Conflict Resolution**

This program is for journalism doctoral students who are interested in teaching and researching in journalism, law and conflict resolution in a school of journalism or communication department. For details, refer to the Graduate Minor in Law and Conflict Resolution (p. 655).

**Facilities and Resources**

A variety of special facilities and resources are available to help students meet their educational objectives. These include the Columbia *Missourian*, a general circulation daily newspaper with full-leased wires of The Associated Press and The New York Times Service; KOMU-TV, an NBC affiliate; KBIA-FM, a National Public Radio station; MOJO Ad and Adzou advertising agencies; and Vox magazine, a weekly city magazine. All provide students the opportunity for hands-on learning under faculty supervision and to conduct applied research.

The Journalism Library subscribes to more than 125 newspapers and magazines worldwide and catalogs more than 40,000 volumes. Many more resources are available in electronic format.

The State Historical Society of Missouri, located on-campus, has an extensive collection of state newspapers dating from 1808.

The Freedom of Information Center maintains a day-to-day study of the actions by government, media and society affecting the movement of information.

The national headquarters of Investigative Reporters and Editors and the National Institute for Computer Assisted Reporting provide educational services to reporters, editors and others interested in investigative journalism.



The Association of Health Care Journalists is headquartered at Missouri and is dedicated to advancing public understanding of health care issues. Its mission is to improve the quality, accuracy and visibility of health care reporting, writing and editing.

The Center on Religion & the Professions works to improve religious literacy among professionals, to help them serve a diverse public. As America grows more religiously diverse, professionals need to better understand the religious traditions and beliefs of the public they serve. CORP's interdisciplinary, practical and applied work centers on that mission. Founded in 2003 with a grant from The Pew Charitable Trusts, the Center is one of Pew's 10 Centers of Excellence. CORP is affiliated with Religion Newswriters Association.

The American Society of News Editors focuses on leadership development and journalism-related issues. Founded in 1922 as a nonprofit professional organization, ASNE promotes fair, principled journalism, defends and protects First Amendment rights, and fights for freedom of information and open government.

Founded in 2003 with a generous gift from the Donald. W. Reynolds Foundation, the Reynolds Journalism Institute is committed to developing and testing new ways to improve journalism through new technology and improved processes.

## Special Events

Each year the school sponsors the Missouri Honor Medal Award program, which brings contemporary leaders in mass communications to the campus. The school also directs a number of professional development and awards programs, including the international competition for the best Pictures of the Year.

## Honor Society

Kappa Tau Alpha, national honor society for scholarship in journalism, founded at the university in 1910, has its headquarters in the school.

## Funding

An array of competitively awarded fellowships, assistantships, scholarships and other financial aid opportunities are available.

## BJ in Journalism

### Degree Program Description

Journalism is the study of gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving competency in journalism. For this degree program, students must choose an emphasis area. Refer to the degree program descriptions for the emphasis areas for more details.

### Major Program Requirements

The Bachelor of Journalism degree requires 120 credits.

To obtain the Bachelor of Journalism degree, a student must:

- Complete all Pre-Interest area requirements
- Be admitted to an interest area within the school
- Complete all interest area requirements

- Earn a cumulative GPA of at least 2.0 for all work taken while in the School of Journalism and a GPA of at least 2.0 for all Journalism courses
- Complete all University graduation requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements>), including University General Education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements>) requirements

### Major Core Requirements

<b>Required Courses:</b>	16	
JOURN 1010	Career Explorations in Journalism	1
JOURN 1100	Principles of American Journalism	3
JOURN 2000	Cross-Cultural Journalism	3
JOURN 2100	News	3
JOURN 2150	Fundamentals of Multimedia Journalism	3
JOURN 4000	Communications Law	3
JOURN 4568	History of Photojournalism	3
or JOURN 3000	History of American Journalism	
<b>Pre-Interest Area General Education requirements</b>		47
<b>Journalism interest area requirements</b>		25
<b>Upper Level Non-Journalism Electives from the areas below:</b>		29
(Must be numbered 3000 or above or General Honors courses numbered 2000H or above)		
<b>Area 1</b>		3
Students choose from one of these areas: Anthropology, Astronomy, Biology, Chemistry, Computer Science, Geology, Mathematics, Physics, Psychology, Rural Sociology, Sociology or Statistics.		
Honor's College students can also choose from: GN_HON 2243H, GN_HON 2310H, GN_HON 2430H, GN_HON 2244H, GN_HON 2450H, GN_HON 2461H, GN_HON 2462H, GN_HON 3210H, GN_HON 3241H, GN_HON 3242H, GN_HON 3450H.		
<b>Area 2</b>		6
Students choose from the following areas: Black Studies, Economics, Geography, History, Peace Studies, Political Science, and Women's and Gender Studies.		
Honor's College students can also choose from: GN_HON 2230H, GN_HON 2245H, GN_HON 2246H, GN_HON 3230H.		
An exception to the 3000 and 4000 level rule includes HIST 2004.		
(Students in Strategic Communication must complete MRKTNG 3000)		
<b>Area 3</b>		6
Students choose from the following areas: Architectural Studies, all Art prefixes, Classical Humanities, Classics, Communication*, English, Film Studies*, French, German, Greek, Hebrew, Italian, Japanese, Korean, Latin, all Music prefixes, Philosophy, Portuguese, Religious Studies, Russian, South Asia Studies, Spanish or Theatre.		
Honor's College students can also choose from: GN_HON 2015H, GN_HON 2111H, GN_HON 2112H, GN_HON 2113H, GN_HON 2114H, GN_HON 2117H, GN_HON 2120H, GN_HON 3112H, GN_HON 3113H, GN_HON 3120H		
<b>Area 4</b>		14
Non-Journalism courses.		
(Students in Strategic Communications must complete three hours of Marketing courses in addition to MRKTNG 3000.)		

\* Some courses are prohibited for the bachelor of journalism. See the list of course exceptions for more information. Students should consult with their assigned academic advisor if they have questions regarding courses in these areas.

### Flexible Credits

Students can take up to 4 additional credits of journalism (JOURN) electives and apply them to requirements in Area 4.

### General Electives

Electives necessary to complete a minimum of 72 credits of non-journalism classes and 120 total credits. Any course acceptable to the School of Journalism is allowed.

## International Journalism Interest Area

The next generation of journalism students must be equipped to work in a global environment. This interest area is designed to capitalize on Missouri's international reputation and its international resources by placing under one umbrella the school's existing Study Abroad opportunities, its internationally focused media and multimedia projects with global partners. Students in this interest area may take courses within any of the existing or prospective areas to complement their international interests. *This degree is granted in the student's emphasis area of choice (Convergence Journalism, Magazine Journalism, Photojournalism, Print and Digital News or Radio-TV Journalism) but is administered by the School's Global Programs Office. Interest Areas do not appear on Transcripts or Diplomas. Emphasis areas appear only on transcripts.*

### International Journalism Interest Area Required Journalism Classes

Select one of these:		3
JOURN 4662	Global News Across Platforms	3
JOURN 4650	International Issues and the Media	3
JOURN 4656	International News Media Systems	3
JOURN 4658	International Journalism	3
Select one of these:		
JOURN 4308	Broadcast News III	3
JOURN 4450	News Reporting	3
JOURN 4556	Fundamentals of Photojournalism	3
JOURN 4804	Convergence Reporting	3
Capstone determined by interest area track:		3
Journalism Study Abroad		6
It is recommended that the student study abroad in the second semester of their junior year or the first semester of their senior year		

Required Journalism Electives vary by specific interest area track

## Semester Plan

A semester plan is not currently available. Please see your advisor for more information.

## BJ in Journalism with Emphasis in Convergence Journalism

### Degree Program Description

Journalism is the study of gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving

competency in journalism. Within the degree program, students can choose an emphasis in Convergence Journalism. Convergence Journalism focuses on the multimedia and multi-platform storytelling through a converged core that includes reporting, editing and producing, and marketing of converged media. The curriculum includes focused study and hands-on experience within the interest areas of Convergence Photojournalism, Convergence Radio Reporting and Producing, Convergence Television Reporting, Emerging Media, Entrepreneurial Journalism, International Journalism, Multimedia Producing and Sports Journalism. Most pursue careers as Reporters, Anchors, Editors, and Producers.

## Major Program Requirements

All Convergence Interest Areas teach multimedia storytelling by having students take the three core convergence classes, JOURN 4804 Convergence Reporting, JOURN 4806 Convergence Editing and Producing; and the capstone, JOURN 4992 Reporting, Editing and Marketing of Converged Media. Students are able to specialize by taking classes from selected requirements and electives.

Students must complete all university requirements, including general education, in addition to the degree requirements below.

### Emerging Media Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear only on transcripts.*

The journalism industry is constantly changing as it discovers new ways of covering the news and new technologies to deliver it. This interest area is for the student who wants to learn and work with some of the latest developments in journalism. Classes in this area provide a wide range of opportunities from content creation and Web and application development to classes working with content created by other journalists. This program of study is primarily for students interested in the intersection of journalism and digital technologies. *Administered by the Convergence Faculty.*

<b>Emerging Media Interest Area Required Journalism Classes</b>		<b>18</b>
JOURN 4804	Convergence Reporting	3
JOURN 4806	Convergence Editing and Producing	3
JOURN 4992	Reporting, Editing and Marketing of Converged Media	3
Select three of the following:		9
JOURN 4444	Team-Based Mobile Device Application Development	
JOURN 4462	Emerging Technologies in Journalism	
JOURN 4502	Multimedia Planning and Design	
JOURN 4700	Participatory Journalism	
JOURN 4812	Online Audience Development	
JOURN 4974	Advanced Internet Applications for Radio/TV News	
<b>Journalism Electives</b>		<b>7</b>

### Entrepreneurial Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

More and more of today's journalism students will go to work in non-traditional news organizations, start their own businesses or freelance. Students in this Interest Area will learn about current markets in journalism and what audiences want. They also will study the relative

marketability of content. Students will learn the market value of their own work, how to build their own brands and how to market. *Administered by the Convergence Faculty.*

**Entrepreneurial Journalism Interest Area Required Journalism Classes** 15

JOURN 4444	Team-Based Mobile Device Application Development	3
JOURN 4804	Convergence Reporting	3
JOURN 4806	Convergence Editing and Producing	3
JOURN 4992	Reporting, Editing and Marketing of Converged Media	3

Select one of the following: 3

JOURN 4734 Journalism and Chaos: How to Understand and Cover 21st Century Business Models

JOURN 4812 Online Audience Development

**Journalism Electives** 10

**Multimedia Producing Interest Area**

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

The focus of this Interest Area is planning and producing content across medium platforms. A student in this area will have the knowledge and skills to work in traditional newsrooms, Web-only newsrooms, non-traditional news organizations and other growing media areas. A student choosing this path is one who is less interested in a traditional reporting track and is more interested in working with content created by others. *Administered by the Convergence Faculty.*

**Multimedia Producing Interest Area Required Journalism Classes** 15

JOURN 4502	Multimedia Planning and Design	3
JOURN 4804	Convergence Reporting	3
JOURN 4806	Convergence Editing and Producing	3
JOURN 4992	Reporting, Editing and Marketing of Converged Media (capstone)	3

Select one of the following: 3

JOURN 4554 Visual Editing for Multimedia

JOURN 4972 Photo and Visual Editing

**Journalism Electives** 10

**Convergence Photojournalism Interest Area**

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This course of study is for those interested in communicating largely through photography and other visual mediums. Skills acquired include documentary photography, lighting and studio techniques, and photo editing with both still and moving images. Students build an appreciation for and understanding of visual communication and can expand into illustrative graphics, video and multimedia management. Students are prepared for careers as photojournalists for print and online publications and as freelancers. *Administered by the Convergence Faculty.*

**Convergence Photojournalism Interest Area Required Journalism Classes** 18

JOURN 4556	Fundamentals of Photojournalism	3
JOURN 4558	Advanced Techniques in Photojournalism	3
JOURN 4560	Staff Photojournalism	3
JOURN 4804	Convergence Reporting	3
JOURN 4806	Convergence Editing and Producing	3

JOURN 4992	Reporting, Editing and Marketing of Converged Media (capstone)	3
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**Journalism Electives** 7

**Convergence Radio Reporting and Producing Interest Area**

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area is for the student wanting to work largely in audio reporting. This area includes a wide range of reporting classes and producing/management classes, giving the student a sense of radio work both as a reporter and as a behind-the-scenes producer. Several courses offered provide the opportunity for training in media management. *Administered by the Convergence Faculty.*

**Convergence Radio Reporting and Producing Interest Area Required Journalism Classes** 15

JOURN 4050	Communications Practice	3
JOURN 4310	News Producing (Radio Section)	1-3
JOURN 4804	Convergence Reporting	3
JOURN 4806	Convergence Editing and Producing	3
JOURN 4992	Reporting, Editing and Marketing of Converged Media (capstone)	3

**Journalism Electives** 10

**Convergence Television Reporting Interest Area**

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area is for the student wanting to work largely in television reporting. This area includes a wide range of reporting classes and producing/management classes, giving the student a sense of television reporting in front of the camera. Other courses in multimedia prepare the student well for Web-based journalism as it complements television. *Administered by the Convergence Faculty.*

**Convergence Television Reporting Interest Area Required Journalism Classes** 16

JOURN 4050	Communications Practice	1
JOURN 4306	Broadcast News II	3
JOURN 4308	Broadcast News III	3
JOURN 4804	Convergence Reporting	3
JOURN 4806	Convergence Editing and Producing	3
JOURN 4992	Reporting, Editing and Marketing of Converged Media (capstone)	3

**Journalism Electives** 9

**Semester Plan**

There are currently not any semester plan available for the Interest Areas under Convergence Journalism. Please see advisor for more information.

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in Academic

Exploration and Advising Services (AEAS) (<http://aeas.missouri.edu>) by calling (573)884-9700.

- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu>) in the lower level of the Student Success Center. No appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 17) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 31) in the catalog.

## BJ in Journalism with Emphasis in Magazine Journalism

### Degree Program Description

Journalism is the study of gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving competency in journalism. Within the degree program, students can choose an emphasis in Magazine Journalism. Magazine Journalism focuses on the skills and strategies needed to excel in this industry. Students design, write, report, and public across multiple platforms, including tablets, the Web, print and social media. The curriculum includes focused study and hands-on experience within the interest areas of Arts and Culture, Design, International Journalism, Magazine Editing, Magazine Publishing and Management, Magazine Writing, and Science and Health Journalism. Most pursue careers as Magazine Editors, Publishers, and Writers.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

### Magazine Journalism Interest Areas

#### Arts and Culture Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interdisciplinary interest area gives students the opportunity to expand their understanding of the arts as they develop critical thinking skills about society, culture and the media. Students are encouraged to see culture as a central part of the journalistic enterprise as they learn about art, music, theater, film, popular culture and critical reviewing. This is intended to lay the groundwork not only for careers in traditional and emerging forms of journalism but also for careers in arts organizations, museums, nonprofit agencies, cultural institutions and government programs. *Administered by the Magazine Journalism Faculty.*

#### Required Arts and Culture Journalism Interest Area Journalism Classes

Select one of the following:	3
JOURN 4450	News Reporting

JOURN 4804	Convergence Reporting	
Complete each of the following:		
JOURN 4408	Magazine Editing	3
JOURN 4410	Intermediate Writing (* or equivalent)	3
JOURN 4418	Critical Reviewing	3
Select one of the following:		
JOURN 4984	Magazine Staff	3
JOURN 4986	Advanced Writing	
JOURN 4994	Magazine Publishing	

\*Can be substituted with any of the following: JOURN 4412 Lifestyle Journalism, JOURN 4416 Science, Health & Environmental Writing or JOURN 4480 Will Write for Food (and Wine)

**Journalism Electives** 10

### Design Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area teaches students to tell stories using the tools of visual journalism. Critical thinking skills and application methods are studied and practiced in courses that cover design skills, management issues and theoretical frameworks. Through hands-on work in the Columbia Missourian and Vox Magazine newsrooms, students gain real-world experience that prepares them to organize information and be clear visual communicators. This interest area prepares students to be designers/art directors for publications in print, on the Web, and/or on other digital platforms. *Administered by the Magazine Journalism and Print and Digital News Faculties.*

#### Design Interest Area Required Journalism Classes

Select one of the following:	3	
JOURN 4450	News Reporting	
JOURN 4804	Convergence Reporting	
Select one of the following:		2-3
JOURN 4400	Introduction to News Editing	
JOURN 4408	Magazine Editing	
Complete each of the following:		
JOURN 4360	Fundamentals of Design	2
JOURN 4500	Publication Design	3
JOURN 4502	Multimedia Planning and Design	3
JOURN 4988	Advanced Publication Design	3
<b>Journalism Electives</b>		8-9

### Magazine Editing Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

Students in this interest area gain hands-on experience in the skills and strategy needed to excel as part of a magazine staff: planning issues, pitching and editing stories, writing titles and sidebars, coordinating photography and art, working with designers, fact checking, proofreading and directing stories through all stages of print or online production. They also focus on the finer aspects of micro-editing: grammar, style, syntax and usage. Classes provide an analysis of the industry and study of innovative techniques and delivery platforms. This interest area is recommended for those who seek careers as editors in the magazine and book publishing industries. The lessons learned about pitching and magazine production are equally beneficial to magazine writers. *Administered by the Magazine Journalism Faculty.*

**Magazine Editing Interest Area Required Journalism Classes**

Select one of the following: 3

JOURN 4450	News Reporting
JOURN 4804	Convergence Reporting

Complete each of the following:

JOURN 4408	Magazine Editing	3
JOURN 4410	Intermediate Writing (* or equivalent)	3
JOURN 4360	Fundamentals of Design	2
JOURN 4984	Magazine Staff (capstone)	3

\*Can be substituted with any of the following: JOURN 4412 Lifestyle Journalism, JOURN 4416 Science, Health & Environmental Writing or JOURN 4480 Will Write for Food (and Wine)

**Journalism Electives** 11

## Magazine Publishing and Management Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area is directed to students who hope to become leaders in the field of magazine publishing and management. Course requirements and electives are designed to give an overview of all aspects of magazine publishing, both print and digital. Theoretical courses in law, business and management as applied to publications complement skills classes in reporting, writing, editing and design. *Administered by the Magazine Journalism Faculty.*

**Magazine Publishing and Management Interest Area Required Journalism Classes**

Select one of the following: 3

JOURN 4450	News Reporting
JOURN 4804	Convergence Reporting

Complete each of the following:

JOURN 4408	Magazine Editing	3
JOURN 4410	Intermediate Writing (* or equivalent)	3
JOURN 4360	Fundamentals of Design	2

Select one of the following: 3

JOURN 4984	Magazine Staff
JOURN 4994	Magazine Publishing

\*Can be substituted with any of the following: JOURN 4412 Lifestyle Journalism, JOURN 4416 Science, Health & Environmental Writing or JOURN 4480 Will Write for Food (and Wine)

**Journalism Electives** 11

## Magazine Writing Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area is for students who want to be magazine writers. The foundation of longform or literary writing is solid reporting, and students must learn the basics of information gathering, interviewing and reporting first. From there, students will explore narrative storytelling tools: character, dialogue, voice, structure, scene construction, exposition, and detail and description. This interest area emphasizes revision and the analysis of contemporary magazine writing. *Administered by the Magazine Journalism Faculty.*

**Magazine Writing Interest Area Required Journalism Classes**

Select one of the following: 3

JOURN 4450	News Reporting
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JOURN 4804 Convergence Reporting

Complete each of the following:

JOURN 4408	Magazine Editing	3
JOURN 4410	Intermediate Writing (* or equivalent)	3
JOURN 4360	Fundamentals of Design	2
JOURN 4986	Advanced Writing	3

\*Can be substituted with any of the following: JOURN 4412 Lifestyle Journalism, JOURN 4416 Science, Health & Environmental Writing or JOURN 4480 Will Write for Food (and Wine)

**Journalism Electives** 11

## Science Health and Environmental Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area educates students in the skills and theory of journalistic coverage of the specialized fields of science, health, environment and engineering. The program prepares students for jobs as journalism professionals at newspapers, magazines, online publications and radio-television operations. Administered by the Print and Digital News Faculty. Students interested in science-, food- and environment-related topics may want to investigate the science and agricultural journalism program offered through the College of Agriculture, Food and Natural Resources.

**Science Health and Environmental Journalism Interest Area Required Journalism Classes**

Select one of the following: 3

JOURN 4450	News Reporting
JOURN 4804	Convergence Reporting

Select one of the following: 3

JOURN 4406	Digital News Editing
JOURN 4408	Magazine Editing
JOURN 4806	Convergence Editing and Producing

Required:

JOURN 4416	Science, Health and Environmental Writing	3
JOURN 4428	Health Reporting Skills	2-3

Select one of the following: 3

JOURN 4460	Advanced News Reporting
JOURN 4984	Magazine Staff
JOURN 4986	Advanced Writing
JOURN 4992	Reporting, Editing and Marketing of Converged Media
JOURN 4994	Magazine Publishing

**Journalism Electives** 10-11

## Semester Plan

There are currently not any semester plan available for the Interest Areas under Magazine Journalism. Please see advisor for more information.

## BJ in Journalism with Emphasis in Photojournalism

### Degree Program Description

Journalism is the study of gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving

competency in journalism. Within the degree program, students can choose an emphasis in Photojournalism. Photojournalism focuses on the history, theory and skills of photojournalism, including still and moving images as well as audio. Also, students will learn the principles and practices of visual editing and design for print and online. This emphasis area includes focused based study curriculum and hands-on practice within the areas of Photojournalism, International Journalism, and Visual Editing and Management. Photojournalists begin their careers working for newspapers, magazines, television stations, or freelance companies.

## Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

## Photojournalism Interest Areas

### Photojournalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area educates students in the history, theory and skills of photojournalism, including still and moving images, as well as audio. Also covered are the principles and practice of visual editing and design for print and online. Photojournalism students learn to create truly integrated multimedia projects, incorporating audio, video and stills into compelling visual story-telling projects. The program's essential element remains understanding the power of image, and it embraces all the new technologies in presentation. Students are prepared for careers as photojournalists for print and online publications and as freelancers. *Administered by the Photojournalism Faculty.*

#### Photojournalism Interest Area Required Journalism Classes

Select one of the following:		3
JOURN 4450	News Reporting	
JOURN 4804	Convergence Reporting	
JOURN 4556	Fundamentals of Photojournalism	3
JOURN 4558	Advanced Techniques in Photojournalism	3
JOURN 4560	Staff Photojournalism	3
JOURN 4980	The Picture Story and Photographic Essay (capstone)	3

**Journalism Electives** 10

### Visual Editing and Management Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area educates students in the skills and theory of picture editing and visual presentation in print and online publications. This will prepare students for careers in visual editing at newspapers, magazines and with online publications. *Administered by the Photojournalism Faculty.*

#### Visual Editing and Management Interest Area Required Journalism Classes

Select one of the following:		3
JOURN 4450	News Reporting	
JOURN 4804	Convergence Reporting	
JOURN 4502	Multimedia Planning and Design	3
JOURN 4556	Fundamentals of Photojournalism	3
JOURN 4566	Electronic Photojournalism	3
JOURN 4972	Photo and Visual Editing	3

## Journalism Electives

10

## Semester Plan

There are currently not any semester plan available for the Interest Areas under PhotoJournalism. Please see advisor for more information.

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in Academic Exploration and Advising Services (AEAS) (<http://aeas.missouri.edu>) by calling (573)884-9700.
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu>) in the lower level of the Student Success Center. No appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 17) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 31) in the catalog.

## BJ in Journalism with Emphasis in Print and Digital News

### Degree Program Description

Journalism is the study of gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving competency in journalism. Within the degree program, students can choose an emphasis in Print and Digital News. Students will learn and develop the skills and strategies needed to excel in this industry. In addition, students experience reporting and editing using text, audio, video and information graphics. This emphasis area includes focus study curriculum and hands-on experience through the interest areas of Business and Economics Journalism, Data Journalism, Design, International Journalism, Investigative Journalism, News Reporting, Science and Health Journalism, and Sports Journalism. Print and Digital News graduates pursue careers as News Reporters/Anchors, Business journalists, and Data journalists.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

### Print and Digital News Interest Areas

### Business and Economics Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area is for journalism students interested in learning the skills of reporting business and economics news across platforms. It allows students to add a focus on economic, business and consumer reporting and emphasizes the use of financial data analysis in reporting. Similarly, it encourages students to take basic courses in other subject areas that will give them important skills, such as basic accounting, or advanced economics and finance. Students will gain the skills to work covering Wall Street, government economics, consumer and personal finance issues, and local business. A minor in Economics or Business is suggested. *Administered by the Print and Digital News Faculty.*

**Business and Economics Journalism Interest Area Required Journalism Classes** 16

Select one of the following:	3
JOURN 4450 News Reporting	
JOURN 4804 Convergence Reporting	
JOURN 4300 Broadcast News I	
Select one of the following:	3
JOURN 4406 Digital News Editing	
JOURN 4806 Convergence Editing and Producing	
JOURN 4306 Broadcast News II	
Select one of the following:	3
JOURN 4460 Advanced News Reporting	
JOURN 4410 Intermediate Writing	
JOURN 4308 Broadcast News III	

**Required**

JOURN 4438 Business and Economics Reporting *	3
JOURN 4400 Introduction to News Editing **	1-2
Select one of the following:	3
JOURN 4406 Digital News Editing	
JOURN 4460 Advanced News Reporting	
JOURN 4992 Reporting, Editing and Marketing of Converged Media	
JOURN 4974 Advanced Internet Applications for Radio/TV News	
JOURN 4976 Seminar in Radio/TV News	
JOURN 4978 Media Management and Leadership	

**Journalism Electives** 9

\* Note: Students who want to do business reporting with KOMU must be in or have taken JOURN 4308 Broadcast News III  
 \*\* Note: 1 credit hour required

**News Editing Interest Area**

Students in this interest area learn the fundamentals of editing to correct and present copy for publication; content management, selection and display; how to evaluate content; copy flow and time management needed for publishing on deadline, whether that be at a set time or throughout a 24-hour cycle. The program of study prepares students for jobs in online and print publications, including newspapers, magazines and nonprofit organizations. Administered by the print and digital news faculty.

**News Editing Interest Area Required Journalism Classes**

JOURN 4400 Introduction to News Editing *	1-2
JOURN 4406 Digital News Editing	3
JOURN 4450 News Reporting	3
JOURN 4500 Publication Design	3

**Journalism Electives** 14

\* Note: 2 credit hours required

**News Reporting Interest Area**

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area provides the opportunity for reporting and writing across a variety of styles and platforms, including breaking news, enterprise and features. Stories are reported and produced using words, video, audio, graphics and more. The program of study prepares students for jobs in online media, and print publications such as newspapers, magazines and nonprofit organizations. *Administered by the Print and Digital News Faculty.*

**News Reporting Interest Area Required Journalism Classes** 14

Select one of the following:	3
JOURN 4450 News Reporting	
JOURN 4804 Convergence Reporting	
Select one of the following:	3
JOURN 4406 Digital News Editing	
JOURN 4806 Convergence Editing and Producing	

**Required**

JOURN 4400 Introduction to News Editing	2
Select one of the following:	3
JOURN 4410 Intermediate Writing	
JOURN 4430 Computer-Assisted Reporting	
JOURN 4436 Investigative Reporting	
JOURN 4438 Business and Economics Reporting	
JOURN 4700 Participatory Journalism	

Select one of the following: 3

JOURN 4460 Advanced News Reporting	
JOURN 4992 Reporting, Editing and Marketing of Converged Media	

**Journalism Electives** 11

**Sports Journalism Interest Area**

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area is for those interested in pursuing a career in sports journalism at any level. Covering sports today includes not only knowing the games but also knowing about the larger financial, legal and ethical issues in sports. Students in this interest area have an opportunity to work across media platforms to gain experience in covering games, finding in-depth issue and feature stories and covering breaking news in sports. Students choose a core course of study through a specific emphasis area (*convergence journalism, magazine journalism, or print and digital news*), then pick from a wide range of electives to round out their skills. Electives include everything from advanced reporting and editing to business journalism, to social media techniques and community outreach.

**Sports Journalism Interest Area Required Journalism Classes** 15

Select one of the following:	3
JOURN 4450 News Reporting	
JOURN 4804 Convergence Reporting	
Select one of the following:	3
JOURN 4406 Digital News Editing	

JOURN 4500	Publication Design	
JOURN 4806	Convergence Editing and Producing	
Select one of the following:		3
JOURN 4410	Intermediate Writing	
JOURN 4814	Multimedia Sports Journalism	
<b>Required:</b>		
JOURN 4422	Sports Journalism	3
Select one of the following:		3
JOURN 4406	Digital News Editing	
JOURN 4460	Advanced News Reporting	
JOURN 4992	Reporting, Editing and Marketing of Converged Media	
<b>Journalism Electives</b>		<b>10</b>

## Investigative Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area is for journalism students interested in learning the skills of investigative and computer-assisted reporting across platforms. It allows students to add a strong investigative-watchdog focus and emphasizes the use of data analysis in reporting. The program encourages students to develop a specialty area, such as covering health care or religion, but that is not required. Similarly, it encourages students to take basic courses in other subject areas that will give them important skills, such as introductory accounting (though again, this is not required). Students will gain the skills to work in computer-assisted reporting or investigative reporting. *Administered by the Convergence Journalism, Magazine Journalism and Print and Digital News faculties.*

<b>Investigative Journalism Interest Area Required Journalism Classes</b>		
Select one of the following:		3
JOURN 4450	News Reporting	
JOURN 4804	Convergence Reporting	
Select one of the following:		3
JOURN 4460	Advanced News Reporting	
JOURN 4806	Convergence Editing and Producing	
<b>Required</b>		
JOURN 4430	Computer-Assisted Reporting	3
JOURN 4436	Investigative Reporting	3
Select one of the following:		3
JOURN 4406	Digital News Editing	
JOURN 4460	Advanced News Reporting	
JOURN 4992	Reporting, Editing and Marketing of Converged Media	
<b>Journalism Electives</b>		<b>10</b>

## Semester Plan

There are currently not any semester plan available for the Interest Areas under Print and Digital News. Please see advisor for more information.

## BJ in Journalism with Emphasis in Radio-Television

## Degree Program Description

Journalism is the study of gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving competency in journalism. Within the degree program, students can choose an emphasis in Radio-Television. Radio-Television focuses on the principles and practices of broadcast-style editing, writing, reporting and videography for radio, television and online media. The curriculum includes focus study and hands-on practice in the interest areas of International Journalism, Investigative Journalism, Producing, Reporting and Anchoring, and Sports Journalism. Upon graduation, students pursue a career as Radio Personality, Reporter, Producer, or Anchor.

## Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

## Radio-Television Producing Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area teaches students how to structure, write and build a newscast. Students will receive instruction in newsroom leadership and practice guiding a newscast to completion in the professional newsrooms and control rooms of KBIA Radio and KOMU-TV. *Administered by the Radio-TV Faculty.*

<b>Radio-Television Producing Interest Area Required Journalism Classes</b>		
JOURN 4300	Broadcast News I	3
JOURN 4306	Broadcast News II	3
JOURN 4308	Broadcast News III	3
JOURN 4310	News Producing *	3
Select one of the following capstone courses:		3
JOURN 4974	Advanced Internet Applications for Radio/TV News	
JOURN 4976	Seminar in Radio/TV News	
JOURN 4978	Media Management and Leadership	
<b>Journalism Electives</b>		<b>10</b>

\* 3 credit hours required

## Radio-Television Reporting and Anchoring Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This Interest Area teaches students how to gather the information to write and edit stories for radio, television and the Internet. They also will learn on-air delivery techniques and receive instruction on how to deliver their journalism. They will do so in the professional newsroom settings of KBIA Radio and KOMU-TV. *Administered by the Radio-TV Faculty.*

<b>Radio-Television Reporting and Anchoring Interest Area Required Journalism Classes</b>		
JOURN 4300	Broadcast News I	3
JOURN 4306	Broadcast News II	3
JOURN 4308	Broadcast News III	3
JOURN 4320	Advanced Broadcast Reporting	3
JOURN 4328	Advanced News Communication	1



Select one of the following capstone courses: 3

JOURN 4974	Advanced Internet Applications for Radio/TV News	3
JOURN 4976	Seminar in Radio/TV News	3
JOURN 4978	Media Management and Leadership	3

**Journalism Electives** 9

## Radio-Television Sports Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area prepares students for a career in sports journalism. Covering sports today requires not only knowing the games, but also knowing the larger financial, legal and ethical issues in sports. Students in this interest area work across media platforms in covering games, finding in-depth issue and feature stories and covering breaking news in sports. Students choose a core course of study in the radio-television journalism emphasis area. Students then pick from a wide range of electives to round out their skills and work in other media. Electives include everything from advanced reporting and editing to business journalism, to social media techniques and community outreach.

*Administered by the Radio-TV Faculty.*

**Radio-Television Sports Journalism Interest Area Required Journalism Classes** 18

JOURN 4300	Broadcast News I	3
JOURN 4306	Broadcast News II	3
JOURN 4308	Broadcast News III	3
JOURN 4422	Sports Journalism	3
JOURN 4814	Multimedia Sports Journalism	3

Select one of the following capstone courses: 3

JOURN 4974	Advanced Internet Applications for Radio/TV News	3
JOURN 4976	Seminar in Radio/TV News	3
JOURN 4978	Media Management and Leadership	3

**Journalism Electives** 7

\* Students who want to do sports reporting with KOMU-TV must be in or have taken JOURN 4308 Broadcast News III, after completing JOURN 4300 Broadcast News I and JOURN 4306 Broadcast News II.

## Radio-Television Investigative Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area is for journalism students interested in learning the skills of investigative and computer-assisted reporting for radio and television news. Students choose their core course of study in radio-television journalism. The interest area builds student skills in investigative reporting and using data analysis in reporting. It also encourages, but does not require students to use elective coursework to develop a specialty area such as business news, health care or religion reporting. Through this interest area, students will gain the skills to work as an investigate reporter or producer in radio or television news.

*Administered by the Radio-TV Faculty.*

**Radio-Television Investigative Journalism Interest Area Required Journalism Classes** 18

JOURN 4430	Computer-Assisted Reporting	3
JOURN 4436	Investigative Reporting *	3
JOURN 4300	Broadcast News I	3
JOURN 4306	Broadcast News II	3
JOURN 4308	Broadcast News III	3

**Take one of these capstones:** 3

JOURN 4974	Advanced Internet Applications for Radio/TV News	3
JOURN 4976	Seminar in Radio/TV News	3
JOURN 4978	Media Management and Leadership	3

**Journalism Electives** 7

\* Students who want to do investigative work with KOMU-TV must be in or have taken JOURN 4308 Broadcast News III, after completing JOURN 4300 Broadcast News I and JOURN 4306 Broadcast II.

## Radio-Television Documentary Journalism Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area uses the Missouri Method to immerse students in long-form reporting efforts leading to documentary presentations of their subject matter. Students will work creating documentaries in their courses, including a year-long senior documentary project. Concepts introduced include documentary theory, editing theory, camera aesthetics, business practices, critical reviewing and public distribution.

*Administered by the Radio-TV Faculty.*

**Radio-Television Documentary Journalism Interest Area Required Journalism Classes** 16

JOURN 4564	Micro-Documentary Photojournalism and Videography	3
JOURN 4371	Editing for Documentaries	3
JOURN 4373	Documentary Development	3
JOURN 4375	Documentary Business and the Public Sphere	2
JOURN 4377	Documentary Senior Project	2
JOURN 4379	Documentary Senior Capstone	3

**Journalism Electives** 6

## Semester Plan

There are currently not any semester plan available for the Interest Areas under Radio-Television Journalism. Please see advisor for more information.

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers>) website or view specific resources below.

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- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu>) in the lower level of the Student Success Center. No appointment is necessary to explore career options with one of our staff members.

- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 17) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 31) in the catalog.

## BJ in Journalism with Emphasis in Strategic Communication

### Degree Program Description

Journalism focuses on the gathering, assessing, creating, and presenting of news and information through various mediums. Students will develop a solid foundation in the liberal arts and sciences while achieving competency in journalism. Within the degree program, students can choose an emphasis in Strategic Communication. Strategic Communication is the study of principles and practices of all communication designed to create a desired response from a given audience. The curriculum includes focused study and hands-on experience within the interest areas of Account Management, Media Planning, Public Relations, Research, Sports Entertainment and Promotion, and Video Storytelling. Upon graduation, students pursue a career as an advertising manager, marketing manager, public relations specialists, and sports information director.

### Major Program Requirements

Students must complete all university requirements (p. 32), including general education (p. 33), in addition to the degree requirements below.

### Strategic Communication Interest Areas

#### Strategic Communication Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

This interest area educates students in the principles and practice of all communication designed to create a desired response from a given audience. It includes focused study and hands-on practice within the interest areas of Account Management, Art Direction, Copywriting, Digital Advertising, Media Planning, Public Relations, Research, Sports Entertainment and Promotion, and Video Promotional Content and prepares students for careers in these nine areas. Crossover between these Interest Areas is permissible and encouraged. *Administered by the Strategic Communication Faculty.*

Strategic Communication Interest Area Required Journalism Classes			12
JOURN 4200	Principles of Strategic Communication		3
JOURN 4204	Introduction to Strategic Writing and Design		3
JOURN 4952	Strategic Communication Research I		3
JOURN 4970	Strategic Campaigns (capstone)		3
Journalism Electives			13
Specific Non-Journalism Elective Requirements*			
MRKTNG 3000	Principles of Marketing		3
Additional MRKTNG Elective			3

### International Strategic Communication Interest Area

*Note: Interest Areas do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

The next generation of strategic communication students must be equipped to work in a global environment. This interest area is designed to capitalize on Missouri's international reputation and its international resources by placing under one umbrella the school's existing Study Abroad opportunities, its internationally focused media and multimedia projects with global partners. Students in this area take Strategic Communication courses to complement their international interests. *This degree is overseen by the Strategic Communication Faculty but is administered by the school's Global Programs office.*

International Strategic Communication Interest Area Required Journalism Classes			12
JOURN 4200	Principles of Strategic Communication		3
JOURN 4204	Introduction to Strategic Writing and Design		3
JOURN 4952	Strategic Communication Research I		3
JOURN 4970	Strategic Campaigns (capstone)		3
Journalism Electives			4
Journalism Study Abroad - Recommended in the second semester of the junior year or the first semester of the senior year.			6
Select one of the following:			
JOURN 4050	Communications Practice		
JOURN 4198	Area Seminar		
JOURN 4350	Problems in Journalism		
JOURN 4650	International Issues and the Media		
JOURN 4656	International News Media Systems		
JOURN 4658	International Journalism		
Specific Non-Journalism Elective Requirements*			6
MRKTNG 3000	Principles of Marketing		3
Additional MRKTNG Elective			3

\*For additional Non-Journalism electives information visit major core requirements (p. 640).

### Semester Plan

There are currently not any semester plan available for the Interest Areas under Strategic Communication. Please see advisor for more information.

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in Academic Exploration and Advising Services (AEAS) (<http://aeas.missouri.edu>) by calling (573)884-9700.
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu>) in the lower level of the Student Success Center. No appointment is necessary to explore career options with one of our staff members.

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For additional major and career exploration resources, visit Major & Career Exploration (p. 31) in the catalog.

## Minor in Journalism

### Journalism Minor Policies and Procedures

The School of Journalism's minor consists of 15 credit hours of journalism coursework. It is intended for students from other MU academic divisions who wish to broaden their understanding of the news media's role in society. Courses for the minor are similar to MU's broader liberal arts traditions and are not skills-oriented.

### Admissions

All students are required to apply for the Journalism minor. To apply for a minor in Journalism, students must have completed 60 credit hours with a minimum UM system cumulative GPA of 3.0. An application form is available from the Minor Coordinator in the Journalism Student Services Office, 76 Gannett Hall.

Students pursuing a Journalism major are ineligible for the Journalism minor program.

Transfer students may use up to three credit hours of approved Journalism transfer credit toward a Journalism minor.

### Courses

JOURN 1000 The News Media: Journalism and Advertising in a Democratic Society is open to any student who is a non-journalism major in good academic standing. Pre-Journalism or Undeclared Journalism students who complete either JOURN 1100 Principles of American Journalism, JOURN 2000 Cross-Cultural Journalism, JOURN 2100 News or JOURN 2150 Fundamentals of Multimedia Journalism with a C- or better and then decide to minor within the School of Journalism must maintain a minimum cumulative GPA of 3.0 to be eligible to take additional 3000 or 4000 level Journalism courses. Students who decide to pursue the minor after completing JOURN 1100 are ineligible to take JOURN 1000. Journalism minors can take a maximum of 15 credit hours from the School of Journalism.

Select any combination from the following classes:

JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society	3
or JOURN 1100	Principles of American Journalism	
JOURN 2000	Cross-Cultural Journalism *	3
JOURN 3000	History of American Journalism *	3
JOURN 4000	Communications Law *	3

Other eligible courses:

JOURN 4568	History of Photojournalism *	3
JOURN 4656	International News Media Systems *	3
JOURN 4658	International Journalism *	3

JOURN 4720	Internet Law *	3
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\* Permission number required. Submit request to the Journalism Minor Coordinator.

### Registration

Students are permitted to self-enroll in JOURN 1000. Other courses are offered on a space-available basis and after the early registration period has ended. Students are required to submit a course preference list to the Journalism Minor Coordinator. If space is available, a permission number to enroll will be provided.

### Academic Status

Students are subject to probationary or suspension status as determined by the student's major division. Students must earn a minimum grade of C- in Journalism courses. Journalism courses may be repeated one time. Upon repeating a course, if a student fails to earn a C- or better, the student is no longer eligible for the Journalism Minor.

The journalism minor is awarded after the student completes 15 journalism credits and maintains a 3.0 minimum UM system GPA at the time of graduation.

### Fees

School of Journalism course fees are applied to all Journalism courses.

### Advising

Journalism minors are not assigned a faculty advisor or academic advisor within the School of Journalism. Academic advising occurs in the division of each student's major. Students pursuing a Journalism minor are encouraged to consult with either the designated Minor Coordinator or with School of Journalism faculty on course-specific matters.

## MA in Journalism

### Admission Contact Information

Journalism Graduate Studies  
 179 Gannett Hall  
 Columbia, MO 65211  
 573-882-4852

Email: [jourgraduatestudies@missouri.edu](mailto:jourgraduatestudies@missouri.edu)  
 ([jourgraduatestudies@missouri.edu](mailto:jourgraduatestudies@missouri.edu))

On-Campus Master's Program: <http://www.journalism.missouri.edu/graduate/masters/>

Online Master's Program: <http://journalism.missouri.edu/programs/online/>

### About the Master of Arts

The program leading to the MA degree is designed to accommodate several objectives, including: comprehensive professional preparation for careers in the news media, mass communications and strategic communication; expansion of previous professional preparation and experience (e.g. newspaper editing) into a new area (e.g. broadcasting reporting); comprehensive academic preparation for careers in journalism and strategic communication teaching and research; and combinations of the three.

## Degree Options

### Program Models

Students choose from more than 20 program models, covering the full range of skills and media of journalism and strategic communication. Because the faculty periodically updates these models, students should visit the school's Web site for the latest details. In addition to the course work in any model, students complete either a thesis or a professional project. Students who make progress on the degree requirements and maintain at least a B average each semester are considered to be in good standing.

### Five-year Bachelor to Master Program

Another option for students who seek a master's degree is the 5-year bachelor to master's program (<http://journalism.missouri.edu/programs/masters/models-and-programs/five-year-bjma-models>). To be eligible for this option, students must have completed a bachelor's degree in journalism from Missouri. Students following the 5-year plan are expected to carry 10-12 hours per semester and will graduate after completion of two semesters of course work and a third semester of project or thesis. Only graduates of Missouri Journalism's undergraduate program are eligible for the BJ/MA program.

### Joint Journalism and Law Programs

The School of Journalism and the School of Law have created joint programs (<http://journalism.missouri.edu/programs/masters/models-and-programs/journalism-law-programs>) that provide an opportunity to earn a MA in Journalism and either a JD or a LLM from Law. Students in the joint programs complete one of the journalism models and the course requirements for the law degree with a block of courses that are used for both degrees.

### Dual-degree option with Masters of Public Health

The School of Journalism and the program in Public Health have created a dual-degree option (p. 565) that allows students to earn a journalism degree in reporting or strategic communication with an emphasis in public health. Students complete a block of courses in public health, as well as in journalism, and complete the dual degree with a public health internship and capstone, in which the focus is on journalism or strategic communication.

### Distance Learning

Professional journalists or others who cannot travel to mid-Missouri to attend the on-campus program might consider doing their program in an online format. Health communication, interactive media, media management and strategic communication models are available through distance learning to applicants who have a minimum of three years professional journalism-related experience. Students in the online program are required to make two short visits, two to three days each, to campus during their program. Learn more about our online master's programs here <http://journalism.missouri.edu/graduate/online/>.

### Master's Admission Criteria

*On-Campus program deadlines:*

Fall deadline: January 1  
Spring deadline: September 1

*Online program deadlines:*

Fall deadline: July 1  
Spring deadline: November 15

Summer deadline: April 15

- Minimum Academic IELTS scores:

Item	Score
Listening	
Reading	
Speaking	7.0
OVERALL Score	7.0

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
Speaking: 25	
Reading: 25	
Listening: 25	
100	600
Writing: 25	

- Suggested GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	1100 or better
On or After August 1, 2011	V: 153 or better; Q: 144-148 or better

- Minimum GPA: 3.0 in last 60 hours

**Note:** Deadlines are adhered to strictly, and no applicant is considered for admission until all required information is received.

## Required Application Materials

*To the Graduate School*

All required Graduate School documents

*To the Journalism Master's Program:*

Please upload the following application materials into the online Graduate School application in Slate:

- 3 essays as specified on Departmental application website
- Résumé
- Unofficial transcripts from all undergraduate institutions attended
- 3 letters of recommendation (use the online Graduate School application system)

*Please submit official GRE scores to the School of Journalism using the GRE Department Code: 4503 and Institution Code: 6875.*

## Financial Aid from the Program

Limited fellowships, assistantships, scholarships and other financial aid opportunities are available. All applicants for admission are considered for any available funding. No separate application form is needed. Check the program Web site or ask the program contact for details.

## Plan of Study

Two-year on-campus and online students are required to complete a minimum of 37 hours. Five-year BJ-MA students complete a minimum of 30 hours. For all graduate students, at least half of the credit hours must be at the 8000-level. Specific course requirements vary depending on the option selected.

## Professional Project or Thesis

Students must enroll in either the Project Seminar or the Thesis Seminar in the semester prior to embarking on their professional project or thesis. These seminar courses guide students in developing proposals for their professional project or thesis. After proposal approval, students enroll in JOURN 8190, Area Problem (for projects) or JOURN 8090, Research (for thesis). Students earn nine credit hours for either the professional project or thesis research.

Students in any model may choose to complete the professional project or thesis off campus. The school operates programs in Washington D.C., New York City, Brussels, and Barcelona which is supervised by a full-time faculty member. In the Missouri state capital the school has a program focusing on public affairs reporting in any medium. Other off-campus opportunities can be arranged.

## Length of Study

The degree must be earned within eight years of beginning the program.

## MA in Journalism with Emphasis in Health Communication

### Degree Requirements

The Health Communication emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be courses from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associate dean for graduate studies.

### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications	1-3
JOURN 8080	Media Ethics	3

### Emphasis Area Electives

Students may select 15-17 hours of the following courses:

JOURN 7000	Communications Law	3
JOURN 7256	Public Relations	3
JOURN 7268	Strategic Communication Practicum	3
JOURN 7416	Science, Health and Environmental Writing	3
JOURN 8018	Strategic Communication Research II	3
JOURN 8020	Principles and Tools in Strategic Communication Planning	3
JOURN 8042	Health News and Promotion	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

## Thesis/Non-thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 MA Thesis Seminar, or JOURN 8098 MA Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<http://gradschool.missouri.edu/academics/programs/journalism>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Journalism with Emphasis in Interactive Media

### Degree Requirements

The Interactive Media emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be course from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associated dean for graduate studies.

### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications	1-3
JOURN 8080	Media Ethics	3

### Emphasis Area Requirements

Students may select 15-17 hours of the following courses:

JOURN 7150	Using Infographics	1
JOURN 7256	Public Relations	3
JOURN 7262	Digital Strategy I	3
JOURN 7510	Visual Communications	2-3
JOURN 7700	Participatory Journalism	3
JOURN 7736	Changing Media Business Models	3

JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

## Thesis/Non-thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 Thesis Seminar, or JOURN 8098 Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<http://gradschool.missouri.edu/academics/programs/journalism>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Journalism with Emphasis in Media Management

### Degree Requirements

The Media Management emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be courses from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associate dean for graduate studies.

### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications	1-3
JOURN 8080	Media Ethics	3

### Emphasis Area Electives

Students may select 15-17 hours of the following courses:

JOURN 7000	Communications Law	3
JOURN 7436	Investigative Reporting	3
JOURN 7700	Participatory Journalism	3

JOURN 7736	Changing Media Business Models	3
JOURN 7978	Media Management and Leadership	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

## Thesis/Non-thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 Thesis Seminar, or JOURN 8098 Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<http://gradschool.missouri.edu/academics/programs/journalism>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Journalism with Emphasis in Strategic Communication

### Degree Requirements

The Strategic Communication emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be courses from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associate dean for graduate studies.

### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications	1-3
JOURN 8080	Media Ethics	3

### Emphasis Area Electives

Students may select 15-17 hours of the following courses:

JOURN 7256	Public Relations	3
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JOURN 7262	Digital Strategy I	3
JOURN 8018	Strategic Communication Research II	3
JOURN 8020	Principles and Tools in Strategic Communication Planning	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

## Thesis/Non-Thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 Thesis Seminar, or JOURN 8098 Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<http://gradschool.missouri.edu/academics/programs/journalism>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Journalism

### Admission Contact Information

Kathy Appun-Hodges ([hodgeske@missouri.edu](mailto:hodgeske@missouri.edu))  
 179 C Gannett Hall  
 Columbia, MO 65211  
 573-882-6194  
<http://www.journalism.missouri.edu/graduate/doctoral/>

### About the Doctorate

The objective of the doctoral program is to develop an ability to conduct independent and advanced scholarly research and to integrate this skill with a depth of scholarship in journalism and mass communication. Although it is primarily a research degree, the PhD is designed to facilitate a variety of academic aims. Students must expand their intellectual horizons, gain a theoretical framework for examining and understanding communication and refine their own communication competencies.

### Doctoral Admission Criteria

Fall deadline: January 15  
 Spring deadline: September 1

- Minimum Academic IELTS scores:

Item	Score
Listening	
Reading	
Writing	
Speaking	7.0
OVERALL Score	7.0

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
Speaking: 25	
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	1100
On or After August 1, 2011	V: 156+; Q: 146+

- Minimum GPA: 3.0, undergraduate, 3.5, graduate

Applicants should have demonstrated interest, education or professional experience in journalism, advertising, public relations, mass communication or a related field. A degree (bachelor's or master's) in one of those fields or two years of full-time professional media experience is preferred. All required information must be received before the admission review can begin. Applicants may be required to participate in an interview with the doctoral faculty as part of the review process. Students who did not write a thesis in their master's program may be required to complete a project to demonstrate their ability to do independent research.

Deadlines for application are December 15 for fall entry and September 1 for spring. Deadlines are firm, and no applicant is considered for admission until all required information is received.

## Required Application Materials

Upload the following application materials into the Graduate School's online application system:

- All required Graduate School documents
- Statement of Doctoral Objectives
- Résumé
- An abstract of your master's thesis (or thesis proposal, if your thesis is not yet complete)
- Unofficial transcripts
- 3 letters of recommendation (use the online Graduate School application system)

## Financial Aid from the Program

Doctoral students are provided assistantship and scholarship support for a maximum of six terms (three years). Contact the department for details on this financial assistance.

## Plan of Study

Doctoral study in journalism and mass communication is an interdisciplinary enterprise. The doctoral program is designed by the student in collaboration with the advisor and doctoral committee. Course selections are based on the intellectual requirements of the dissertation and the teaching areas the student wishes to pursue. No courses that

focus primarily on professional skills may be counted toward the doctoral program, whether taken at the master's or the doctoral level. Courses from journalism should compose no more than two-thirds of the total credit.

Students must develop two research tools, pass qualifying and comprehensive examinations, submit and defend a dissertation, and satisfactorily meet all other requirements of the Graduate School. Doctoral Theory and Research I (JOURN 9000), and Professional Development (JOURN 9087) are required of all PhD students.

### Qualifying Examination

Students are admitted to the PhD program in journalism when they have passed Doctoral Research Design (qualifying examination), which must be taken the semester in which the student completes 18 hours. Graduate School regulations about comprehensive examinations, dissertations, plans of study, residency and other matters are specified in the Degree Requirements section of the catalog.

### Foreign Language & Research Tool Requirements

Students are expected to have a background in a foreign language or to develop research tools. The language requirement may be met by three semesters of college-level foreign language courses or an equivalency acceptable to the doctoral faculty. At the discretion of the student's doctoral committee and the associate dean for graduate studies, a second tool may be used to substitute for the language requirement.

There are four research tool options:

1. competency in a second foreign language. This may be satisfied by two years of college-level work recently passed with a grade of C or better or an acceptable ETS score. A foreign language is one that is non-native or not the primary language used in the student's school system;
2. computer proficiency as evidenced by completion of two computer courses or an equivalency acceptable to the doctoral faculty;
3. two courses in statistics;
4. two 7000 or 8000-level research methods courses outside the School of Journalism.

A grade of A or B must be made in any course used for options 2, 3 or 4.

### Teaching

Doctoral students who plan to teach will participate in a teaching program. Each student's teaching skills will be evaluated in the first year of study, at which point planning for the student's future teaching opportunities begins. Most students will serve as teaching assistants in such classes as JOURN 1100 or JOURN 2100 during their third semester in the program.

In the student's fourth semester, he/she may have an additional teaching experience, either as a teaching assistant, co-instructor or instructor of record in a course. Depending on the student's ability and desire, students might teach a course independently during later semesters.

## Additional Minors and Certificates - Journalism

### Graduate Minors

- Minor in Law and Conflict Resolution for Journalism Doctoral Students (p. 655)

### Graduate Minor in Law and Conflict Resolution for Journalism Doctoral Students

This program is designed for doctoral students who are interested in teaching and researching in journalism and law and conflict resolution in a school of journalism or communication department. Under the program, students may receive the Minor upon completion of at least 15 credits at the Law School, including both core courses and at least 9 credits of electives. The Minor will appear on the student's transcript.

#### Required Core Courses

LAW 5450	Conflict and Conflict Management	3
LAW 5760		3
or JOURN 8038	Seminar in Communications Law	

#### Electives

Students may take any available course at the Law School in satisfying this requirement. Actual course offerings and availability varies by semester, and enrollment is subject to professor approval. The following courses are ones that are expected to be generally available. They are grouped by tracks to help students more quickly identify areas of specific interest, and to develop deeper concentrations in desired areas. However, students may take any of the courses in meeting the elective requirement for the Minor. Students should consult with a member of the School of Law faculty or administration about which Law School courses or sequences may be most appropriate to the student's curricular needs.

#### General Electives

JOURN 7718	Law and the Justice System	3
JOURN 7720	Internet Law	3
JOURN 8046	Controls of Information	3
BUS_AD 7330	Business Law/Regulation	2-3

#### Electives - Track 1: Civil Rights and International Law

LAW 5220	Constitutional Law *	1-4
LAW 5240	Criminal Procedure	1-3
LAW 5350	Arbitration *	1-3
LAW 5380		1-3
LAW 5410	Children and the Law	1-3
LAW 5415	Constitutional and Civil Rights Litigation	1-3
LAW 5435	Comparative Law	1-3
LAW 5525	Education Law	1-3
LAW 5530	Elder Law *	1-3
LAW 5540	Employment Discrimination	1-3
LAW 5575	Family Law *	1-3
LAW 5590	Freedom of Speech and Association	1-3
LAW 5595	Gender, Race, Sexuality and the Law	1-3
LAW 5660	International Human Rights	1-3



LAW 5665	International Law	1-3
LAW 5750	Local Government Law	1-3
LAW 5865		1-3

**Electives - Track 2: Business Law**

Those students who anticipate covering general business issues as working journalists, or who anticipate careers in media management and strategic communication should consider these courses.

LAW 5395 is recommended and is often a prerequisite for other courses.

LAW 5340	Antitrust Law	1-3
LAW 5350	Arbitration *	1-3
LAW 5365	Bankruptcy	1-3
LAW 5375	Basic Federal Income Taxation	1-4
LAW 5395	Business Organizations	1-4
LAW 5455	Copyright Law	1-3
LAW 5677	Internet Law and Practice	1-3
LAW 5540	Employment Discrimination	1-3
LAW 5640	Intellectual Property	1-3
LAW 5695	Labor Law	1-3
LAW 5810	Negotiation *	1-3
LAW 5820	Patent Law and Policy	1-3
LAW 5880		1-3
LAW 5890	Securities Regulation	1-3
LAW 5905	Sports Law	1-3
LAW 5920	Trademark Law	1-3
LAW 5940	White Collar Crime	1-3

**Electives - Track 3: General Law**

The following courses permit students a wide range of options for exposure to law, and also permit further emphasis in civil justice, criminal justice, environmental, health care and international law, depending upon student needs and preferences.

LAW 5010	Civil Procedure I	1-3
LAW 5015	Civil Procedure II	1-3
LAW 5220	Constitutional Law *	1-4
LAW 5240	Criminal Procedure	1-3
LAW 5260	Evidence *	1-4
LAW 5310	Administrative Law	1-3
LAW 5320	Advanced Legal Research *	1-2
LAW 5350	Arbitration *	1-3
LAW 5530	Elder Law *	1-3
LAW 5545	Environmental Law	1-3
LAW 5575	Family Law *	1-3
LAW 5615	Health Care Law: The Doctor-Patient Relationship	1-3
LAW 5700	Land Use Controls	1-3
LAW 5720		1-3
LAW 5725		1-3
LAW 5745	Legislation	1-3
LAW 5765	Mediation *	1-3
LAW 5810	Negotiation *	1-3
LAW 5835	Products Liability	1-3
LAW 5845	Publicly Held Corporation	3

\* Limited Enrollment. Course likely to be full. Law students have first priority.

## School of Nursing

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### Administration

Judith F. Miller, Dean

Janice J. Hoffman, Associate Dean for Academic Affairs

Vicki Conn, Associate Dean for Research

#### Student Advising Office

S235 Nursing School Bldg.

(573) 882-0277

The nursing program at MU began in 1901 with the establishment of Parker Memorial Hospital Training School. Today, the Sinclair School of Nursing is committed to promoting, maintaining and improving health and health-care delivery in Missouri and worldwide through nursing education, research and service. Nursing faculty combine research and education to offer students hands-on experience in the art and science of nursing.

The School of Nursing is approved by the Missouri State Board of Nursing and has national accreditation.

The undergraduate program is approved by the Missouri State Board of Nursing. The Baccalaureate Program at the University of Missouri is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791.

### Undergraduate

- Admissions (p. 657)
- Advising (p. 658)
- Health Care (p. 658)

### Admissions

#### Traditional BSN Option

The freshman and sophomore years are designated as the “pre-nursing” years. The junior and senior years are designated as the “clinical nursing major” years. *Pre-nursing students apply for admission to the clinical major during the last semester of general education and prerequisite coursework.* Students are admitted to the clinical nursing major on a competitive and space-available basis when prerequisite courses have been completed. Any student who is a Nursing Scholar is guaranteed admission into the clinical nursing major. Please see the Nursing and/or Honor’s College websites for eligibility information and application details.

Each student’s application is reviewed systematically and considered holistically for each admission period. The School values MU’s Commitment to Diversity and the call of the American Nurses Association that the nursing workforce should reflect the diversity of the population. The School is also committed to rural health care and to educating nurses for practice in rural Missouri. Therefore, the School seeks to ensure that the student body includes persons from rural Missouri and persons of backgrounds that are underrepresented in the nursing workforce.

Clinical application and admission criteria include:

- Successful completion of all general education and prerequisite coursework prior to beginning clinical coursework;
- Satisfactory grades from biology, chemistry, and two of the three advanced lab sciences (microbiology, anatomy, physiology) to be eligible to apply for the clinical nursing major;

- Minimum cumulative grade-point average of 3.0 (on a 4.0 scale) for all college/university courses;
- Competitive grade-point average in nursing prerequisite courses;
- Minimum GPA of 3.0 for any nursing prerequisite courses;
- Evidence of capacity to uphold the practice standards and ethical codes of the nursing profession; and
- Evidence of motivation toward a nursing career

#### RN to BSN Option

The RN to BSN online option is for registered nurses who have earned a diploma or associate degree in nursing with a cumulative GPA of a 2.8 or higher and seek a bachelor’s degree in nursing. RN to BSN courses are offered via the Internet with limited trips to campus for some nursing course.

RN to BSN registered nurse applicants must meet the same admission standards described above for the Traditional BSN Option. They must be currently licensed to practice nursing (or eligible for licensure) in Missouri or another state. Completion of the program includes 120 credit hours. The length of the program varies, depending on equivalent prerequisite courses completed and choice of part-time or full-time enrollment.

#### BSN Accelerated Option

The BSN Accelerated Option is a 15 month program designed for individuals who hold a non-nursing degree at the baccalaureate level or higher.

Students are admitted to the Accelerated BSN Option based on the following criteria:

- A baccalaureate or higher degree from an accredited college or university.
- Two letters of reference from individuals that can attest to the student’s motivation and ability to complete a course of intensive study.
- Statement of career goals.
- Description of the applicant’s view of nursing as a profession.
- A personal interview.
- Evidence of academic achievement of a 3.0 cumulative GPA or higher on a 4.0 scale on undergraduate degree.
- Completion of prerequisite courses with a minimum of a C or better.
- Evidence of potential and motivation for nursing.
- Evidence of prior work success and/or ability to handle a fast-paced academic program.

A Bachelor of Science (BSN) degree is awarded at graduation, and the graduate may be eligible to take the licensing examination to become a registered nurse (RN).

#### Transfer Students

Students transferring to MU from another accredited institution of higher education or other schools and colleges within the University are subject to the regulations established by the MU Faculty Council concerning transfer of credit.

For more information regarding the transfer guidelines for the School of Nursing, call (573) 882-0277. Prior to admission, transfer students must have the following:

- Appropriate GPA for credit hours attempted, 3.0 cumulative GPA or higher

- Approval from the associate dean's office

Transfer students must apply for admission through the MU Admissions Office.

## International Students

In addition to the admission criteria described above, international students must meet the following criteria:

- Test of Written English (TWE) score of 4 or higher
- Test of Spoken English (TSE) score of 50 or higher
- TOEFL score of 600 (paper-based) or 250 (computer-based) or 100 (internet-based)
- English Language Support Program Test taken with success

## Advising

The academic advisor's office is in room S235 of the School of Nursing Building, (573) 882-0277. In addition, each clinical nursing major is assigned a faculty advisor who is available for consultation about academic or professional matters.

## Health Care

Nursing students participate in a variety of on- and off-campus educational experiences. The School of Nursing does not assume responsibility for health-care expenses incurred in either setting. Students assume responsibility for all health care for illness and injury, including emergency treatment. Student Health is located at University Physicians Medical Building, 1101 Hospital Drive, (573) 882-7481. For additional information, visit their web site at <http://studenthealth.missouri.edu/>.

## Graduate

### Nursing Graduate Programs

Sinclair School of Nursing  
S235 Sinclair School of Nursing Building  
573-882-0277  
<http://nursing.missouri.edu/>

### About the Sinclair School of Nursing

Nursing was an integral part of the Parker Memorial Hospital Training School, which served as the university's first hospital in 1901. Although a nursing program was not officially established until 1920 within the School of Medicine, MU graduated its first nursing class in 1904. Sixteen years later, the Curators approved a Graduate Nursing designation. Today, the Sinclair School of Nursing provides a rich and rewarding learning environment for our students. Our faculty includes knowledgeable and skillful teachers, respected scholars and researchers in the nursing profession, and experienced, caring practitioners. The master's program is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791.

### Technology Requirements

Students should refer to the Sinclair School of Nursing website (<http://nursing.missouri.edu/for-students/technology-requirements>) for technology needs.

### Career Preparation

The **DNP program** prepares nurses to develop clinical programs based on the latest evidence. The student will choose an area of study (Adult

or Pediatric CNS, FNP, PNP, or FMHNP) on which to focus their clinical practice. Successful completion of the program prepares nurses for an advanced clinical practice in primary care, hospital and community settings as well as leadership roles in practice settings and clinical faculty positions.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Nursing

The school offers a baccalaureate program that prepares students for the general practice of nursing, a master's degree program that prepares advanced-practice nurses and a doctoral degree program. The continuing education program serves practicing nurses throughout the state to update and increase nursing knowledge and skills.

The graduate of the baccalaureate program is a generalist in the practice of nursing, able to design, implement and evaluate nursing systems for individuals, families and small groups. As a generalist, the graduate uses a general concept of nursing as a framework for integrating and organizing specific knowledge in nursing, the sciences and the humanities. Graduates begin their professional careers with a focused nursing perspective and, along with other professional health providers, assume responsibility for meeting the health needs of our society.

The MU Sinclair School of Nursing also offers opportunities for additional educational opportunities as a graduate level nurse. We currently offer master's degree programs in Nurse Educator and Nurse Leadership as well as the Doctor of Nursing Practice (DNP) degree program for leadership and advanced practice nurses, and the PhD in nursing. All of our graduate level programs are distance mediated.

## Faculty

**Professor** G. Alexander\*\*, J. Armer\*\*, V. S. Conn\*\*, D. Finfgeld\*\*, L. H. Ganong\*\*, R. A. Johnson\*\*, J. Miller, M. J. Rantz\*\*

**Associate Professor** T. Bloom\*\*, M. Enriquez\*\*, L. Phillips\*\*, L. Popejoy\*\*, A. Vogelsmeier\*\*, D. D. Wipke-Tevis\*\*

**Assistant Professor** J. Chase\*, L. Despains, U. Jefferson\*\*, K. Lane\*\*, T. Ruppert\*\*, L. Sherman\*

**Teaching Professor** J. Bostick\*

**Associate Teaching Professor** J. Hoffman\*, G. Oliver\*, J. Sherman\*

**Assistant Teaching Professor** V. Bader\*, M. Beck\*, N. Birtley\*, K. Bowman\*, M. Butler, P. Evans-Smith, R. Harris\*, D. Pennington\*, S. Thomas\*\*, S. Ulbrich\*, L. Wood

**Instructor of Nursing** C. Clark, H. Claunch, M. Fete, L. Frey, G. Gregory, C. Grider, B. M. Hanson, A. G. Heine, R. McIntosh, D. L. Mendenhall, H. Monroe, G. Nickell, D. C. Otto, L. Phillips, M. Reams, L. Stidham, A. Vroman

**Adjunct Associate Professor** R. W. McDaniel\*, B. Wakefield\*\*

**Adjunct Assistant Professor** C. Crumley\*, L. Kuensting\*, K. Metcalf-Wilson\*

**Adjunct Instructor** S. Birk, W. Evans, S. Revell, C. Yonkman

**Associate Research Professor** B. Wakefield\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSN in Nursing (p. 660)

## Academic Regulations

### Credit by Examination

RN to BSN may earn advanced-standing credit in some courses by satisfactorily completing examinations. Those who elect not to take the examinations or who fail to achieve satisfactory results are required to enroll in the courses. The cumulative grade point average is not affected by examination results. A student who has a record of enrollment in a support course with a grade lower than C is not eligible later for credit on the basis of an examination covering the same subject.

The student may acquire advanced standing by taking subject CLEP examinations in university general education courses and required support courses. If no CLEP examination is offered, department examinations may be available. More information on CLEP examinations is available through MU Testing Services.

### Distance Education Courses

Certain courses offered by the Mizzou Online (self-paced) may be applied toward degree requirements. Courses such as literature, advanced psychology or sociology may be taken through independent study. Students should not expect to begin nor continue work on independent study courses during the regular semester except by special permission of the associate dean and then only when carrying less than a full course load in residence.

## Progression Criteria

### Pre-nursing Years

- Satisfactory academic standing requires a minimum semester GPA of 2.0 and a cumulative GPA at or above the standards listed below:

Class	Semester	Credits	GPA
Freshman	1st semester	1-15 credits	2.8
Freshman	2nd semester	16-30 credits	3.0
Sophomore	3rd semester	31-45 credits	3.0
Sophomore	4th semester	46-60 credits	3.0

- A grade of C or better is required for anatomy, biology, chemistry, ENGLSH 1000, human development, microbiology, nutrition, physiology, nursing courses and Writing Intensive courses. A grade of "C-" or better is required in algebra or statistics. A grade of "F" is unacceptable for any course.
- Students may repeat a course in which an unsatisfactory grade was earned. If less than a C is earned on repetition of a course, students are ineligible to continue enrollment in the School of Nursing.
- Students who are in the traditional BSN option and withdraw in good standing for any reason must contact the Associate Dean for readmission.

## Clinical Nursing Years

- Progression into the next semester's nursing courses is contingent on the completion, with a grade of C or better, of all of the previous semester's courses.
- A satisfactory academic standing for clinical students is a minimum semester GPA and cumulative GPA of 2.0.
- A grade of C or better is required for all nursing courses. One repetition of a course is permitted, but requires ap-approval of SAP committee. Students who earn less than a C on repetition of a nursing course are ineligible to continue enrollment in the School of Nursing.
- Students in the clinical nursing phase who withdraw in good standing for any reason must contact the Associate Dean for readmission.

## Probation and Academic Dismissal

The faculty of the School of Nursing has established criteria governing nursing probation and dismissal.

### Pre-nursing Years

- Students who do not meet the requirements set forth in the progression criteria are placed on academic probation. They must attain the cumulative grade point average required for their classification, as outlined previously, within two semesters or they are ineligible to re-enroll in the School of Nursing, and must transfer divisions.
- A student whose semester GPA falls below 1.0 is ineligible to re-enroll at MU for the period of one year.

## Clinical Nursing Years

- A student who does not meet the requirements set forth in progression criteria is placed on academic probation.
- A student on academic probation must obtain a cumulative GPA of 2.0 within two semesters or is ineligible to re-enroll in the School of Nursing.
- Students who have been dismissed may reapply through the established admissions procedure for all students and petition the Faculty Assembly Student Admissions and Progression Committee. Students who are readmitted are guided by the rules in operation for the class they join.
- A student in the clinical nursing phase who has been dismissed from the School of Nursing for a second time may not reapply for admission.

## Additional Requirements

Students in the clinical phase of the degree requirements must be prepared to provide their own transportation to clinical agencies. In addition, they must meet the following requirements:

- Valid CPR certificate
- yearly TB tests
- Hepatitis B series
- School of Nursing medical form showing current immunizations
- Negative drug screen
- Criminal background check

## Practicums

Clinical practicums (patient/client care) are an integral part of the curriculum. Students have the opportunity to practice in a variety of health care and related agencies, including:

- University of Missouri Health Care
- Boone Hospital Center
- Truman Veterans Hospital
- Fulton State Hospital
- Mid-Missouri Mental health Center
- Multiple county and city health departments
- Long-term care facilities
- Day-care centers
- Schools (K-12)

## Licensure by the Missouri State Board of Nursing

On receipt of the Bachelor of Science in Nursing degree, students may be eligible to take the NCLEX examination for licensure as registered nurses. The Missouri State Board of Nursing grants a license to practice to persons who meet the policies and regulations contained within the Nursing Practice Act, Chapter 335.011 to 335.096.

## Graduate

- MS in Nursing (p. 667)
  - with emphasis in Adult Health Clinical Nurse Specialist (p. 668)
  - with emphasis in Adult Mental Health Nurse Practitioner (p. 668)
  - with emphasis in Advanced Public Health Nurse (p. 668)
  - with emphasis in Advanced Public Health/School Health Nurse (p. 668)
  - with emphasis in Family Mental Health Nurse Practitioner (p. 668)
  - with emphasis in Family Nurse Practitioner (p. 669)
  - with emphasis in Leadership in Nursing and Health Care Systems (p. 669)
  - with emphasis in Nurse Educator (p. 669)
  - with emphasis in Pediatric Clinical Nurse Specialist (p. 670)
  - with emphasis in Pediatric Nurse Practitioner (p. 670)
- PhD in Nursing (p. 670)
- DNP in Nursing Practice (p. 662)
  - with emphasis in Adult-Gerontology Clinical Nurse Specialist (p. 663)
  - with emphasis in Family Nurse Practitioner (p. 663)
  - with emphasis in Family Psychiatric and Mental Health Nurse Practitioner (p. 664)
  - with emphasis in Nurse Leadership and Innovations in Health Care (p. 665)
  - with emphasis in Pediatric Clinical Nurse Specialist (p. 665)
  - with emphasis in Pediatric Nurse Practitioner (p. 666)

## About the Sinclair School of Nursing

Sinclair School of Nursing  
S235 Sinclair School of Nursing Building

573-882-0277

<http://nursing.missouri.edu/>

Nursing was an integral part of the Parker Memorial Hospital Training School, which served as the university's first hospital in 1901. Although a nursing program was not officially established until 1920 within the School of Medicine, MU graduated its first nursing class in 1904. Sixteen years later, the Curators approved a Graduate Nursing designation. Today, the Sinclair School of Nursing provides a rich and rewarding learning environment for our students. Our faculty includes knowledgeable and skillful teachers, respected scholars and researchers in the nursing profession, and experienced, caring practitioners. The master's and Doctor of Nursing Practice (DNP) program is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791.

## Facilities and Resources

Graduate students in the School of Nursing have access to all campus libraries and the various services they provide. The School of Nursing building is adjacent to University Hospital and Clinics, MU Psychiatric Center and Ellis Fischel Cancer Center. Women and Children's Hospital is located nearby. A variety of learning experiences also are available at other hospital and health and social service agencies in and around Columbia.

## Career Opportunities

Nursing is a professional career for those who would like to combine the following words in any number of ways: Servant leadership, challenge, advanced nursing skills, caring, science, and meaningful work. Graduates of our program work in a variety of settings - from hospital inpatient units and hospital based clinics, to community health centers, private practices, and schools, to areas of research and teaching.

## Funding

Financial assistance is available as scholarships, fellowships, assistantships and traineeships.

## BSN in Nursing

### Degree Program Description

The Bachelor of Science in Nursing (BSN) curriculum encompasses general, foundational and professional studies within a liberal-education perspective. The curriculum is driven by the belief that nursing theory has much to offer in the education of professional nurses and in improving the health and well-being of patient populations. Nursing knowledge is developmental in nature; each course is designed to build on knowledge and skills acquired in previous nursing and non-nursing courses. The BSN program is a four-year degree option. Freshman and sophomores are considered pre-nursing majors and are required to complete approximately 60 semester hours of general-education and prerequisite coursework. Students admitted to the clinical major must earn 60 additional credit hours to complete the degree. The school offers a diverse range of research projects that provide care to healthy and ill people of all ages. The Essig Clinical Simulation Learning Center in the school is where students practice technical skills and learn to manipulate various equipment in this simulated clinical setting.

## Major Program Requirements

The completion of all requirements for graduation is the responsibility of the student. The Bachelor of Science in Nursing (BSN) is granted to candidates who have satisfactorily completed all of the following requirements:

- Completion of all foundational and clinical nursing courses
- Minimum cumulative GPA of 2.0
- No more than 30 credits through independent study or extension courses
- Minimum of 120 credit hours
- Completion of all University graduation requirements (p. 32), including University general education requirements (p. 33)

### Pre-Nursing requirements

Curriculum is based on prerequisite of one year of high school biology with lab and grades of C or better. The student must meet all University general education requirements.

#### General courses

ENGLISH 1000	Exposition and Argumentation	3
HIST: American History or American Government		3
Humanities/Fine Arts **		9-13
Upper-level behavioral science		3
STAT 1200 or ESC_PS 4170	Introductory Statistical Reasoning (MP) Introduction to Applied Statistics	3
MATH 1100	College Algebra	3

#### Foundation courses

BIO_SC 1010 or BIO_SC 1500	General Principles and Concepts of Biology Introduction to Biological Systems with Laboratory	3-5
CHEM 1100 or CHEM 1000	Atoms and Molecules with Lab Introductory Chemistry	2-3
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
MICROB 2800 or MICROB 3200	Microbiology for Nursing and Health Professions Medical Microbiology and Immunology	4
H_D_FS 2400	Principles of Human Development	3
NEP 2380	Diet Therapy for Health Professionals	3
PSYCH 1000	General Psychology	3
SOCIOL 1000 or RU_SOC 1000	Introduction to Sociology Rural Sociology	3
NURSE 2000	Nursing as a Profession	3
NURSE 2100	Communication Issues in Nursing	2

#### Clinical nursing requirements - professional courses

NURSE 3170	Nursing Skills, Technologies, and Simulation	4
NURSE 3200	Pathophysiology	4
NURSE 3270	Foundations of Nursing: Physical Assessment and the Nursing Process	5
NURSE 3300	Pharmacology and Nursing Implications	4
NURSE 3470	Mental Health Nursing	5
NURSE 3670	Nursing of Adults I	6
NURSE 3870	Gerontological Nursing Care	3
NURSE 3900	Introduction to Nursing Science	3
NURSE 4200	Nursing Ethics and Law	3
NURSE 4270	Nursing of Children	5
NURSE 4300	Nursing Issues/Leadership and Management	2

NURSE 4470	Nursing of Women and Newborns	5
NURSE 4870	Nursing of Adults II	7
NURSE 4970	Nursing in Communities	5
Total Credits		121-128

\* Denotes University General Education Requirements

^ Denotes Degree Program Requirements

\*\* If taking a Foreign Language for humanities credit, you will complete the sequence of foreign language courses that could total 13 hours.

Admission to the nursing clinical major is a requirement to take these courses.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### First Year

Fall	CR Spring	CR
BIO_SC 1010 or 1500 <sup>^</sup>	3 Major Science	4-5
CHEM 1100 or 1000 <sup>^</sup>	3 ENGLISH 1000 <sup>*</sup>	3
HIST 1100, 1100H, 1200, 1200H, POL_SC 1100, or POL_SC 1100H <sup>^</sup>	3 PSYCH 1000 <sup>^</sup>	3
MATH 1100 <sup>*</sup>	3 STAT 1200 or ESC_PS 4170 <sup>^</sup>	3
SOCIOL 1000	3 Humanities/Fine Arts Course <sup>*</sup>	3
		15
		16-17

### Second Year

Fall	CR Spring	CR
Major Science	4-5 Major Science	5
NURSE 2000 <sup>^</sup>	3 NEP 2380 <sup>^</sup>	3
H_D_FS 2400 <sup>^</sup>	3 NURSE 2100 <sup>^</sup>	2
Humanities/Fine Art	3 Behavioral/Science Elective 2000 level <sup>*</sup>	3
		Humanities/Fine Arts Course
		3
		13-14
		16

### Third Year

Fall	CR Spring	CR
NURSE 3170 <sup>^</sup>	4 NURSE 3470 <sup>^</sup>	5
NURSE 3200 <sup>^</sup>	4 NURSE 3670 <sup>^</sup>	6
NURSE 3270 <sup>^</sup>	5 NURSE 3870 <sup>^</sup>	3
NURSE 3300 <sup>^</sup>	4 NURSE 3900 <sup>^</sup>	3
		17
		17

### Fourth Year

Fall	CR Spring	CR
NURSE 4270 <sup>^</sup>	5 NURSE 4870 <sup>^</sup>	7
NURSE 4200 <sup>^</sup>	3 NURSE 4970 <sup>^</sup>	5
NURSE 4300	2	
NURSE 4470	5	
		15
		12

Total Credits: 121-123

\* Denotes University General Education Requirements

^ Denotes Degree Program Requirements

\*\* If taking a Foreign Language for humanities credit, you will complete the sequence of foreign language courses that could total 13 hours.

**NOTE:** Third Year and Fourth Year curriculum subject to change.

## DNP in Nursing Practice

### About

The DNP program at Mizzou prepares leaders in the advanced nursing practice roles of Pediatric & Adult-Gerontology Clinical Nurse Specialist, (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>) Family Nurse Practitioner (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>), Pediatric Nurse Practitioner (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>), Family Psychiatric & Mental Health Nurse Practitioner (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>) and Leadership and Innovation in Health Care (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>). Our program strengths include a strong clinical focus and a well-developed trajectory for the development of clinical scholarship. Unique aspects of our program are a focus on rural and underserved populations and the opportunity for students to select electives in family dynamics, financial management, nursing education, or symptom management. Successful completion of the program prepares nurses for an advanced clinical practice in primary care, hospital and community settings as well as leadership roles in practice settings and clinical faculty positions.

### Degree Requirements

Upon admittance to the program, the following must be completed by the student and documentation of these items must be submitted before registering for coursework:

- Current required immunizations
- Satisfactory criminal background check
- Satisfactory drug screen
- Current CPR certification
- Proof of undisciplined nursing licensure

DNP Program Requirements (<http://nursing.missouri.edu/academic-programs/dnp/program-requirements>) include completion of required coursework, clinical hours, and the DNP Scholarly Project. The DNP in nursing requires a minimum of 72 credits beyond the baccalaureate degree. Of the 72 hours, 36.5 credits must be completed at the University of Missouri. In addition, a minimum of 1000 faculty/preceptor supervised academic clinical hours must be completed. Post-master's students may transfer in clinical hours completed in their previous master's degree pending approval of their academic advisor. Total number of clinical hours may vary depending upon the student's emphasis area, proof of national certification in an advanced practice role, and previous graduate clinical coursework completed.

Ultimately, the student, in collaboration with their academic advisor determines the student's plan of study, total credit hours, and clinical hours necessary to adequately prepare the student for the DNP degree.

The DNP Residency project is a faculty-guided scholarly experience that provides evidence of the student's critical thinking and ability to apply research principles through identification of a significant practice problem, systematic appraisal of relevant scientific literature and outcome data; design of cost-effective, evidence-based, therapeutic interventions or programs; successful implementation of the selected interventions or program, and comprehensive evaluation of specific, measurable, and appropriate outcomes. The project will reflect the culmination of

knowledge and skills developed during the DNP program. DNP students must complete a DNP Residency Project, write a scholarly paper or executive summary, present an electronic poster to peers, committee members, and stakeholders, and defend the project results with their DNP Project Committee.

DNP students are required to spend one week on campus the first summer of enrollment and during their last semester of enrollment. Specific On-campus competency days are also required during the course of the program. For specific dates click on On Campus dates (<http://nursing.missouri.edu/academic-programs/dnp/on-campus-dates>). Further explanation of program requirements can be found on the DNP Program Requirements (<http://nursing.missouri.edu/academic-programs/dnp/program-requirements>) web page.

### Sample Plan of Study

Sample plans of study can be found on the Sinclair School of Nursing DNP webpage (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

### Doctor of Nursing Practice Residency Project Requirements

The DNP Residency Project is an in-depth, evidence-based practice change project that will focus on a theoretically and clinically relevant problem impacting a rural or other underserved population or critical healthcare system need. Specifics of the DNP Residency Project can be found in the Sinclair School of Nursing DNP Student Handbook (<http://nursing.missouri.edu/for-students/handbooks>).

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Doctor of Nursing Practice program (<http://nursing.missouri.edu/academic-programs/dnp/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

**\*Due to higher education regulation changes, the University of Missouri is unable to accept applications for admission to online programs from students residing in several states. You may find more information at this link: <http://online.missouri.edu/about/stateauthorization.aspx>.**

**Application Deadlines:** November 1 (for early acceptance) and March 1

For more information contact:

#### Admission Contact Information

S246 School of Nursing  
Columbia, MO 65211  
573- 882-0200  
E-mail: [Nursing@missouri.edu](mailto:Nursing@missouri.edu)  
<http://nursing.missouri.edu>

# DNP in Nursing Practice with Emphasis in Adult-Gerontology Clinical Nurse Specialist

## Area of Study Information

For more information on Area of Study Information please see the Adult-Gerontology and Pediatric Clinical Nurse Specialist page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
NURSE 7120	3 NURSE 7140	3.5 NURSE 7087 (one-week, on-campus seminar)	1
NURSE 7110	3 NURSE 7150	3 STAT 7020 (required before admission or concurrent with NURSE 7087)	3
NURSE 7100	3 NURSE 7130	3	
9		9.5	4
Second Year			
Fall	CR Spring	CR	
NURSE 8100	3 NURSE 8310	3	
NURSE 8300	3 NURSE 8720 (90 clinical hours)	3.5	
NURSE 8710 (90 clinical hours)	3.5 NURSE 8910	3	
9.5		9.5	
Third Year			
Fall	CR Spring	CR Summer	CR
NURSE 8400 (90 clinical hours)*	3.5 NURSE 8410 (90 clinical hours)*	3.5 NURSE 9080 (section 1, clinical hours)	1
NURSE 8920 (60 clinical hours)	3 NURSE 8930	3	
Elective <sup>#</sup>	3 NURSE 8540 (90 clinical hours)*	3.5	
9.5		10	1
Fourth Year			
Fall	CR Spring	CR Summer	CR
NURSE 8940	3 NURSE 9070 (150-300 clinical hours)	2.5-5 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 9070 (180 clinical hours)*	3 NURSE 9080 (section 3, 60 clinical hours)	1	
Elective <sup>#</sup>	3-4 NURSE 9087	2	
9-10		5.5-8	1

Total Credits: 77.5-81

**Total Clinical Hours: 1110-1260<sup>\*\*\*</sup>**

\* Preceptor required for clinical courses.

- # Nursing Course Electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management

Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).

\*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP clinical residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing Practice (<http://nursing.missouri.edu/academic-programs/dnp/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

# DNP in Nursing Practice with Emphasis in Family Nurse Practitioner

## Area of Study Information

For more information on Area of Study Information please see the Family Nurse Practitioner page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
NURSE 7100	3 NURSE 7150	3 NURSE 7087 (one-week, on-campus seminar)	1
NURSE 7110	3 NURSE 7130	3 STAT 7020 (required before admission or concurrent with NURSE 7087)	3
NURSE 7120	3 NURSE 7140 (90 Clinical Hours)*	3.5	
9		9.5	4
Second Year			
Fall	CR Spring	CR	
NURSE 8400 (90 Clinical hours)*	3.5 NURSE 8410 (90 Clinical hours)*	3.5	
NURSE 8100	3 NURSE 8910	3	

Second Year			
Fall	CR Spring	CR	
NURSE 8400 (90 Clinical hours)*	3.5 NURSE 8410 (90 Clinical hours)*	3.5	
NURSE 8100	3 NURSE 8910	3	



NURSE 8300	3 NURSE 8310	3	
	9.5	9.5	
<b>Third Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
NURSE 8920 (60 Clinical hours)*	3 NURSE 8430 (90 Clinical hours)*	3.5 NURSE 9080 (section 1, 60 clinical hours)	1
NURSE 8420 (90 Clinical hours)*	3.5 NURSE 8930	3	
NURSE 8010	3 NURSE 8540 (90 Clinical hours)*	3.5	
	9.5	10	1
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
NURSE 8940	3 NURSE 9070 (150-300 clinical hours)*	2.5-5 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 9070 (180 Clinical hours)	3 NURSE 9080 (section 3, 60 Clinical hours)	1	
Elective (choose from below) <sup>#</sup>	3 NURSE 9087	2	
	9	5.5-8	1

Total Credits: 77.5-80

#### 1110-1260 Clinical Hours \*\*\*

- \* Preceptor required for clinical courses.
- # Nursing Course Electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).
- \*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP clinical residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing Practice (<http://nursing.missouri.edu/academic-programs/dnp/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

# DNP in Nursing Practice with Emphasis in Family Psychiatric and Mental Health Nurse Practitioner

## Area of Study

For more information on Area of Study Information please see the Family Psychiatric & Mental Health Nurse Practitioner page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

## Sample Plan of Study

There are multiple plans of study for this emphasis area. Below a Sample Plan of Study for the post-baccalaureate, four year plan. For more Plans of Study, please visit our website (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

<b>First Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
NURSE 7120	3 NURSE 7150	3 NURSE 7087 (one-week, on-campus seminar)	1
NURSE 7110	3 NURSE 7130	3 STAT 7020 (Graduate Statistics required before admission or concurrent with NURSE 7087)	3
NURSE 7100	3 NURSE 7140 (90 clinical hours)*	3.5	
	9	9.5	4
<b>Second Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
NURSE 8300	3 NURSE 8640 (90 clinical hours)*	3.5	
NURSE 8610 (90 clinical hours)	3.5 NURSE 8910	3	
NURSE 8100	3 NURSE 8310	3	
	9.5	9.5	
<b>Third Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
NURSE 8680 (90 clinical hours)*	3.5 NURSE 8660 (90 clinical hours)*	3.5 NURSE 8620 (90 clinical hours)*	3.5
NURSE 8920 (clinical hours)	3 NURSE 8930	3 NURSE 9080 (section 1, 60 clinical hours)	1
Electives <sup>#</sup>	3 Electives <sup>#</sup>	3	
	9.5	9.5	4.5
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR Spring</b>	<b>CR Summer</b>	<b>CR</b>
NURSE 8940	3 NURSE 9070 (150-300 clinical hours)*	2.5-5	
NURSE 9070 (180 clinical hours)	3 NURSE 9080 (section 3, 60 clinical hours)	1	

NURSE 9080 (section 2, 60 clinical hours)	1 NURSE 9087	2
	7	5.5-8

Total Credits: 77.5-80

**Total Clinical Hours: 1110-1260\*\*\***

- \* Preceptor required for clinical courses.
- # Nursing course electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).

\*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP clinical residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing Practice (<http://gradstudies.missouri.edu/academics/programs/nursing/dnp.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## DNP in Nursing Practice with Emphasis in Nurse Leadership and Innovations in Health Care

### Area of Study Information

For more information on Area of Study Information please see the Nurse Leadership and Innovations in Health Care page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

### Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer Semester	CR
NURSE 8100	3 NURSE 8910	3 NURSE 7087 (one-week, on-campus seminar)	1
NURSE 8830	3 NURSE 8840	3	1
	6	6	

Second Year			
Fall	CR Spring	CR Summer Semester	CR
NURSE 8820	4 NURSE 8930	3 NURSE 9080 (section 1, 60 clinical hours)	1
NURSE 8920 (60 clinical hours)	3 NURSE 8860	3	
	7	6	1

Third Year			
Fall	CR Spring	CR Summer Semester	CR
NURSE 8940	3 NURSE 9070 (150-300 clinical hours)	2.5-5 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 9070 (120-300 clinical hours)	2-5 NURSE 9080 (section 3, 60 clinical hours)	1 NURSE 9070 (0-180 hours)	1-3
	NURSE 9087 (one-week, on-campus seminar)	2	
	5-8	5.5-8	2-4

Total Credits: 39.5-47

**\*\* 510-1020 clinical hours**

\*\* more clinical hours may be needed to meet the 1000 required hours depending upon review of transcripts

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing Practice (<http://nursing.missouri.edu/academic-programs/dnp/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## DNP in Nursing Practice with Emphasis in Pediatric Clinical Nurse Specialist

### Area of Study Information

For more information on Area of Study Information please see the Pediatric Clinical Nurse Specialist page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

### Sample Plan of Study

There are multiple plans of study for this emphasis area. Below is the Plan of Study for the post-baccalaureate, four year plan. For more Sample Plans of Study, please visit our website (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

First Year			
Fall	CR Spring	CR Summer	CR
NURSE 7100	3 Elective (choose from below) #	3 NURSE 7087 (one-week, on-campus)*	1
NURSE 7310 (90 clinical hours)	3.5 NURSE 7150	3 STAT 7020 (Graduate Statistics required before admission or concurrent with NURSE 7087)	3
NURSE 7120	3 NURSE 7330	3	
9.5		9	4

Second Year			
Fall	CR Spring	CR Summer	CR
NURSE 8710 (90 clinical hours)	3.5 NURSE 8720 (90 clinical hours)	3.5 NURSE 7110	3
NURSE 8100	3 NURSE 8910	3	
NURSE 8300	3 NURSE 8310	3	
9.5		9.5	3

Third Year			
Fall	CR Spring	CR Summer	CR
NURSE 8420 (90 clinical hours)	3.5 NURSE 8210 (90 clinical hours)	3.5 NURSE 9080 (section 1, 60 clinical hours)	1
NURSE 8920 (60 clinical hours)	3 NURSE 8930	3	
Elective (choose from below) #	3-4 NURSE 8540 (90 clinical hours)	3.5	
9.5-10.5		10	1

Fourth Year			
Fall	CR Spring	CR Summer	CR
NURSE 8940	3 NURSE 9070 (150-300 clinical hours)	2.5-5 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 9070 (180 clinical hours)	3 NURSE 9080 (section 3, 60 clinical hours) NURSE 9087	1 2	
6		5.5-8	1

Total Credits: 77.5-81

#### 1020+ Clinical Hours \*\*\*

\* Preceptor required for clinical courses.

# Nursing courses electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).

\*\*\* Reflects the minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing Practice (<http://nursing.missouri.edu/academic-programs/dnp/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## DNP in Nursing Practice with Emphasis in Pediatric Nurse Practitioner

### Area of Study Information

For more information on Area of Study Information please see the Pediatric Nurse Practitioner page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

### Sample Plan of Study

There are multiple plans of study for this emphasis area. Below is the Plan of Study for the post-baccalaureate, four year plan. For more Sample Plans of Study, please visit our website (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study>).

First Year			
Fall	CR Spring	CR Summer	CR
NURSE 7120	3 NURSE 7150	3 NURSE 7087	1
NURSE 7310 (90 clinical hours)	3.5 NURSE 7330	3 STAT 7020 (required before admission or concurrent with NURSE 7087)	3
NURSE 7100	3		
9.5		6	4

Second Year			
Fall	CR Spring	CR Summer	CR
NURSE 8100	3 NURSE 8210 (90 clinical hours)	3.5 NURSE 7110	3
NURSE 8420 (90 clinical hours)	3.5 NURSE 8910	3	
NURSE 8300	3 NURSE 8310	3	
9.5		9.5	3

Third Year			
Fall	CR Spring	CR Summer	CR
NURSE 8920 (60 clinical hours)	3 NURSE 8430 (90 clinical hours)	3.5 NURSE 9080 (section 1, 60 clinical hours)	1
NURSE 8010	3 NURSE 8930	3	
NURSE 8680 (90 clinical hours)	3.5 NURSE 8540 (90 clinical hours)	3.5	
9.5		10	1

Fourth Year			
Fall	CR Spring	CR Summer	CR
Elective (choose from below) <sup>#</sup>	3 NURSE 9087	2 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 8940	3 NURSE 9070 (150-300 clinical hours) <sup>*</sup>	2.5-5	
NURSE 9070 (180 clinical hours) <sup>*</sup>	3 NURSE 9080 (section 3, 60 clinical hours)	1	
	9	5.5-8	1

Total Credits: 77.5-80

#### 1110-1260 Clinical Hours \*\*\*

\* Preceptor required for clinical courses.

# Nursing course electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).

\*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty, annual portfolio evaluation, and complexity of DNP clinical residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing Practice (<http://gradstudies.missouri.edu/academics/programs/nursing/dnp.php>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing

### About

Students in the distance mediated Master's of Science program obtain advanced nursing preparation in one of two areas:

- Nursing Education (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study>)
- Leadership in Nursing and Healthcare Systems (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study>)

### Degree Requirements

A minimum of 30 hours beyond the bachelor's degree is required. Students must take a minimum of 15 hours of 8000-9000 level course

work. No more than forty percent of the total required credit hours may be problems, readings and research hours. For example, in a 38-hour master's degree program, 15 hours may be from problems, readings and research hours.

To satisfy requirements for the MS, a student must:

- Complete an approved plan of study with a cumulative GPA of 3.0
- Successfully defend a written thesis or complete the Master's Exam
- Complete the program within a five-year period

Because the program is distance-mediated, students are required to obtain the required computer technology for successful participation in distance-mediated courses (see Mizzou Online Computer Requirements (<http://online.missouri.edu/prepare/computer.aspx>)).

## Sample Plan of Study

Sample plans of study can be found on the Sinclair School of Nursing Master's webpage (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study>).

## Thesis/Non-Thesis Requirements

Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of the work included in the course of study offered for the degree. This requirement may be fulfilled by completion of a thesis or Master's Exam (MS exam).

### Thesis Option

The Master's Thesis (NURSE 8090) requires the student to use the research process to discover and/or further develop new knowledge applicable to nursing practice. After completion of the research project, a formal written report using Office of Graduate Studies' guidelines and the *American Psychological Association Manual, 6th edition* is required.

In the final semester, the student must successfully present (defend) the thesis. Three members of the student's committee must sign the Report of the Master's Degree Examining Committee (pdf) (M-3), <http://gradstudies.missouri.edu/forms-downloads/repository/m3.pdf>, which is then forwarded through the academic program's director of graduate studies to the Office of Graduate Studies by the semester deadline. Details about the thesis option can be found on the School of Nursing Master's Student Handbook (<http://nursing.missouri.edu/handbooks>).

### Non-Thesis Option

In the School of Nursing, the Master's Examination (MS exam) consists of a paper that should reflect the graduate student's grasp and synthesis of the clinical and theoretical knowledge gained in the course of study. The MS exam is offered on a pass/fail basis. Students are required to discuss the focus of their MS exam early in their master's program with their faculty advisor. The Critical Review of the Literature master's exam is now the only option available. Details about the Master's examination can be found on the School of Nursing Master's Student Handbook (<http://nursing.missouri.edu/handbooks>).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://nursing.missouri.edu/academic-programs/msn/apply>) and the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific

admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied.

**\* Due to higher education regulation changes, the University of Missouri is unable to accept applications for admission to online programs from students residing in various states/. You may find more information at this link: <http://online.missouri.edu/about/stateauthorization.aspx>.**

Deadline for Summer entrance: February 1

## Admission Contact Information

<http://nursing.missouri.edu/>  
S235 School of Nursing  
Columbia, MO 65211  
573-882-0200

## MS in Nursing with Emphasis in Adult Health Clinical Nurse Specialist

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As of **February 1, 2011**, the MU Sinclair School of Nursing no longer accepts applications for the master's Adult Health CNS and Pediatric CNS programs. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Adult Mental Health Nurse Practitioner

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As of **March 1, 2012**, the MU Sinclair School of Nursing no longer accepts applications for the master's Adult Mental Health Nurse Practitioner program. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific

admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Advanced Public Health Nurse

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As of **March 1, 2012**, the MU Sinclair School of Nursing no longer accepts applications for the master's Advanced Public Health Nurse program. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Advanced Public Health/School Health Nurse

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As of **March 1, 2012**, the MU Sinclair School of Nursing no longer accepts applications for the master's Advanced Public Health/School Health Nurse Practitioner program. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Family Mental Nurse Practitioner

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As of **February 1, 2011**, the MU Sinclair School of Nursing no longer accepts applications for the master's Family Psychiatric & Mental Health Nurse Practitioner program. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Family Nurse Practitioner

The page for this program is still under construction and should be available in future editions of the catalog. For further information concerning this degree, contact the School or College offering this degree.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Leadership in Nursing and Health Care Systems

### Area of Study Information

For more information about the Leadership in Nursing and Health Care Systems emphasis, please see our website (<http://nursing.missouri.edu>).

### Sample Plan of Study

This plan of study is for the post-baccalaureate, three-year plan. For more plans of study visit our website (<http://nursing.missouri.edu>).

First Year			
Fall	CR Spring	CR Summer	CR
NURSE 7100	3 NURSE 7150	3 NURSE 7110	3
NURSE 8820	4	Graduate Statistics required before admission (entering Summer)	
7		3	3

Second Year			
Fall	CR Spring	CR Summer	CR
NURSE 8940	3 NURSE 8860 Organizations and Human Resource Management in Nursing (course to begin Spring 2016)	3 NURSE 8910	3
NURSE 8300	3		
6		3	3

Third Year		
Fall	CR Spring	CR
NURSE 8920 (60 clinical hours)	3 NURSE 8960 (180 hour practicum) Master's Exam	5 No credit
3		5

Total Credits: 33

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Nurse Educator

### Area of Study Information

For more information about the emphasis in Nursing Education please visit our website (<http://nursing.missouri.edu>).

### Sample Plan of Study

The following sample plan of study is for the two-year program. For more sample plans of study, please visit our website (<http://nursing.missouri.edu>).

First Year			
Fall	CR Spring	CR Summer	CR
NURSE 7100	3 NURSE 8854	3 NURSE 7110	3
NURSE 7120	3 NURSE 7140	3.5 Graduate Statistics required before admission (entering Summer Year 1)	
NURSE 8300	3 NURSE 7150	3	
9		9.5	3

  

Second Year			
Fall	CR Spring	CR Summer	CR
NURSE 8710	3.5 NURSE 7130	3 NURSE 8910	3
NURSE 8864	3 NURSE 8950	4	

NURSE 8940	3 Master's Exam		
	9.5	7	3

Total Credits: 41

**Total Clinical Hours: 420**

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Pediatric Clinical Nurse Specialist

As of **February 1, 2011**, the MU Sinclair School of Nursing no longer accepts applications for the master's Adult Health CNS and Pediatric CNS programs. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Pediatric Nurse Practitioner

As of **February 1, 2011**, the MU Sinclair School of Nursing no longer accepts applications for the master's Pediatric Nurse Practitioner area of study. After this date, students should apply to the Doctor of Nursing Practice (DNP) program.

Our PNP area of study is a cooperative effort with the three University of Missouri campuses—Columbia, Kansas City and St. Louis. This cooperation allows for the delivery of pediatric nurse practitioner education using the expertise from each campus.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<http://gradschool.missouri.edu/academics/programs/nursing/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

requirements.php). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Nursing

### About the PhD Program

The doctor of philosophy in nursing (PhD) program prepares clinical scholars, educators, and researchers for leadership roles in a variety of academic, industry, and healthcare settings. Because the knowledge and skills needed to produce excellent health-related research is not discipline specific, the PhD program does not require a prior degree in nursing. Indeed, we have had PhD students with academic preparation in health administration, health education, medical ethics, nursing, occupational therapy, physical therapy, public health and social work.

The MU Sinclair School of Nursing (MUSSON) offers a challenging and yet enriching PhD program with two options. The PhD curriculum, program requirements, and program outcomes are the same whether you choose the Online PhD option or the International Residential Nursing PhD option. Only the method of course delivery varies. Additional details can be found on the Sinclair School of Nursing PhD Program Options webpage (<http://nursing.missouri.edu/academic-programs/phd/program-options>).

- Online PhD Program Option:** PhD coursework may be accessed online through the Online PhD program option by learning over the World Wide Web using the Canvas learning management system. This option also requires a 5 Day On Campus visit (held the first week of the summer semester on the Columbia campus) the first summer of enrollment and 4 Day On Campus Intensives every April until coursework is completed (see PhD On Campus Dates (<http://nursing.missouri.edu/academic-programs/phd/on-campus-dates>)). Because the program is online, students are responsible for obtaining the required technology for successful participation in synchronous online courses (see Technology Requirements (<http://nursing.missouri.edu/for-students/technology-requirements>)). Additionally, students are responsible for all the costs associated with travel and housing for the On Campus Intensives;
- International Residential PhD Option:** Through the International Residential PhD option, international students attend the MU campus hybrid classes in Columbia, Missouri. The International Residential PhD student attends the hybrid classes in person, while the Online student cohort participates virtually via videoconferencing software. International Residential PhD students may also enroll in traditional residential course offerings through the MU Sinclair School of Nursing and the rest of the MU campus. Students in the International Residential PhD option must enroll in 4 credits during their first summer and maintain full-time status by enrolling in 9 credits each fall and spring term thereafter. Of the 9 credits each term, at least 6 credits must be either traditional face-to-face or hybrid coursework in order to qualify for and retain the F-1 or J-1 student visa status. The remaining 3 credits each term may be taken 100% on-line.

## Degree Requirements

The PhD in Nursing at MU requires a minimum of 72 credit hours beyond the baccalaureate degree. Students entering with a graduate degree can

transfer in a maximum of 30 credits from another institution. A minimum of 42 credit hours must be completed at the University of Missouri. There are two curricular options: (a) post-baccalaureate (BS-PhD) and (b) post-graduate. For both options, the PhD curriculum is divided into three categories:

- **Foundational Core** - Minimum of 26-38 credit hours (theory analysis and development, statistics and measurement, qualitative and quantitative methods courses)
- **Research Focus Area** - Minimum of 3 credit hours of research focus seminars (health behavior theories/interventions, informatics, social determinants of health, symptom management)
- **Individualized Specialty Area** - Minimum of 6-12 credit hours of interdisciplinary collateral coursework (coursework taken outside the School of Nursing that helps to support the dissertation research topic), faculty mentored research practicum experiences, specialty area applied sciences including education or leadership courses, and dissertation research.

## Sample Plan of Study

Sample plans of study for the post-baccalaureate and the post-graduate options can be found on the Sinclair School of Nursing PhD Curriculum webpage (<http://nursing.missouri.edu/academic-programs/phd/curriculum>). Ultimately, the student's PhD program committee, in collaboration with the student, determines the student's plan of study and total credit hours necessary to adequately prepare the student to successfully complete their dissertation research.

## Qualifying Process

To be officially admitted to the PhD program, the student must pass a qualifying examination or process. Students admitted with a graduate degree have completed the qualifying process.

Students admitted with a bachelor's degree are admitted to the PhD program on a provisional basis. Following successful completion of a qualifying process, bachelor's prepared students will be granted admission to the PhD program. To fully qualify for the PhD program, BS-PhD students must earn at least a grade of B in the following:

- NURSE 7087 Leadership and Technology Institute
- NURSE 7010 Biostatistical Foundations for Health Researchers
- NURSE 7100 Theoretical Basis for Advanced Nursing
- NURSE 7150 Research Basis for Advanced Nursing
- Nine credits in nursing applied sciences

The student initiates the qualifying process by enrolling in three credits of NURSE 8900 Research Practicum in Nursing with a member of their BS-PhD program committee. The student is officially admitted to the PhD program following approval of the written report and oral presentation for NURSE 8900 by the BS-PhD Program Committee.

## Comprehensive Examination Process

Through the PhD Comprehensive Examination process, the student demonstrates his/her ability to address the theoretical, methodological and substantive issues of his/her field of study. The examination tests the breadth and depth of knowledge and the ability to integrate ideas across research focus areas. The student must be enrolled to take this examination and it may be administered only when MU is officially in session. The student is not allowed to sit for the PhD comprehensive examination until the last semester of course work or when course work

is substantially completed, all incomplete grades are satisfied, and the PhD Competencies are met.

The Comprehensive Exam, which is prepared by the student's PhD program committee, has a written component followed by an oral section. The written component of the examination is completed at home or another site of the student's selection during five consecutive days. The oral defense is a two-hour examination by the PhD program committee. The two sections of the examination must be completed within one month. The student is expected to complete the Comprehensive Examination within five (5) years of enrollment in the PhD program and it must be completed at least seven (7) months before the final defense of the doctoral dissertation. Additional details of the process can be found in the MU School of Nursing PhD Handbook ([http://nursing.missouri.edu/wp-content/uploads/2016/07/PhD\\_Nursing\\_Handbook\\_2016-17.pdf](http://nursing.missouri.edu/wp-content/uploads/2016/07/PhD_Nursing_Handbook_2016-17.pdf)).

## Dissertation Requirements

The culmination of the PhD degree is the completion of a written doctoral dissertation. The dissertation must:

- Be written on a subject approved by the candidate's doctoral dissertation committee
- Embody the results of original and significant investigation
- Be the candidate's own work.

Within the MU Sinclair School of Nursing, the PhD Dissertation process consists of:

- Development of a dissertation proposal
- Approval of the proposal by the doctoral dissertation committee
- Approval of the research project by the Health Sciences Institutional Review Board
- Ethical conduct of the research project
- Writing the doctoral dissertation
- Public defense of the doctoral dissertation
- Approval of the dissertation by the candidate's doctoral dissertation committee
- Submission of the written doctoral dissertation in an approved format.

Students have five (5) years from completion of the PhD Comprehensive Exam to complete the doctoral dissertation. Additional details of the process can be found in the MU Sinclair School of Nursing PhD Handbook ([http://nursing.missouri.edu/wp-content/uploads/2016/07/PhD\\_Nursing\\_Handbook\\_2016-17.pdf](http://nursing.missouri.edu/wp-content/uploads/2016/07/PhD_Nursing_Handbook_2016-17.pdf)).

## Admissions

Students interested in the PhD program are encouraged to apply for admission as early as possible. All admitted students are required to start the PhD program during the summer semester.

**Early Acceptance Deadline: January 15th** Recommended for applicants desiring to be full-time students who are planning to apply for a competitive fellowship(s) and international residential PhD option applicants who need time to obtain a visa and move to Columbia, MO prior to classes starting in early June.

**Regular Acceptance Deadline: March 1st**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Sinclair School of Nursing PhD program (<http://nursing.missouri.edu/academic-programs/phd/apply>) and



the minimum requirements of the Office of Graduate Studies (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

**NOTE:** Applicants who do not meet the minimum GPA requirements or do not have a cumulative GPA must submit acceptable scores on the Graduate Record Exam (GRE) and the exam must have been taken within the last 5 years.

**Admission Contact Information**

S245 School of Nursing  
Columbia, MO 65211  
573-8824-4705  
Email: [nursing@missouri.edu](mailto:nursing@missouri.edu)  
<http://nursing.missouri.edu>

## Additional Minors and Certificates - Nursing

### Graduate Certificates

- Certificate in Participatory Health Research (p. 672)

### Graduate Minors

- Minor in Health System Innovations (p. 672)
- Minor in Nursing Education (p. 673)

## Graduate Certificate in Participatory Health Research

**Contact Information**

Sinclair School of Nursing  
S235 Sinclair School of Nursing Building  
<http://nursing.missouri.edu/>

The Graduate Certificate in Participatory Health Research confirms the completion of graduate level training in the rationale, theoretical underpinnings, methods, and applications of community based participatory health research (CBPR) and patient centered outcomes research (PCOR). Community based participatory approaches are innovative methods that intersect with patient centered outcomes. When used together, CBPR and PCOR, there is significant potential for patient empowerment, enhancement of patient care, and improved population health outcomes. A collaborative effort between the Sinclair School of Nursing, Department of Family and Community Medicine, School of Social Work, and the Masters in Public Health program, individuals completing the Graduate Certificate in Participatory Health Research will gain highly valued skills necessary to conduct clinical research in partnership with a community. These innovative types of research skills traditionally have not been included in health-related graduate program curricula.

Requirements for the Graduate Certificate in Participatory Health Research include a graduate level statistics course, three didactic courses, and one research practicum experience.

**Courses for this program are online: no campus visits are required.**

**Required Coursework:**

NURSE/F_C_MD 8425	Participatory Approaches for Health and Health Systems	3
NURSE 9080	DNP Residency Project	3
or NURSE 9710	Advanced Research Practicum	
or F_C_MD 8450	Research in Community Health	
Graduate Level Statistics (one course)		3
ESC_PS 7170	Introduction to Applied Statistics	
STAT 7020	Statistical Methods in the Health Sciences	
NURSE 7010	Biostatistical Foundations for Health Researchers	
Graduate Level Epidemiology (one course)		3
NURSE 8100	Principles of Epidemiology	
F_C_MD 8420	Principles of Epidemiology	
Elective (one course)		3
NURSE 9450	Doctoral Seminar: Social Determinants of Health	
NURSE 9460	Theories and Interventions in Health Behavior Science	
F_C_MD 8424	Comparative Effectiveness Research	
P_HLTH 8953	Evaluating Global Public Health Programs	
P_HLTH 8120	Applied Epidemiology in Community Assessment	

Total Credits 15

For more information about this graduate certificate, contact the Sinclair School of Nursing by phone at 573-882-0200 or by e-mail at [nursing@missouri.edu](mailto:nursing@missouri.edu).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/participatory-health-research-graduate-certificate/participatory-health-research-ge/51.3801-Gedt.html>

## Graduate Minor in Health System Innovations

The minor is open to graduate students in the Sinclair School of Nursing as well as all students with graduate status who are interested in health care leadership. This minor is designed for those who have a desire to understand growing innovative trends, who want to learn how to integrate innovation into health system organizations, and who want to determine which innovative practices are financially viable to support health care institutions.

Students with graduate standing may select 9-12 credit hours from the designated courses listed below to be awarded the graduate minor in Health System Innovation.

- N8820 Healthcare Financial Management (4 credits)
- N8830 Informatics, Application and Innovation in Health Care Systems (3 credits)
- N8840 Nursing Leadership, Innovation, and Entrepreneurship (3 credits)
- N8860 Organizations & Human Resource Management in Nursing (3 credits)

## Graduate Minor in Nursing Education

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The Graduate Minor in Nursing Education is open to graduate students in the Sinclair School of Nursing as well as nurses interested in teaching in a school of nursing who are graduate students in other departments on campus (e.g. Health Education, Public Health, Health Management and Informatics, Human Development and Family Studies, etc.).

Graduate nursing students who already have a MS in Nursing Education or a Graduate Certificate in Nursing Education will not be eligible for a graduate minor in nursing education as their prior graduate coursework is substantively identical to the required courses.

The graduate minor in nursing education consists of a minimum of 10 graduate credit hours of nursing education coursework.

- NURSE 8854 Teaching Strategies in Nursing (3 credits)
- NURSE 8864 Curriculum Development in Nursing (3 credits)

After completion of the two core courses, students will complete a faculty supervised 4 credit teaching nursing practicum. Students may select from two practicum courses which best meet their learning needs and professional goals:

- NURSE 8950 Teaching Nursing Practicum (4 credits) or NURSE 8954 Distance-Mediated Teaching Nursing Practicum (4 credits).

These aforementioned courses also can be supplemented by problems courses.

For additional information, contact:  
Deidre D. Wipke-Tevis PhD, RN  
MU Sinclair School of Nursing  
email: [wipketevisd@missouri.edu](mailto:wipketevisd@missouri.edu)  
phone: 573-884-8441

## Harry S Truman School of Public Affairs

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Public Affairs Graduate Programs  
Harry S Truman School of Public Affairs  
101 Middlebush Hall, Columbia, Missouri 65211  
573-884-1656  
Email: [truman@missouri.edu](mailto:truman@missouri.edu)  
Website: [truman.missouri.edu](http://truman.missouri.edu)

Established by the University of Missouri Board of Curators in May 2001, the Harry S Truman School of Public Affairs is dedicated to the advancement of study and practice of governance in the state, nation and world. The School offers graduate degrees and certificates in the theory and practice of public and nonprofit management, public policy, and organizational change.

In keeping with Harry S Truman's legacy, TSPA has numerous international linkages. Truman School students and alumni have served as Peace Corps volunteers, United Nations interns, in the US State Department, other national consulates or embassies in Washington, and international non-government organizations (NGOs) such as the Red Cross/Red Crescent. Truman School faculty members participate in international projects in Europe, Asia, Africa, and South America. Scholars from Europe, Asia, and other parts of the world regularly visit the Truman School, helping to inform curriculum and classroom discussions.

### Undergraduate

The School of Public Affairs currently offers academic pursuits solely at the graduate level.

### Graduate

The Harry S Truman School of Public Affairs offers master's and doctoral degrees in the theory and practice of public and nonprofit management and public policy. MPA students are prepared for careers in a new public service that spans government, nonprofit, and private sectors. PhD students are trained for careers in academic and research institutions.

#### Graduate Degrees

Master of Public Affairs (p. 675) (MPA)  
Doctor of Philosophy in Public Affairs (p. 676) (PhD)

#### Cooperative Dual Degrees

Master of Public Affairs and Juris Doctorate (<http://law.missouri.edu/jd/dual/public-affairs>)  
Master of Public Affairs and Master of Public Health (<https://healthprofessions.missouri.edu/mph/mph-degree/dual-degrees/mphmpa-public-affairs>)

#### Graduate Certificates:

Community Processes Certificate (<https://truman.missouri.edu/degrees-programs/certificates/community-processes-certificate>)  
Global Public Affairs Certificate (p. 675)  
Grantsmanship Graduate Certificate (p. 677)  
Nonprofit Management Graduate Certificate (p. 677)  
Organizational Consulting & Change Graduate Certificate (p. 677)  
Public Management Graduate Certificate (p. 678)  
Public Policy Graduate Certificate (p. 678)

**Note:** Prospective graduate students must apply to both the degree program of interest and to the MU Graduate School. The entire

application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Public Affairs

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Public Affairs Graduate Programs  
Harry S Truman School of Public Affairs  
101 Middlebush Hall, Columbia, Missouri 65211  
573-884-1656  
Email: [truman@missouri.edu](mailto:truman@missouri.edu)  
Website: [truman.missouri.edu](http://truman.missouri.edu)

### About the Study of Public Affairs

The Harry S Truman School of Public Affairs offers certificates, master's and doctoral degrees in the theory and practice of public and nonprofit management, public policy, and organizational change. MPA students are prepared for careers in a new public service that spans government, nonprofit, and private sectors. PhD students are trained for careers in academic and research institutions.

### Faculty

**Professor:** B. Deaton, A.C. Drury\*, K. Edison, C. Heflin\*\*, S. Holan\*, L. Keiser\*\*, C. Menifield\*\*, P. Mueser\*\*, M. Podgursky\*\*, A. Roberts\*\*, J. Stallmann\*\*, B. Wechsler\*, C. Wikle\*\*

**Professor Emeritus:** G. Adams\*\*, M. Diamond\*\*, T. Johnson\*\*

**Associate Professor:** B. Curs\*, S. Diem\*, J. Kapp, C. Koedel\*\*, B. Naughton\*

**Associate Professor Emeritus:** C. Sampson\*

**Assistant Professor:** C. Altman, I. Arteaga\*\*, J. Chen, E. Crawford\*, R. Darolia\*\*, J. Haselswerdt, M. Kim\*, R. McGarvey\*\*, C. Peters\*, S. Potochnick\*, M. Stegmaier\*

**Associate Research Professor:** J. Scott\*

**Assistant Research Professor:** C. Fulcher\*, B. Kisida

**Assistant Teaching Professor:** A. Hull\*

**Visiting Assistant Teaching Professor:** C. Duncan\*

**Assistant Extension Professor:** R. Russell

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in public affairs, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- MPA in Public Affairs (p. 675)
- PhD in Public Affairs (p. 676)

Harry S Truman School of Public Affairs  
Email: [truman@missouri.edu](mailto:truman@missouri.edu)  
101 Middlebush Hall  
Columbia, Missouri 65211

573-884-1656  
truman.missouri.edu

## Graduate Certificate in Global Public Affairs

The graduate certificate in Global Public Affairs includes 12 credit hours of course work plus an international public affairs experience. The required course provides students with the comparative institutional and economic foundations to understand the complexities of governance and policy making internationally. The three elective courses, selected in consultation with the director of the Global Public Affairs certificate, allow students to delve deeply into specific realms of global policy or governance. The international experience component can be satisfied through an approved public affairs related internship or study abroad course. Students with substantial international public affairs experience prior to entering the certificate program should consult with the certificate director. International students automatically satisfy this experiential requirement through their study in the U.S.

<b>Required Course</b>	3
Comparative and Global Governance (course in development)	
<b>Take three of the following:</b>	9
PUB_AF 8630 Organizational Change in a Community and Global Context	
PUB_AF 8850 Policies and Institutions of the European Union	
PUB_AF 8860 International Comparative Rural Policy	
Global Intensive Public Affairs topics course(s)	
Approved courses outside of Public Affairs	
<b>Total Credits</b>	<b>12</b>

Federal Gainful Employment disclosure information for this Graduate Certificate is available at [gradstudies.missouri.edu/academics/programs/global-public-affairs/gbal-pub-affairs-ge/Gedt.html](http://gradstudies.missouri.edu/academics/programs/global-public-affairs/gbal-pub-affairs-ge/Gedt.html).

## MPA in Public Affairs

MU Truman School of Public Affairs students study with outstanding faculty, who are talented teachers as well as active, nationally recognized scholars. Policy forums, round-tables with policy makers, lectures by distinguished visiting scholars, and research symposia also enrich student learning. Small classes taught both on campus and in Jefferson City, the state's capital, make for a lively learning environment. The Truman School MPA program provides a balance of public service values, interpersonal and analytic skills, and a thorough knowledge of administrative and policy processes.

### Degree Requirements

Consisting of 45 hours of graduate work, the MPA program includes a core (27 hours), an area of specialization (15 hours) and an internship (3 hours). The areas of specialization are Nonprofit and Public Management, and Public Policy.

Students with significant public service experience may have some courses waived, making the MPA program 33 hours for them. The MPA's Mid-Career option is available to students with 3-5 years of public service experience.

## Sample Plan of Study

<b>First Semester</b>		
PUB_AF 8150	Collaborative Governance	3
PUB_AF 8160	Organizational Dynamics and Leadership	3
PUB_AF 8170	Public Policy Processes and Strategies	3
PUB_AF 8180	Research Methods and Inquiry in Public Affairs I	3
<b>Second Semester</b>		
PUB_AF 8181	Research Methods and Inquiry in Public Affairs II	3
PUB_AF 8190	Economic Analysis for Public Affairs	3
Specialization		
Specialization		
<b>Third Semester</b>		
Internship		
<b>Fourth Semester</b>		
PUB_AF 8210	Public Service and Democracy	3
PUB_AF 8530	Strategic Management of Public Service Organizations: People, Information and Money	3
Specialization		
<b>Fifth Semester</b>		
PUB_AF 8211	MPA Capstone (Applied Project)	3
Specialization		
Specialization		

## Internship

During the summer after their first year in the program, students without significant public sector work experience are required to complete a public service internship. Interns apply what they have learned during the first year in the program, plus they gain practical experience that enables deeper learning during second-year classes.

## Application and Admission Information

Admission to the Master of Public Affairs Program  
101 Middlebush Hall, Columbia, Missouri 65211  
573-884-1656  
Truman@missouri.edu

### Admission Criteria

**Fall deadline:** Applications are reviewed on a rolling basis, with priority funding consideration given to those applications received by January 15.

**Spring deadline:** Priority admission consideration is given to applications received by November 15

- Minimum GPA: 3.0 in last 60 hours
- Minimum TOEFL scores:
  - iBT: 80
  - CBT: 213
  - PBT: 550
- Minimum preferred GRE scores:
  - Prior to August 2012: 1000 (combined)
  - After August 2012: 300 (combined)

Admission to the MPA program is competitive and open to students holding baccalaureate degrees from accredited institutions and meeting

admissions standards of the Truman School of Public Affairs and the Graduate School.

## Required Application Materials

To the Office of Graduate Studies:

- All required Graduate Admissions documents (<http://gradstudies.missouri.edu/admissions/eligibility-process>)

To the Truman School MPA Program:

- 3 letters of recommendation (at least two academic-focused)
- GRE score report (GRE alternatives accepted: LSAT and GMAT scores will be considered)
- Résumé
- Statement of Interest
- Statement of Career Eligibility (required for Mid-Career and Mid-Career Online applicants only)
- Unofficial transcripts

## Financial Aid From the Program

To be considered for funding from the Truman School (including a Graduate Research Assistantship and scholarships), please arrange to have all of your application materials submitted by the January 15 deadline and include a GRA application ([http://catalog.missouri.edu/undergraduategraduate/trumanschoolofpublicaffairs/publicaffairs/mpa-public-affairs/GRA\\_Skills\\_Set.docx](http://catalog.missouri.edu/undergraduategraduate/trumanschoolofpublicaffairs/publicaffairs/mpa-public-affairs/GRA_Skills_Set.docx)) in your supplemental application materials. Contact the Truman School at (573) 884-1656 or visit [truman.missouri.edu/degrees-programs/funding](http://truman.missouri.edu/degrees-programs/funding) for more details.

## PhD in Public Affairs

PhD Contact: Dr. Irma Arteaga  
(573) 882-2718  
[Arteagal@missouri.edu](mailto:Arteagal@missouri.edu)

## About the PhD Program in Public Affairs

The Harry S Truman School of Public Affairs at the University of Missouri offers an interdisciplinary PhD in Public Affairs that prepares graduates for careers in universities, colleges and applied research settings in the public, private and nonprofit sectors. Students complete core sequences in public policy and management as well as research methods, and specializations tailored to students' research interests.

## Acceptance Criteria

In making its decision, the PhD committee considers:

- The applicant's record of academic achievement (Applicants typically have undergraduate GPAs higher than 3.0, and graduate GPAs higher than 3.5.)
- The quality of the written statement explaining why the applicant wants to pursue the degree
- The quality of the applicant's writing sample
- Evaluations contained in letters of recommendation
- Acceptable performance on the Graduate Record Examination (GRE). Applicants typically have combined scores of 310 or higher
- Results of a personal interview with the applicant in person or by telephone
- Other factors bearing upon the candidate's potential for success

## Application Procedure

1. Applications for the PhD program are accepted for fall entrance only. For a prospective student's application to be complete, the Truman School **must receive all required materials by January 3.**
2. Applicants are required to upload application materials to the MU Graduate School Application for Admission.
3. Official transcripts must be mailed to the Graduate School and GRE/TOEFL scores directed to institution code 6875, department code 2204.

## Required Application Materials

A student's application is complete when all of the following materials have been received. The Truman School's downloadable checklist contains more information on the following required application materials:

- University of Missouri Office of Graduate Studies application (application fee required)
- Statement of interest
- Curriculum vitae/Résumé
- Writing sample
- Personal data sheet
- Three letters of recommendation
- Unofficial undergraduate and graduate transcripts
- Official Graduate Record Examination (GRE) score report (must be sent by ETS)
- Official TOEFL score report (must be sent by ETS; required of applicants whose native language is not English)

## Entrance Exams

- The Graduate Record Examination (GRE) is required of all applicants.
- Applicants whose native language is not English must achieve a score of 625 (107 iBT) in the Test of English as a Foreign Language (TOEFL).
- Use the following codes to submit test scores to the Truman School:
  - University of Missouri-Columbia Institution Code: 6875
  - Truman School Department Code: 2204

## Cost of Attendance and Financial Aid

Prospective students should visit the University of Missouri Graduate School financial information and support web page for current information about tuition and fees. The University's Office of Student Financial Aid provides information about other types of aid students can obtain, including federally financed student loans. **Financial aid applications are due by January 3.**

## Additional Minors and Certificates - Public Affairs

### Graduate Certificates

- Certificate in Global Public Affairs (p. 675)
- Certificate in Grantsmanship (p. 677)
- Certificate in Nonprofit Management (p. 677)

- Certificate in Organizational Consulting and Change (p. 677)
- Certificate in Public Management (p. 678)
- Certificate in Public Policy (p. 678)

## Graduate Certificate in Organizational Consulting and Change

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656  
[truman.missouri.edu/degrees-programs/certificates](http://truman.missouri.edu/degrees-programs/certificates)

The graduate certificate in organizational consulting and change is a multidisciplinary and multi-sector approach to the theory and practice of transforming organizations and communities in a technologically advanced and global economy. Students will have an opportunity to develop knowledge and competencies appropriate to the advanced study and diagnosis of evolving and emerging organizations and communities in the public, private, and nonprofit arena. They will find a curriculum supportive of careers in academics, management, and consulting.

### Eligibility

Students do not need to be enrolled in a graduate degree program at MU to participate in the program.

### Plan of Study

Students must complete 12 credit hours to receive the certificate.

#### Required Courses

PUB_AF 8610	Group Dynamics and Conflict Resolution	3
PUB_AF 8620	Organizational Analysis and Change	3
PUB_AF 8630	Organizational Change in a Community and Global Context	3

### Elective Course

The fourth course is an elective chosen in consultation with the certificate coordinator from among the courses offered by the Truman School or by another graduate unit at MU.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/org-consulting-and-change-graduate-certificate/org-consulting-and-change-ge/Gedt.html>

## Graduate Certificate in Grantsmanship

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656

[truman.missouri.edu/degrees-programs/certificates/grantsmanship/](http://truman.missouri.edu/degrees-programs/certificates/grantsmanship/)

The Truman School offers one of the few completely online grant writing certificate programs in the country, making it easy to fit classes into a busy schedule. Students will learn to write grant proposals and manage grant funded programs effectively. Learn winning grant writing techniques and proper grant management with this four-course graduate certificate in grantsmanship. Our program is well suited for a variety of audiences,

including community-based professionals in nonprofit organizations, state and local government and educators in K-12 settings. Graduate and post-doctoral students and young faculty members who are seeking to become more competitive in research careers dependent on external funding will find this certificate to be useful.

### Eligibility

Students do not need to be enrolled in a graduate degree program at MU to participate in the program.

### Plan of Study

Students must complete 12 credit hours to receive the certificate.

#### Required Courses

PUB_AF 8830	Grant Writing I	3
PUB_AF 8831	Grant Writing II	3
PUB_AF 8832	Sponsor Relationships	3
PUB_AF 8833	Grant Award Management	3

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/grantsmanship-graduate-certificate/grants-ge/Gedt.html>.

## Graduate Certificate in Nonprofit Management

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656  
[truman.missouri.edu/degrees-programs/certificates](http://truman.missouri.edu/degrees-programs/certificates)

The graduate certificate in nonprofit management provides students with the managerial, fiduciary, and analytical tools necessary for leadership of nonprofit entities. The goal is to develop and hone skills that can be used to achieve organizational missions uniquely aimed at serving the interests of the community.

### Eligibility

Students do not need to be enrolled in a graduate degree program at MU to participate.

### Careers

As one of the fastest growing sectors in today's economy, nonprofit organizations have undergone a professionalization in management, with board members changing their orientation from one of personal networks to a bottom-line, information-based outlook. Successful nonprofit organizations today thrive on their ability to compete effectively in the marketplace, read community needs and priorities, and deliver appropriate services within budget.

### Plan of Study for the Nonprofit Management Certificate

Students must complete 12 credit hours to receive the certificate.

#### Required Courses

PUB_AF 8520	Human Resources Management and Development in Public and Nonprofit Sector	3
PUB_AF 8720	Budgeting and Financial Management in the Nonprofit Sector	3

PUB\_AF 8710 The Nonprofit and Voluntary Sector 3

### Elective Course

The fourth course is an elective chosen in consultation with the certificate coordinator from among the courses offered by the Truman School or by another graduate unit at MU.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at [gradstudies.missouri.edu/academics/programs/nonprofit-management-graduate-certificate/nonprofit-mgmt-ge/Gedt.html](http://gradstudies.missouri.edu/academics/programs/nonprofit-management-graduate-certificate/nonprofit-mgmt-ge/Gedt.html).

## Graduate Certificate in Public Management

Harry S Truman School of Public Affairs  
101 Middlebush Hall  
573-884-1656  
[truman.missouri.edu/degrees-programs/certificates](http://truman.missouri.edu/degrees-programs/certificates)

The graduate certificate in public management encompasses administrative skills for ethical, effective leadership and management roles in the public service. Students completing this graduate certificate will be well positioned to begin or advance a public service career with many expecting to pursue management careers in state and local governments.

### Eligibility

Students do not need to be enrolled in a graduate degree program at MU to participate.

### Plan of Study

Students must complete 12 credit hours to receive the certificate.

### Required Public Management Certificate Courses

The first two courses are required along with one of the remaining two:

PUB_AF 8510	Public Budgeting and Taxation	3
PUB_AF 8520	Human Resources Management and Development in Public and Nonprofit Sector	3
PUB_AF 8530	Strategic Management of Public Service Organizations: People, Information and Money	3
PUB_AF 8540	Local Government Management	3

### Elective Course

The fourth course is an elective chosen in consultation with the certificate coordinator from among the courses offered by the Truman School or by another graduate unit at MU.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at [gradstudies.missouri.edu/academics/programs/public-management-graduate-certificate/pub-mgmt-ge/Gedt.html](http://gradstudies.missouri.edu/academics/programs/public-management-graduate-certificate/pub-mgmt-ge/Gedt.html).

## Graduate Certificate in Public Policy

Harry S Truman School of Public Affairs  
101 Middlebush Hall

573-884-1656  
[truman.missouri.edu/degrees-programs/certificates/public-policy/](http://truman.missouri.edu/degrees-programs/certificates/public-policy/)

The public policy specialization offers students a strong foundation in the skills necessary to work effectively in the policy environment. Students in the public policy specialization learn theories of the policy process, quantitative and qualitative research methods to analyze policy, and program evaluation. Students also have the opportunity to gain expertise in specific policy areas including education policy, environmental policy, health policy, social policy, and regional development policy.

### Eligibility

Students do not need to be enrolled in a graduate degree program at MU to participate in the program. Some prerequisite courses may be necessary for students without prior coursework in statistical or micro-economic analysis.

### Plan of Study

Students must complete 12 credit hours to receive the certificate.

#### Required Courses

PUB_AF 8170	Public Policy Processes and Strategies	3
PUB_AF 8430	Public Policy Analysis	3

### Elective Course

The third and fourth courses are electives chosen in consultation with the certificate coordinator from among the courses offered by the Truman School or by another graduate department at MU.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at [gradstudies.missouri.edu/academics/programs/public-policy-graduate-certificate/public-policy-ge/Gedt.html](http://gradstudies.missouri.edu/academics/programs/public-policy-graduate-certificate/public-policy-ge/Gedt.html).

## Interdisciplinary Academic Programs

MU offers a number of academic degree programs that are planned, administered and taught collaborative by faculty from numerous disciplines. Those interdisciplinary programs are enumerated in this section of the catalog.

## Academic Medicine

A Master of Science in Academic Medicine (post-doctorate) is offered by the Department of Family and Community Medicine in the College of Medicine. Applicants must be graduates of an accredited medical school, U.S. citizens or permanent residents, and licensed to practice in a primary care specialty.

### Faculty

**Professor** J. D. Campbell, E. Garrett\*, L. A. Headrick, M. C. Hosokawa\*, M. LeFevre\*, D. R. Mehr\*, D. Parker-Oliver\*, E. Ringdahl\*, W. Steinmann, J. Stevermer, D. C. Vinson\*, H. A. Williamson\*, S. C. Zweig\*

**Associate Professor** J. Belden, D. Cravens\*, K. Everett\*, A. B. Fitzsimmons, K. Y. Kane\*, J. Kapp\*, S. Kinkade\*, K. Kochendorfer\*, R. Koopman\*, E. J. Lindbloom\*, C. Reust\*, D. Wen\*, A. Whaley-Connell

**Assistant Professor** K. Craig, D. Howenstine, P. Koopman, J. McElroy\*, L. Morris, A. Swenson, S. Swofford, P. Tatum III\*

**Research Professor** D. Oliver\*

**Associate Research Professor** K. Hoffman\*, R. L. Kruse\*

**Professor Emeritus** R. L. Blake Jr.\*, J. M. Colwill\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in Academic Medicine, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- MS in Academic Medicine (p. 679)

School of Medicine  
M224 Medical Sciences Building, DCO32.00  
Columbia, MO 65212  
573-884-7060  
<http://www.fcm.missouri.edu/>

The Master of Science in Academic Medicine is offered by the Department of Family and Community Medicine in the College of Medicine. Applicants must be graduates of an accredited medical school, U.S. citizens or permanent residents and licensed to practice in a primary care specialty.

## MS in Academic Medicine

- Plan of Study (p. 679)
- Admissions (p. 679)

### Plan of Study

The program has two options for study: Teaching/Administration and Research. The program requires completion of a minimum of 30 course

hours with a grade of 3.0 (B) or better. Courses in the Master's degree are:

F_C_MD 8422	Clinical Research Methods I	3
STAT 7020	Statistical Methods in the Health Sciences	3
F_C_MD 8423	Clinical Research Methods II	3
F_C_MD 8420	Principles of Epidemiology	3
F_C_MD 8410	Principles and Practices in Medical Education	3
F_C_MD 8430	Applications of Evidence-Based Medicine I	3
F_C_MD 7310	The Health Care System	3
F_C_MD 8491	Field Experience in Family and Community Medicine	1-6
F_C_MD 8450	Research in Community Health	1-99

In addition there are a number of online elective courses that may be substituted upon approval of the faculty advisor.

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## Admissions

### Admission Contact Information

Juliet Bedell, [Bedelljc@health.missouri.edu](mailto:Bedelljc@health.missouri.edu), 573-884-2912  
University of Missouri, School of Medicine  
Department of Family and Community Medicine  
MA303 Medical Sciences Building  
Columbia, MO 65212

The Department of Family and Community Medicine has responsibilities for teaching, research and service activities covering the spectrum from primary medical care to community medicine. This graduate degree program is designed to prepare primary care physicians to work in an academic setting as faculty members with responsibilities for patient care, teaching, research, and scholarly endeavors. Applicants must be graduates of an accredited medical school, U.S. citizens or permanent residents and licensed to practice in a primary care specialty.

### Application Deadline

This program accepts rolling admissions, so you can apply at any time. We recommend you submit your application at least six weeks before the beginning of the term in which you wish to start your course work.

### Admission Criteria

- Board-certified or board-eligible physicians who have already received MD, DO, MBBS or equivalent degrees may apply. Typically, physicians have completed residency training in their primary specialty prior to enrollment, but current residents may apply with the permission of their program director.
- Physicians in clinical or academic fellowship programs (or both) are also welcome to apply. Prospective students with other doctoral and graduate degrees will also be considered.
- If English is not your native language, please submit a TOEFL (<http://www.ets.org/toefl>) score of at least 80 (internet-based test) or an IELTS (<https://www.ielts.org>) score of at least 6.5
- This program accepts rolling admissions, so you can apply at any time. We recommend you submit your application at least six weeks before the beginning of the term in which you wish to start your course work.



## Required Application Materials

Submit the following via the online application (<https://applygrad.missouri.edu/apply>):

- **Transcripts** of all previous college or university education. Upload unofficial transcripts in your online application. If you are accepted, you will be asked to provide official transcripts
- **Two letters of recommendation.** In the online application, you will need to supply names and contact details of two professionals who can attest to your critical thinking, analytical and writing skills, demonstrating your potential as a graduate student and professional
- **Personal statement** of research goals and interests
- **Curriculum vitae or résumé**
- **Verification from residency program** or other relevant post-graduate training
- **TOEFL or IELTS** score reports for applicants whose native language is not English
- A personal phone interview

Carefully follow the instructions on the Graduate Studies (<https://applygrad.missouri.edu/apply>) application site.

- **Upload the above documents** in the online application site. Use the following information to complete your application:
  - a. **Application type:** Master's Program
  - b. **Degree/Delivery:** Masters- Distance (Online/Remote Site/etc.)
  - c. **Academic Program:** Academic Medicine-Distance (MS)
  - d. **TOEFL or IELTS** scores: Institution Code 6875 (if applicable)

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## American Law

### Contact Information

Paul Ladehoff, Director of LL.M. in Dispute Resolution Program & Director of the Campus Mediation Service

American Law - MU School of Law  
206 Hulston Hall  
University of Missouri  
Columbia, MO 65211

Phone: (573) 882-2020; Fax: (573) 882-3343

Email: [mulawcdr@missouri.edu](mailto:mulawcdr@missouri.edu)

Web site: <http://law.missouri.edu/csdr/llm>

This program will provide an introduction to the American legal system and U.S. legal practice for students who received their first degree in law outside the United States. It will help prepare students for a U.S. bar exam, for U.S. law practice, or to work with U.S. clients in the students' home countries or with foreign clients doing business in the U.S.

### Faculty

**Professor** R. Gely\*, J. Lande\*, R. Rueben\*, R. Uphoff\*, J. Westbrook  
**Associate Professor** C. Conklin\*, D. Crouch\*, S.I. Strong\*

**Adjunct Assistant Professor** J. Levin\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in dispute resolution, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- LLM in American Law (p. 680)

### About the American Law Program

This program will provide an introduction to the American legal system and U.S. legal practice for students who received their first degree in law outside the United States. It will help prepare students for a U.S. bar exam, for U.S. law practice, or to work with U.S. clients in the students' home countries or with foreign clients doing business in the U.S.

Create new opportunities for both LL.M. and J.D. students.

## LLM in American Law

Graduates of the LL.M. in American Law program should:

- Possesses substantial knowledge of the legal system in the United States
- Possesses substantial knowledge in legal analysis and reasoning, legal research, problem solving, and oral communication as practiced in the U.S. legal community
- Understand the goals, structure, values, rules, and responsibilities of the U.S. legal profession and conduct their legal practice in a professional and ethical manner
- Possesses the lawyering skills generally regarded as necessary for effective and responsible participation in the U.S. legal profession
- Possesses substantial knowledge in areas of the law considered to be foundational for admission to the bar, and for the practice of law in the United States

The LL.M. in American Law is a 24 credit hour program. There will be three core required courses - Overview of the U.S. Legal System, Legal Research and Writing, and Professional Responsibility. Elective courses will be selected from the existing J.D. or LL.M. curriculum. This will provide flexibility for students to customize study in any number of fields in the law school such as intellectual property, commercial law, international law, tax, environmental law, and employment law.

Program open only to international students who have their first degree in law from an institution outside the U.S.

## Biomedical Sciences

The study of biomedical sciences includes the major disciplines of:

- anatomy (gross or microscopic)

- physiology/pharmacology (molecular, cellular and integrative)
- biochemistry/molecular biology
- endocrinology
- toxicology

Specific areas of interest are exercise biology including cardiac, vascular and muscle biology; cardiovascular biology including neuroendocrine regulation; membrane transport biology including cystic fibrosis and cardiac disease; and reproductive biology including environmental estrogen toxicities and developmental processes.

All of the biomedical sciences degrees at MU are at the graduate level, and within two very distinct programs. See the Graduate tab for details on these options.

For undergraduate students interested in studying biomedical sciences, there are more than two dozen courses taught at the undergraduate level. See the Courses tab for details on these options.

## Faculty

### Comparative (Veterinary) Medicine

**Professor** C. L. Franklin

**Associate Professor** Y. Agca, E. C. Bryda

**Clinical Associate Professor** L. W. Dixon

**Adjunct Professor** C. L. Besch-Williford

**Adjunct Clinical Associate Professor** R. S. Livingston

**Clinical Veterinarian** S. W. Korte, E. K. O'Connor

### Pathobiology Emphasis

**Professor** C. R. Brow, C. Caldwell, S. Casteel\*\*, J. Cook, G. Davis, K. C. Dellsperger, W. Fales\*, C. Franklin\*\*, C. Henry, T. Hoffman, G. C. Johnson\*\*, M. Katz, C. Lorson\*\*, D. Lubahn, C. Moore, D. O'Brien, B. Ray\*\*, R. M. Roberts, H. Schatten\*\*, D. Shaw\*, G. P. Smith, R. W. Stich\*\*, C. V. Ward, H. Zaghrou

**Associate Professor** Y. Agca\*\*, B. T. Beerntsen\*\*, A. Bermudez\*\*, D. Beversdorf, J. N. Bryan, E. Bryda\*\*, M. Calcutt\*\*, L. Cohn, D. D. Cornelison, J. Dodam, T. Evans\*\*, D. Fox, S. A. Grant, G. S. Johnson, M. Lewis, S. Liu, J. Middleton, W. J. Mitchell Jr.\*, C. Phillips, C. Reddy, S. G. Sarafianos, C. Wiedmeyer\*\*

**Clinical Associate Professor** L. Berent\*, D. Kim\*, T. Reilly\*\*, C. Vogelweid\*, M. Whitney\*

**Associate Research Professor** M. Lorson\*, A. Ray\*

**Assistant Professor** K. Aldridge, D. Anderson\*, U. Atasoy, C. P. Baines, G. Blomquist, M. Daniels, V. Glinskii, Z. Gu, C. Holliday, K. Kuroki\*\*, S. Schommer\*, K. Taylor, G. Zhang\*

**Professor Emeritus** C. A. Carson

**R. Phillip and Diane Acuff Endowed Professor** D. Pintel

**McKee Endowed Professor** G. Stewart\*\*

### Biomedical Sciences: Veterinary Medicine and Surgery emphasis

**Professor** J. R. Coates\*\*, L. A. Cohn\*\*, J. L. Cook\*, V. K. Ganjam\*, C. J. Henry\*\*, P. J. Johnson\*, K. Keegan\*, T. Mann, R. R. Mohan\*\*, D. O'Brien\*\*, J. Tomlinson\*, D. A. Wilson\*

**Assistant Professor** S. M. Axiak\*, A. Bukoski\*, A. E. DeClue\*\*, M. Heller\*, P. Pithua\*, F. Wininger\*

**Associate Professor** B. Backus\*\*, J. Bryan\*\*, J. R. Dodam\*, D. Fine\*, D. B. Fox\*, E. Giuliano\*, R. Johnson, J. C. Lattimer\*, M. R. Lewis\*\*, J. R. Middleton\*\*, C. N. Reiner\*\*

**Clinical Assistant Professor** K. R. Branson\*

**Teaching Professor** I. Masseur

**Assistant Teaching Professor** L. Britt\*, C. R. Cook\*, D. Nagy\*, J. Pearce\*, S. Reed\*

**Associate Teaching Professor** M. Kerl\*, J. Kramer\*, L. Schultz\*, K. A. Selting\*

**Assistant Extension Professor** S. Pooock\*

## Biomedical Sciences

**Professor** F. W. Booth\*, D. K. Bowles\*\*, L. L. Clarke\*\*, G. M.

Constantinescu\*, J. R. Dodam, V. K. Ganjam\*\*, E. M. Hasser\*, C. M. Heesch\*\*, S. Hyder\*\*, H. M. Laughlin\*\*, R. L. Terjung\*\*, R. Tsika\*\*

**Associate Professor** C. S. Reddy\*\*, C. S. Rosenfeld\*\*, L. J. Rubin\*\*, W. V. Welshons\*

**Assistant Professor** C. P. Baines\*\*, K. Cummings\*\*, C. Emter\*\*, D. D. Kline\*\*

**Adjunct Professor** M. B. Brown\*, V. H. Huxley, S. S. Segal\*\*

**Adjunct Assistant Professor** T. Boyd

**Adjunct Associate Professor** G. S. Johnson\*, G. E. Rottinghaus\*

**Clinical Associate Professor** I. A. Constantinescu, B. L. Frappier\*

**Assistant Teaching Professor** D. Cross, M. C. Kuehl-Kovarik\*\*

**Research Professor** S. Yang\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in biomedical sciences, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

### Biomedical Sciences Area Program Degrees

- MS in Biomedical Sciences with emphasis in Biomedical Sciences (p. 686)
- PhD in Biomedical Sciences (p. 682)

### Biomedical MS Degrees with Veterinary Medicine Emphasis Areas

- MS in Biomedical Sciences with emphasis in Comparative Medicine (post DVM degree only) (p. 683)
- MS in Biomedical Sciences with emphasis in Pathobiology (p. 684)
- MS in Biomedical Sciences with emphasis in Veterinary Medicine and Surgery (p. 684)
- MS in Biomedical Sciences with emphasis in Veterinary Sciences (p. 685)

## An Array of Biomedical Degrees Offered

The University of Missouri offers several degree program options in Biomedical Sciences:

- The **Biomedical Sciences Area Program** offers a master's program in basic biomedical sciences and a PhD area program. Dual biomedical-DVM degrees are other options. Students in the Biomedical Sciences Area Program do not have to be enrolled in the College of Veterinary Medicine.
- The Graduate School also confers three MS degrees related to veterinary biomedical sciences. Available emphasis areas are (a) comparative veterinary medicine, (b) pathobiology and (c) veterinary medicine and surgery. Generally, applicants to these biomedical degree programs are concurrently enrolled in College of Veterinary Medicine or have previously earned a Doctorate in Veterinary Medicine (DVM).

## Additional Program Options

### Pathobiology

The Pathobiology Area Program offers a PhD in Pathobiology (p. 717).

### DVM/Graduate degree in Biomedical Sciences

The Biomedical Sciences graduate programs enable veterinary medical students to pursue studies in the basic biomedical discipline of their choice for a PhD or MS degree while enrolled in the College of Veterinary Medicine. The program is designed to prepare students for advanced professional careers in universities and colleges, research institutes and industrial research.

With consent of the student's graduate program committee, courses from the professional curriculum (which includes a major portion of the core curriculum) can be accepted toward the graduate degree.

**Master of Science:** The MS/DVM program enables veterinary medical students to complete a master's degree while enrolled in the College of Veterinary Medicine. The program allows qualified students to seek in-depth involvement in the basic biomedical discipline of their choice. Six hours of 9090 Research that result in an original thesis are required. Financial support may be provided to VM2-4 students through teaching assistantships in gross anatomy laboratory (V\_BSCI 5500 Veterinary Anatomy with Laboratory).

**Doctor of Philosophy:** The PhD/DVM program requires a minimum of 30 credit hours of 9090 Research culminating in completion of original research and defense of a written dissertation.

Major biomedical disciplines include anatomy of domestic species (gross or microscopic); physiology/pharmacology (molecular, cellular and integrative); biochemistry/molecular biology; endocrinology; and toxicology. Specific areas of interest are exercise sciences; cardiovascular and neurosciences; muscle biology; membrane transport biology; reproductive biology; and developmental toxicology.

#### Admission Contact Information

Brenda Klemme klemmeb@missouri.edu  
 W111 Veterinary Medicine Building  
 1600 Rollins Road  
 Columbia, MO 65211  
 573-882-7305

<http://www.dbms.missouri.edu/>

## PhD in Biomedical Sciences

Director of Graduate Studies Dr. Douglas Bowles  
 Biomedical Sciences Area Program  
 W111 Veterinary Medicine Building  
 1600 Rollins Road  
 Columbia, MO 65211  
 573-882-7305  
<http://www.dbms.missouri.edu/>

## About the Doctoral Degree Program

The Biomedical Sciences Area PhD is a multidisciplinary program that integrates molecular, cellular and systemic biology within the context of biomedical research. The program provides the student with the background to investigate questions relevant to the Medical sciences at the integrative, molecular or cellular level and to relate the findings to mammalian physiology. Training in both fundamental and state-of-the-art research methodologies help students develop the skills necessary for competitive biomedical research. The program is administered through the Department of Biomedical Sciences (College of Veterinary Medicine) that has research faculty representing a diversity of medical-related basic science disciplines, including anatomy, biochemistry, histology, pathology, molecular biology, physiology, pharmacology and toxicology. The program offers a rich environment for graduate study and a unique opportunity for training scientists in comprehensive interdisciplinary research.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Admission Criteria

- Fall deadline: December 15
- Spring deadline: September 15
- Summer deadline: Not Applicable
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.5
On or After August 1, 2011	300	3.5

- Minimum GPA: 3.0
- Required prerequisite courses: Biology (10 hrs), Physics (3 hrs), Biochemistry (3 hrs), Chemistry (10 hrs), Calculus (3 hrs)

NOTE: The GRE requirement may be waived for applicants with an MD or DVM.

## Degree Requirements

To attain the PhD degree, 72 hours of graduate credit must be completed:

15 hours or more at the 8000/9000 level (exclusive of research, problems and independent study courses)

The core curriculum includes:

- physiology (10 credit hours)
- biochemistry/cell biology or histology (4 or 5 credit hours, respectively)
- multidisciplinary approaches to biomedical research (2 credit hours)
- departmental seminar (2 credit hours)

Minimum of 1 additional 7000-level course in each of the following areas:

- molecular biology
- cellular biology
- integrative biology

## Rate and Quality of PhD Progress

A grade of 3.0 or better is required in the core curriculum and serves in lieu of a qualifying examination for the degree. The choice of additional courses will be made individually by the student in consultation with his/her advisor and doctoral program committee. Following completion of the plan of study, candidates for the PhD degree must pass a comprehensive examination designed by the doctoral program committee that reflects an understanding of the multidisciplinary approach to biomedical research. The PhD candidate is evaluated semiannually by a faculty committee to ensure a satisfactory rate of progress as defined by timely completion of core courses and productivity in research activities as stipulated by the student's doctoral program committee. The PhD candidate must carry out original research culminating in a written dissertation, present the dissertation work at a departmental seminar and defend it in an oral examination given by the doctoral program committee. The program for the PhD degree must be completed within five years of passing the comprehensive examination.

## MS in Biomedical Sciences with Emphasis in Comparative Medicine (post DVM)

### Admission Contact Information

Director of Graduate Studies Craig Franklin, DVM, PhD  
Discovery Ridge Bldg Rm N128  
4011 Discovery Drive  
Columbia, MO 65201  
573-882-6623  
<http://cmp.missouri.edu/>

### About This Degree

The University of Missouri Comparative Medicine Program provides advanced graduate training to veterinarians who wish to pursue careers in comparative medicine. Trainees may combine one year of residency training in clinical, administrative and diagnostic laboratory animal medicine with two or more years of research training. Alternatively, trainees with experience in laboratory animal medicine, comparative

pathology or related disciplines may begin research training at the time of admission. Training is designed to prepare individuals for a variety of careers including comparative medicine research and laboratory animal medicine/collaborative research. Students may either pursue an MS or PhD. Research opportunities are available in several areas including infectious disease, molecular biology, mouse biology, genetics, microbiota, biomedical engineering, cancer and cardiovascular physiology. Resources available include the University of Missouri Office of Animal Resources (OAR), the Laboratory of Infectious Disease Research (LIDR), Mutant Mouse, Rat and Swine Resource and Research Centers and IDEXX-Bioresearch, an internationally known research animal diagnostic laboratory.

### Programmatic Strengths

- The opportunity for comparative studies in a joint veterinary and human medical environment
- The multidisciplinary nature of the faculty participating in the training program
- The potential to couple training in research with residency training in laboratory animal medicine, comparative pathology, diagnostics, and training toward board certification
- Strong research resources including AAALAC-accredited research animal facilities, a full-service, internationally-recognized research animal diagnostic laboratory, a BSL-3 infectious disease research facility and NIH-funded research resource centers for mice, rats and swine
- A long history of successful training in comparative medicine

### Class Size & Resources

Typically there are 10-12 postdoctoral trainees in the program at a given time. Networking and sharing of experiences and cooperation among trainees is an important factor in the success of the program.

### Admission Criteria

- Fall deadline: N/A
- DVM or equivalent from an accredited college of veterinary medicine or successful completion of the foreign equivalency examination and approval by the Comparative Medicine Program faculty
- Meet standards for admission to the Graduate School

### Required Application Material

*To the Graduate School:*

- All required Graduate School documents

*To the CMP Postdoctoral MS Program:*

- For combined residency/degree positions, the CMP uses the Veterinary Internship & Residency Matching Program

### Degree Requirements

The CMP emphasizes comparative medicine research training and includes graduate course work. Research training is performed under an established investigator in one of several life science departments on the MU campus. Recommended graduate courses include pathology of laboratory animals, methodology of animal experimentation, biology of laboratory animals, laboratory animal resource management, grant

and manuscript writing for biomedical researchers, laboratory and project management, biomedical ethics and seminars. Elective courses frequently taken by trainees include basic and advanced courses in immunology, molecular biology, physiology, reproductive biology and/or disease pathogenesis. Research typically deals with the application of an animal model in the investigation of human diseases or the study of naturally occurring diseases of laboratory animals. Requirements for elective course work, residency and teaching experience are determined with the student's advisory committee. Trainees also participate in teaching and instructional programs offered to veterinary students and research personnel.

## Written Scholarly Work

The MS degree requires the completion of a significant first author manuscript suitable for publication in a refereed journal, or an approved equivalent scholarly effort.

## Residency

For trainees enrolled in the combined graduate/residency program, residency rotations are performed during the first year of training and research training occurs in years two and three.

Residency rotations include:

- clinical medicine and animal resource management in the Office of Animal Resources (OAR)
- colony management, diagnostic, comparative and research pathology in the Mutant Mouse Regional Resource Center (MMRRC) and Rat Resource and Research Center (RRRC)

## Moving to a PhD Program

Trainees desiring to change to a PhD program have the opportunity to do so in a variety of programs including the **Pathobiology Area Program**.

## MS in Biomedical Science with Emphasis in Pathobiology

Contact: Marie Schlup  
College of Veterinary Medicine  
201 Connaway Hall  
Columbia, MO 65211  
573-882-6550  
schlupm@missouri.edu  
[http://vpbio.missouri.edu/training\\_programs.html](http://vpbio.missouri.edu/training_programs.html)

**Director of Graduate Studies:** Catherine Vogelweid

## About the Program

The College of Veterinary Medicine offers a Master of Science degree in biomedical sciences with a specialization in veterinary pathobiology and/or laboratory animal medicine, which is administered through the Department of Veterinary Pathobiology. The degree requires 30 credit hours of work including courses, seminars, research, and problems courses. The program includes research in a particular field and defense of a thesis which embodies the results of this work. Certain areas of emphasis require submission of a formal master's thesis while others require preparation of a publishable manuscript.

## PhD in Pathobiology

For admission information about the doctorate of philosophy (PhD) in Pathobiology, refer to **Pathobiology Area Program** in this catalog.

## Admission Criteria

- Fall deadline: none
- Spring deadline: none
- Summer deadline: none
- GRE scores required
- Undergraduate GPA of last 60 credits of undergraduate work: 3.0
- Designated faculty mentor
- Professional students with a DVM degree may be eligible to waive the GRE

### *International Applicants:*

Minimum TOEFL score:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

## Required Application Materials

### *To the Office of Graduate Studies:*

- All required Graduate Admissions documents

### *To the Veterinary Pathobiology Program:*

- GRE scores
- Official Transcripts
- Letter of support from mentor
- CV
- Statement of Purpose
- 3 letters of recommendation (can be submitted through the Office of Graduate Studies' online application as well)

## MS in Biomedical Science with Emphasis in Veterinary Medicine and Surgery

Contact: Connie Sievert  
College of Veterinary Medicine  
Department of Veterinary Medicine and Surgery  
A-384 Clydesdale Hall  
573-882-1807  
<http://www.cvm.missouri.edu/VMS/index.htm>

**Director of Graduate Studies:** Leah Cohn

## About the Program

The College of Veterinary Medicine, through the Department of Veterinary Medicine and Surgery, offers graduate work leading to the master of science degree in veterinary biomedical sciences with an emphasis in veterinary medicine and surgery. In addition, faculty within the department offer supervision for doctoral and postdoctoral study and research. Many but not all graduate students in this area of study combine their graduate degree training with clinical residency programs

leading to board certification in some specialty field within veterinary medicine.

## Types of Study

The program provides advanced training in anesthesiology, comparative cardiology, equine, food animal and companion animal medicine and surgery, neurology, oncology, comparative ophthalmology, radiation oncology, radiology, nutrition, and theriogenology among other areas.

## Resources and Facilities

Graduate students have ready access to clinical patients, medical records and facilities of the Veterinary Medical Teaching Hospital to aid them in clinical research. The college has its own library. More detailed information regarding the emphasis area of veterinary medicine and surgery can be found at the website <http://www.cvm.missouri.edu/VMS/index.htm>

## Admission Criteria

Fall deadline: n/a

- Completion of a bachelor's or professional degree
- Identification of a mentor with graduate faculty standing within the Department of Veterinary Medicine and Surgery
- Identification of funding (with advice of mentor) for the period of research and study
- Minimum TOEFL score (when appropriate):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE score: 292; 146 in verbal and 146 in quantitative. Minimum scores should be considered as guidelines not a guarantee of admission.

The majority of MS students within our program are completing specialty residency training programs in some field of veterinary medicine simultaneously with the MS degree. Admission to these programs generally precedes admission to our graduate programs. The GRE requirement may be waived for exceptional students by the Veterinary Medicine and Surgery Departmental Research and Graduate Studies Committee. Applicants may be asked to strengthen any deficiencies in prerequisites to the chosen area of concentration through enrollment in a post- or non-degree graduate student program.

## Required Application Materials

*To the Office of Graduate Studies:*

- All required Graduate Admissions documents

*To the Veterinary Medicine and Surgery Emphasis Program:*

- GRE scores

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Degree Requirements

[Advisors and the Advisory Committee](#)

Formulating a plan of study is the joint responsibility of the student, the advisor and the student's advisory committee. An advisory committee of at least three faculty members should be chosen during the first semester of enrollment. The advisory committee offers guidance and is responsible for approving a definitive plan of study.

The advisory group should consist of the major advisor and appropriate faculty members from the department, and at least one other member from another department within the college or university. Members of this committee may be recommended later for appointment to the examining committee. Members of the final examination committee should be chosen in the same manner as the advisory committee.

## Publications

A thesis reporting the results of original research is required of all candidates. A scientific paper based on the thesis research must be submitted to a refereed journal.

## MS in Biomedical Sciences with Emphasis in Veterinary Sciences

### Advising and Support Services:

Director: C.B. Chastain, DVM, MS, DACVIM, Professor

Administrative Assistant: June Kelly, Administrative Associate I

Mizzou Online Advisor: Kelly Ross, Admissions and Recruitment Advisor, Mizzou Online

### Degree Requirements

- Completion of all graduate work attempted at MU with a GPA of 3.0 or better.
- A minimum of 30 semester hours of graduate course credit, including at least 15 hours of graded, 8000-level course work. No more than 40% of the 30-hour credit requirement can be satisfied by Research, Readings, and Problem Courses.
- As part of their program of study during their enrollment in the Veterinary Medicine and Surgery (VMS) graduate degree program, graduate students must receive a passing grade from an approved graduate-level experimental design or statistics course. Following a request by the student's major advisor, this requirement may be waived by the departmental graduate studies committee for those students who have successfully completed a similar course previously.
- All VMS graduate students must submit a report of progress and plans regarding their degree program to the Departmental Graduate committee by April 30 of each year they are enrolled in the program. This report must be derived from the outcome of at least one annual meeting of their graduate degree committee and must be signed by their major advisor. The Annual Review of Graduate Student Progress will be used by students and committees to satisfy these requirements.
- The Departmental Graduate committee will review all reports and will schedule meetings with students and their advisors if deficiencies are noted. Failure to comply may result in disqualification of the student. The major advisor will be disqualified from receiving internal discretionary grant funds during the following calendar year.
- Completion of a thesis describing original investigative research completed by the candidate. Detailed guidelines for preparation of the thesis are available through the Graduate School.

- Documentation of a passing evaluation on the defense of the thesis work by an examination committee (make-up of the committee is described in the graduate catalog) as well as demonstration of mastery of the fundamental principles of the work included in the course of study for the degree.
- The candidate must be enrolled at MU in the semester when their thesis work is defended.
- The master's degree must be completed within eight years of enrollment from the time the student is accepted into the degree program.

## Sample Plan of Study

V_PBIO 7100	Veterinary Clinical Chemistry	3
V_PBIO 7110	Veterinary Cytology	2
V_PBIO 7120	Principles of Toxicology	3
V_M_S 8023	Internal Medicine Journal Review	1
V_M_S 8029	Emergency and Critical Care Journal Review	1
V_M_S 8090	Research in Veterinary Medicine and Surgery (Thesis)	1-99
V_M_S 8485	Problems in Veterinary Clinical Sciences	1-3
V_M_S 7320	Fundamentals of Small Animal Emergency and Critical Care	3
V_M_S 8040	Advanced Small Animal Clinical Nutrition	2
V_M_S 8405	Comparative Respiratory Pathophysiology	1
V_PBIO 7210	Animal Issues in Disasters	1
V_BSCI 7333	Veterinary Cell Biology	4
V_M_S 7510	Equine Clinical Anatomy: Forelimbs	1

## Thesis/Non-Thesis Requirements

### Admissions

## MS in Biomedical Sciences with Emphasis in Biomedical Sciences

Director of Graduate Studies Dr. Douglas Bowles  
 Biomedical Sciences Area Program  
 W111 Veterinary Medicine Building  
 1600 Rollins Road  
 Columbia, MO 65211  
 573-882-7305  
<http://www.dbms.missouri.edu/>

### About the Program

The MS program in Basic Biomedical Sciences provides in-depth training to prepare scientists in interdisciplinary basic research (molecular, cellular, organ and integrative). Departmental faculty members represent diverse Medical-related basic science disciplines that provide a unique opportunity for biomedical research training. Core courses include physiology, cell biology and an introduction to research methodology. The multidisciplinary focus of the program is also emphasized in the candidate's MS program committee.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding

packages. Check the program website or ask the program contact for details.

## Admission Criteria

- Fall deadline: January 15
- Spring deadline: September 15
- Summer deadline: Not Applicable
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	100 3.5
On or After August 1, 2011	300 3.5

- Minimum GPA: 3.0
- Required prerequisite courses: Biology (10 hrs), Physics (3 hrs), Biochemistry (3 hrs), Chemistry (10 hrs), Calculus (3 hrs)

NOTE: The GRE requirement may be waived for applicants with an MD or DVM. Prerequisite courses may be completed during the master's program.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Biomedical Sciences MS Program:*

- Program-specific application
- Letter of intent
- GRE scores
- Copy of transcripts
- 3 letters of recommendation

## MS Degree Requirements

To attain the master's degree, 30 hours of graduate credit must be completed; 15 hours or more shall be 8000 level (exclusive of research, problems and independent study courses); and 6 to 9 hours of 8090 Research. A grade of 3.0 or better is required in all core courses and serves as the qualifying examination for the degree. In addition to the departmental core courses, students may take courses specifically planned to meet the needs and strengths of the individual.

## Evaluation

The master's candidate is evaluated semiannually for satisfactory rate of progress as defined by timely completion of course courses and progress on research activities as stipulated by the master's program committee. The master's candidate must carry out original research culminating in a written thesis, present the thesis work at a departmental seminar and defend the thesis in an oral examination by the master's program committee.

## Length of Study

The time limit for the master's degree is five years after initiating the program.

## Clinical and Translational Science

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### Contact information

Institute for Clinical and Translational Science  
Main Administration Office  
Phone: (573)884-0042  
Email: [taylor@health.missouri.edu](mailto:taylor@health.missouri.edu)  
MA204 Medical Sciences Building  
MU School of Medicine  
One Hospital Drive, MA204, DC018.00  
Columbia, MO 65212

### From Particles to Populations

The University of Missouri Institute for Clinical and Translational Science transforms discoveries made in laboratories across MU into community-based products, services and practices for the state and nation. The institute (ICATS) is the focal point of MU's efforts to develop clinical and translational science programs that improve health through better research, education and public service.

Few universities share MU's potential for saving lives through research. With more than 1,000 biomedical scientists and engineers — all on one campus — MU focuses its research on the deadliest diseases, such as cancer and cardiovascular disease, and the most vulnerable patients, including children and the elderly

### Faculty

Faculty for Clinical Translational Sciences teach across multiple disciplines. A complete listing of faculty can be found here (p. 2335).

### Undergraduate

While MU does not offer undergraduate degrees specifically in Clinical and Translational Science program, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- MS in Clinical and Translational Science (p. 687)
- PhD in Clinical and Translational Science (p. 687)

## MS in Clinical and Translational Science

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This degree program is not currently accepting applications at this time.

## PhD in Clinical and Translational Science

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This degree program is not currently accepting applications at this time.

## Data Science and Analytics

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Data science is a rapidly blossoming field of study and career with a highly multidisciplinary characteristic. The confluence of *big data*, massively powerful cloud computing platforms, and need of businesses from all sectors to leverage their data repositories has created a high-

growth environment and demand for data scientists. Data scientists routinely leverage tools and techniques from computer science, information systems, advanced statistics, and machine learning. To satisfy the growing need for data scientist who can transform large collections of data into actionable decision making products for their employers, we are proposing the Master of Science in Data Science and Analytics.

This multidisciplinary Data Science and Analytics (DSA) degree program will consist of 34-credit hours of learning in the online and mixed mode format in which students will visit campus one time each academic year for an intensive on site learning experience.

The academic program will consist of 19 credit hours of core, fundamental data science courses; followed by 9 credits of emphasis area specific courses and 6 credits of industry relevant case studies and capstone project courses.

Data Science is an emerging discipline that, by its nature, integrates traditional disciplines. The proposed degree program will leverage prior investments in the computing disciplines across campuses and colleges within each campus. The MU Informatics Institute will coordinate this collaborative degree program by leveraging existing courses from Computer Science, Journalism, and Information Science & Learning Technologies Departments to deliver the various core and emphasis area course. Existing courses will be adapted to the online format, and new courses that are properly focused and structured for the DSA program will be developed.

### Faculty

**Associate Professor** S. Goggins

**Assistant Research Professor** G. Scott

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in Data Science and Analytics, the University does offer baccalaureate opportunities in a number of related areas.

A listing of current degree programs can be found here (p. 17).

### Graduate

- MS in Data Science and Analytics (p. 687)
  - with emphasis in Biotechnology (p. 688)
  - with emphasis in High Performance Computing (p. 688)
  - with emphasis in Strategic Communications and Data Journalism (p. 689)
  - with emphasis in Human Centered Data (p. 689)
- Graduate Certificate in Data Science and Analytics (p. 689)

## MS in Data Science and Analytics

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Graduates will be able to individually acquire and stage large data sets, design and conduct experiments, and analyze results for complex data analytical problems using their foundational and specialized data science



tools and techniques; taking a problem from conceptualization stage through to the production of data-derived business intelligence.

The special skills the graduating students will acquire or possess include:

- Real-world experience in applying state-of-the-art data science tools and techniques to solve industry, academic, and/or business data and decision-making challenges.
- A clear understanding of the ethics and security mechanisms required to safeguard large-scale data collections that contain sensitive and critical information.
- A comprehensive understanding of modern data analytics, statistical analysis, and visualization tools that facilitate timely, large data analysis.
- A solid foundational understanding of database systems, database design, and information retrieval; allowing exploitation of a broad spectrum of data repositories and streaming data systems.
- A demonstrated ability to effectively communicate to a broad audience the relevant information derived from large data collections using a variety of visualization and presentation methods. Students will be able to convey the meanings behind specific data analysis techniques to audiences of various technical knowledge.
- Training in the latest data analytic methods and tools; including fundamental and advanced statistical and mathematical principles upon which advanced data analysis techniques are built (machine learning, pattern recognition, data mining, etc.).
- Specialized, advanced training in a chosen Emphasis Area, such as biotechnology, high-performance computing, strategic communications, human centered data science design, etc.

All students will take "Core Courses" that will provide a foundation of knowledge and an introduction to state-of-the-art technology in Big Data, database design, data ethics, and visualization of high dimensional and high-volume data.

To understand real-world Big Data issues in context, students will select three courses in an emphasis area. These elective courses will support in-depth analyses and training on data analytic techniques, issues, and problems students will face within a given Emphasis area. Students will take a Case Study course to gain hands-on experience with large data sets and use the relevant technology and techniques. A Capstone project will enable students to refine and demonstrate knowledge and skills learned throughout the program. Both courses will provide students with mentoring from faculty, as well as insight from industry partners.

### Total credits required for graduation: 34

Total credits for core courses: 19

First Year			
Fall	CR Spring	CR Summer	CR
DATA_SCI 7600	3 DATA_SCI 8630	3 DATA_SCI 8610	3
DATA_SCI 8620	3 DATA_SCI 8640	3 DATA_SCI 8680	3
DATA_SCI 8660	1 DATA_SCI 8650	3	
	7	9	6
Second Year			
Fall	CR Spring	CR	
Emphasis Area Course 1	3 Emphasis Area Course 3	3	

Emphasis Area Course 2	3 DATA_SCI 8690: Big Data Analysis Capstone (pending approval)	3
	6	6
Total Credits: 34		

## MS in Data Science and Analytics with Emphasis in Biotechnology

In addition to the core program objectives (p. 687), graduates of the Masters of Science in Data Science and Analytics who pursue the Biotechnology emphasis area will achieve the following educational objectives:

- Possess an in depth understanding of the data analytics needs in biotechnology industry and healthcare systems in the US and worldwide;
- Have the ability to practice their analytic skill sets to applications in agriculture, human medicine, and health information systems in genomics, proteomics, phonemics, and electronic medical records;
- Be able to present and interpret their data analytic results with actionable plans in biotech and healthcare industry.

Emphasis area courses:		9
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
High-throughput Biomedical Data Analysis (course still in development)		3
Biomedical Information Mining and Interpretation (course still in development)		3

## MS in Data Science and Analytics with Emphasis in High Performance Computing

In addition to the core program objectives (p. 687), graduates of the Masters of Science in Data Science and Analytics who pursue the High Performance Computing (HPC) emphasis area will achieve the following educational objectives, in addition to the core program objectives while becoming immersed in Big Data computational ecosystems.

- Students will have an in depth understanding of the state-of-the-art technologies which enable big data analytics and high performance computing; such that they can successfully investigate the data and analytical needs, then guide the decision making process on deployments into HPC infrastructure.
- Students will acquire knowledge to exploit cloud-based computing infrastructure, including virtualization, distributed architectures, on-demand resource scaling, container technology, and other cloud-based computing concepts in support of Big Data management, processing, and analytics.
- Students will have a thorough understanding of advanced technologies and techniques in Big Data analytics, which facilitate the extraction of new data intelligence using state-of-the-art, leading analytical platforms.
- Students will gain a solid understanding of techniques for exploiting advanced co-processing hardware, including graphics processing

units (GPU) and many-core units (e.g., Intel Phi) to achieve cost effective, massively parallel data analytics.

Emphasis area courses:		9
CMP_SC 7001	Topics in Computer Science (Cloud Computing)	3
CMP_SC 7001	Topics in Computer Science (Big Data Analysis)	3
CMP_SC 8850	Computer Networks II	3

## MS in Data Science and Analytics with Emphasis in Strategic Communications and Data Journalism

In addition to the core program objectives (p. 687), graduates of the Masters of Science in Data Science and Analytics who pursue the Strategic Communication and Data Journalism emphasis area will achieve the following educational objectives:

- Students will have in-depth capabilities and understanding of big data management, including gathering and interpreting customer and viewer behavior patterns and developing strategies to enhance marketing objectives for organizations and clients.
- Students will have highly marketable skills in analyzing media markets and will be able to develop sophisticated methodologies to optimize usage of apps, social networks, and other technologies for media businesses and brands.
- Students will be able to apply their analytic skills to understanding and optimizing patterns of search, programmatic advertising buying and behavioral targeting.
- Students will have a deep understanding of issues of privacy and ethics in obtaining and utilizing data from a broad range of sources.
- Students will be able to obtain and analyze publicly available data in a variety of structured and unstructured formats. As such, they will develop an understanding of open-records laws and how to effectively use them.
- Students will develop the skills necessary to work as a data journalist for a news organization.
- As data journalism and data science /analytics are constantly evolving, students will develop strategies that enable them to continue to learn on the job.
- Students will develop an understanding of their audiences and how to best communicate with them.

Emphasis area courses:		9
JOURN 7236	Psychology in Advertising	3
JOURN 7248	Media Strategy and Planning	3
JOURN 7263	Digital Strategy II	3
JOURN 7430	Computer-Assisted Reporting	3
JOURN 7432	Advanced Data Journalism	3
JOURN 7440	Mapping for Stories and Graphics	2

## MS in Data Science and Analytics with Emphasis in Human Centered Data

In addition to the core program objectives (p. 687), graduates of the Masters of Science in Data Science and Analytics who pursue the Human Centered Data emphasis area will achieve the following educational objectives:

- Students will develop a deep understanding of the theoretical foundations and hands-on experience necessary to understand the strengths and limitations of different analytical methods.
- Combines both the technical (databases, social networking, data mining, and text mining) and social (economic, ethical, policy, and political) aspects of data analytics.
- Students will build an understanding of the complex interplay between the decisions made during the collection, curation, and transformation steps in the information lifecycle, and their impact on the analytical methods that should be employed.

### Emphasis Area courses:

IS_LT 7310	Seminar in Information Science and Learning Technology (Human Computer Interaction)	3
IS_LT 9429	Metadata	3
IS_LT 9439	Digital Humanities and Information	3
IS_LT 9447	Human Centered Design	3
IS_LT 9466	Learning Analytics	3

## Graduate Certificate in Data Science and Analytics

The objective of the Graduate Certificate in Data Science and Analytics is to enable students from multiple difference graduate programs at the University of Missouri to receive education and training in the emerging field of Data Science. Data science skills are increasingly necessary for all fields of advanced study due to the emergence of large scale data and the incumbent challenges across academia and industry.

At the conclusion of the Graduate Certificate in Data Science and Analytics, students will:

1. Have experience in applying state-of-the-art data science tools and techniques to solve industry, academic, and/or business data and decision-making challenges.
2. Have a comprehensive understanding of modern data analytics, statistical analysis, and visualization tools that facilitate timely, large data analysis.
3. Be able to effectively communicate to a broad audience the relevant information derived from large data collections using a variety of visualization and presentation methods.
4. Understand the fundamental and advanced statistical and mathematical principles upon which advanced data analysis techniques are built.

A total of 15 credit hours of coursework is required.

### Required coursework:

DATA_SCI 7600	Introduction to Data Science and Analytics	12
		3

DATA_SCI 8610	Statistical and Mathematical Foundations for Data Analytics	3
DATA_SCI 8620	Database and Analytics	3
DATA_SCI 8650	Big Data Visualization	3
<b>Data Science Elective</b>		<b>3</b>

## Dispute Resolution

### Contact Information

Robert G. Bailey, Assistant Dean and Director of the Center for the Study of Dispute Resolution

James Levin, Associate Director of the Center for the Study of Dispute Resolution

Paul Ladehoff, Director of LL.M. in Dispute Resolution Program & Director of the Campus Mediation Service

LLM Program - MU School of Law

206 Hulston Hall

University of Missouri

Columbia, MO 65211

Phone: (573) 882-2020; Fax: (573) 882-3343

Email: mulawcdr@missouri.edu

Web site: <http://law.missouri.edu/csdr/llm>

### Dispute Resolution Field

DR professionals work in many different areas. To illustrate, the Association for Conflict Resolution has sections dealing with commercial, community, consumer, court, criminal justice, education, environmental / public policy, family, health care, international, ombudsman, online disputes, organizational conflict management, spirituality, training, and workplace issues.

### Faculty

**Professor** R. Gely\*, J. Lande\*, I. Lee\*, R. Reuben\*, R. Uphoff\*, J. Westbrook

**Associate Professor** C. Conklin\*, D. Crouch\*, S. I. Strong\*

**Adjunct Assistant Professor** J. Levin\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in dispute resolution, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- LLM in Dispute Resolution (p. 690)

### About the Dispute Resolution Program

Students in the Master of Laws (LL.M.) dispute resolution program have a unique opportunity to gain a deeper understanding of theoretical, policy,

design and ethical issues in dispute resolution. They study with leading dispute resolution scholars who generate important academic work influencing dispute resolution theory and practice around the world. Small class sizes create a close community with faculty and students.

Our program blends theoretical analysis, practitioner skills, and systems design work in courses usually limited to LL.M. students. Our diverse student body — by age, race, nationality, legal background — enriches the level of discussion, inside and outside the classroom.

The LL.M. meets the needs of those with backgrounds as advocates, neutrals, law-trained court administrators and government agency personnel, among others.

### Admission Requirements

Applicants must have completed the first degree in law (JD, LLB or equivalent) required for law practice or law teaching in the country in which law studies were pursued. Note: U.S. applicants must have satisfied the JD requirements of an ABA-accredited law school. In exceptional cases, U.S. applicants may be admitted if they have satisfied the JD requirements of a non-ABA-accredited law school.

- Applicants may be admitted without a JD degree if they have a bachelor's degree and **substantial** experience in dispute resolution.
- Applicants must possess a minimum 2.5 (A = 4.0) grade point average in their law program, and a 3.0 GPA for work completed in any additional graduate or advanced degree program.
- Applicants must be able to start the program in the fall semester (which begins in mid-August). New students are not admitted in the spring or summer semesters.

## LLM in Dispute Resolution

### Program of Study

The LL.M. program requires 24 credit hours of study. A minimum of 12 credits are required courses in dispute resolution and the remaining 12 credits are electives. Students choose electives according to their interests. With approval of the director of the LL.M. Program, students can apply six (6) credits of graduate-level courses outside the Law School toward the LL.M. graduation requirements.

Students studying full-time can complete degree requirements within one academic year. Part-time students in a continuous course of study can complete the program within two academic years.

#### Required Courses

LAW 6905	LLM Arbitration Seminar	3
LAW 6930	LL.M. Major Research Project	3
LAW 6935	Dispute System Design	3
LAW 6945	Non-Binding Methods of Dispute Resolution	3

#### Possible Electives

LAW 5450	Conflict and Conflict Management	12
LAW 5485	Cross-Cultural Dispute Resolution	
LAW 5537	Emotional Intelligence in Law	
LAW 6920	LL.M. Externship	
LAW 6925	LL.M. Independent Study	
LAW 5770	Mediation Clinic	
LAW 6950	Practicum on Dispute Resolution Training and Education	
PUB_AF 8610	Group Dynamics and Conflict Resolution	

PUB_AF 8620	Organizational Analysis and Change
PUB_AF 8630	Organizational Change in a Community and Global Context
PUB_AF 8160	Organizational Dynamics and Leadership
THEATR 4240	Theory and Practice of Theatre of the Oppressed

## Tailoring the Program

In addition to the recommended electives outlined above, the MU Law School offers courses in many areas. Refer to the Courses tab above for course descriptions. Please note: Every effort is made to teach each of these courses every year, but the ability to offer them depends on faculty availability and budget constraints.

Some of the concentrated areas in the J.D. curriculum include:

- Business Planning/Corporations
- E-commerce
- Employment
- Environmental Law
- Family
- Governmental Processes
- Healthcare
- International Law
- Normative Theory and Diversity
- Tax
- Trial Practice

## Genetics Area Program

Genetics Area Program  
 241 Engineering West  
 Columbia, MO 65211  
 573-882-9007  
 877-GENE-PHD (877-436-3743)  
<http://www.gap.missouri.edu/>  
 Email: [gap@missouri.edu](mailto:gap@missouri.edu)

The Genetics Area Program (GAP) is an interdisciplinary Ph.D. program that will prepare you for a research or teaching career in genetics. As genetic analysis is used in all aspects of biological research, our Program has integrated the efforts of approximately 60 life sciences faculty into one of the strongest training programs at MU.

The curriculum provides broad, individualized training tailored to your career objectives.

## Faculty

**Professor** S. Alexander\*\*, K. L. Bennett\*\*, J. A. Birchler\*\*, A. K. Chatterjee\*, G. Davis\*\*, D. Duan\*\*, D. W. Emerich\*\*, W. R. Folk\*\*, J. Gorski, T. J. Guilfoyle\*\*, J. P. Gustafson\*, M. Hannink\*\*, G. Hazelbauer\*\*, M. L. Katz\*\*, M. Liscum\*\*, C. Lorson\*\*, D. B. Lubahn\*\*, B. A. McClure\*\*, K. J. Newton\*\*, H. Nguyen\*\*, D. J. Pintel\*\*, J. E. Schoelz\*, R. D. Semlitsch\*\*, D. Setzer\*, D. A. Slepser\*, G. Stacey\*\*, J. J. Tanner\*\*, J. Taylor\*\*, J. C. Walker\*\*, H. Zaghouani\*\*

**Curators' Professor** R. M. Roberts\*\*

**Associate Professor** E. A. Bryda\*\*, D. Burke, J. F. Cannon\*\*, A. Chandrasekhar\*\*, G. L. Davis\*\*, C. Franklin\*\*, W. Gassmann\*\*, M. W. Golomb\*\*, L. J. Holland\*\*, T. P. Holtsford\*, G. S. Johnson\*, T. Kazic\*\*, M.

Kirk\*\*, D. R. Lee\*\*, M. E. Martin\*, B. Peculis\*\*, C. L. Phillips\*\*, C. Tan, T. Zars\*\*, S. Zhang\*\*

**Assistant Professor** M. Garcia\*\*, S. Sarafianos

**Adjunct Professor** H. B. Krishnan\*

**Adjunct Associate Professor** M. D. McMullen\*\*

**Adjunct Assistant Professor** S. Flint-Garcia\*\*

**Research Professor** G. Hagen\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in the genetics area program, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- PhD in Genetics Area Program (p. 692)

## About the Program

We believe that an understanding of genetics is essential in solving global problems such as famine, environmental degradation and disease.

The Genetics Area Program (GAP) is an interdisciplinary PhD program that will prepare you for a research or teaching career in genetics. As genetic analysis is used in all aspects of biological research, our Program has integrated the efforts of approximately 60 life sciences faculty into one of the strongest training programs at MU. The curriculum provides broad, individualized training tailored to your career objectives.

Genetics graduate students play a major role in the research programs of our life sciences departments. Students spend approximately twelve weeks in three different laboratories during their first year. This promotes diversity in techniques learned, and it encourages students to meet and work with faculty members in the associated departments. This scientific interaction helps our students choose a lab in which to complete the degree.

As part of the degree, students will spend a semester teaching or assisting with a course in the Genetics curriculum that is relevant to their career goals.

A genetics seminar series is organized and conducted by the graduate students to promote research interest and encourage scientific communication. Speakers include prominent researchers from universities throughout the country, as well as MU faculty. An annual retreat brings faculty and students together to share research results and techniques.

Genetics graduates leave MU with a strong scientific background, excellent laboratory skills and interpersonal communication abilities.

## PhD in Genetics Area Program

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Application Deadline

Fall deadline: January 15

### Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
93	580

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1100	4.5
On or after August 1, 2011	302	4.5

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree
- One or more courses in each of the following: organic chemistry, biochemistry, mathematics (calculus and statistics), physics, introductory genetics
- Research experience highly desirable
- Broad background in biology

Note: Deficiencies in the subjects listed can be remedied after admission.

### Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Genetics Area Program:*

Genetics Area Program application (download form from website)

- GRE scores
- TOEFL scores (international applicants)
- 3 letters of recommendation (use provided form)
- Personal statement

### Degree Completion Requirements

The minimum requirements for the PhD degree are:

- advanced courses in genetics, biochemistry and molecular biology
- regular participation in the genetics area seminar program
- successful completion of a comprehensive examination
- at least one semester of teaching in a genetics course
- 3 seminar presentations
- research, dissertation and oral defense

These are *beyond* the Graduate School's requirements. Others are determined in consultation between the student and faculty advisor.

## Health Administration

Eduardo J. Simoes, Chair and Health Management and Informatics  
Alumni Distinguished Professor  
CE749, CS&E Building  
(573) 882-6179

Sue A. Boren, Director of Academic Programs and Associate Professor  
CE743, CS&E Building  
(573) 882-1492

### Contact Information

Health Management and Informatics  
CE 707 Clinical Support and Education Building, DC006.00  
One Hospital Drive  
(573) 882-6178  
<http://www.hmi.missouri.edu/>

### Department of Health Management and Informatics

Graduate level academic programs at MU in the area of Health Administration are offered through the Department of Health Management and Informatics (HMI) in the School of Medicine.

The HMI Department develops, translates, and disseminates knowledge, innovations, and evidence-based solutions to improve health management and informatics performance in complex health systems.

HMI advances the health of Missouri's communities, the nation, and international partners by:

- Creating a culture of collaborative relationships in research, education, and service to generate innovative ideas and solutions;
- Providing professional health management and informatics education and fostering lifelong learning;
- Delivering technical assistance and consultation by partnering with health, human service, and policy-making organizations; and
- Developing innovative commercial products and services for health- and education-related application

### Degrees & Certificates Offered

The HMI Department offers the following degrees and graduate certificate programs:

- Master of Health Administration (executive and residential cohort)
- Master of Science in Health Informatics and Bioinformatics (executive and residential cohort)
- Dual Master of Health Administration and Master of Science in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Ethics (100% online format available)

Residential Master of Health Administration students may also pursue a dual MBA, MS in Industrial Engineering, MPA, or JD degree. Some students choose to complete an additional Master's degree, such as the MPH, concurrently with the MHA degree.

### Faculty

**Professor** E. J. Simoes\*\*

**Associate Professor** S. A. Boren\*\*, J. Kapp\*\*, N. Khatri\*\*, M. Popescu\*\*, I. Yoo\*\*

**Assistant Professor** C. Deroche\*, T. Joshi\*\*, A. Zohrabian\*\*

**Associate Professional Practice Professor** W. Wells\*

**Associate Research Professor** J. Jackson-Thompson\*\*

**Associate Teaching Professor** W. Phillips\*\*

**Assistant Research Professor** M. S. Kim\*\*, A. Mosa\*\*, G. F. Petroski\*, L. Sheets\*, I. Zachary\*\*

**Assistant Teaching Professor** P. Alafaireet\*\*, B. Hensel\*

**Clinical Instructor** D. Moxley\*

**Adjunct Professor** K. Bopp\*, E. Rosenhauer\*, G. Sill\*

**Adjunct Assistant Professor** D. Nelson\*, C. Schmaltz\*

**Adjunct Clinical Instructor** M. Harris\*

**Adjunct Instructor** K. Clements\*, J. Kaplan\*, M. Johnson Moxley\*, R. Sommer\*, T. Weatherford\*

**Professors Emeriti** G. D. Brown\*, L. L. Hicks\*\*, D. Wakefield\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

Undergraduate students who are eligible for dual enrollment may, with permission, register for Graduate-level HMI courses. For more information on dual enrollment, please see <http://registrar.missouri.edu/policies-procedures/dual-enrollment.php>.

While MU does not offer undergraduate degrees specifically in health administration, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MHA in Health Administration (p. 693)

## About the Master of Health Administration

The graduate program in Health Administration prepares professionals to meet critical and complex challenges in leadership and improvement in organizations and systems throughout the health industry. The program provides recognized national and global leadership in health management education.

The program is competency-based and distinctively equips graduates for success through (a) providing solid grounding in professional and operational knowledge and skills, (b) integrating health informatics throughout the health services management curriculum, and (c) incorporating overarching complex systems context and analytical approaches.

The residential and executive master's degrees launch and advance patient-centered, improvement-oriented, financially-responsible, and ethically-grounded careers in evidence-based health administration.

The program admits diverse cohorts of students from Missouri, other states, and other nations. During the admissions process, the program seeks learners with strong academic records, maturity, motivation, leadership capabilities, and career potential. Primary post-graduation placement organizations include health systems, hospitals, academic

medical centers, physician group practices, surgery centers, information technology companies, consulting firms, government agencies, insurance entities, and other points of health services delivery.

Whereas the residential master's degree format is a traditional on-campus residential program, the executive master's degree is offered in a hybrid model featuring both on-campus and distance learning. In both formats, emphasis is on fostering an individualized and collaborative culture of learning, mentoring, and professional development among students, faculty, staff, alumni, and other practitioners. The intent is to prepare students to enable transformational leadership and improve patient care quality, safety, value, and overall level of population health.

Established in 1965, the program is a member of the Association of University Programs in Health Administration (AUPHA) and has been accredited since 1968 by the Commission on Accreditation of Healthcare Management Education (CAHME), formerly Accrediting Commission on Education for Health Services Administration (ACEHSA).

Both executive and residential students may pursue the MHA degree jointly with the MS in Health Informatics degree. Residential students may also pursue a dual MBA, MS in Industrial Engineering, MPA or JD degree, or complete an additional Master's degree, such as the MPH, concurrently with the MHA program.

## MHA in Health Administration

### About the MHA

The HMI Department's MHA degree is designed for students from a range of educational backgrounds and provides the knowledge and skills necessary to function effectively as a healthcare executive. The curriculum includes such competency areas as health systems operations, organization theory, information management, financial management, strategic planning and marketing, human resource management, health economics, managerial epidemiology, leadership, and ethics. By combining basic and advanced course work with an internship and executive management study (an applied management study that replaces a thesis), the student may develop expertise in a focused area. Professional elective course selection is a mutual decision between the student and advisor, and in all cases, the intent is to tailor the degree program to the student's interests. The goal of the graduate program in health administration is to prepare professionals for leadership roles in health care. Students develop an excellent applied knowledge in such areas as clinical decision support systems, risk assessment and management, clinical outcomes assessment, managing interdisciplinary teams and integrated health systems.

### Degree Requirements

The residential MHA degree requires a total of 54 credit hours, which includes 39 hours of core coursework, three credit hours earned for a required 12-week summer internship, a three-credit hour capstone group management project, and nine credit hours of professional electives.

Students must maintain a minimum 3.0 cumulative MU graduate grade point average to earn the Master's degree.

The professional elective requirement, which comprises three courses, allows MHA students the opportunity to concentrate in a particular area of study if they choose. They may take courses in health informatics or health ethics within the HMI Department, pursue graduate certificates in areas such as health informatics, public health, or geriatric care management, or complement their MHA coursework with classes in

business administration, public administration, industrial engineering and public health, to name a few.

MHA students must complete a 12-week administrative internship at an approved integrated managed care system, group practice, hospital or other healthcare organization under the guidance of a qualified preceptor (often a HMI alumnus/a). The internship is designed to incorporate the academic training students receive in their first year of the master's degree with practical applications within the host site. The students receive hands-on exposure to health care management in a real-world environment and experience first-hand the dynamics of a career in health care. The intern should have the opportunity to observe their mentor and other professionals in the work environment, as well as opportunities to discuss their experiences.

Specific general skills to be developed include:

- Leadership
- Strategic decision making
- Project management
- Teamwork

HMI's executive-in-residence works individually with students to place them at internship sites. For a list of recent internship placements, please see [http://hmi.missouri.edu/prospective/educational\\_partners.html](http://hmi.missouri.edu/prospective/educational_partners.html).

#### Required Courses

HMI 7410	Introduction to the US Health Care System	3
HMI 7430	Introduction to Health Informatics	3
HMI 7471	Introduction to Accounting and Finance in Health Care (HMI 7471 Introduction to Accounting and Finance in Health Care)	3
HMI 8453	Executive Management Studies	3
HMI 8460	Administration of Health Care Organizations	3
HMI 8461	Managing Human Resources in Health Care Organizations	3
HMI 8470	Strategic Planning and Marketing for Health Care Organizations	3
HMI 8472	Financial Management for Health Care Organizations	3
HMI 8524	Health Economics	3
HMI 8544	Managerial Epidemiology (Population Health Management)	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8573	Decision Making for Health Care Organizations	3
HMI 8574	Health Care Law	3
HMI 8575	Health Policy and Politics	3
HMI 8689	Field Experience in Health Management and Informatics	3

Students must complete nine credit hours of professional electives

Students must satisfy a pre-requisites in microeconomics

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
HMI 7410	3 HMI 8461	3 HMI 8689	3
HMI 7471	3 HMI 8524	3	
HMI 8460	3 HMI 8573	3	
HMI 8544	3		
	12	9	3

Second Year		
Fall	CR Spring	CR
HMI 7430	3 HMI 8571	3
HMI 8470	3 HMI 8574	3
HMI 8472	3 HMI 8575	3
	HMI 8453	3
	9	12

Total Credits: 45

## Thesis/Non-Thesis Requirement

- improvement of patient experience of wait times in the Orthopaedic Clinic at the Missouri Orthopaedic Institute
- surgical site infection reduction informed by NSQIP resources for UMHC
- system-wide urinary catheter reduction for UMHC
- improving screening and follow-up for students with substance use and/or mood disorders at MU Student Health

## Financial Aid

Applicants to the Residential MHA cohort who wish to be considered for financial assistance from the HMI Department should apply by March 1, the priority deadline. Those who apply by the deadline and meet academic requirements (see Admissions Requirements section below) will be considered for available scholarships and assistantship positions. All financial assistance is awarded on the basis of merit, availability of funding, and alignment of student and faculty research interests and skills. Further information about costs, financial aid, and external scholarship opportunities is available on the HMI Department's website at: [http://hmi.missouri.edu/prospective/financial\\_aid.html](http://hmi.missouri.edu/prospective/financial_aid.html).

## Executive MHA Degree

In addition to the residential (on-campus) MHA, the degree is offered in an alternative format to healthcare professionals who have significant clinical or administrative experience in health care. HMI accepts an executive MHA cohort to begin in January of each year. The Executive MHA combines monthly on-campus weekend sessions, independent study, and online interaction in an innovative two-year course of study, and requires 42 credit hours of health services management coursework. Students are required to complete a substantial independent research project, which they present during their oral comprehensive examination in their final semester. For additional information about the Executive MHA, please visit [http://hmi.missouri.edu/prospective/emha\\_description.html](http://hmi.missouri.edu/prospective/emha_description.html), or call: (573) 884-0698.

## Admissions Requirements

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MHA program ([http://hmi.missouri.edu/prospective/admissions\\_criteria.html](http://hmi.missouri.edu/prospective/admissions_criteria.html)) and the minimum requirements of the Office (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>) of Graduate Studies.

Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the degree program to which you've applied and the Office of Graduate Studies.

## HMI Admissions Information

Deadline for Fall entrance: Rolling; priority deadline is March 1

A minimum of a baccalaureate degree from an accredited institution

Undergraduate GPA: 3.0 during the last 60 hours of undergraduate course work and any subsequent graduate course work

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	603

- Minimum Academics IELTS scores:

Item	Score
OVERALL	7.5

- Minimum GRE Scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	50th percentile
On or After August 1, 2011	50th percentile

- In lieu of GRE, minimum GMAT score: 50th percentile. HMI also accepts LSAT and MCAT scores.

## Required Application Materials

Master's program applicants should apply online through the **Office of Graduate Studies application system** (<http://gradschool.missouri.edu/admissions/apply>). When completing the online application, you will have an opportunity to upload/attach additional documents. Please include the following documents:

- an updated **résumé** or **curriculum vitae**;
- a **personal essay** that:
  - outlines your professional plans and career objectives;
  - explains how you became interested in health services management/health informatics and how your prior training and experience would help your career;
  - includes specific issues and problems in health care you consider challenging and why;
  - indicates if you intend to apply to the traditional (residential) on-campus degree program or the distance education (executive) format

Other required documents:

- **Official transcripts** of all coursework from all colleges, technical schools and/or universities attended
- **Three letters of recommendation** (submitted through the Graduate School application system (<http://gradschool.missouri.edu/admissions/apply>))
- **Official GRE/GMAT score report** (Residential Students only)

You may also be required to submit other documentation and in some cases complete prerequisite courses. Below is a checklist to help make sure your application is complete:

- **Request to re-enroll form** (for previously admitted students only)
- **Application for Change of Degree form** (for students already enrolled in a Master's degree or Graduate Certificate program)
- **Letter of support** from your employer (Executive Students only)

- **Official TOEFL report** (for international applicants only - have official results sent to us: institution code is 6875, our department code is 25 - minimum score of 100 on the Internet-based exam required)
- **Prerequisites** - links to information about prerequisites for each degree program are available at [http://hmi.missouri.edu/prospective/rmha\\_description.html](http://hmi.missouri.edu/prospective/rmha_description.html)

## Admissions Contact

Veronica Lemme, MPA  
 CE740 CS&E Building, DC006.00  
 One Hospital Drive  
 Columbia, MO 65212  
<http://hmi.missouri.edu>  
 (573) 884-0698  
[lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu)

## Health Informatics and Bioinformatics

Eduardo J. Simoes, Chair and Health Management and Informatics  
 Alumni Distinguished Professor  
 CE749, CS&E Building  
 (573) 882-6179

Sue A. Boren, Director of Academic Programs and Associate Professor  
 CE743, CS&E Building  
 (573) 882-1492

## Contact Information

Health Management and Informatics  
 CE 707 Clinical Support and Education Building, DC006.00  
 One Hospital Drive  
 (573) 882-6178  
<http://www.hmi.missouri.edu/>

## Department of Health Management and Informatics

Graduate level academic programs at MU in the area of Health Informatics are offered through the Department of Health Management and Informatics (HMI) in the School of Medicine.

The HMI Department develops, translates, and disseminates knowledge, innovations, and evidence-based solutions to improve health management and informatics performance in complex health systems.

HMI advances the health of Missouri's communities, the nation, and international partners by:

- Creating a culture of collaborative relationships in research, education, and service to generate innovative ideas and solutions;
- Providing professional health management and informatics education and fostering lifelong learning;
- Delivering technical assistance and consultation by partnering with health, human service, and policy-making organizations; and
- Developing innovative commercial products and services for health- and education-related application

## Degrees & Certificates Offered

The HMI Department offers the following degrees and graduate certificate programs:



- Master of Health Administration (executive and residential cohort)
- Master of Science in Health Informatics and Bioinformatics (executive and residential cohort)
- Dual Master of Health Administration and Master of Science in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Ethics (100% online format available)

## Faculty

**Professor** E. J. Simoes\*\*

**Associate Professor** S. A. Boren\*\*, J. Kapp\*\*, N. Khatri\*\*, M. Popescu\*\*, I. Yoo\*\*

**Assistant Professor** C. Deroche\*, T. Joshi\*\*, A. Zohrabian\*\*

**Associate Professional Practice Professor** W. Wells\*

**Associate Research Professor** J. Jackson-Thompson\*\*

**Associate Teaching Professor** W. Phillips\*\*

**Assistant Research Professor** M. S. Kim\*\*, A. Mosa\*\*, G. F. Petroski\*, L. Sheets\*, I. Zachary\*\*

**Assistant Teaching Professor** P. Alafaireet\*\*, B. Hensel\*

**Clinical Instructor** D. Moxley\*

**Adjunct Professor** K. Bopp\*, E. Rosenhauer\*, G. Sill\*

**Adjunct Assistant Professor** D. Nelson\*, C. Schmaltz\*

**Adjunct Clinical Instructor** M. Harris\*

**Adjunct Instructor** K. Clements\*, J. Kaplan\*, M. Johnson Moxley\*, R. Sommer\*, T. Weatherford\*

**Professors Emeriti** G. D. Brown\*, L. L. Hicks\*\*, D. Wakefield\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

HMI offers two health informatics courses that are cross-leveled: HMI 4420/HMI 7420 Fundamentals of Bioinformatics and HMI 4440/HMI 7440 Health Information Technology. Undergraduate students may enroll in the 4000-level sections of these classes for Undergraduate credit. Undergraduate students who are eligible for dual enrollment may, with permission, take courses through HMI for Graduate credit. For more information on dual enrollment, please see <http://registrar.missouri.edu/policies-procedures/dual-enrollment.php>.

While MU does not offer undergraduate degrees specifically in Health Informatics, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Health Informatics and Bioinformatics (p. 696)
  - with emphasis in Bioinformatics (p. 698)
  - with emphasis in Health Informatics (p. 698)
- Graduate Certificate in Health Informatics (p. 698)

## About the Master of Science in Health Informatics and Bioinformatics

The Master of Science in Health Informatics and Bioinformatics program prepares professionals to meet critical and complex challenges in applying information technology within the health industry. It provides recognized national and global leadership in health informatics education.

The residential master's degree prepares students for careers in developing and evaluating clinical information systems, data and knowledge management, decision support, and doctoral study in health informatics. The executive master's degree advances the careers of physicians, managers, nurses, information system designers, consultants, entrepreneurs, and others committed to the application of information technology for improving the quality, safety, and efficiency of health services.

The program admits diverse cohorts of students from Missouri, other states, and other nations. During the admissions process, the program seeks learners with strong academic records, maturity, motivation, leadership capabilities, and career potential. Primary post-graduation placements include doctoral programs, health systems, hospitals, academic medical centers, physician group practices, outpatient facilities, information technology companies, consulting firms, government agencies, insurance entities, and other points of health services delivery.

Whereas the residential master's degree format is a traditional on-campus residential program, the executive master's degree is offered in a hybrid model featuring both on-campus and distance learning. In both formats, emphasis is on fostering an individualized and collaborative culture of learning, mentoring, and professional development among students, faculty, staff, alumni, and other practitioners. The intent is to prepare students to enable transformational leadership and improve patient care quality, safety, value, and overall level of population health.

## MS in Health Informatics and Bioinformatics

### Degree Requirements

The residential MS in Health Informatics (MSHI) curriculum requires 36 credit hours of course work, which include foundational coursework in health information technology as well as health administration. Prior coursework in computer science is not required. Residential MSHI students have the option to complete a 12-week internship during the summer following their first year, although it is not required for the degree. HMI's executive-in-residence will work with HI students who wish to complete an internship to find an appropriate placement. For a list of recent internship placements, please see [http://hmi.missouri.edu/prospective/educational\\_partners.html](http://hmi.missouri.edu/prospective/educational_partners.html).

The MSHI curriculum integrates learning across computer science, health informatics, and health administration, and also develops students' research interests. Those with excellent academic records are encouraged to pursue a PhD degree in Informatics. Students must maintain a minimum 3.0 cumulative MU graduate grade point average to earn the Master's degree. Individuals with three or more years of professional experience are encouraged to apply for admission to the Executive MSHI cohort (please see information below).

### Required Courses

HMI 7410	Introduction to the US Health Care System	3
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HMI 7430	Introduction to Health Informatics	3
HMI 7440	Health Information Technology	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information Architecture for Knowledge Driven Healthcare Systems	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8550	Health Data Analytics	3
HMI 8610	Consumer Health Informatics	3
HMI 8870	Knowledge Representation in Biology and Medicine	3
HMI 8090	Thesis Research in Health Management and Informatics	3

\* If a student chooses to complete an internship, s/he must register for HMI 8689 Field Experience in Health Management and Informatics and must abide by all internship program requirements.

## Sample Plan of Study

First Year			
Fall	CR Spring		CR
HMI 7410	3 HMI 8441		3
HMI 7430	3 HMI 8443		3
HMI 7440	3 HMI 8571		3
	HMI 8550		3
			12
Second Year			
Fall	CR Spring		CR
HMI 8435	3 HMI 8870		3
HMI 8437	3 HMI 8090		3
HMI 8610	3		
			6

Total Credits: 36

## Thesis/Non-Thesis Requirement

Residential MSHI students have the option to complete a formal Master's thesis to be submitted to the Office of Graduate Studies. Students who choose not to complete a thesis must complete a substantial independent research project. All MSHI students must present their thesis or independent research during their oral comprehensive examination in their final semester.

## Financial Aid

Applicants to the Residential MSHI cohort who wish to be considered for financial assistance from the HMI Department should apply by March 1, the priority deadline. Those who apply by the deadline and meet academic requirements (see Admissions Requirements section below) will be considered for available scholarships and assistantship positions.

All financial assistance is awarded on the basis of merit, availability of funding, and alignment of student and faculty research interests and skills. Further information about costs, financial aid, and external scholarship opportunities is available on the HMI Department's website at: [http://hmi.missouri.edu/prospective/financial\\_aid.html](http://hmi.missouri.edu/prospective/financial_aid.html).

## Executive MSHI Program

In addition to the residential (on-campus) mode, the MSHI degree is offered in an alternative format for professionals who have significant experience in health informatics. HMI accepts an Executive MSHI cohort to begin in January of each year. The executive MSHI combines three on-campus weekend sessions per semester with independent study and online interaction in an innovative two-year course of study, and requires 33 credit hours of health informatics coursework. Students must complete a substantial independent research project, which they present during their oral comprehensive examination in their final semester. For additional information about the Executive MSHI degree, including a sample plan of study, please visit [http://hmi.missouri.edu/prospective/emshi\\_description.html](http://hmi.missouri.edu/prospective/emshi_description.html) or call the Student Recruitment Specialist at (573) 884-0698.

## Informatics PhD Program

MU also offers a PhD in Informatics with emphasis in Health Informatics through the MU Informatics Institute (<http://muii.missouri.edu>).

## Admissions Requirements

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MSHI program ([http://hmi.missouri.edu/prospective/admissions\\_criteria.html](http://hmi.missouri.edu/prospective/admissions_criteria.html)) and the minimum requirements of the Office (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>) of Graduate Studies.

Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the degree program to which you've applied and the Office of Graduate Studies.

## HMI Admissions Information

Deadline for Fall entrance: Rolling; Priority deadline March 1

A minimum of a baccalaureate degree from an accredited institution

Undergraduate GPA: 3.0 during the last 60 hours of undergraduate course work and any subsequent graduate course work

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	603

- Minimum Academic IELTS scores:

Item	Score
OVERALL	7.5

- Minimum GRE Scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	50th percentile
On or After August 1, 2011	50th percentile

- In lieu of GRE, minimum GMAT score: 50th percentile. HMI also accepts LSAT and MCAT scores. GRE scores are not required for applicants to the Executive cohort.

Required Application Materials

Master's program applicants should apply online through the **Office of Graduate Studies application system** (<http://gradschool.missouri.edu/admissions/apply>). When completing the online application, you will have an opportunity to upload/attach additional documents. Please include the following documents:

- an updated **résumé** or **curriculum vitae**;
- a **personal essay** that:
  - outlines your professional plans and career objectives;
  - explains how you became interested in health services management/health informatics and how your prior training and experience would help your career;
  - includes specific issues and problems in health care you consider challenging and why;
  - indicates if you intend to apply to the traditional (residential) on-campus degree program or the distance education (executive) format

Other required documents:

- **Official transcripts** of all coursework from all colleges, technical schools and/or universities attended
- **Three letters of recommendation** (submitted through the Graduate School application system (<http://gradschool.missouri.edu/admissions/apply>))
- **Official GRE/GMAT score report** (Residential Students only)

You may also be required to submit other documentation and in some cases complete prerequisite courses. Below is a checklist to help make sure your application is complete:

- **Request to re-enroll form** (for previously admitted students only)
- **Application for Change of Degree form** (for students already enrolled in a Master's degree or Graduate Certificate program)
- **Letter of support** from your employer (Executive Students only)
- **Official TOEFL report** (for international applicants only - have official results sent to us: institution code is 6875, our department code is 25 - minimum score of 100 on the Internet-based exam required)
- **Prerequisites** - links to information about prerequisites for each degree program are available at [http://hmi.missouri.edu/prospective/rmha\\_description.html](http://hmi.missouri.edu/prospective/rmha_description.html)

### Admissions Contact

Veronica Lemme, MPA  
 CE740 CS&E Building, DC006.00  
 One Hospital Drive  
 Columbia, MO 65212  
<http://hmi.missouri.edu>  
 (573) 884-0698  
[lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu)

## MS in Health Informatics and Bioinformatics with Emphasis in Bioinformatics

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Health Informatics program (<http://gradschool.missouri.edu/academics/programs/health-informatics/>

[masters.php](http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php)) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Health Informatics and Bioinformatics with Emphasis in Health Informatics

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Health Informatics program (<http://gradschool.missouri.edu/academics/programs/health-informatics/masters.php>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Graduate Certificate in Health Informatics

### About the Graduate Certificate in Health Informatics

The Graduate Certificate in Health Informatics offered by the Department of Health Management and Informatics provides learners with the skills necessary to participate in the selection, use, and evaluation of information technology applications throughout the health services industry. The certificate program is designed for students, physicians, nurses, managers, information system designers, consultants, and others committed to the application of information technology for improving the quality, safety, and efficiency of health services.

Students may pursue the HI Certificate in either the residential or executive format. Students who wish to pursue only the HI Certificate must apply to the HMI Department and the Office of Graduate Studies for admission to the Graduate Certificate program. Students currently enrolled in a non-HMI Graduate program also need to formally apply for the Certificate. Students enrolled in the MHA degree program may earn a HI Certificate concurrently with their Master's degree.

The HI Certificate requires the completion of four courses (12 credit hours total). All students must complete HMI 7430 Introduction to Health Informatics, and may choose any three other health informatics courses to fulfill the remaining nine hours. Students will choose their courses in consultation with the HMI academic advisor.

HMI 7430	Introduction to Health Informatics	3
HMI 7440	Health Information Technology	3
HMI 7566	HIPAA, Social Media, and the Ethics of Health Information	3

HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information Architecture for Knowledge Driven Healthcare Systems	3
HMI 8478	Knowledge Management in Health Care	3
HMI 8550	Health Data Analytics	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8610	Consumer Health Informatics	3
HMI 8870	Knowledge Representation in Biology and Medicine	3

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/health-informatics-graduate-certificate/health-info-ge/Gedt.html>

## Admissions Contact

Veronica Lemme, MPA  
 CE707 CS&E Building, DC006.00  
 One Hospital Drive  
 Columbia, MO 65212  
<http://hmi.missouri.edu>  
 (573) 884-0698  
[lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu) ([lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu))

## Informatics

Academic doctoral programs at MU in the area of Informatics are coordinated through the Informatics Institute.

[muigraduateprogram@missouri.edu](mailto:muigraduateprogram@missouri.edu)  
 241 Naka Hall  
 Columbia, MO 65211-2060  
 573-882-9007  
<http://muii.missouri.edu/>

## About the Informatics Institute (MUII)

Building on a tradition of outstanding informatics education and research at Missouri, the MU Informatics Institute is comprised of over 40 faculty from 17 different departments and 8 schools/colleges, including the Colleges of Agriculture, Food, and Natural Resources; Arts & Sciences; Education; Engineering; Veterinary Medicine; School of Health Professions; Medicine; and Nursing. The Institute offers emphasis areas in bioinformatics and health informatics, along with a concentration area in geoinformatics. Each emphasis area and concentration area stress skill sets and research appropriate to the subfield within the broad area of informatics. A core curriculum provides all students with a foundation of knowledge and tools in biology, computer sciences, health systems, and statistics, after which they complete further coursework in their chosen area. The integrated program assures broad exposure to the field and fosters new insights and innovative research concepts.

## Faculty

**Professor** G. L. Alexander (<http://muii.missouri.edu/people/profile.php?id=23>)\*, J. Belden (<http://muii.missouri.edu/people/profile.php?id=3241>)\*, S. Chen (<http://muii.missouri.edu/people/profile.php?id=31>)\*, S. Erdelez (<http://muii.missouri.edu/people/profile.php?id=37>)\*, H. He (<http://muii.missouri.edu/people/profile.php?id=2345>)\*,

L. Hicks (<http://muii.missouri.edu/people/profile.php?id=16>)\*, B. Meyers (<http://muii.missouri.edu/people/profile.php?id=5125>)\*, J. Moore (<http://muii.missouri.edu/people/profile.php?id=39>)\*, S. S. Nair (<http://muii.missouri.edu/people/profile.php?id=24>)\*, C. R. Shyu (<http://muii.missouri.edu/people/profile.php?id=1>)\*, E. Simoes (<http://muii.missouri.edu/people/profile.php?id=40>)\*, D. Wakefield (<http://muii.missouri.edu/people/profile.php?id=13>)\*, D. Xu (<http://muii.missouri.edu/people/profile.php?id=7>)\*

**Associate Professor** S. A. Boren (<http://muii.missouri.edu/people/profile.php?id=8>)\*, J. Bryan (<http://muii.missouri.edu/people/profile.php?id=4336>)\*, J. Cheng (<http://muii.missouri.edu/people/profile.php?id=2>)\*, G. C. Conant (<http://muii.missouri.edu/people/profile.php?id=17>)\*, G. DeSouza (<http://muii.missouri.edu/people/profile.php?id=4330>)\*, Y. Duan (<http://muii.missouri.edu/people/profile.php?id=36>)\*, C. Elsik (<http://muii.missouri.edu/people/profile.php?id=4335>)\*, S. Goggins (<http://muii.missouri.edu/people/profile.php?id=4337>)\*, T. Kazic (<http://muii.missouri.edu/people/profile.php?id=4>)\*, T. Matisziw (<http://muii.missouri.edu/people/profile.php?id=38>)\*, J. C. Pires (<http://muii.missouri.edu/people/profile.php?id=15>)\*, L. Popejoy (<http://muii.missouri.edu/people/profile.php?id=3603>)\*, M. Popescu (<http://muii.missouri.edu/people/profile.php?id=10>)\*, G. K. Springer (<http://muii.missouri.edu/people/profile.php?id=6>)\*, I. Yoo (<http://muii.missouri.edu/people/profile.php?id=11>)\*, X. Zou (<http://muii.missouri.edu/people/profile.php?id=3>)\*

**Assistant Professor** M. Becchi (<http://muii.missouri.edu/people/profile.php?id=44>)\*, T. Beissinger (<http://muii.missouri.edu/people/profile.php?id=5079>)\*, P. Calyam (<http://muii.missouri.edu/people/profile.php?id=4231>)\*, H. Cao (<http://muii.missouri.edu/people/profile.php?id=4779>)\*, J. Decker (<http://muii.missouri.edu/people/profile.php?id=4224>)\*, T. Ji (<http://muii.missouri.edu/people/profile.php?id=4798>)\*, M. S. Kim (<http://muii.missouri.edu/people/profile.php?id=35>)\*, E. King (<http://muii.missouri.edu/people/profile.php?id=5052>)\*, D. Shin (<http://muii.missouri.edu/people/profile.php?id=4276>)\*

**Associate Research Professor** J. Jackson-Thompson (<http://muii.missouri.edu/people/profile.php?id=4331>)\*

**Assistant Research Professor** C. Fulcher (<http://muii.missouri.edu/people/profile.php?id=4797>)\*, T. Joshi (<http://muii.missouri.edu/people/profile.php?id=4275>)\*, R. Schnabel (<http://muii.missouri.edu/people/profile.php?id=4338>)\*

**Associate Teaching Professor** W. Phillips (<http://muii.missouri.edu/people/profile.php?id=12>)\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in informatics, the University does offer baccalaureate opportunities in a number of related areas. Many successful informatics students have received bachelor's degrees in Geography, Computer Science, Statistics, Business, Biology, and Biochemistry before starting their doctorate.

In addition, MUII offers several service courses designed for upper-level undergraduates and master's students to expose students to the fundamentals of bioinformatics.

## Graduate

- PhD in Informatics (p. 700)
  - with emphasis in Bioinformatics (p. 701)
  - with emphasis in Health Informatics (p. 703)

## Emphasis Areas & Concentration Areas

MUII offers a doctoral degree (PhD) in two emphasis areas: bioinformatics and health informatics ([http://muii.missouri.edu/current\\_students/program\\_of\\_study.php](http://muii.missouri.edu/current_students/program_of_study.php)). In addition, students may also opt for a doctoral degree with a concentration area in geoinformatics.

Students with areas of interests outside of informatics may also wish to pursue a collaborative degree program between MUII and other degree programs. The purpose of the collaborative degree program is to allow students the opportunity to obtain advanced degrees in fields that complement the study of informatics and expand the student's knowledge and applicability.

MUII students may also select the collaborative degree between the Master of Public Health program and MUII PhD in Informatics program. Students must be accepted by both MUII and the MPH program to be eligible. Upon completion of the PhD requirements for the Informatics Institute and degree requirements for the MPH in Health Promotion and Policy with focus on Informatics, students will receive both the PhD in Informatics and MPH degrees. For a full list of courses for the MPH in Health Promotion and Policy with Focus on Informatics, please visit the MPH program website (<http://publichealth.missouri.edu/html>).

## Resources and Facilities

To support the Big Data research and training programs of Informatics Institute, in 2014 the institute secured a National Science Foundation Major Research Instrumentation (MRI) grant to acquire high performance computing (HPC) equipment for data-intensive applications with hybrid cloud computing needs. The equipment (\$880,000) is comprised of 89 nodes: (i) 56 16-core CPU nodes, each with 128 GB RAM, (ii) 2 high-memory nodes, each equipped with 4 8-core CPUs and 1TB RAM (one node)/512GB RAM (one node), (iii) 15 K20 nodes, each equipped with an Nvidia K20 (Kepler) 2,496-core GPU, 2 six-core Xeon E5 processors and 64 GB RAM, (iv) 15 Xeon Phi nodes, each equipped with an Intel Xeon Phi 5110P coprocessor, 2 six-core Xeon E5 processors and 64 GB RAM, and (v) a head node for the cluster. The basic CPU nodes allow supporting traditional MPI, MapReduce, and Spark applications; high-memory nodes are currently required by next generation sequence analyses, and hybrid (Nvidia K20 and Intel Xeon Phi) nodes accommodate existing and new informatics applications accelerated on many-core devices. Intel Phi coprocessors particularly satisfy the requirements of users that need to port existing applications written with traditional parallel programming models (such as OpenMP, MPI and Intel TBB) to many-core processors, without investing the significant development time required for implementation in environments such as CUDA and OpenCL.

## Faculty Areas of Research Interest

Faculty research covers a wide range of interests including structural bioinformatics, systems biology, cancer informatics, chemical informatics, epigenomics, phenomics, text mining & understanding, electronic health records, evidence-based medicine, personalized medicine, human-computer interactions in health care, consumer informatics, patient safety, public health informatics, geospatial informatics, information retrievals,

biomedical data mining & knowledge discovery, and machine learning. For a list of faculty members and their research areas, please visit our web page. (<http://muii.missouri.edu/people/faculty.php>)

## Internal Funding

Fellowships and research/teaching assistantships are available for highly qualified applicants. Application information is available on the Institute's website ([http://muii.missouri.edu/prospective\\_students/financial\\_support.php](http://muii.missouri.edu/prospective_students/financial_support.php)).

## PhD in Informatics

### Admission Contact Information

MUII Staff (mailto: [muiiadmissions@missouri.edu](mailto:muiiadmissions@missouri.edu))  
 241 Engineering Building West  
 Columbia, MO 65211-2060  
 Phone: 573-882-9007  
 FAX: 573-884-8709  
 Informatics Institute (MUII) website: <http://muii.missouri.edu/>

### Admission Criteria

Fall deadline: The deadline for Fall admission is March 1. However, to be considered for departmental and Graduate School fellowships and assistantships, applications should be submitted by January 15th.

- Preferred GPA: 3.3 out of 4.0
- Preferred GRE scores \*

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	3.5-4.0
On or After August 1, 2011	309	3.5-4.0

\* or a preferred GMAT score of 570

- Preferred TOEFL or IELTS scores:

Internet-based test (iBT)	Paper-based test (PBT)
90	577

Item	Score
------	-------

Minimum IELTS Score

- Sufficient background and training to pursue advanced degree in informatics

### All Required Documents

Students are required to send ALL required application materials through the Office of Graduate Studies on-line application system. To begin your application, please see the ApplyYourself website (<http://gradschool.missouri.edu/admissions/apply>).

1. Curriculum Vitae
2. Statement of Purpose, which should include a summary of why the applicant is interested in pursuing an advanced informatics degree, a brief description of your previous research experiences, the specific area of informatics you are interested in pursuing, and your future career goals and plans in the informatics field.
3. GRE/GMAT scores. Use institution code 6875. The departmental code is not required.
4. TOEFL/ELTS scores for international applicants, if required.

5. Three letters of recommendation from faculty or supervisors who can evaluate the applicant's credentials and potential to become successful in the area of informatics.
6. Scanned copies of transcripts from each college and university attended. If accepted, applicants will be required to have official copies of their transcripts sent directly from the institution to the Office of Graduate Studies.

### Optional Documents

Applicants are encouraged to submit representative publications in informatics, if available.

### Informatics Doctoral Degree Requirements

The following is a brief synopsis of the general degree requirements; please see the Informatics Institute web site ([http://muii.missouri.edu/current\\_students/program\\_of\\_study.php](http://muii.missouri.edu/current_students/program_of_study.php)) or the Emphasis in Bioinformatics (p. 701) and Emphasis in Health Informatics (p. 703) for complete details:

- Students must take required and area courses
- Students must pass a qualifying examination
- Students must present at least one institutional seminar annually
- Students are required to complete a comprehensive exam, which includes written and oral elements, within a specified time frame
- Students must pass a comprehensive examination at least 7 months before their scheduled defense
- Students must submit and defend a dissertation describing the results of successful and original research in one of the branches of informatics.
- To show research progress, students are expected to be working toward presenting at conferences and publishing in peer-reviewed journals based on their informatics research.

### Exceptional Funding Opportunities - Biomedical Big Data Science Pre-doctoral Training

**Funded by NIH T32 (2016-2021)**

MU Informatics Institute (MUII) is recruiting SIX top-notch trainees to pursue PhD degree in Informatics through an interdisciplinary training team. Students from basic sciences, life sciences, medicine, and computing disciplines are welcome to apply. Our unique training includes: (1) personalized training modules from core courses of the MS degree in Data Science and Analytics program, Big Data courses from Computer Science, and biomedical informatics courses from MUII, which will expose trainees to the basic concepts, ethics, and working knowledge in Big Data Science; (2) a problem-based learning curriculum in pre-doctoral-level Big Data-related courses, such as Mining Massive Data Sets for Biomedical Applications, designed to foster a team science approach to problem-solving; (3) a student-driven journal club/seminar series, in which students are offered opportunities to present research, pose questions, and receive feedback from peers and mentors. Our interdisciplinary components include (1) required tri-lab rotations to introduce students to animal/veterinary medical research, human medical research, computing/statistical methodologies, and health communications; (2) development of rigorous and reproducible open-source Big Data analytics tools, which will be assessed by the One

Health research community after arduous testing; and (3) creation of an Individual Development Plan based on each trainee's background and career goal prior to joining the program. These positions are open to permanent residents and US citizens only. Women and minority students are encouraged to apply.

Please contact the project director Dr. Chi-Ren Shyu at [ShyuC@missouri.edu](mailto:ShyuC@missouri.edu) ([shyuc@missouri.edu](mailto:shyuc@missouri.edu)) for inquiries.

## PhD in Informatics with Emphasis in Bioinformatics

### Admission Contact Information

MUII Staff ([mailto: muiiadmissions@missouri.edu](mailto:muiiadmissions@missouri.edu))  
 241 Engineering Building West  
 Columbia, MO 65211-2060  
 Phone: 573-882-9007  
 FAX: 573-884-8709  
 Informatics Institute (MUII) website: <http://muii.missouri.edu/>

### Admission Criteria

Fall deadline: The deadline for Fall admission is March 1. However, to be considered for departmental and Graduate School fellowships and assistantships, applications should be submitted by January 15.

- Preferred GPA: 3.3 out of 4.0
- Preferred GRE scores<sup>\*</sup>:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	3.5-4.0
On or After August 1, 2011	309	3.5-4

\* or a preferred GMAT score of 570

- Preferred TOEFL OR IELTS scores<sup>\*\*</sup>:

Internet-based test (iBT)	Paper-based test (PBT)
90	577

Item	Score
Minimum IELTS	6.0

### All Required Documents

Students are required to send ALL required application materials through the Office of Graduate Studies on-line application system. To begin your application, please see the ApplyYourself website (<http://gradschool.missouri.edu/admissions/apply>).

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- To show research progress, students are expected to be working toward presenting at conferences and publishing in peer-reviewed journals based on their informatics research.

## Coursework Requirements

All students must have at least 72 credit hours at the graduate level, of which 15 credits must be at the 8000-level not including research, problems, lab rotations, or seminar. Transferring credits will be at the recommendation of the student's doctoral committee and the approval of the MUII Curriculum Committee.

### REQUIRED CORE COURSES - BIOINFORMATICS EMPHASIS AREA

INFOINST 7002	Introduction to Informatics	3
INFOINST 7010	Computational Methods in Bioinformatics	3

### REQUIRED METHODS COURSES (9 Credit Minimum)

INFOINST 8810	Research Methods in Informatics	3
STAT 7510	Applied Statistical Models I	3

Student must choose one additional 3-credit methods course with doctoral committee approval.

### LAB ROTATIONS AND SEMINAR

INFOINST 8087	Seminar in Informatics (Must be enrolled each semester)	0.5-1
INFOINST 8088	Lab Rotations in Informatics	2

### RESEARCH

INFOINST 8090	Dissertation (pre-candidacy) Research in Informatics	1-99
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INFOINST 9090	Dissertation (post-candidacy) Research in Informatics	1-99
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To provide the maximum flexibility and facilitate interdisciplinary study, students will complete their program of study by selecting an additional 15 credits hours of electives from a list of Area Courses found on the MUII website ([http://muii.missouri.edu/current\\_students/program\\_of\\_study.php](http://muii.missouri.edu/current_students/program_of_study.php)).

## Qualifying Exam Process

Students are expected to take the qualifying exam by the end of their third semester in the program. The exam will be based on their previous coursework, lab rotation experience, and one-page research statement. For more information on qualifying exam procedures, please see the MUII student handbook ([http://muii.missouri.edu/files/MUII\\_Graduate\\_Student\\_Handbook\\_Fall2016.pdf](http://muii.missouri.edu/files/MUII_Graduate_Student_Handbook_Fall2016.pdf)).

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MU Informatics Institute (MUII) is recruiting SIX top-notch trainees to pursue PhD degree in Informatics through an interdisciplinary training team. Students from basic sciences, life sciences, medicine, and computing disciplines are welcome to apply. Our unique training includes: (1) personalized training modules from core courses of the MS degree in Data Science and Analytics program, Big Data courses from Computer Science, and biomedical informatics courses from MUII, which will expose trainees to the basic concepts, ethics, and working knowledge in Big Data Science; (2) a problem-based learning curriculum in pre-doctoral-level Big Data-related courses, such as Mining Massive Data Sets for Biomedical Applications, designed to foster a team science approach to problem-solving; (3) a student-driven journal club/seminar series, in which students are offered opportunities to present research, pose questions, and receive feedback from peers and mentors. Our interdisciplinary components include (1) required tri-lab rotations to introduce students to animal/veterinary medical research, human medical research, computing/statistical methodologies, and health communications; (2) development of rigorous and reproducible open-source Big Data analytics tools, which will be assessed by the One Health research community after arduous testing; and (3) creation of an Individual Development Plan based on each trainee's background and

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Please contact the project director Dr. Chi-Ren Shyu at [ShyuC@missouri.edu](mailto:ShyuC@missouri.edu) ([shyuc@missouri.edu](mailto:shyuc@missouri.edu)) for inquiries.

## PhD in Informatics with Emphasis in Health Informatics

### Admission Contact Information

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## Medical Pharmacology and Physiology

Pharmacology and Physiology  
School of Medicine  
MA415 Medical Sciences Building  
573-882-4957  
<http://medicine.missouri.edu/mpp/>

The joining of these two disciplines provides a powerful way to address modern questions of biology.

The department offers MS and PhD degree programs in Pharmacology and Physiology. These programs are designed to prepare students for rewarding teaching and/or research careers in academia, government or the pharmaceutical and biotechnical industries.

### Faculty

**Professor** F. Booth\*\*, D. Bowles\*\*, G. Davis\*\*, M. Davis, K. Dellsperger\*\*, N. Dietz, W. Durante\*\*, W. Fay\*\*, K. Gruber\*, C. Hardin, E. Hasser\*\*, M. Hill\*\*, L. Holland\*\*, V. Huxley\*\*, T. Hwang\*\*, J. Ibdah, K. Kattesh, R. Korthuis\*\*, M. H. Laughlin\*, K. McDonald\*\*, G. Meininger\*\*, M. Milanick\*\*, L. Pulakat, S. Segal\*\*, S. Shukla\*\*, J. Sowers\*\*, R. Terjung\*\*

**Associate Professor** V. Demarco\*, P. Fadel\*\*, K. Gillis\*\*, S. Halenda\*, M. James-Kracke\*, J. Lever\*\*, R. Lim\*\*, L. Martinez-Lemus\*\*, A. Parrish\*\*, P. Wilden\*\*

**Assistant Professor** C. Baines, T. Domeier\*, M. Krenz\*\*, L. Polo-Parada\*\*, J. Smith, G. Sowa\*\*, M. Thakkar\*\*

**Professor Emeritus** E. Blaine\*, E. L. Forker\*, L. Forte\*, R. Freeman\*, T. Hurley\*, A. Jones\*, H. D. Kim\*, M. Rovetto\*\*, R. Russell\*, J. Turner, R. Walkenbach\*, W. Wosilait\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in medical pharmacology and physiology, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- MS in Medical Pharmacology and Physiology (p. 705)
- PhD in Medical Pharmacology and Physiology (p. 706)

Monica Elliott  
School of Medicine  
MA415 Medical Sciences Building  
573-882-4957  
<http://medicine.missouri.edu/mpp/>

The joining of these two disciplines provides a powerful way to address modern questions of biology. The department offers MS and PhD degree programs in Pharmacology and Physiology. These programs are designed to prepare students for rewarding teaching and/or research careers in academia, government or the pharmaceutical and biotechnical industries.

## Pharmacology

Pharmacology is a basic medical science that deals with actions of drugs, hormones and neurotransmitters on living processes. Knowledge based on the results of pharmacological research leads to increased effectiveness and safety in the treatment of diseases in man and animals. Pharmacology is different from pharmacy, which is a profession concerned with the preparation and dispensing of drugs.

## Physiology

The discipline of Physiology focuses on understanding the integrative function of living organisms from the molecular to the organismal level. As such, physiological research addresses how genes, organelles, cells, tissues and organs are integrated to accomplish the complex functions of living organisms. From a medical prospective, understanding normal function is a prerequisite to understanding disease.

## Areas of Study

Regardless of their final degree objectives, students admitted into the departmental graduate programs will participate in a core curriculum during the first year and choose a specific tract leading to either a degree in Pharmacology or in Physiology following successful completion of the first year. The department also offers specially designed curriculum for individuals interested in a combined MD/graduate degree or who have previous relevant medical education.

## Departmental Research

The departmental faculty has expertise in a variety of mammalian systems, with emphases in cardiovascular and endocrine physiology and molecular and cellular pharmacology. Individual labs utilize a number of different experimental models ranging from the whole animal studies to cellular, subcellular, biochemical and modern molecular approaches. Human research is also emphasized.

Research problems under current investigation include microvascular control of blood flow; modulation of vascular function by the extracellular matrix; role of the microcirculation in inflammation and diabetes; mechanisms involved in angiogenesis membrane regulation and ion transport; barriers separating circulating blood and tissue; energetics and metabolism of vascular smooth and cardiac muscle; electrophysiology of isolated cardiac vascular smooth muscle and endothelial cells; exercise physiology and regulation of contractile protein functions; and hormonal induction of genetic transcription, intracellular signaling mechanisms and genetic regulation of cell proliferation, cell cycle, cell differentiation and apoptosis; and the pathogenetic mechanisms of alcohol on liver cells.

## Partnerships

Cooperative interactions exist with other clinical and basic science departments in the School of Medicine as well as with the Truman Veterans Hospital, the Dalton Cardiovascular Research Center, the College of Veterinary Medicine, Nutrition and Exercise Department and various campus-wide programs in Molecular Biology and Food for the

21st Century. The cooperative research atmosphere encourages staff and students to work across departmental lines and provides a unique opportunity for interdisciplinary training of the students.

## Teaching Experience

In addition to course work and research training, all graduate students are required to participate as teaching assistants in laboratory or lecture instruction offered by the department. Such experience enhances the students' presentation and teaching skills, contributes to their professional maturity, and reinforces a sense of collegiality between students and faculty.

## Financial Aid from the Program

Financial support in this program for qualified graduate students is available from several sources. Students also may be eligible for institutional teaching and research assistantships. In addition, there are a number of fellowship awards from the Graduate School and the campus-wide Life Science Program available on a competitive basis through nominations by the Department.

Deadlines for these fellowships are January to mid-February each year. Applicants do not directly apply for these fellowships. Rather the department applies on behalf of successful applicants for admission. Therefore a prospective candidate should submit an application for admission to the department in the preceding fall. Finally, some of our students are supported by research grants of individual faculty members or by predoctoral fellowships from extramural sources.

## MS in Medical Pharmacology and Physiology

### Admission Contact Information

Monica Elliott  
MA415 Medical Sciences Bldg, DCO63.00  
Columbia, MO 65211  
573-882-4957

## Application Deadlines

Fall deadline: January 7  
Spring deadline: September 15

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum IELTS overall academic score: 5.5
- Minimum GPA: 3.0 in the last 60 hours
- Bachelor's degree in chemistry, biology, pharmacy or related areas from an accredited college
- Background in biology and chemistry and an understanding of mathematics and physics
- Course work in biochemistry and physiology is highly recommended
- Previous lab or research experience preferred

Students are usually admitted to begin their program in the Fall semester, but applications for admission in other semesters will be considered on a space-available basis. Women and minorities are encouraged to apply.

Students with an appropriate educational background are encouraged to apply for entrance into the PhD program. A master's degree is not a prerequisite for admission to the doctoral program. The department will consider applications for the MS degree programs from U.S. citizens but PhD degree students will be given priority consideration for financial support. Deficiencies in course work may be remedied during the first years of the graduate program.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Medical Pharmacology & Physiology Program:*

- Departmental application
- Personal statement
- Transcripts
- 3 letters of recommendation (use form provided). The letters should be written by individuals knowledgeable of the student's academic capability.
- Official GRE & TOEFL scores

## Degree Requirements

To satisfy requirements for the MS degree, a student must complete the professional plan of study with an average grade of B or better and pass an oral examination over an acceptable master's thesis. Candidates also must comply with other regulations governing master's degrees.

## Length of Study

MS degree students should normally complete their studies and thesis project within 2-3 years of admission to the degree program.

## PhD in Medical Pharmacology and Physiology

### Admission Contact Information

Monica Elliott  
 MA415 Medical Sciences Bldg, DCO63.00  
 Columbia, MO 65211  
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## Application Deadlines

Fall deadline: January 7  
 Spring deadline: September 15

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

- Minimum IELTS overall academic score: 5.5
- Minimum GPA: 3.0 in the last 60 hours

- Bachelor's degree in chemistry, biology, pharmacy or related areas from an accredited college
- Background in biology and chemistry and an understanding of mathematics and physics
- Course work in biochemistry and physiology is highly recommended.
- Previous lab or research experience preferred

Students are usually admitted to begin their program in the Fall semester, but applications for admission in other semesters will be considered on a space-available basis. Women and minorities are encouraged to apply.

Students with an appropriate educational background are encouraged to apply for entrance into the PhD program. A master's degree is not a prerequisite for admission to the doctoral program. The department will consider applications for the MS degree programs from U.S. citizens but PhD degree students will be given priority consideration for financial support. Deficiencies in course work may be remedied during the first years of the graduate program.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Medical Pharmacology & Physiology Program:*

- Departmental application
- Personal statement
- Transcripts
- 3 letters of recommendation (use form provided). The letters should be written by individuals knowledgeable of the student's academic capability.
- Official GRE & TOEFL scores

## Plan of Study

The PhD plan of study includes at least two years of basic and advanced courses in physiology and/or pharmacology, as well as courses in cell and molecular biology. The students also will be trained in conducting physiological and pharmacological research in the laboratory of individual faculty members during the first year.

## Qualifying Examination Policy

The department does not require a formal qualifying examination. Successful completion of the core curriculum and satisfactory performance in conducting scientific research and teaching will qualify students for continuation in the PhD program.

## Choosing a Track and Mentor

The student will choose a dissertation mentor at or before the end of the first year and decide whether they wish to pursue the doctoral program in Pharmacology or Physiology.

## Comprehensive Examination

All PhD program students must pass a comprehensive examination before the end of the first semester of the third year of enrollment. The usual format of the comprehensive exam includes the writing and oral defense of a research proposal outside of the student's dissertation research area.

## Dissertation

Each student must then carry out a dissertation research project, original in nature, which is expected to contribute significant new knowledge to the area of study. To facilitate this process, each student submits a dissertation research proposal within six months of passing the comprehensive examination.

## Oral Defense

Finally, all PhD candidates must pass an oral defense of the dissertation and comply with all university and departmental regulations governing the PhD degree.

## Length of Study

The doctoral program normally requires four to five years beyond the baccalaureate degree.

## Microbiology

School of Medicine  
M616 Medical Sciences Building  
(573) 882-8152  
<http://medicine.missouri.edu/mmi/mpt/>

The Department of Molecular Microbiology and Immunology (MMI) at the University of Missouri School of Medicine has three primary missions: to foster cutting-edge research on biomedically relevant problems in microbiology, immunology, and virology; to educate strong, independent research scientists; and to provide knowledge-based service to the state, nation and international communities.

Molecular Microbiology and Immunology has a long history of providing graduate and postgraduate education in basic principles of microbiology and immunology, as well as research training opportunities in the laboratories of established scientists with diverse research interests. Faculty expansion has provided new curricular offers with flexibility for personalized scholarly pursuits built in. The breadth of research training includes faculty laboratories in the School of Medicine (<http://medicine.missouri.edu>), the Bond Life Sciences Center (<http://bondlsc.missouri.edu>) and the College of Veterinary Medicine (<http://vetmed.missouri.edu>).

The Department of Molecular Microbiology & Immunology, in partnership with the faculty from the Department of Veterinary Pathobiology (VPB), offers a comprehensive graduate program, **Molecular Pathogenesis and Therapeutics Graduate Program (MPT)**, leading to the Doctor of Philosophy (PhD) degree. Strong scientific interactions among faculty from these and other academic units across campus illustrate the importance of scientific collaborations not only in meeting the research challenges in microbiology and immunology, but also in providing a strong academic environment for the training of the next generation of scientists and educators in these disciplines. The faculty in this training program have achieved international recognition for their scientific contributions and expertise, with their research efforts published in top tier research journals and funded through stringent peer-reviewed federal grants. Many of these investigators serve on scientific review committees for these funding agencies.

This program provides individualized training that is strongly oriented toward basic research in molecular and cellular biology, microbiology, virology, pathogenesis, immunology and host-parasite interactions.

MMI offers under the program name of Molecular Pathogenesis and Therapeutics Graduate Program (MPT):

- PhD in Microbiology (Medicine)
- Cooperative Degrees: MD/ PhD in Microbiology (Medicine)

## Faculty

### Molecular Microbiology and Immunology

**Professor** D. Burke, D. Duan, M. A. McIntosh, M. L. Misfeldt, D. J. Pintel, S. Sarafianos, H. Zaghouani  
**Associate Professor** J. F. Cannon, M. A. Daniels, M. C. Johnson, E. Teixeira-Pernas  
**Assistant Professor** M. R. Baldwin, H. Guo,  
**Professor Emerita/Emeritus** K. L. Bennett, H. Braley-Mullen, R. A. Finkelstein, H. S. Goldberg, D. R. Lee, K. S. Wise  
**Assistant Teaching Professor** J. L. Furrer

### Veterinary Pathobiology

**Professor** C. R. Brown, B. T. Beerntsen, E. C. Bryda, M. J. Calcutt, C. L. Franklin, C. L. Lorson, B. K. Ray, G. Stewart, R. W. Stich  
**Associate Professor** D. M. Anderson, G. Zhang  
**Assistant Professor** J. Amos-Landgraf, A. Franz, J. Skyberg

### Jointly appointed to Molecular Microbiology and Immunology

**Professor** J. D. Wall  
**Associate Professor** U. Atasoy, D. Cornelison, B. Hahm, S. C. McKarns  
**Assistant Professor** P. Brown

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While the University of Missouri does not offer an undergraduate degree specifically in molecular microbiology and immunology, undergraduates are able to take basic courses offered by Molecular Microbiology and Immunology in the areas of microbiology, immunology and virology. MU does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges within, including courses offered through Biological Sciences, Biochemistry, Pre-Med, Nursing, and Health Professions. The course catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Microbiology (p. 708)
- PhD in Microbiology (p. 708)

School of Medicine  
M616 Medical Sciences Building  
(573) 882-8152  
<http://medicine.missouri.edu/mmi/mpt/>

The Departments of Molecular Microbiology & Immunology (MMI), in partnership with the faculty from the Department of Veterinary Pathobiology (VPB), offers a comprehensive graduate program,

**Molecular Pathogenesis and Therapeutics Graduate Program (MPT)**, leading to the Doctor of Philosophy (Ph.D.) degree. The Molecular Pathogenesis and Therapeutics Graduate Program is built around scholarly activities with three important missions: cutting-edge research programs to address relevant biomedical problems in microbiology, pathogenesis, and immunology, a graduate training program to educate strong, independent research scientists, and a commitment to provide knowledge-based service to the state, national and international communities that will improve global understanding of the microbial world, infectious diseases and host immunity to infection. Graduate (and postgraduate) education programs offer the basic principles of microbiology, pathogenesis, and immunology as well as research training opportunities in the laboratories of established scientists with diverse research interests.

## Faculty Research

The program is equipped to support a wide range of research activities at the cutting edge of our diverse science. Faculty research activities focus on key problems in pathogenic microbiology, immunology, molecular biology, genetics, therapeutics, and virology.

## Research Facilities and Resources

The research environment at MU with Colleges of Medicine, Veterinary Medicine, Agriculture, Engineering, and Arts and Sciences on one comprehensive campus fosters the development of interdisciplinary scientific interactions that enhance both research and training opportunities for faculty and students alike. The Bond Life Sciences Center represents such an interdisciplinary research enterprise and houses investigators from multiple colleges and departments, including MMI and VPB. Critical to the Molecular Pathogenesis and Therapeutics Graduate Program interests in infectious diseases, pathogenesis, therapeutics, and immunity research, the recent construction of an NIH-funded Laboratory for Infectious Disease Research provides modern BSL3/ABSL3 containment research space and animal holding facilities for the investigation of highly infectious organisms and human select agents. This resource, and the Molecular Pathogenesis and Therapeutics Graduate Program's partnership with the Midwest Regional Center for Excellence in Biodefense and Emerging Infectious Disease Research, centered at Washington University in St. Louis, position MU in the national network of infectious disease research and training efforts. Please visit the MMI Web site (<http://medicine.missouri.edu/mmi>) for additional information on MMI's access to state of the art facilities.

## Career Opportunities

Graduates completing this training are prepared to pursue challenging and rewarding professional careers that involve research and teaching at supervisory levels in both the academic and private sectors.

## Research & Teaching Assistantships

Students in the doctoral program are awarded research assistantships. Research assistants work with faculty members to obtain practical experience in carrying out research proposals through the collection of research data and writing research reports. All students in the graduate program are required to participate as teaching assistants for two semesters during their studies.

If you are interested in a the Molecular Pathogenesis Graduate Program, please see the "Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificate (p. 17)" page for the Ph.D. in Microbiology.

## MS in Microbiology

### Thesis/Non-Thesis Requirements

Minimum requirements by the Graduate School (<http://gradschool.missouri.edu/academics/graduation-requirements/masters-grad-requirements.php>).

Students must make the degree change from the intended PhD to a Masters with the Office of Graduate Studies and follow the minimum requirements set by that office. The Molecular Pathogenesis and Therapeutics Graduate Program requires all Masters students to provide a written thesis as well as present it orally in a public seminar.

### Admissions

The Molecular Pathogenesis and Therapeutics Graduate Program does not accept Masters seeking applicants into the program.

## PhD in Microbiology (MED)

### Program Overview

The Molecular Pathogenesis and Therapeutic Graduate Program (MPT) was collaboratively designed by the Department of Molecular Microbiology & Immunology (MMI) and the Department of Veterinary Pathobiology (VPB). The MPT Program offers comprehensive graduate-level training leading to the Doctor of Philosophy (Ph.D.) degree. This program provides individualized training that is strongly oriented toward basic research in molecular and cellular biology, microbial pathogenesis, virology, immunology and host-parasite interactions. Graduates completing this training are prepared to pursue challenging and rewarding professional careers that involve research and teaching at supervisory levels in the academic, government and private sectors.

Graduate students entering into the program should be highly motivated toward a career in research in microbiology. They must have, as a minimum, a baccalaureate degree with an undergraduate record showing superior performance in introductory and advanced coursework in prerequisite subjects (biology, chemistry, physics, and mathematics). They must have taken the Graduate Record Examination and should have superior scores. Additionally, international applicants will require demonstration of English fluency via TOEFL scores. Letters of recommendation from individuals who are qualified to judge should clearly indicate aptitude for, and dedication to, a career in science.

The MMI and VPB Departments are central components of an eminent, interdisciplinary campus program in molecular biology and life sciences, which also involves molecular biologists in Biochemistry and Biological Sciences as well as many other University departments. Campus core facilities provide cell culture and immunology services, DNA sequence analysis, transcriptional analysis, protein structural analysis, transgenic animals, protein expression, proteomics, electron microscopy and molecular cytology.

### Program Degree Options

#### The Doctor of Philosophy (Ph.D.) Degree

The program involves (i) a course of study which includes required and elective course work, (ii) participation in programmatic seminars and journal clubs, (iii) training in teaching through participation in laboratory courses for undergraduates, (iv) a comprehensive examination designed

to evaluate a student's ability to propose and experimentally evaluate a significant scientific question, and (v) the successful completion of a creative and original scholarly research project.

### Degree Options

#### Ph.D. Degree

On average, the graduate degree program will require four to six years of full-time effort, although this may vary depending on the ability and previous experience of the individual student. A Master of Science Degree is not a prerequisite for the Ph.D. degree.

#### Dual Degree

A program leading to the combined Ph.D. /M.D. degrees can be designed for students who are admitted to the Medical School and to the MPT Graduate Program. It is anticipated that these students will fulfill their first two years of Medical School academic requirements before entering the MPT Graduate Program for the research-oriented Ph.D. degree. All coursework, TA responsibilities, rotations, comprehensive examination and research requirements are the same as for any other graduate student. Dual degree students will be encouraged to complete research rotations during the summer semesters of their two years of medical curriculum so that a dissertation research project can be initiated immediately upon entering the Ph.D. program. Typically, clinical requirements for the M.D. will be completed after fulfillment of the requirements for the Ph.D.

#### The Master of Science (M.S.) Degree

Admission to the MPT program to pursue a M.S. degree is not an option, as students are accepted with the intent that they will fulfill the PhD requirements. Only under unforeseen circumstances such as illness, a change in academic interest, or other personal reason, is a student allowed to transfer to the M.S. degree. Requirements are the same as for doctoral candidates, although successful completion of a comprehensive examination is not a requirement for the Master's candidate. Students opting for a M.S. degree, must complete a research project and write and defend a Master's thesis in front of their Master's committee. The Master's Committee should consist of at least three faculty members including the mentor. At least two of the faculty members should be from the MPT Graduate Program and at least one faculty member from outside of the advisor's primary department.

## Degree Requirements

**All students in the program are supported by a stipend (currently \$25,000 per year) plus tuition costs and basic medical insurance.**

### Laboratory Rotations

All new graduate students admitted into the MPT Graduate program are required to complete three laboratory rotations starting in the Fall semester and concluding in mid-January before the Spring semester begins. Students will meet with the Director of Graduate Studies prior to each rotation to determine the appropriate laboratory and rotation advisor. Laboratory rotations expose graduate students to research activities within the Program and to the experimental laboratory environment in which they will evolve. Prior to finishing the third laboratory rotation the graduate student selects a mentor based on mutual agreement between the student and the mentor. Once the mentor has been selected, the student will perform his or her doctoral research under the guidance of the mentor in his/her laboratory.

### Laboratory Rotation Schedule

The MPT Graduate Student Laboratory Rotation Program represents a vehicle to introduce the research laboratory to incoming students and to stimulate a direct interaction between students, faculty and other program personnel. The program is designed to expose students as quickly as possible to research activities within the Program and to the experimental laboratory environment in which they will evolve.

Laboratory rotations will approximately adhere to the following schedule\*:

- Summer Research Experience\*\* - Start of Summer semester (usually 1st Monday June 6th) - July 29th
- 1st Rotation - August 21st - September 1st
- 2nd Rotation - October 1st - November 11th
- 3rd Rotation - November 13th - January 13th (this allows limited time off for holidays and final exams)

\*These dates will change from year to year depending on the start date of the Fall semester and will be set by the Director of Graduate Studies

\*\*With permission of Director of Graduate Studies, Executive Committee, and Department Chairs

Students who wish to enter the program early at the beginning of the summer semester preceding their first academic semester may do so, if financial resources are available.\*\* However, this will be considered a "summer research experience" with one of the faculty members but not an official rotation. This summer research experience should begin no earlier than June 1 and no later than the first day of the Summer semester, and should end on August 15th. This student will still be required to perform three rotations with different faculty advisors, starting in the fall. The student would then be able to select one of those advisors including the "summer research experience" advisor as his or her doctoral advisor. Students engaging in the "summer research experience" will register for 4 credit hrs. of MICROB 9085 Problems (Rotations) for the summer semester and will need to be on campus by the beginning of the MU summer semester (usually first Monday in June).

### Required Courses for Graduate Students in Program

- **Fall semester, 1<sup>st</sup> year (all required):**
  - MICROB 7303 Fundamental Virology (2 credit hrs.)
  - MICROB 7304 Immunology (2 credit hrs.)
  - MICROB 7404 Foundations in Bacteriology and Pathogenesis (3 credit hrs.)
  - MICROB 8050 Graduate Student Survival Skills (1 credit hr.)
- **Three of the following courses** (only one of these may be an approved elective)
  - MICROB 9404 Advanced Bacterial Pathogenesis (4 credit hrs.; offered Spring of odd years only)
  - MICROB 9407 Advanced Immunology (4 credit hrs.; offered Spring semesters of even years only)
  - MICROB 9432 Molecular Biology II (4 credit hrs.; offered every Spring semester)
  - MICROB 9449 Infection and Immunity (4 credit hrs.; offered every Fall semester)
  - MICROB 9001 Topics in Microbiology (4 credit hrs.; every other Spring semester of odd years offering as Advanced Virology)
- Approved 8/9000 current literature-based elective (3-4 credit hrs.)  
8000/9000-level electives: The DGS and the Curriculum Committee must approve these courses. They should also be approved by

the student's doctoral committee (examples of courses still needing approval are given below):

- V\_PBIO 8436 Pathogenic Mechanisms in Veterinary Pathobiology (3 hours)
- BIO\_SC 8350 Advanced Cell Biology (3 hours)
- BIO\_SC 8320 Developmental Genetics (3 hours)
- BIO\_SC 8440 Integrative Neuroscience I (3 hours)
- BIO\_SC 8442 Integrative Neuroscience II (3 hours)
- MPP 9426 Transmembrane Signaling (4 hours)
- MPP 9435 Skeletal Muscle (3 hours)
- V\_PBIO 8641 Introduction to Research Ethics (1 credit hr.; every Spring semester)
- MICROB 9087 Seminar in Microbiology (required to take this 4 times: 2<sup>nd</sup>-5<sup>th</sup> years) (1 credit hr.; every Spring semester)
- MICROB 9403 Advanced Medical Microbiology (credit for teaching) (2 credit hrs.; every semester)

#### Other duties

- Act as a teaching assistant (TA) in MICROB 2800 or MICROB 3200 for two semesters (to be completed during the first two years, but not during the Fall semester of the first year).
- Attend Program seminars (any invited speakers and student seminars) on Wednesdays at 1:15 pm usually in Monsanto Auditorium in the Bond LSC; attendance will be taken; enroll in MICROB 9087 Seminar in Microbiology for 1 credit hr. in the Spring semesters of years 2-5. **You will need to give a seminar during those years; course grade will be determined by attendance and your presentation.**
- **English-Language Proficiency Requirements for International Students**

Any graduate student who completed primary and secondary education (equivalent of K-12 in the U.S.) in a country where English is not the primary language is required by the state of Missouri law to be assessed for English language proficiency. The Speaking Proficiency English Assessment Kit (SPEAK) test is conducted through the Office of Graduate Studies. International graduate students must receive a level 2 or higher on their language assessment to meet the requirements to TA. If they receive a score below 2 additional courses may be recommended for the student to increase their language skills before their English language is reassessed.

ONITA training is offered during the week preceding the Fall and Spring semester. The training is required for all new international graduate students before the first semester of teaching or assisting with teaching at MU.

#### Credit Hour Requirements:

The Graduate School requires 72 hours of advanced study to be completed for the Ph.D. degree. A minimum of 15 hours of 8000-9000 level course work, not including MICROB 9085 Problems in Microbiology and MICROB 9090 Research in Microbiology. A maximum of four hours of MICROB 9087 Seminar in Microbiology can count toward this requirement.

#### Full-time Student Enrollment

#### Graduate student full-time enrollment statuses pre-comprehensive exam:

- 9 credit hours for fall and spring, 4 credit hours for summer.

#### Graduate student full-time enrollment statuses post-comprehensive exam:

- 2 credit hours for fall and spring, 1 credit hour for summer.

## Requirements for Qualifying and Comprehensive Exam

Each student will be required to master two phases of the curriculum, qualifying and advanced, designed to achieve the educational objectives described above. The MPT Graduate Program Curriculum Committee makes decisions regarding additions or changes to the basic curriculum.

Due to the changing environment in this field of research, the MPT Graduate Program curriculum may be subject to change.

#### Qualifying Phase

A required basic series of courses are designed to establish a foundation in bacteriology and pathogenesis (MICROB 7404), virology (MICROB 7303), and immunology (MICROB 7304).

#### Advanced Phase

It is expected that combinations of advanced courses in molecular biology of eukaryotes (MICROB 9432), immunology (MICROB 9407), virology (MICROB 9001), infection and immunity (MICROB 9449), and bacterial pathogenesis (MICROB 9404) will comprise the core curriculum, although alternative courses may be prescribed by the MPT Curriculum Committee and by Doctoral committees based upon individual student needs. Satisfactory performance is defined as a grade of B or above in these 8000/9000 level courses. Unsatisfactory performance(s) must be corrected according to the recommendations of the Graduate Student Advisory Committee. Such recommendations may include retaking the course(s), additional examinations, or dismissal from the Graduate Program.

#### Goals and Purpose of Qualifying and Comprehensive Exams

##### Qualifying Exam

The goal of this exam is to determine whether the student is qualified to enroll in advanced graduate courses as well as intellectually prepared to perform research in this program. Passage of the four fundamental required courses implemented in Fall 2013 will constitute passage of the qualifying exam. The guidelines for this process are covered in greater detail in Section VI of our MPT Graduate Handbook ([https://medicine.missouri.edu/file/mpt\\_graduate\\_handbook\\_20141-1-pdf](https://medicine.missouri.edu/file/mpt_graduate_handbook_20141-1-pdf)).

##### Comprehension Exam

The purpose of the comprehensive exam is to certify that the student has sufficient scientific knowledge (from the course work) and research insight to advance to candidacy for the Ph.D. This knowledge and insight are examined in this program through the student writing and orally defending an NIH-style research grant proposal. This examination will be administered at the end of the fall semester of the third year. The guidelines for this process are covered in greater detail in Section VII of the MPT Graduate Handbook. ([https://medicine.missouri.edu/file/mpt\\_graduate\\_handbook\\_20141-1-pdf](https://medicine.missouri.edu/file/mpt_graduate_handbook_20141-1-pdf))

## PhD Dissertation Guidelines

The final educational requirement for the Ph.D. degree is the written and oral presentation of a novel and creative piece of scholarly research that represents new information and significantly advances knowledge in that field of research. The dissertation project must be approved by the student's doctoral committee and should demonstrate the student's scientific maturity and ability to write in a scholarly fashion. At the completion of the dissertation research, the student will present his/her research findings in a public seminar for program faculty and personnel and will defend the project before his/her doctoral committee. The project will be detailed in a formal written thesis that conforms to Office of Graduate Studies guidelines with respect to format. Approval of the scientific content of the thesis is the responsibility of each doctoral committee and requires the signature of each committee member, with no more than one dissenting or abstaining vote. The evaluation will consider the following guidelines with respect to thesis content.

**a. Introduction** – The manuscript should describe pertinent background material that establishes the foundation for the overall thesis proposed as well as the specific research questions being addressed and the significance of this project with respect to the field.

**b. Materials and Methods** – The thesis should describe in detail the experimental protocols used in the study; where applicable, references to published protocols should be made, but modifications to such procedures should be defined. The methods may be presented as a component of each Results chapter, or may be combined into a single, separate chapter.

**c. Results** – Presentation of the data accumulated during the study that is relevant to the thesis being examined and the conclusions reached. The data should be presented in chapter format, with each chapter devoted to particular questions relative to the overall thesis. Since students are encouraged to publish their work during their graduate studies, these chapters may represent those publications (however, the student must be responsible for the writing and presentation of this work in the thesis).

**d. Discussion** – While each chapter presenting research data may contain a discussion of those specific data, the thesis should be concluded with a summary discussion that presents the student's overall conclusions about the study and the relevance of this work to the field as a whole. This summary provides the student an opportunity for knowledgeable speculation as to the significance of the work and its impact on the field.

### Program of Study

The program involves satisfactory completion of a minimum of 72 hours of graduate study as well as completion of original research and a thesis, which demonstrates research competence. Of the 72 hours graduate credit, 15 hours must be in courses numbered 8000/9000 (excluding research and problems courses, but including up to 4 credit hours of seminar courses).

More information at the MPT Graduate Handbook ([https://medicine.missouri.edu/file/mpt\\_graduate\\_handbook\\_20141-1-pdf](https://medicine.missouri.edu/file/mpt_graduate_handbook_20141-1-pdf))

## Admissions

### Admission Contact Information

Jana Clark  
 Department of Molecular Microbiology and Immunology  
 M616 Medical Science Building

Columbia, MO 65212  
 573-882-3938  
 mmi@missouri.edu

The Molecular Pathogenesis and Therapeutics Graduate Program (MPT) is offered through the Departments of Microbiology and Immunology in the School of Medicine and Veterinary Pathobiology in the College of Veterinary Medicine. This graduate training program is designed to prepare students for an advanced professional career in microbiology and immunology. Emphasis is placed on developing outstanding students for productive supervisory roles in universities and colleges, industry, government and research institutes. Enrollment is limited to those students who show evidence of potential for research.

## Application Deadline

Fall deadline: January 10

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
92	580
Academic International English Language Testing System (IELTS)	
6.5	

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2011 (No more than 5 years old)	300	3.0

- Minimum GPA: 3.0
- Bachelor's degree from an accredited college or university
- Courses in the following: biology; advanced courses in biochemistry and/or molecular biology are highly desirable; chemistry (quantitative or organic); physics; mathematics

The PhD degree is offered only to students who demonstrate a high level of specialized knowledge and clear evidence of research potential.

## Required Application Materials

To the Office of Graduate Studies:

- All required Office of Graduate Studies (<https://applygrad.missouri.edu/apply>) documents
- TOEFL score (if international applicant)
- 3 letters of recommendation from individuals competent to comment on the applicant's potential for graduate research and course
- GRE scores
- Personal statement and research experience
- Copy of TOEFL scores (if international applicant)

## Research & Teaching Assistantships

Students in the doctoral program are awarded research assistantships, (currently at \$25,000). Research assistants work with faculty members to obtain practical experience in carrying out research proposals through the collection of research data and writing research reports. All students



in the graduate program are required to participate as teaching assistants for two semesters during their graduate studies.

## Degree Completion Requirements

To be accepted for candidacy into the MPT PhD program, all applicants must perform satisfactorily in a core curriculum that includes advanced-level courses in the sub disciplines of immunology, molecular biology and microbial pathogenesis. Under the guidance of a doctoral program committee, a course of study is individually designed to fit each student's academic background, experience and objectives. Interdisciplinary courses in biochemistry, molecular and cellular biology and genetics provide breadth and balance in the program and enhance the student's research abilities. In addition, the PhD program consists of the following:

- Practical experience in teaching
- Successful completion of a comprehensive examination that tests the student's ability to develop an original scientific hypothesis and devise a feasible research plan that will test the hypothesis.
- A demonstration of research and writing ability by completing a scholarly dissertation on an approved research problem that results in the contribution of significant new knowledge. The final examination primarily covers this dissertation research.

## University of Missouri Graduate School Application:

Applications should be submitted through the [University of Missouri, Office of Research and Graduate Studies](#). Applicants will not be registered with the [University of Missouri, Office of Research and Graduate Studies](#) until they have completed the graduate school application and paid the graduate school application fee.

Applicants who are in the United States and reviewed favorably by the Graduate Admissions Committee will be invited to visit the University of Missouri for an interview for which the program defrays expenses. This visit provides an excellent opportunity for the prospective student to meet the faculty members, talk and interact with our current students, view the University of Missouri-Columbia and the Molecular Pathogenesis and Therapeutics Graduate Program, and experience Columbia, Missouri.

All application materials are filed alphabetically under the family name as indicated by the applicant on the International Student Application form. It is important that all supporting documents use the same name and spelling as the International Student Application so they can be quickly matched up to complete the application file.

### Contact Information:

Jana Clark, Business Support Staff II  
Department of Molecular Microbiology & Immunology  
M616 Medical Sciences Building  
Columbia, MO 65212

[mmi@missouri.edu](mailto:mmi@missouri.edu)

### Contact Information:

Chair of Graduate Admission Committee, Roger W. Stich, Ph.D.  
([stichrw@missouri.edu](mailto:stichrw@missouri.edu))  
Director of Graduate Studies, Michael Calcutt, Ph.D.  
([calcuttm@missouri.edu](mailto:calcuttm@missouri.edu))

## Neuroscience

### About the Program

One of the most exciting and dynamic fields of modern science worldwide is neuroscience, the study of how the nervous system is organized and how it functions. The field of neuroscience encompasses many disciplines, including biology, biochemistry, computer sciences, electrical engineering (neural modeling of neural networks and biomedical instrumentation), neurology, neurosurgery, pharmacology, physics, physiology, psychology, psychiatry, and radiology. Neuroscientists have advanced our understanding of nervous system development, neural function, injuries of the nervous system, and disease processes. At MU, neuroscientists investigate the molecular and cellular organization of the nervous system, the structure and function of neural systems (including vision and hearing), behaviors generated by the nervous system, and neurological diseases and disorders. For more information about the Neuroscience Program, application materials, and contact information, go to <http://neuroscience.missouri.edu>.

### Faculty

**Professor** B. Bartholow, A. Chandrasekhar, J. Coates, N. Cowan, S. Frey, D. Geary, C. Gerhardt, K. Gillis, M. Hannink, C. Heesch, T. C. Hwang, P. Jen, G. Johnstone, M. Katz, J. Kerns, M. Kirk, C. Lorson, A. McClellan, S. Nair, D. O'Brien, J. Rouder, T. Schachtman, H. Schatten, S. Shukla, J. Schul, G. Sun, G. Weisman, B. Zhang

**Associate Professor** K. Aldridge, D. Beversdorf, S. Christ, D. Cornelison, S. Ding, M. Garcia, Z. Gu, S. Hackley, D. Kline, G. Kracke, J. Lee, J. Maruniak, D. Miller, M. Pettris, L. Reneker, D. Schulz, M. Thakkar, M. Will, T. Zars

**Assistant Professor** C. Hagan, J. Johnson, C. Kuehl-Kovarik, L. Milescu, M. Milescu

**Associate Research Professor** A. Simonyi

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in neuroscience, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

### Graduate

- MS in Neuroscience (p. 713)
- PhD in Neuroscience (p. 713)
- Graduate Certificate in Neuroscience (p. 713)

### About the Program

One of the most exciting and dynamic fields of modern science worldwide is neuroscience, the study of how the nervous system is organized and how it functions. The field of neuroscience encompasses many disciplines, including biology, biochemistry, computer sciences, electrical

engineering (neural modeling of neural networks and biomedical instrumentation), neurology, neurosurgery, pharmacology, physics, physiology, psychology, psychiatry, and radiology. Neuroscientists have advanced our understanding of nervous system development, neural function, injuries of the nervous system, and disease processes. At MU, neuroscientists investigate the molecular and cellular organization of the nervous system, the structure and function of neural systems (including vision and hearing), behaviors generated by the nervous system, and neurological diseases and disorders.

Students interested in the program are encouraged to contact members of the faculty directly by phone or e-mail, or visit the Interdisciplinary Neuroscience Program website.

## Career Opportunities

MU's Interdisciplinary Neuroscience Program offers talented graduate students a chance to train for a career in one of the most exciting fields of modern science. Most of our students pursue research and teaching careers in basic neuroscience departments at prestigious research universities. Others opt for challenging and rewarding positions in applied fields, such as drug research or neurodiagnostic technology. Whatever their ultimate goals, the graduate neuroscientists who are trained at MU gain a solid understanding of the nervous system and of the experimental methods by which this knowledge is acquired.

## Plan of Study

Typical undergraduate majors that constitute preparation for graduate work in neuroscience include, but are not limited to, biochemistry, engineering, biology, computer science, chemistry, physics, neurobiology, physics and psychology.

After completing comprehensive course work in molecular, cellular, systems and behavioral neuroscience, graduate students join a research laboratory and work with other lab personnel to master the relevant technical skills and theoretical concepts in their chosen field. Students in the Interdisciplinary Neuroscience Program have the opportunity to present their findings at lab meetings, seminars, journal club sessions, and both national and international professional scientific conferences.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Graduate Certificate in Neuroscience

The purpose of this certificate is to provide formal recognition to post baccalaureate students who are taking neuroscience courses and conducting research in neuroscience laboratories. This stand-alone certificate would allow post-baccalaureate students to have a specific, formal indication of their advanced studies and would be very beneficial to students who are considering applying to graduate degree programs or health sciences programs, such as medical or dental school.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/neuroscience-graduate-certificate/neurosci-ge/Gedt.html>

## MS in Neuroscience

### Admission Criteria

Fall deadline: December 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	
On or After August 1, 2011	308	

- Bachelor's degree or its equivalent

Neuroscience comprises a united field that integrates across many disciplines, and students from a variety of academic backgrounds are encouraged to apply to the Interdisciplinary Neuroscience Program (INP). U.S. residents and international applicants are strongly encouraged to apply.

### Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the INP Program:*

- Departmental application
- 3 letters of recommendation
- GRE scores
- TOEFL (if applicable)

## PhD in Neuroscience

### Admission Criteria

Fall deadline: December 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	
On or After August 1, 2011	308	

- Bachelor's degree or its equivalent

Neuroscience comprises a united field that integrates across many disciplines, and students from a variety of academic backgrounds are encouraged to apply to the Interdisciplinary Neuroscience Program (INP). U.S. residents and international applicants are strongly encouraged to apply.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the INP Program:

- Departmental application
- 3 letters of recommendation
- GRE scores
- TOEFL (if applicable)

## Nutrition Area Program

### Department Chair:

Christopher Hardin  
204 Gwynn Hall  
(573) 882-4288  
hardinc@missouri.edu

### Director of Graduate Studies:

Pamela Hinton  
124 McKee  
(573)882-4137  
hintonp@missouri.edu

### Admission Contact Information

Ben Sauro  
204 Gwynn Hall  
Columbia, MO 65211  
573-882-4288  
saurob@missouri.edu

## About the Program

The Nutrition Area Program provides graduate training in the distinct core nutrition knowledge described by the Graduate Nutrition Education Committee of the American Society for Nutrition.

## Faculty

**Professor** K. L. Fritsche\*\*, C. D. Hardin\*\*, J. A. Kanaley\*\*, E. J. Parks\*\*  
**Associate Professor** S. Ball\*\*, S. Gable\*\*, P. S. Hinton\*\*, C. A. Peterson\*\*, R. S. Rector\*\*

**Assistant Professor** J. Limberg\*, J. Padilla\*, V. Vieira-Potter\*

**Assistant Research Professor** K. Keller

**Teaching Assistant Professor** L. Hudson\*, M. Raedeke\*, J. Schnell\*, D. Smith

**Joint Faculty** M. J. Petris\*\*, L. Pulakat\*\*

**Adjunct Faculty** F. W. Booth\*, N. Fassir\*\*, J. A. Ibdah\*\*, D. Lubahn\*\*, S. Sayers

**Adjunct Instructor** J. B. Mann, T. Roberts, R. Sharp, D. Showers, M. Stevens, J. Thyfault\*\*

**Extension Faculty** J. Britt-Rankin\*, C. Gabel, S. Mills-Gray

**Professor Emeritus** D. E. Brigham\*, R. P. Dowdy\*, L. Hillman\*, P. M. Landhuis\*, M. McDonald, B. L. O'Dell, T. R. Thomas\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in the nutrition area program, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- PhD in Nutrition Area Program (p. 714)

## PhD in Nutrition Area Program

### About the Program

The Nutrition Area Program provides training in the distinct core nutrition knowledge described by the Graduate Nutrition Education Committee of the American Society for Nutrition: general research skills; structure and biochemical and metabolic functions of nutrients and other dietary constituents; food, diets, and supplements; nutritional status assessment; nutrition and disease; nutrition interventions and policies; and, analytical skills. Graduate students also receive training in laboratory research, seminar preparation and delivery, scientific writing, problem solving and research grant writing. Graduate study in nutritional sciences at the University of Missouri offers the advantage of interdisciplinary nutrition research that is facilitated via the many research centers at MU, including Food for the 21st Century (F21C), the Botanical Center, the Life Sciences Center and the MU Nutritional Center for Health (MUNCH).

Nutrition is, by definition, an applied and multi-disciplinary science that integrates other disciplines such as biochemistry, physiology, biology, psychology, sociology, and economics. A primary research focus in the department of Nutrition and Exercise Physiology is the role of diet in the prevention and treatment of chronic diseases that are prevalent in the United States today: obesity, the metabolic syndrome, diabetes, immune disorders, neurodegenerative diseases, and osteoporosis. Specific dietary components being studied for their role in human health include protein, calcium, vitamin D, copper, iron, omega-3 fatty acids, and nutraceuticals. Another important research area is the determinants of eating behavior, including neuro-psychological, sociologic, and economic factors. Investigative approaches include epidemiology, clinical trials, human studies, experimental and transgenic animal models, and cultured cell models.

## Degree Requirements

### Required Courses

AN_SCI 9442	Vitamins and Minerals	4
BIOCHM 7270	Biochemistry	3
BIOCHM 7272	Biochemistry	3
NEP 7340	Human Nutrition II Lecture	3
NEP 8310	Nutritional Biochemistry of Lipids	3
NEP 8340	Nutrition in Human Health	3
NEP 9087	Doctorate Seminar in Nutritional Sciences and Exercise Physiology (1hr/semester; must present twice)	4

NEP 9090	Doctorate Research in Nutritional Sciences and Exercise Physiology	6
Statistics (6 hours of credit required), possible courses include:		
STAT 7070	Statistical Methods for Research	3
STAT 7110	Statistical Software and Data Analysis	3
STAT 7310	Sampling Techniques	3
STAT 7510	Applied Statistical Models I	3
STAT 7410	Biostatistics and Clinical Trials	3
STAT 7530	Analysis of Variance	3
STAT 7540	Experimental Design	3
STAT 7560	Applied Multivariate Data Analysis	3
STAT 8220	Applied Statistical Models II	3
STAT 8310	Data Analysis I	3
SOCIOL 7120	Social Statistics	3
SOCIOL 8130	Advanced Social Statistics	3

A total of 72 hours beyond the bachelor's degree, including but not limited to courses from the emphasis areas are required; courses from the Masters degree may be counted at the discretion of the student's committee. At least 15 of the 72 hours must be at the 8000/9000 level (exclusive of research, problems and independent study experiences).

Graduate students may elect to take suggested courses from the following emphasis areas: Human/Clinical Nutrition, Public Health Nutrition, Behavioral Science, Food Science and Biochemistry/Cell Physiology. A list of possible courses that fall within these areas can be found on the department website: [http://ns.missouri.edu/graduate\\_phd.html](http://ns.missouri.edu/graduate_phd.html).

## Sample Plan of Study

Because students in the PhD program are from a wide variety of circumstances, and pursue the PhD at different paces, a sample plan of study is not easily produced. Students are encourage to work out their plan of study with their advisor.

## Qualifying Process

**Nutritional Sciences Program Applicants** must pass a Qualifying Exam before a student is officially admitted to the doctoral program. The Qualifying Exam should be completed by the end of the second semester (D1 form should be filed with the Graduate School). The Qualifying Exam consists of a knowledge-based written exam and an oral exam.

## Comprehensive Examination Process

A doctoral student must successfully complete the comprehensive examination within a period of three (3) years beginning with the first semester of enrollment as a PhD student. In addition, the program for the doctoral degree must be completed within three (3) years of passing the comprehensive examination. Time spent in the armed services will not count toward the six (6)-year limit (See Graduate School Active Duty Policy). For any extension of either of these time limitations, the student must petition their faculty advisor/mentor and the academic program's director of graduate studies in writing during the semester prior to reaching the time limitation. The director of graduate studies will notify the advisor in writing of the decision. The two sections of the examination must be completed within one month. A report of this decision (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/d3.pdf>), carrying the signatures of all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the comprehensive examination is completed.

## Dissertation Requirements

The dissertation must be written on a subject approved by the candidate's doctoral program committee, must embody the results of original and significant investigation and must be the candidate's own work. All dissertation defenses shall be open to the general faculty. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Nutritional Sciences (<http://gradstudies.missouri.edu/academics/programs/nutrition>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you applied. Specific information can be found on the department website: [http://ns.missouri.edu/grad\\_admission.html](http://ns.missouri.edu/grad_admission.html)

**Nutritional Area Program PhD Applicants** are expected to have undergraduate training (lecture and laboratory courses) in general and organic chemistry and biology, a two-semester course in biochemistry, and an upper-level human nutrition course. They must have an average of B or better in science courses (chemistry, biology, physics, biochemistry, mathematics, etc.) taken at an accredited institution and must provide GRE scores. TOEFL scores are required for all international applicants.

**Deadline for Applications is December 30th.** While applications received after that date will still be considered, they will not be eligible for all fellowships.

## Minimum TOEFL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

## Minimum GRE Scores

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	500	500	3.5
On or After August 1, 2011	150	150	3.5

**Complete instructions for applying to the program can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)**

## Pathobiology Area Program

College of Veterinary Medicine  
201 Connaway Hall  
Columbia, MO 65211  
573-882-6550

## About the Pathobiology Area Program

The Pathobiology Area Program is university-wide and staffed by faculty from the College of Veterinary Medicine (Veterinary Pathobiology,

Veterinary Medicine and Surgery), School of Medicine (Pathology and Anatomical Science, Molecular Microbiology and Immunology, Biochemistry), College of Arts and Science (Biological Sciences), and College of Agriculture, Food and Natural Resources (Biochemistry, Animal Sciences).

**Note:** The master of science program in biomedical sciences (p. 684), with an emphasis in veterinary pathobiology, is listed separately in this catalog but shares the pathobiology doctoral courses and faculty list.

## Faculty

**Professor:** B.T. Beerntsen\*\*, D. Beversdorf\*\*, C.R. Brown\*\*, E. Bryda\*\*, L. Cohn\*\*, J. Cook\*\*, G. Davis\*\*, J. Dodam\*\*, D. Duan\*\*, C. Franklin\*\*, S.A. Grant\*\*, C. Henry\*\*, T. Hoffman\*\*, G.C. Johnson\*\*, M. Katz\*\*, M. Lewis\*\*, C. Lorson\*\*, D. Lubahn\*\*, J. Middleton\*\*, R. Mohan\*\*, D. O'Brien\*\*, D. Pintel\*\*, B. Ray\*\*, R.M. Roberts\*\*, H. Schatten\*\*, D. Shaw\*\*, G.P. Smith\*\*, R.W. Stich\*\*, C.V. Ward\*\*, H. Zaghouani\*\*, S. Zhang\*\*

**Associate Professor:** Y. Agca\*\*, K. Aldridge\*\*, D.M. Anderson\*\*, U. Atasoy\*\*, R.C. Backus\*\*, G. Blomquist\*\*, J.N. Bryan\*\*, M. Calcutt\*\*, D.D. Cornelison\*\*, T. Evans\*\*, D. Fox\*\*, V. Glinskii\*\*, Z. Gu\*\*, G.S. Johnson\*\*, K. Kuroki\*\*, S. Liu\*\*, P.G. Melendez\*\*, K. Middleton\*\*, W.J. Mitchell Jr\*, C. Phillips\*\*, C. Reddy\*\*, C. Reiner\*\*, S.G. Sarafianos\*\*, M. Thakkar\*\*, C. Wiedmeyer\*\*, G. Zhang\*\*

**Assistant Professor:** J. Amos-Landgraf\*\*, C.P. Baines\*\*, M. Daniels\*\*, A. Franz\*\*, C. Holliday\*\*, R. Ma\*\*, S. McKarns\*\*, P. Pithua\*\*, D. Shin\*\*, J. Skyberg\*\*, K. Taylor\*\*

**Clinical Professor:** C. Vogelweid\*

**Clinical Associate Professor:** L. Berent\*, D. Kim\*, T. Reilly\*, M. Whitney\*

**Clinical Assistant Professor:** A. Royal\*, F Williams III\*

**Research Professor:** A. Ray\*

**Associate Research Professor:** M. Lorson\*, A. Stoker\*\*

**Assistant Research Professor:** A. Ericsson\*\*, H. Men\*, M. Shababi\*

**Professor Emeritus:** J. Berg\*, C.A. Carson\*, S. Casteel\*, W. Fales\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in pathobiology, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- PhD in Pathobiology Area Program (p. 717)

Contact Information  
College of Veterinary Medicine  
201 Connaway Hall  
573-882-6550

<http://www.cvm.missouri.edu/vpbio/>

**Director of Graduate Studies:**

## About the Program

The Pathobiology Area Program is university-wide and is staffed by faculty from the College of Veterinary Medicine (Veterinary Pathobiology, Veterinary Medicine and Surgery), School of Medicine (Pathology and Anatomical Science, Molecular Microbiology and Immunology, Biochemistry), College of Arts and Science (Biological Sciences), and College of Agriculture, Food and Natural Resources (Biochemistry, Animal Sciences).

**Note:** The master of science program in biomedical sciences (p. 684), with an emphasis in veterinary pathobiology, is listed separately in this catalog but shares the pathobiology doctoral courses and faculty list.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. In this program, various stipends are available, including teaching and research assistantships and postdoctoral fellowships. Check the program Web site or ask the program contact for details.

## Career Preparation

Graduate training relates to the major departmental thrust — application of advanced biotechnology to solving today's most perplexing agricultural, biomedical and companion animal questions. The faculty in the Pathobiology Area Program consists of scientists engaged in a wide variety of research programs supported by grants and contracts from government, foundations and private industry.

The Pathobiology Program is designed to prepare students for advanced professional careers in universities and colleges, research institutes, public health, hospital laboratories and industrial research. The broad scope of the program and its organization across departments creates an atmosphere for meaningful interdisciplinary dialogue between graduate students and faculty. Furthermore, it increases availability of advisors, committee members, facilities and equipment for doctoral candidates.

A PhD candidate may choose a plan of research to take advantage of a wide range of interests and specialties in pathology and microbiology.

## Facilities and Resources

Facilities are available that are suitable for advanced research in pathology, microbiology and molecular biology. A wide range of equipment for advanced molecular biological procedures is available. BSL-3 biocontainment facilities are available.

## Areas of Study

Toxicology, environmental toxicology, comparative medicine, epidemiology and pathogenesis of avian and mammalian diseases (companion animal, food-producing animal and spontaneous disease of laboratory animals), molecular biology, ultrastructure, parasitology, DNA and RNA analysis, biomechanics, physiology, pathophysiology, oncology, bioinformatics, diagnostic anatomic pathology, veterinary neuropathology, pathology of infectious disease, quantitative pathology, molecular genetics, domestic animal genomics, bacteriology/mycology, virology, cell biology, genomics, and antimicrobial resistance.

## PhD in Pathobiology Area Program

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### Contact Information for Area Pathobiology

Marie Schlup  
201 Connaway Hall  
Columbia, MO 65211  
573-882-6550  
schlupm@missouri.edu

**Director of Graduate Studies:** Catherine Vogelweid

### Admission Criteria

- Fall deadline: none
- Spring deadline: none
- Summer deadline: none
- GRE scores required
- Minimum undergraduate GPA for last 60 credits: 3.0
- Designated faculty mentor
- Professional students with a DVM degree may be eligible to waive the GRE.

#### International applicants:

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

### Required Application Materials

#### To the Graduate School:

All required Office of Graduate Studies Admissions documents

#### To the Pathobiology Area Program:

3 letters of recommendation (can be submitted through the Office of Graduate Studies online application as well)

GRE scores (required)

Mentor letter of support

### Plan of Study

Most of the student's program and examining committees shall be from the Area Program faculty. Under the guidance of a program committee, a course of study is individually designed to fit each student's academic background, experience and objectives. Courses may be chosen from one or more departments, as decided by the student in conjunction with the student's mentor/committee, but shall constitute a definite plan of education for research or scholarly investigation in some particular aspect of microbiology, pathology, or comparative medicine. The final examination covers mainly the dissertation.

### Degree Requirements

Research is the foundation of graduate and postdoctoral study and students within the Pathobiology Area Program can expect to spend 75 percent of their time engaged in research activities. The PhD degree requires 72 credit hours of work including a minimum of 15 credits of upper-level graduate course work exclusive of research credits. The

student must pass a written and/or oral comprehensive examination in the area of study and write, present and defend a dissertation that embodies the results of original and significant investigation by the candidate. Up to 30 hours of post-baccalaureate credit from an accredited institution may be transferred toward the doctoral degree.

### Interdisciplinary Area of Pathobiology

The Department of Veterinary Pathobiology in the College of Veterinary Medicine, along with the Department of Pathology and Anatomical Sciences in the School of Medicine and faculty from many other departments throughout the University, offer a PhD degree through the Pathobiology Area Program.

Prospective students must have a solid background in the life sciences, with advanced level experience in microbiology, immunology, genomics, molecular biology, cell biology, pathology, and/or biology.

Research experience at the undergraduate and/or master's level is also desirable.

The Pathobiology Area Program is designed to prepare students for advanced professional careers in universities and colleges, research institutes, public health, hospital laboratories and industrial research. The broad scope of the program and its organization across departments creates an atmosphere for meaningful interdisciplinary dialogue between graduate students and faculty. A PhD candidate may choose a plan of research to take advantage of a wide range of interests and specialties in pathology and microbiology. Facilities are available that are suitable for advanced research in pathology, microbiology, and molecular biology. A wide range of equipment for advanced molecular biological procedures is available. Various stipends are available, including teaching and research assistantships and postdoctoral fellowships.

Faculty members of the Program guide the selection of coursework and the development of a dissertation project. A list of doctoral faculty eligible to supervise PhD students is available here (<http://vpbio.missouri.edu/AreaProgramFaculty.html>).

For additional information regarding mentorship specifically in the Department of Pathology and Anatomical Sciences program, please contact:

Dr. Kevin Middleton  
Medical Sciences Building, MU School of Medicine  
573-884-3192 (phone), 573-884-4612 (fax)  
middletonk@health.missouri.edu

## Pathology

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School of Medicine  
M263 Medical Sciences Building  
(573) 882-1201  
pathology-anatomy.missouri.edu

### About Pathology and Anatomical Sciences

The Department of Pathology and Anatomical Sciences in the School of Medicine, along with the department of Veterinary Pathobiology in the College of Veterinary Medicine, offers a PhD degree through the Pathobiology Area Program. Faculty also participate in other doctoral programs such as the Integrative Neuroscience Program, Genetics Area Program, and Molecular Pharmacology and Physiology. The MS degree is designed primarily to prepare students for supervisory roles in basic-

science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

## Faculty

- Professor** G. E. Davis, W. J. Krause\*\*, J. H. Miles, G. Y. Sun, C. V. Ward\*\*
- Associate Professor** E. H. Adelstein\*, A. A. Diaz-Arias\*, E. A. Ingram, R. Mitra\*
- Assistant Professor** K. J. Aldridge\*, G. L. Arthur\*, V. V. Glinskii\*\*, Z. Gu\*\*, C. M. Holliday\*\*, K. H. Taylor\*\*
- Lecturer** D. L. Dufeu, R. H. Dunn, S. D. Maddux\*
- Clinical Instructor** J. Jones, D. V. Shin
- Clinical Professor** D. C. Miller\*, M. Petrides\*
- Associate Clinical Professor** A. D. Havey\*
- Assistant Clinical Professor** M. Esebua, S. R. Frazier, C. C. Stacy\*, M. X. Wang\*
- Associate Research Professor** R. R. Little
- Assistant Research Professor** J. Cui
- Adjunct Professor** M. J. Ravosa\*\*, M. S. Stack\*\*
- Associate Professor Emeritus** L. E. Spollen

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in pathology and anatomical sciences, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MS in Pathology (p. 718)

School of Medicine  
M263 Medical Sciences Building  
(573) 882-1201  
pathology-anatomy.missouri.edu

## About Pathology and Anatomical Sciences

The Department of Pathology and Anatomical Sciences in the School of Medicine, along with the department of Veterinary Pathobiology in the College of Veterinary Medicine, offers a PhD degree through the Pathobiology Area Program. Faculty also participate in other doctoral programs such as the Integrative Neuroscience Program, Genetics Area Program, and Molecular Pharmacology and Physiology. The MS degree is designed primarily to prepare students for supervisory roles in basic-science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## MS in Pathology

### Admission Contact Information

Director of Graduate Studies  
MU School of Medicine  
M263 Medical Sciences Building  
Columbia, MO 65211  
573 882-1201  
573-884-4612 (fax)  
pathology-anatomy.missouri.edu

The MS degree is designed primarily to prepare students for supervisory roles in basic-science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

## Application Deadline

Fall entrance: Inquire with Director of Graduate Studies

## Admission Criteria

- Admission to candidacy in the master's program is limited to those who hold at least a baccalaureate degree from an accredited college or university.
- Preference will be given to students with a college GPA of 3.5 or higher
- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011		N/A
On or After August 1, 2011	325	N/A

## Required Application Materials to the Graduate School:

- All required Graduate School documents

## Degree Completion Requirements

Each candidate for the master's degree is required to complete a minimum of 30 semester hours at the 8000 or 9000 level and maintain a B or better GPA in graduate course work, with no more than 12 hours of research, problems, seminars or special investigations.

Candidates also must satisfactorily complete a thesis. A candidate is expected to demonstrate knowledge of clinical and/or research techniques and to defend the thesis.

Faculty members advise students regarding their program of study and thesis research. A list of graduate faculty eligible to supervise MS students is available on the departmental website.

Required courses and those of special interest should complement the student's academic background and career objectives. The MS degree is designed primarily to prepare students for supervisory roles in basic-science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

Admission to candidacy in the master's program is limited to those who hold at least a baccalaureate degree from an accredited college or university.

Preference will be given to students with a college GPA of 3.5 or higher, GRE scores (verbal + analytical) over 325, and strong letters of recommendation.

Each candidate for the master's degree is required to complete a minimum of 30 semester hours at the 8000 or 9000 level and maintain a B or better GPA in graduate course work, with no more than 12 hours of research, problems, seminars or special investigations.

Candidates also must satisfactorily complete a thesis. A candidate is expected to demonstrate knowledge of clinical and/or research techniques and to defend the thesis.

Faculty members advise students regarding their program of study and thesis research. A list of graduate faculty eligible to supervise MS students is available on the departmental website.

Required courses and those of special interest should complement the student's academic background and career objectives.

## Social Work/Public Health

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The dual degree program in Social Work and Public Health is a combination of the MSW in Social Work and the MPH in Public Health.

Students can earn a Master of Social Work (<http://sww.missouri.edu/msw.html>) (MSW) and a Master of Public Health (<http://publichealth.missouri.edu>) (MPH) with an emphasis in Health Promotion and Policy ([http://publichealth.missouri.edu/programs\\_health\\_promo\\_pol.php](http://publichealth.missouri.edu/programs_health_promo_pol.php)). Graduates of the dual degree will be well-positioned to find employment as a health policy advocate, health agency administrator or in an integrated behavioral health setting as a care managers, health coach, patient advocate, counselor, or team leader. Students pursuing dual degrees must be independently admitted to each program. Only Regular Standing ([http://sww.missouri.edu/msw\\_options.html](http://sww.missouri.edu/msw_options.html)) (RS), full-time MSW students (both clinical or PP&A concentration) will be admitted to the program.

The dual degree reduces total student credit hours by 24-27 credits and reduces the length of study by one academic year. If completed separately, students would be required to complete 105 credit hours (60 credit hours for RS MSW; 45 credit hours for MPH) Students completing both degrees will be required to complete 78-81 credit hours, with 51-54 of those being discipline specific (18 MPH and 33 [PP&A]- 36 [Clinical] MSW) and 27 credits shared between the two programs. Students will complete the both degree programs in 7 semesters, including one summer session. Please see our sample plans of study ([http://sww.missouri.edu/msw\\_studyplans.html#dual](http://sww.missouri.edu/msw_studyplans.html#dual)).

Students will apply separately to each program and be admitted to both programs before they are accepted as a dual degree student. Students may apply at any point before beginning graduate school or during the first year of either program. MPH students applying for the MSW program (<http://sww.missouri.edu/mswapp.html>) must submit

their MSW application no later than April 15th ([http://sww.missouri.edu/msw\\_deadlines.html#dual](http://sww.missouri.edu/msw_deadlines.html#dual)) of their first year of study but early application submission is encouraged. MSW students applying for the MPH program must submit their MPH application (<http://publichealth.missouri.edu>) by December 1st of their first year. Once accepted into both programs, the student must complete the Intent to Complete MSW/MPH Dual Degree form (<http://sww.missouri.edu/docs/msw/dualDegree.pdf>).

The advisor for the MSW/MPH Dual Degree program participants will be a faculty member with a joint appointment in both the MSW and MPH Programs. If a faculty member with a joint appointment is not available for advising, the student will be appointed a separate advisor for both degree programs. In cases where student difficulties are experienced that require advisory services other than that available from the advisor, the School of Social Work's formal student advisory process will be followed.

Up to eight hours of transfer credit ([http://sww.missouri.edu/msw\\_coursecredit.html#dual](http://sww.missouri.edu/msw_coursecredit.html#dual)) may be applied as follows: to one of the two degree programs, or divided between the two degree programs per the advisor(s) and program directors' decision. The eight hours of transfer credit will not be applied separately to each degree program.

Credit requirements, shared hours, and curriculum focus conform to the requirements of the MU Graduate School, the national accrediting body for graduate education in public health (CEPH), and the national accrediting body for graduate education in social work (CSWE). The capstone and internship will satisfy the requirements of both programs and will focus on the intersection of subject matter between social work and public health.

## Faculty

Faculty for the Social Work/Public Health dual degree are housed in other departments.

## Undergraduate

While MU does not offer undergraduate degrees specifically in social work/public health, the University does offer a dual graduate degree in the subject, as well as baccalaureate, master's and doctoral degree opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 17).

## Graduate

- MSW/MPH in Social Work/Public Health with emphasis for Public Health in Health Promotion and Policy (p. 719)

The MSW/MPH in Social Work and Public Health will provide the student with solid preparation in each discipline, as well as a deeper understanding of the ways in which the two disciplines overlap through shared coursework. Graduates of the dual degree will be well-positioned to find employment as a health policy advocate, health agency administrator or in an integrated behavioral health setting as a care manager, health coach, patient advocate, counselor, or team leader.

Students will apply for admission separately to each program.

## MSW/MPH in Social Work/Public Health

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## Degree Requirements

P_HLTH 8150	Human Health and the Environment	3
P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
P_HLTH 7150	Principles of Public Health	3
P_HLTH 8971	Veterinary Public Health Capstone	1-99
P_HLTH 8980	Public Health Internship	1-99
STAT 7020	Statistical Methods in the Health Sciences	3
NURSE 8120	Community-Based Public Health Interventions	3-4.5
HTH_PR 7300	Health Care in the United States	3
SOC_WK 7740	Large Group Theory	2
SOC_WK 7952	Research Methods in Social Work	3
SOC_WK 8953	Evaluative Research in Social Work	3
SOC_WK 7710	Social Policy and Service Delivery in Social Work	3
SOC_WK 7720	Foundations of Human Behavior	3
SOC_WK 7730	Social Work Skills	3
SOC_WK 7760	Social Justice Seminar	2
SOC_WK 7820	DSM V and Psychopathology: A Social Work Perspective	3
or SOC_WK 7920	Advanced Foundations of Human Behavior for Administrators	
SOC_WK 7770	Strategies of Clinical Social Work Intervention	3
or SOC_WK 7780	Fundamentals of Social Work Administration	
SOC_WK 8350	Management of a Social Agency	3
SOC_WK 8952	Evaluative Research in Clinical Social Work Practice	3
SOC_WK 8971	Graduate Field Practicum II	1-13
Approved Public Health elective		3

## Sample Plan of Study

First Year			
Fall	CR Spring	CR Summer	CR
SOC_WK 7710	3 SOC_WK 7952	3 P_HLTH 7150	3
SOC_WK 7720	3 SOC_WK 7770	3 STAT 7020	3
SOC_WK 7730	3 SOC_WK 7820	3	
SOC_WK 7740	2		
SOC_WK 7760	2		
	13	9	6
Second Year			
Fall	CR Spring	CR Summer	CR
P_HLTH 8150	3 NURSE 8120	3-4.5 P_HLTH 8970	3
P_HLTH 8920	3 P_HLTH 8420	3	
	Approved Public Health elective		
	6	6-7.5	3
Third Year			
Fall	CR Spring	CR Summer	CR
SOC_WK 8953	3 SOC_WK 8971	1-13 SOC_WK 8970	3
SOC_WK 8952	3 HTH_PR 7300	3	

SOC_WK 8350	3		
	9	4-16	3

Total Credits: 59-72.5

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MSW in Social Work program (<http://gradschool.missouri.edu/academics/programs/social-work/masters.php>), the requirements of the MPH in Public Health program ([http://ssw.missouri.edu/msw\\_dual.html](http://ssw.missouri.edu/msw_dual.html)) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Additional Minors and Certificates - Interdisciplinary Academic Programs

### Undergraduate Certificates

- Certificate in Digital Global Studies (p. 720)
- Certificate in Environmental Studies (p. 721)
- Certificate in General Honors (p. 721)

### Undergraduate Minors

- Minor in Entrepreneurship (p. 722)

### Graduate Certificates

- Certificate in Autism and Neurodevelopmental Disorders (p. 725)
- Certificate in Center for the Digital Globe (p. 725)
- Certificate in Community Processes (p. 727)
- Certificate in Conservation Biology (p. 727)
- Certificate in Epidemiology (p. 728)
- Certificate in European Union Studies (p. 728)
- Certificate in Global Public Health (p. 728)
- Certificate in Health Ethics (p. 728)
- Certificate in Informatics for Public Health (p. 729)
- Certificate in Life Science Innovation and Entrepreneurship (p. 729)
- Certificate in Society and Ecosystems (p. 730)

### Graduate Minors

- Minor in Ancient Studies (p. 730)
- Minor in College Teaching (p. 732)
- Minor in Gerontology Studies (p. 732)
- Minor in International Development (p. 733)

## Certificate in Digital Global Studies

This certificate is designed to prepare students in any discipline for our new global reality and equip them with the knowledge and skills

needed to be successful in today's highly competitive global job market. All current MU undergraduate students in any discipline are eligible to participate.

The structure of the certificate includes two required core courses (honors eligible), two elective courses, and an experiential learning component. Below are the details on the required courses (more cross-listed options will be added).

Electives can be taken from a wide variety of courses offering a digital and/or global component. For more information: <http://cdig.missouri.edu/undergraduate/>.

The experiential learning component varies depending on the student's field of study and interest, but an emphasis on global relations, cultural awareness, or media technology is required. This component could be study abroad, service learning, internship, etc. with an MU Center or an outside local, national or international organization.

For additional information about the certificate, contact:

Professor Monika Fischer, Certificate Director  
458 Strickland Hall  
Columbia, MO 65211  
E-mail: [globalconnect@missouri.edu](mailto:globalconnect@missouri.edu)

#### Requirements

JOURN/GERMAN/DST 3510/PEA_ST 2810/T_A_M 2810	Think Global: Fundamentals of Globalization and Digital Technologies	3
T_A_M/GERMAN/PEA_ST 4810/DST 4805	Case Studies in an Inter/Multicultural World	3

## Certificate in Environmental Studies

Office of Multidisciplinary Degrees  
114 Switzler Hall  
(573)882-6060

<https://omd.missouri.edu/?q=env-st-cert/index>

The Environmental Studies Certificate is 15 credit hours minimum of coursework focused on environmental topics. It is available to all MU majors, but because the certificate's goal is to create a complementary educational experience, students need to select coursework outside of their major.

There are two tracks for the certificate: Natural Dimensions for non-science majors and Social Dimensions for science majors. In general, students with majors in Business, Humanities, Journalism, Social or Behavioral Sciences, Mathematics, or non-science Education majors will pursue the Natural Dimensions track, while students with majors in Natural Sciences, Engineering, or science Education will pursue the Social Dimensions track.

### Certificate Requirements

- 6 hours of Natural or Social Dimension courses, which are listed below.
- 3 hours of AG\_EC 2070 or NAT\_R 2160
- 6 hours of upper level 2000+ environmental-focused courses. For course options, visit <https://omd.missouri.edu/?q=env-st-cert/index>.

#### Natural Dimensions Track for Non-Science Majors (6 hours minimum)

AG_S_M 1040	Physical Principles for Agricultural Applications	3
AG_S_M 2320	Internal Combustion Power	3
AG_S_M 2220	Agricultural/Industrial Structures	3
ATM_SC 1050 or GEOG 1050	Introductory Meteorology	3
BIO_SC 1060	Basic Environmental Studies	3
CHEM 1100	Atoms and Molecules with Lab	3
GEOG 2610	Climate, Landforms and Vegetation: Introduction to Physical Geography	3
GEOG 1200	Environmental Geology with Laboratory	4
GEOG 2300	Earth Systems and Global Change	3
GEOG 2450	Global Water Cycle	3
GEOG 2600	Mineral and Energy Resources of the Earth	3
NAT_R 1060	Ecology and Conservation of Natural Resources	3
PLNT_S 2254	Landscape Design	3
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2

#### Social Dimensions Track for Science Majors (6 hours minimum)

ACCTCY 2010	Introduction to Accounting	3
AG_EC 1041	Applied Microeconomics	3
ANTHRO 2030	Cultural Anthropology	3
ARCHST 1600	Fundamentals of Environmental Design	3
ECONOM 1014	Principles of Microeconomics	3
GEOG 1840	Global Environmental Change	3
GEOG 1550	Introduction to the Humanized Earth	3
GEOG 2660	Environmental Geography	3
GEOG 2720	The City	3
H_D_FS 2400	Principles of Human Development	4
NEP 1034	Introduction to Human Nutrition	3
PHIL 1100	Introduction to Ethics	3
POL_SC 1100	American Government	3
PSYCH 2210	Mind, Brain, and Behavior	3
RU_SOC 1000	Rural Sociology	3
SOCIOL 1120	Population and Ecology	3
SOCIOL 2200	Social Inequalities	3
ESC_PS 2010	Inquiry Into Learning I	3
THEATR 1400	Acting for Non-Majors	3

## Certificate in General Honors

Students who complete 20 or more honors credit hours and have a 3.3 MU GPA may graduate with general honors. The General Honors Certificate is noted on a student's final transcript. Up to six hours of departmental honors courses, six hours of transfer honors courses, and six hours of Learning by Contract courses may be used toward the 20 hours. In order to receive honors credit for an honors designated course, you must earn a "C" or better.

Upon completion of the 20 hours of honors course work, students must apply for their honors certificate. Graduating students must apply for their honors certificate by mid-semester to graduate with general honors and to have the notation on their transcript.

For additional information on the certificate, contact:

MU Honors College  
 211 Lowry Hall  
 Columbia, MO 65211  
 phone: 573-882-3893  
 fax: 573-884-5700  
 email: [umchonorscollege@missouri.edu](mailto:umchonorscollege@missouri.edu)  
 website: <http://honors.missouri.edu/contact>

## Minor in Entrepreneurship

The undergraduate minor in entrepreneurship is built upon three pillars: development of creativity, opportunity for innovative action, and management of entrepreneurial enterprises. It is available to students in the College of Agriculture, Food and Natural Resources (CAFNR); the College of Business (BUSI); and the College of Human Environmental Sciences (HES); School of Journalism (JOURN).

Students who wish to complete the minor are encouraged to declare their intention as soon as possible. This allows the required courses to be effectively integrated into their course schedules along with other courses required for their intended major. An advisory committee will be appointed to make administrative decisions related to the minor (course additions/deletions). The members will be recommended by deans of the participating schools and colleges. Primary responsibility for student advising falls within the home college of the student OR in the unit where students claim the minor (e.g. Arts and Sciences students).

The minor consists of **16 credit hours**. Students must complete coursework in management, creativity, and innovation, as well as in a workshop series that represents a common learning experience for all MU entrepreneurship minors. Three hours of coursework is required in each area, and a one hour experiential seminar course. Students must select the final three hours to complete the minor from approved courses in one of the pillars. Each of the academic units that offer the minor recommend a set of courses, which are referred to as tracks. Details on those tracks are below.

### CAFNR Track

For questions about the CAFNR Track contact Joe Parcell at [parcellj@missouri.edu](mailto:parcellj@missouri.edu). ([parcellj@missouri.edu](mailto:parcellj@missouri.edu))

#### CAFNR Track

##### Course 1: Management of Entrepreneurial Organizations & Enterprises

AG_EC 3283	Fundamentals of Entrepreneurship	3
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##### Course 2: Development of Creativity

Classes in the following areas are accepted: art, music, theater, textile and apparel management, architectural studies, human and family development, and engineering.

ARCHST 1600	Fundamentals of Environmental Design	3
ART_GNRL 1010	Introduction to Art	3
ENGLSH 1510	Creative Writing: Introduction to Fiction	3
IMSE 4550	Computer Aided Design and Manufacturing	4
MUSIC_NM 1211	Fundamentals of Music I	2
T_A_M 3210	Computer Aided Design	3
THEATR 2200	Introduction to Performance Studies	3

##### Course 3: Organizational & Business Fundamentals

Students must take one course to develop a background in one of the general functions of a new business.

AG_EC 2223	Agricultural Sales	3
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AG_EC 3282	Agribusiness Finance	3
AG_EC 3286	Economics of Managerial Decision Making	3
AG_EC 3224	New Products Marketing	3

##### Course 4: Entrepreneurial Individualized Perspective

Students select a course that offers an opportunity to develop experience in innovation or additional courses in management or creativity. May be a lab course, service learning, or group activity.

##### Course 5: Practicum Capstone

AG_EC 4983	Strategic Entrepreneurship in Agri-Food	3
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##### PLUS 1: Experiential Learning Experience

An internship experience whereby creativity fundamentals and initiative must be a component.	1
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##### PLUS 2: Social Development

Complete at least 15 hours of community service at a non-profit organization coordinated by MU's Office of Service Learning.

## BUSI Track

#### BUSI Track

##### Course 1: Management of Entrepreneurial Organizations & Enterprises

AG_EC 3283	Fundamentals of Entrepreneurship	3
MANGMT 4700	Principles of Entrepreneurship	3

##### Course 2: Development of Creativity

Classes in the following areas are accepted: art, music, theater, textile and apparel management, architectural studies, human and family development, and engineering.

ARCHST 1600	Fundamentals of Environmental Design	3
ART_GNRL 1010	Introduction to Art	3
ENGLSH 1510	Creative Writing: Introduction to Fiction	3
H_D_FS 2510	Observation, Assessment, and Curriculum Planning	4
IMSE 4550	Computer Aided Design and Manufacturing	4
MUSIC_NM 1211	Fundamentals of Music I	2
T_A_M 3210	Computer Aided Design	3
THEATR 2200	Introduction to Performance Studies	3

##### Course 3: Organizational & Business Fundamentals

MANGMT 3000	Principles of Management	3
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##### Course 4: Entrepreneurial Individualized Perspective

MANGMT 3540	Introduction to Business Law	3
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##### Course 5: Practicum Capstone

FINPLN 4993	Internship in Personal Financial Planning	1-99
JOURN 4992	Reporting, Editing and Marketing of Converged Media	3

MANGMT 4730	New Business Planning and Management	3
SOCIOL 4942	Service Learning in Sociology	3
T_A_M 4949	Field Training in Textiles and Apparel Management	1-99

##### PLUS 1: Experiential Seminar

MANGMT 4185	Problems in Management	1
This seminar gives students exposure to a variety of experiences including lectures, networking with entrepreneurs, and participant observation.		

## HES Track

#### HES Track

<b>Course 1: Management of Entrepreneurial Organizations &amp; Enterprises</b>		
AG_EC 3283	Fundamentals of Entrepreneurship	3
MANGMT 4700	Principles of Entrepreneurship	3
<b>Course 2: Development of Creativity</b>		
ARCHST 1100	Visual Design	3
ARCHST 1600	Fundamentals of Environmental Design	3
ARCHST 3100	Color and Light	3
T_A_M 1200	Basic Concepts of Apparel Design and Production	3
T_A_M 2380	Integrated Apparel Design and Production I	3
T_A_M 2480	Apparel and Textile Presentation Techniques	3
T_A_M 2580	Digital Textile and Apparel Applications	3
T_A_M 3380	Integrated Apparel Design and Production II	3
T_A_M 4480	Creativity and Problem Solving	3
H_D_FS 2510	Observation, Assessment, and Curriculum Planning	4
<b>Course 3: Organizational &amp; Business Fundamentals</b>		
Students must take one course to develop a background in one of the general functions of a new business.		
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 4430	Guiding Design with Historic Preservation	3
H_D_FS 4570	Development and Administration of Child Services Programs	3
FINPLN 3283	Financial Planning: Computer Applications	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
T_A_M 1300	Softgoods Retailing	3
T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3700	MultiChannel Retailing in the Digital World	3
<b>Course 4: Entrepreneurial Individualized Perspective</b>		
ARCHST 4940	Internship in Environmental Design	1-99
H_D_FS 4993	Internship in Human Development and Family Science	1-99
FINPLN 4993	Internship in Personal Financial Planning	1-99
T_A_M 4949	Field Training in Textiles and Apparel Management	1-99
NEP 4940	Internship in Nutritional Science and Exercise Physiology	1-6
<b>Course 5: Practicum Capstone</b>		
ARCHST 4990	Thesis Design Studio	4
H_D_FS 4570	Development and Administration of Child Services Programs	3
FINPLN 4389	Financial Planning: Capstone	3
T_A_M 4980	Apparel Production Management	4
T_A_M 4990	Retail Marketing and Merchandising	3
<b>PLUS 1: Experiential Seminar</b>		
MANGMT 4185	Problems in Management	1
This seminar gives students exposure to a variety of experiences including lectures, networking with entrepreneurs, and participant observation.		

## JOURN Track

JOURN Track

<b>Course 1: Management of Entrepreneurial Organizations &amp; Enterprises</b>		
A course designed to help students develop and understand the principles of entrepreneurship.		
Recommended Courses:		
AG_EC 3283	Fundamentals of Entrepreneurship	3
MANGMT 4700	Principles of Entrepreneurship	3
<b>Course 2: Development of Creativity</b>		
The following sample courses are available only to upper-level journalism majors who have taken the required prerequisite coursework		
Recommended Courses:		
JOURN 4418	Critical Reviewing	3
JOURN 4420	Editorial Writing	3
JOURN 4500	Publication Design	3
JOURN 4502	Multimedia Planning and Design	3
JOURN 4508	Information Graphics	3
JOURN 4550	Basic Photography and Photo Editing	3
JOURN 4554	Visual Editing for Multimedia	3
JOURN 4556	Fundamentals of Photojournalism	3
JOURN 4558	Advanced Techniques in Photojournalism	3
JOURN 4560	Staff Photojournalism	3
JOURN 4564	Micro-Documentary Photojournalism and Videography	3
JOURN 4662	Global News Across Platforms	3
JOURN 4700	Participatory Journalism	3
MANGMT 4710	The Entrepreneurial Process	3
<b>Course 3: Organizational &amp; Business Fundamentals</b>		
Students must take one course to develop a background in one of the general functions of a new business.		
Recommended Courses:		
JOURN 4734	Journalism and Chaos: How to Understand and Cover 21st Century Business Models	3
ACCTCY 2010	Introduction to Accounting	3
AG_EC 3224	New Products Marketing	3
MANGMT 3000	Principles of Management	3
MANGMT 4730	New Business Planning and Management	3
FINANC 2000	Survey of Business Finance	3
T_A_M 4100	Electronic Commerce Applications	3
<b>Course 4: Opportunity for Innovative Experience and Action</b>		
Students take an internship that offers an opportunity to develop experience in innovation or students take an additional course 3 (management) or course 2 (creativity).		
Recommended Courses:		
JOURN 4940	Internship in Journalism	1-6
JOURN 4736	Changing Media Business Models	3
<b>Course 5: Practicum Capstone</b>		
A capstone experience that requires students to synthesize entrepreneurial coursework or provides them with an opportunity for experiential learning toward an innovative outcome.		
Recommended Courses:		
JOURN 4734	Journalism and Chaos: How to Understand and Cover 21st Century Business Models	3
MANGMT 4720	Experiential Entrepreneurship (pending approval)	3
MANGMT 4730	New Business Planning and Management	3

INFOTC 4500	Team-Based Mobile Device Application Development	3
JOURN 4974	Advanced Internet Applications for Radio/TV News	3
JOURN 4992	Reporting, Editing and Marketing of Converged Media	3
JOURN 4994	Magazine Publishing	3

**PLUS 1: Experimental Seminar**

In their last year of study, students take a (1 hour) experiential seminar that involves interacting with the on-campus offices that work with start-ups, innovators and entrepreneurs.

Recommended Courses:

MANGMT 4185	Problems in Management	1
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This seminar gives students exposure to a variety of experiences including lectures, networking with entrepreneurs, and participant observation.

Recommended Courses:

MANGMT 4185	Problems in Management	1
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## JOURN Strategic Communication Track

**JOURN Strategic Communication Track**

**Course 1: Management of Entrepreneurial Organizations & Enterprises**

A course designed to help students develop and understand the principles of entrepreneurship.

Recommended Courses:

AG_EC 3283	Fundamentals of Entrepreneurship	3
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**Course 2: Development of Creativity (within the major requires pre-reqs/consent of instructor)**

Recommended Classes:

JOURN 4208	Strategic Writing II ((copywriters))	3
JOURN 4228	Strategic Design and Visuals II ((art directors))	3
JOURN 4256	Public Relations	3

**Course 3: Organizational & Business Fundamentals**

A course designed to develop a background in one of the general functions of a new business.

Recommended Classes:

ACCTCY 2010	Introduction to Accounting	3
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**Course 4: Opportunity for Innovative Experience and Action**

Students take an internship that offers an opportunity to develop experience in innovation or students take an additional course 3 (management) or course 2 (creativity).

Recommended Classes:

JOURN 4734	Journalism and Chaos: How to Understand and Cover 21st Century Business Models	3
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**Course 5: Practicum Capstone**

JOURN 4734	Journalism and Chaos: How to Understand and Cover 21st Century Business Models	3
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Experimental learning courses, where the student and the supervisor create an opportunity for innovative output.

Recommended Classes:

JOURN 4970	Strategic Campaigns	3
MANGMT 4720	Experiential Entrepreneurship (pending approval)	3

**PLUS 1: Experimental Seminar**

In their last year of study, students take a (1 hour) experiential seminar that involves interacting with the on-campus offices that work with start-ups, innovators and entrepreneurs.

## Graduate Certificate in Autism and Neurodevelopmental Disorders - Interdisciplinary

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**Note: This program is no longer accepting applicants**

The certificate is designed to allow students from multiple disciplines to gain knowledge of the specialized needs of persons with autism and other developmental disorders. Professionals currently working with children with ASD and other Neurodevelopmental Disorders will enhance their skills, and those who wish to work with this population will enhance their future employability. Additionally, students might use the Certificate to learn about the field, perhaps leading to further graduate study and an advanced academic degree.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/autism--neurodevelopmental-disorders-graduate-certificate/autism-ge/Gedt.html>

## Graduate Certificate in Center for the Digital Globe

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The Center for the Digital Globe graduate certificate is a 12 credit hour graduate certificate program established by the College of Business, School of Journalism, School of Law and the Department of Textile and Apparel Management in the College of Human Environmental Sciences. The Center for the Digital Globe offers two graduate certificate options. The requirements for each are outlined below.

**Stand-Alone Certificate (For non-degree graduate students and students completing professional degrees) OR Graduate-Degree-Dependent Certificate (For students completing a graduate degree)**

### I. CDiG STAND-ALONE CERTIFICATE (For non-degree graduate students and students completing professional degrees)

The Center for the Digital Globe, established by the College of Business, School of Journalism, School of Law and Department of Textile and Apparel Management in the College of Human Environmental Sciences, offers a 12 credit hour interdepartmental certificate to non-degree graduate students and professional students of the University of Missouri.

The prerequisite for the stand-alone certificate is a baccalaureate degree. The certificate program supplements the students' studies within the various colleges and schools that make up the University.

This is not a degree-granting program. Instead, the certificate attests to the students' successful completion of a required course of study with emphasis on the managerial, theoretical and policy-related issues associated with digital media, electronic commerce and globalization.

Students receiving the stand-alone certificate will have demonstrated competencies in:

*Technology* - Students need not have achieved mastery of specific engineering, programming or application skills. Instead, the students must demonstrate a working understanding of how digital technologies function.

*Global Communication* - One of the primary characteristics of digital technologies, and particularly the Internet, are their function as worldwide communications media. Whether from the perspective of journalism,

business or the law, the impact of these new communications channels has been substantial. Students should achieve an understanding of how new media are different from print or broadcast media and the consequences of those differences.

*Business* - Students should be well grounded in the principles, opportunities and ethical uses of electronic commerce and its impact on journalism, law and commercial practices.

*Culture and Society* - Digital media raise recurrent questions which call for political and social solutions. Students should be able to understand the broader issues raised by technological change and be prepared to take positions of leadership as such issues present themselves.

Examples of such issues are questions of globalization, political boundaries, access, ownership and uses of information, marketing, etc.

To achieve the goals of the certificate and assure its value to students, the University and prospective employers or donors, the certificate program enjoys certain characteristics. Perhaps most fundamental is the interdisciplinary nature of the program. While each department has the capability of offering a course emphasis, track or intra-departmental certificates to students in the area of technology and commerce, one of the fundamental concepts underlying the Center is the value and necessity of approaching these issues from the perspective of various disciplines. With these principles in mind, the program has been designed to assure that the interdisciplinary character of the course of work will be emphasized. The required course work compels students to come together for an interdisciplinary introduction to their studies and permits them to work separately and within their respective disciplines for further study. Students come together for a concluding experience that involves working collectively through a case study.

### Academic Requirements for the Stand-Alone Certificate:

Eligibility:

Prerequisite for the stand-alone certificate is a baccalaureate degree. Professional students who are pursuing the stand-alone certificate must dually enroll in the Graduate School, be admitted to the CDiG Graduate Certificate Program and receive graduate credit for their 12 semester hours of stand-alone certificate courses. Others seeking this certificate who are not professional students and have not been admitted to Graduate School must also apply and be admitted to the CDiG Graduate Certificate Program. Apply online at the following web site: <https://app.applyyourself.com/?id=umc-grad>

**SPECIAL NOTE FOR LAW STUDENTS:** No more than six non-Law credits may count toward the JD degree.

### Credits required for the Stand-Alone Certificate:

At least 12 eligible credit hours, consisting of an introductory, interdisciplinary course (MANGMT 8100), 6 credit hours in two or more eligible graduate courses, and a concluding seminar/research project course (JOURN 8052). The course of work for graduate certificate students is more specifically described as:

1. MANGMT 8100 Exploring the Digital Globe, 3 credits (offered fall semesters). This inter-departmental course introduces students to the impacts of technological change and globalization from the perspective of business, law and journalism. Students are introduced to electronic commerce, digitization and globalization to prepare them to respond to the challenges of the digital globe. Students do not acquire specific technological skills; they acquire a working understanding of how digital technologies function. The course is taught by faculty from the journalism, business and law schools, and from the Department of Textile and Apparel Management of

the College of Human Environmental Sciences. Visiting speakers, including speakers presenting programs for the Center for the Digital Globe, meet with the class to share their research and experience.

2. 6 credits of graduate course work - The courses taken to satisfy this requirement are those that have been approved by the Center's faculty in consultation with the academic programs that offer the courses. The approved courses are graduate level courses that address one or more of the competencies specified above. See the Center for the Digital Globe's graduate courses web page <http://cdig.missouri.edu/graduate/> for a list of approved courses that meet this requirement.
3. JOURN 8052 Case Studies in the Digital Globe, 3 credits (offered fall and winter semesters). The course is designed to further develop the levels of understanding and skills obtained in previous course work. In this class, students will achieve a better understanding of how new media are different from print or broadcast media and the consequences of those differences. Students are introduced to the principles, opportunities and ethical use of electronic commerce. Students critically analyze issues raised by technological change, including globalization, political boundaries, access, ownership and uses of information, marketing, etc. As with the introductory class, this course is taught by faculty from a variety of departments. Visiting speakers, including speakers presenting programs for the Center for the Digital Globe, meet with the class to share their research and experience.
4. Grades - Students must maintain a minimum grade of 3.0 or equivalent in each course to receive credit toward completion of the certificate.

### Stand-Alone Certificate Requirements Summary and Final Application for Certificate

To be eligible for the stand-alone certificate in the Center for the Digital Globe, students are required to take four courses for graduate credit: two courses offered through Center for the Digital Globe and two electives. The required courses are MANGMT 8100 Exploring the Digital Globe and JOURN 8052 Case Studies in the Digital Globe. The two electives should be determined in consultation with the student's CDiG affiliated advisor. To receive the certificate upon completion of the program, students must also print and fill out the *Application for a Graduate Certificate Form* located on the Graduate School web site: <http://gradschool.missouri.edu/forms-downloads/repository/cert-plan.pdf>

The form asks for a list of courses taken by the student to fulfill the certificate requirements. The form must be signed by the student, the CDiG executive director and the graduate dean. For students completing a professional degree, a copy of the student's approved degree program must be attached to the certificate application form when submitting it for the CDiG executive director's approval. The form then must be submitted to the Graduate School, 210 Jesse Hall.

### II. CDiG GRADUATE DEGREE DEPENDENT CERTIFICATE (for students completing a graduate degree)

The Center for the Digital Globe, established by the College of Business, School of Journalism, School of Law and Department of Textile and Apparel Management in the College of Human Environmental Sciences, offers a 12 credit hour interdepartmental certificate to graduate students of the University of Missouri. The certificate program supplements the students' graduate studies within the various colleges and schools that make up the University. This is not a degree-granting program. Instead, the certificate attests to the students' successful completion of a required course of study with emphasis on the managerial, theoretical and policy-

related issues associated with digital media, electronic commerce and globalization. Students receiving the graduate degree dependent certificate will have demonstrated competencies in:

*Technology* - Students need not have achieved mastery of specific engineering, programming or application skills. Instead, the students must demonstrate a working understanding of how digital technologies function.

*Global Communication* - One of the primary characteristics of digital technologies, and particularly the Internet, are their function as worldwide communications media. Whether from the perspective of journalism, business or the law, the impact of these new communications channels has been substantial. Students should achieve an understanding of how new media are different from print or broadcast media and the consequences of those differences.

*Business* - Students should be well grounded in the principles, opportunities and ethical uses of electronic commerce and its impact on journalism, law and commercial practices.

*Culture and Society* - Digital media raise recurrent questions which call for political and social solutions. Students should be able to understand the broader issues raised by technological change and be prepared to take positions of leadership as such issues present themselves.

Examples of such issues are questions of globalization, political boundaries, access, ownership and uses of information, marketing, etc.

To achieve the goals of the certificate and assure its value to students, the University and prospective employers or donors, the certificate program enjoys certain characteristics. Perhaps most fundamental is the interdisciplinary nature of the program. While each department has the capability of offering a course emphasis, track or intra-departmental certificates to students in the area of technology and commerce, one of the fundamental concepts underlying the Center is the value and necessity of approaching these issues from the perspective of various disciplines. With these principles in mind, the program has been designed to assure that the interdisciplinary character of the course of work will be emphasized. The required course work compels students to come together for an interdisciplinary introduction to their studies and permits them to work separately and within their respective disciplines for further study. Students come together for a concluding experience that involves working collectively through a case study.

### Academic Requirements for the Graduate Degree Dependent Certificate

Graduate degree seeking students who want to pursue a Center for the Digital Globe Certificate must complete a *Change of Program Form* and be formally admitted to the certificate program. Print the *Change of Program Form* located on the Graduate School web site: <http://gradschool.missouri.edu/forms-downloads/repository/change-degree.pdf>. See your graduate faculty advisor to process the form.

**SPECIAL NOTE:** No more than six of the twelve credits necessary for the CDiG Graduate Degree Dependent Certificate may count toward the graduate degree.

**Eligibility:** Students who have completed their baccalaureate studies and are enrolled in a master's, doctoral or professional program and working toward a graduate degree at the University of Missouri.

**Credits:** At least 12 eligible credit hours, consisting of an introductory, interdisciplinary course (MANGMT 8100), 6 credit hours in two or more eligible graduate courses, and a concluding seminar/research project

course (JOURN 8052). The course of work for certificate students is more specifically described as:

1. MANGMT 8100 Exploring the Digital Globe, 3 credits (offered fall semesters). This inter-departmental course introduces students to the impacts of technological change and globalization from the perspective of business, law and journalism. Students are introduced to electronic commerce, digitization and globalization to prepare them to respond to the challenges of the digital globe. Students do not acquire specific technological skills; they acquire a working understanding of how digital technologies function. The course is taught by faculty from the journalism, business and law schools, and from the Department of Textile and Apparel Management of the College of Human Environmental Sciences. Visiting speakers, including speakers presenting programs for the Center for the Digital Globe, meet with the class to share their research and experience.
2. 6 credits of graduate course work - The courses taken to satisfy this requirement are those that have been approved by the Center's faculty in consultation with the academic programs that offer the courses. The approved courses are graduate level courses that address one or more of the competencies specified above. See the Center for the Digital Globe's graduate courses page <http://cdig.missouri.edu/graduate/> for a list of approved courses to meet this requirement.
3. JOURN 8052 Case Studies in the Digital Globe, 3 credits (offered fall and winter semesters). The course is designed to further develop the levels of understanding and skills obtained in previous course work. In this class, students will achieve a better understanding of how new media are different from print or broadcast media and the consequences of those differences. Students are introduced to the principles, opportunities and ethical use of electronic commerce. Students critically analyze issues raised by technological change, including globalization, political boundaries, access, ownership and uses of information, marketing, etc. As with the introductory class, this course is taught by faculty from a variety of departments. Visiting speakers, including speakers presenting programs for the Center for the Digital Globe, meet with the class to share their research and experience.
4. Grades: Students must maintain a minimum grade of 3.0 or equivalent in each course to receive credit toward completion of the certificate.

#### **Graduate Degree Dependent Certificate Summary and Final Application for Certificate**

To be eligible for the graduate degree dependent certificate in the Center for the Digital Globe, students are required to take four courses: two courses offered through Center for the Digital Globe and two electives.

The required courses are MANGMT 8100 Exploring the Digital Globe and JOURN 8052 Case Studies in the Digital Globe. The two electives should be determined in consultation with the student's graduate advisor.

**SPECIAL NOTE:** No more than six of the twelve credits necessary for the CDiG Graduate Degree Dependent Certificate may count toward the graduate degree. To receive the certificate upon completion of their program, students must print and fill out the *Application for a Graduate Certificate Form* located on the Graduate School web site: <http://gradschool.missouri.edu/forms-downloads/repository/cert-plan.pdf>

The form asks for a list of courses taken by the student to fulfill the certificate requirements. The form must be signed by the student, the CDiG executive director and graduate dean. A copy of the student's

approved graduate degree program must be attached to the certificate application form when submitting it for the CDiG executive director's approval. The form then must be submitted to the Graduate School, 210 Jesse Hall.

#### **FOR ADDITIONAL INFORMATION:**

**See the Center for the Digital Globe web site for further program details, including contact information, courses, affiliated faculty list, etc.:** <http://cdig.missouri.edu/graduate/>.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/center-for-the-digital-globe-certificate/center-digital-globe-ge/Gedt.html>

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## **Graduate Certificate in Community Processes**

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The Graduate Certificate in Community Processes offers graduate students and professionals a unique opportunity to develop expertise in how spatial and relational communities function in today's society: their processes for forming, for maintaining the community and for achieving community objectives. A vital part of the certificate is acquiring applied skills in community facilitation processes or community analytical processes.

For more information please contact:  
Dr. Judith Stallmann  
231 Gentry Hall  
phone: 573-882-6455  
email: [stallmannj@missouri.edu](mailto:stallmannj@missouri.edu)

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/community-processes-certificate/community-process-ge/Gedt.html>

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## **Graduate Certificate in Conservation Biology**

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A certificate in Conservation Biology from the University of Missouri shows that you have interdisciplinary coursework and experience not already met by any single degree program at MU. As Conservation Biology is an interdisciplinary science the curriculum for our certificate provides coursework and experience beyond what is offered in a single degree program. The interdisciplinary nature of the curriculum is designed to help you reach a higher level of competence in conservation biology.

To accomplish this goal, the program has 2 required components:

1. Interdisciplinary coursework that includes at least one course each from the categories of Natural Sciences, Techniques and Policy/Social Sciences with at least 3 credits are from outside your degree program. A list of approved courses (<http://gradstudies.missouri.edu/academics/programs/conservation-biology-graduate-certificate>) is available on the Conservation Biology website.
  - Ph.D. students: 15 credit hours of coursework at the 7000, 8000 or 9000 level, 12 of which may overlap with the degree course of study



- M.S./M.A. students: 12 credit hours of coursework at the 7000, 8000 or 9000 level, all of which may overlap with the degree course of study
- Coursework must include one course each from the following areas: Science, Techniques and Policy (See approved course list)

1. Practical experience through an internship that falls outside your discipline
  - 160 hours of an internship exploring an area complementary to the student's conservation career goals
  - Designed and completed under the guidance of a mentor other than your major advisor
  - Results in a tangible product (e.g. paper, publication, presentation)

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/conservation-biology-graduate-certificate/conserv-bio-ge/Gedt.html>

## Graduate Certificate in Epidemiology

To allow prospective and current students to become competent in advanced aspects of epidemiological analysis such as assessing population groups and determining their priority health problems, empowering and mobilizing populations in a collaborative public health effort. Prerequisite courses: STAT 7020 and P\_HLTH 7952.

### Core Courses

P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8120	Applied Epidemiology in Community Assessment	3
P_HLTH 8001	Topics in Public Health (Data Analysis for Health Researchers)	3

### Elective - choose one

P_HLTH 8001	Topics in Public Health (Epidemiology of Vaccine - Preventable Diseases)	3
P_HLTH 8620	Emerging Zoonoses Diseases	3

## Graduate Certificate in European Union Studies - Interdisciplinary

The Graduate Certificate in European Union Studies requires students to take 12 hours of coursework.

### Required Courses

PUB_AF 8850	Policies and Institutions of the European Union	3
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### Specialization Courses

The rest of the hours should come from courses that have a strong EU focus	9
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For more information contact Fritz Cropp at the Transatlantic Center (<http://eu.missouri.edu>).

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/european-union-graduate-certificate/>.

## Graduate Certificate in Global Public Health

The Graduate Certificate in Global Public Health includes 15 credit hours of course work and a required international public health experience and may be taken independently or combined with an MPH. Course credits earned for the Graduate Certificate may also be credited toward the MPH degree. It is recommended that Graduate Certificate students start with Interdisciplinary Perspectives in Global Health, which is offered every semester in varying formats.

### Required Courses:

P_HLTH 7150	Principles of Public Health	3
STAT 7020	Statistical Methods in the Health Sciences	3
or STAT 7410	Biostatistics and Clinical Trials	
P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8953	Evaluating Global Public Health Programs	3
Elective		3

For more information:  
[mumphprogram@missouri.edu](mailto:mumphprogram@missouri.edu)  
 573-884-6844

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/global-public-health-certificate/global-ph-ge/Gedt.html>

## Graduate Certificate in Health Ethics

The Health Ethics Certificate program is ideal for both students and working professionals such as physicians, nurses, healthcare administrators, and those serving on hospital ethics committees or considering such health ethics issues in their daily employment. The certificate program will help the learner develop an understanding of the ethical issues related to health and healthcare and will foster skill in analyzing and resolving ethical problems and conflicts in the healthcare environment.

The Department of Health Management and Informatics offers the Graduate Certificate in Health Ethics in partnership with the MU Center for Health Ethics. The Certificate may be completed entirely online or through articulation with residential Graduate and professional coursework. While there are multiple educational offerings that may result in certificate acquisition, students must complete a minimum of 12 credit hours from the below approved list:

### Required Courses

HMI 7564	Health Ethics Theory	3
HMI 8565	Health Care Ethics	3

### Elective Course Options

HMI 7567	Health Organizational Ethics	3
HMI 7566	HIPAA, Social Media, and the Ethics of Health Information	3
HMI 8574	Health Care Law	3
HMI 8575	Health Policy and Politics	3
LAW 5615	Health Care Law: The Doctor-Patient Relationship	1-3
LAW 5380		

IN_MED 6515	Problems in Medical Ethics	5
HMI 8515	Problems in Medical Ethics and Clinical Ethics Consultation Practicum (Identical to IN_MED 6515. For non medical students.)	5

## Further Information

**Center for Health Ethics:** <http://ethics.missouri.edu/>

**Health Management and Informatics:** <http://hmi.missouri.edu/>

## Admissions

**To apply:** [http://hmi.missouri.edu/prospective/certificates\\_apply.html](http://hmi.missouri.edu/prospective/certificates_apply.html)

**Contact:** Veronica Lemme, [lemmev@health.Missouri.edu](mailto:lemmev@health.Missouri.edu)

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/health-ethics-graduate-certificate/health-ethics-ge/Gedt.html>.

## Graduate Certificate in Informatics for Public Health

The Graduate Certificate in Informatics for Public Health is designed to serve as a stand-alone certificate program for non-degree seeking students, public health care professionals and as an additional option for Master of Science in Health Informatics degree seeking students and Master of Public Health students. Courses taken for the certificate program are not intended to fulfill the requirements of any current graduate degree at MU.

Sample Plan of Study #1

First Year		
Fall	CR Spring	CR
HMI 7431	3 HMI 8545	3
HMI 7440	3 Public Health course in process of development	3
		6

Total Credits: 12

Sample Plan of Study #2

First Year		
Fall	CR Spring	CR
HMI 7431	3 HMI 8545	3
HMI 8544	3 HMI 7432	3
		6

Total Credits: 12

## Graduate Certificate in Life Science Innovation and Entrepreneurship

### Overview

A certificate in Life Science Innovation and Entrepreneurship at the University of Missouri will broaden the training of graduate and professional students from the fields of business, engineering and medicine, among others. A collaborative program among MU's Trulaske

College of Business, College of Engineering and School of Medicine, the program will prepare participants for a wider range of employment opportunities and provide core skills for entrepreneurial endeavors.

## Interdisciplinary Curriculum

Through an interdisciplinary approach, the program will allow MU graduate and professional students to receive training to translate life science discoveries into products and services that will improve health. The program will require completion of three three-hour core curriculum courses designed to cover the life cycle of a translational science/business venture, as well as elective courses for a total of 12 hours of course credit. The three-course sequence will be augmented by elective courses that round out the educational needs of particular students.

## Program Objectives

- Know and understand the life sciences industry well enough to be familiar with terms, trends, issues, and industry culture in order to be able to recognize needs that may be commercially viable.
- Know and understand the three disciplines represented by the courses such that they are able to assess the commercial viability of a life sciences technological innovation.
- Know how to commercialize new life science discoveries into products and services to improve health in humans and/or animals.

## Course Content

School of Medicine

- Nature of discovery
- Protecting intellectual property
- Reimbursement models in health care
- Life science methods and research tools
- Research with industry partners

College of Engineering

- Identification of clinical needs
- Concept screening and selection
- Regulatory pathways and the FDA
- Patents and intellectual property basics
- Design and prototypes

Trulaske College of Business

- Commercialization process
- Market assessment and competitive landscape
- Technology transfer, licensing, and startups
- Sources of capital
- Business plan and market strategy

## Admission Requirements

The only prerequisite for the first course in the sequence will be good standing in a graduate/professional program or the consent of the instructor on a case-by-case basis.

Contact:

Debbie Taylor, Institute for Clinical and Translational Science  
 (573) 884-0042  
[taylor@health.missouri.edu](mailto:taylor@health.missouri.edu)  
 School of Medicine, One Hospital Drive, MA204D

Medical Sciences Building, Columbia MO 65212

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradstudies.missouri.edu/academics/programs/life-science-innovation-and-entrepreneurship-certificate/lifesci-ge/Gedt.html>.

## Graduate Certificate in Society and Ecosystems - Interdisciplinary

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### Contact

**Sandy Rikoon, Ph.D.**

Coordinator Society and Ecosystems Program  
200 A Gentry Hall  
University of Missouri-Columbia  
Columbia, MO 65211  
Telephone: 573-882-0861  
Email: [rikoonj@missouri.edu](mailto:rikoonj@missouri.edu)

### Goals

Understanding the complex and dynamic interactions between human activities and natural ecosystems is essential for achieving sustainable development. Developing this understanding in the next generation of scientists, educators and resource management professionals is the primary goal of the University of Missouri's interdisciplinary graduate certificate program in Society and Ecosystems.

The Society and Ecosystems Program (SEP) is a unique interdisciplinary program that prepares students for careers with private and public organizations through advanced graduate level training and research. The certificate program is designed for students with undergraduate-graduate training in agriculture, biology, business administration, economics, engineering, fisheries and wildlife, forestry, geography, geology, rural sociology and related disciplines. Students who are in a graduate or professional program in their area of specialization take two integrated courses and complete a thesis or dissertation that applies more than one discipline. The program is designed to enhance the student's familiarity with disciplinary and interdisciplinary concepts and principles from the social and natural sciences and humanities.

The goal of the program is to develop critical thinking and analytical skills related to:

- sustainable natural resource and environmental management and planning,
- dynamic interactions between social, economic and ecological systems,
- quantitative-qualitative analysis of individual and social behavior,
- cultural interpretations of natural resource and environmental issues, and
- application of knowledge gained in the above areas to the evaluation of public policy.

### Admission

Admission to the SEP is open to students who have been admitted to a graduate or professional program in the University of Missouri-Columbia, have undergraduate-graduate training in natural and social sciences, and

have interest in interdisciplinary studies. Persons interested in the SEP should contact the Coordinator.

### Curriculum

Students must be enrolled in a regular academic department and working toward completion of a graduate degree in a natural resource-related discipline. All students are required to take the following core courses: a) six credits from a department/unit other than the one in which the student is enrolled, b) a three-credit interdisciplinary course on the human dimensions of ecosystem management, and c) three credits of a research seminar in Society and Ecosystems.

The interdisciplinary course examines the sociocultural, economic, ethical and biophysical aspects of ecosystem management with emphasis on the human dimension. It is normally taken during the student's first year. The primary objective of this course is to develop a student's appreciation of a) major issues in the society-ecosystems nexus, b) roles of various disciplines in understanding and resolving socioeconomic-ecological issues, and c) systems analysis. A course requirement is for students to work in multidisciplinary teams to evaluate human effects on and responses to global warming, loss of biodiversity, water pollution, and other contemporary natural-environmental resource issues.

The research seminar exposes students to interdisciplinary research on the interactions between social, economic and ecological systems. Emphasis is placed on the impacts of economic activity, population growth, technology and public policy on the functioning and resilience of ecological systems, and how ecological systems support socioeconomic development at the local, regional and global scales. Speakers for the research seminar include faculty, students, visiting scholars, and private and public officials. Students are expected to present their thesis or dissertation research at the research seminar. Thesis and dissertation research must be conducted on a topic related to the interactions between society and ecosystems. Students completing the SEP receive a certificate in Society and Ecosystems. Recognition of the certificate appears on the student's transcript.

### Advisory Committee

The student's plan of study and research topic are selected in collaboration with an advisory committee established in accordance with the requirements of the student's department/unit and the Graduate School. The advisory committee includes at least one faculty member affiliated with the SEP. Graduate school permission is required in cases where it is highly desirable for the three faculty members comprising a masters student's advisory committee to be from different departments/units.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/society-and-ecosystems-graduate-certificate/sco-eco-sys-ge/Gedt.html>.

## Graduate Minor in Ancient Studies

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Interdisciplinary Minor within the College of Arts and Science  
<http://ancientstudies.missouri.edu/index.shtml>

## About the Minor

The Ancient Studies program, created in 1968, is shared among the faculty from six departments at the University of Missouri. This minor provides an opportunity for students to diversify their curriculum and to perceive their field in a broader context than is possible within a departmental program. Students in this program select about one quarter of the total courses from among a variety of courses designated by the participating departments.

A student pursuing a graduate degree in Anthropology, Art History and Archaeology, Classical Studies, History, Philosophy or Religious Studies may elect an Ancient Studies minor at either the M.A. or Ph.D. level. The Department of Classical Studies offers graduate work leading to the master of arts degree in classical languages with emphasis on Latin, Greek or both classical languages. The PhD degree in classical studies requires work in both Greek and Latin.

## Contact Information

Department of Anthropology  
1205 University Avenue, University Place, Room 1110  
573-882-4731

Department of Art History and Archaeology  
365 McReynolds Hall, 301 S. 6th Street  
573-882-6711

Department of Classical Studies  
405 Strickland Hall  
573-882-0679

Department of History  
101 Read Hall  
573-882-2481

Department of Philosophy  
438 Strickland Hall  
573-882-2871

Department of Religious Studies  
220 Arts & Science Building  
573-882-4769

## Faculty

**Professor** J. M. Foley, R. L. Lyman, A. Melnyk, M. J. O'Brien, D. M. Pearsall, C. Saylor, K. W. Slane, T. Tarkow, I. Worthington

**Curators' Professor** M. Smith

**Associate Professor** D. Hooley, S. Langdon, R. Marks, J. McGlew, A. Mori, L. Okamura, M. Rautman, D. Schenker, D. Trout, B. Wallach

**Assistant Professor** N. DesRosiers, R. Foley, R. Gregory, D. Kelley

**Assistant Teaching Professor** M. Barnes

**Professor Emeritus** W. R. Biers, W. Bondeson, J. H. Kultge

## Admissions

Ancient Studies Program Requirements

1. Admission into one of the following graduate departments:  
Anthropology, Art History and Archaeology, Classical Studies, History, Philosophy or Religious Studies.
2. Fulfillment of all the requirements of the major department. The master's degree may be completed within approximately two years; the doctorate normally requires three years of course work beyond the master's level.
3. The minor consists of additional courses to be selected from Ancient Studies courses outside the student's major department; it usually constitutes about one-quarter of the graduate course work. For recognition of the minor, students should apply formally to the current chair of the Ancient Studies Committee.
  - a. For the M.A. degree, a minimum of 9 hours from at least two departments.
  - b. For the Ph.D. degree, a minimum of 24 hours (including the work for the M.A.) from at least two departments outside the student's home department. These must include at least one course on the 7000-level in each of the two departments.

## To the University

General admission and degree requirements for the Graduate School are determined by the Graduate Faculty Senate. However, admission to the Graduate School does not in itself entitle a student to candidacy for an advanced degree. A student must also be accepted for advisement by the faculty of a department or area. Departments and areas establish admission standards that, in many cases, exceed the minimum requirements of the Graduate School. Admission to the Graduate School is based on three considerations:

- an official transcript showing that the applicant has earned a baccalaureate, DVM, MD or JD degree equivalent to that granted by MU,
- a grade point average of B or better in the last 60 hours of undergraduate courses, and
- Official GRE results.

## To the Ancient Studies Program

Candidates must have earned a bachelor's degree in an appropriate field; preference is usually given to students who intend to continue their work for a PhD. An application, including a completed MU Graduate School application form, transcript and GRE scores, should be made directly to the department in which the student wishes to study. It must be accompanied by three letters of recommendation concerning the student's academic ability, a copy of a recent term paper, and a short statement from the applicant that sets out professional goals and reasons for pursuing the Ancient Studies minor. Inquiries may be addressed to the directors of graduate studies at the appropriate department.

## Financial Support

The Ancient Studies Committee is able to award one fellowship (renewable for four further years) to a doctoral student entering from a University other than MU. In addition, applicants may be eligible for fellowships administered by the Graduate School, including the Gus T. Ridgel Fellowships for Minority Americans. In addition to a stipend, University fellowships include exemption from resident and non-resident educational fees. Some individual departments also offer fellowships, scholarships and other financial assistance for graduate students, including teaching and research assistantships. For information concerning financial aid, write directly to the directors of graduate studies in the department to which you are applying. Financial aid deadlines are frequently earlier than the deadline for applications for admission.

In addition to the materials for admission to the Ancient Studies program, applicants for financial support must submit a separate letter to the department applying for fellowship or assistantship support.

## Graduate Minor in College Teaching

Approximately 75 percent of faculty positions in the United States are at institutions where the importance of teaching and professional service is equal to or greater than the emphasis on research. The Minor in College Teaching, available to all MU graduate degree-seeking students, demonstrates your preparation as an effective teacher to potential employers.

The Minor in College Teaching (MICT) requires 9 credit hours. This includes a 3-hour core course, a teaching practicum, plus 3-6 elective hours. It is highly recommended that students enroll in ED\_LPA 9456, but it is not a requirement.

### Core Required Courses - students must complete one of the following:

ED_LPA 9448	College Teaching	3
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	3
BIO_SC 8724	College Science Teaching	3
LTC 8724	College Science Teaching	3

### Teaching Practicum

Students must complete a teaching practicum and portfolio, but do not have to officially register for a course in order to complete the requirement. Students opting to enroll in a course can choose from the options below.

### Teaching Practicum - options for enrollment

AG_ED_LD 8995	College Teaching Practicum	3
ED_LPA 9481	Internship in Educational Leadership and Policy Analysis	1-99
H_D_FS 9100	Teaching Practicum	2-6
NURSE 8950	Teaching Nursing Practicum	4
PHIL 8210	Teaching of Philosophy I	1
SPC_ED 9940	Internship: College Teaching in Special Education	3
PSYCH 9910	Teaching of Psychology Practicum	1-99

### Elective Courses

Teaching with Technology Elective Courses		
ED_LPA 7822	College Teaching with Technology I	1
ED_LPA 7823	College Teaching with Technology II	1
Disciplinary Teaching Elective Courses		
AG_ED_LD 8330	Advanced Methods of Teaching	3
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	3
AN_SCI 8725	Science Outreach: Public Understanding of Science	1-2
BIO_SC 8725	Science Outreach: Public Understanding of Science	1-2
LTC_V 7810	Technology and Industry Education Methods	3
LTC_V 7830	Curriculum Content in Marketing Education	3
LTC_V 7840	Methods of Teaching Marketing Education	3
LTC 8712	Inquiry and the Science Curriculum	3
LTC 8900	Seminar in Curriculum and Instruction	1-3
CLASS 7700	Advanced Study in the Teaching of the Classics	3

ESC_PS 7100	Theories and Applications of Educational Psychology	3
ESC_PS 7115	Human Learning	3
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 8350	Cognition, Learning and Instruction	3
ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9441	The Adult Learner	3
ED_LPA 9442	Curriculum Philosophy and Development in Higher Education	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9449	History of Higher Education in the United States	3
ED_LPA 9455	The Community College	3
ED_LPA 9456	The Professoriate	3
ED_LPA 9459	Comparative and International Education	3
IS_LT 9471	Instructional Systems Design	3
NURSE 8850	Teaching Nursing	3
PHIL 8210	Teaching of Philosophy I	1
PHIL 8220	Teaching of Philosophy II	1
PHYSICS 8040	Study of Techniques of Teaching College Physics	1-3
PHYSICS 8350	Science Outreach: Public Understanding of Science	1-2
PSYCH 9150	Human Learning and Memory	3
FRENCH 7120	Foreign Language Teaching Methodology	3
or SPAN 7120	Foreign Language Teaching Methodology	
SPC_ED 7375	Cross Categorical Special Education	3

For additional information, contact:

Ashley Siebenaler, Senior Academic Advisor  
 Graduate School  
 210 Jesse Hall  
 Columbia, MO 65211  
 email: siebenalera@missouri.edu  
 phone: 573-882-8006

## Graduate Minor in Gerontology Studies

The graduate minor in gerontology consists of nine to 15 hours of aging-related course work approved as a graduate minor by the student's department/discipline. The MU Interdisciplinary Center on Aging will collaborate and provide assistance to both the student and his or her advisor. Twenty-three courses in more than 10 disciplines can be supplemented by independent and topics courses. Mentoring from experienced researchers on interdisciplinary research teams contributes to the learning curve of students specializing in aging studies. More than 40 teams are located throughout the university. Students are encouraged to contact the Interdisciplinary Center on Aging for help connecting with these productive groups of scholars.

For additional information, contact:

MU Interdisciplinary Center on Aging  
 M245A Medical Sciences Building  
 Columbia, MO 65212  
 phone: 573-884-3337  
 email: aging@missouri.edu

website: <http://medicine.missouri.edu/aging/home.html>

## Graduate Minor in International Development

The requirements for acceptance and completion of work for the minor are as follows:

1. The student must be enrolled as a master's or PhD candidate in good standing at MU.
2. A formal request to be included in the minor must be made in advance of taking courses, to the director, Associate Professor Corinne Valdivia, 214D Mumford Hall. This request should be approved by the student's advisor. A copy will be sent to the Graduate School.
3. Once the student is admitted to the minor, s/he should seek advisement from the director and his/her advisor concerning which courses to take. The plan of study must be submitted to the Graduate School no later than the semester before graduation.
4. The student must satisfactorily complete a total of twelve credit hours in courses dealing with Third World Development. At least six of the twelve hours must be taken in at least two departments outside the student's home department.
5. Foreign language courses are not required, but students who are not fluent in a second language are strongly encouraged to take intensive language courses to develop competency. Credit for language courses does not count toward the twelve hours of credit required for the minor.
6. When the required twelve hours of credit are completed from approved courses, the student's advisor should inform the director, who will in turn inform the policy committee which governs the operation of the minor. This should be done in advance of the student's orals to give members of the policy committee an opportunity to sit in on the examining committee if they so desire.
7. The certificate is only awarded after all departmental and Graduate School requirements for the advanced degree have been satisfied. An overall grade point average of 3.0 is required for the twelve hours within the minor.

### Preapproved course options:

AG_EC 8430	International Agricultural Development Policy	3
ECONOM 7325	The International Monetary System	3
ECONOM 7326	Economics of International Trade	3
ECONOM 7360	Economic Development	3
ECONOM 9460	Development Economics	3
ED_LPA 9459	Comparative and International Education	3
HIST 8445	Studies in World Environmental History	3
JOURN 7658	International Journalism	3
JOURN 7656	International News Media Systems	3
POL_SC 9610	Latin American Politics	3
POL_SC 9650	African Politics	3
POL_SC 9790	Seminar in Comparative Politics	3
PUB_AF 8630	Organizational Change in a Community and Global Context	3
RU_SOC 8287	Seminar on Sustainable Development	3
RU_SOC 7335	Social Change and Development	3
RU_SOC 7445	Seminar on Issues in the Sociology of Agriculture and Natural Resources	3

RU_SOC 9480	Community Survey Research	3
SOCIOL 7230	Women, Development and Globalization	3
ANTHRO 7300	Comparative Social Organization	3
ANTHRO 7320	Ecological and Environmental Anthropology	3
Selected Departments 7085/8085 Problems		1-3
Selected Departments 7001/8001 Advanced Topics		

## Honors College

### Contact Information

J.D. Bowers, Director  
 (573) 882-3893  
<http://honors.missouri.edu>  
 210 Lowry Hall

## Honors College

The Honors College is a community of motivated and high-achieving students from all the undergraduate colleges at the University of Missouri. The Honors College offers an innovative and dynamic curriculum that encourages in-depth study in traditional fields of learning as well as other kinds of intellectual inquiry, including interdisciplinary and experiential learning. The College fosters scholarly engagement through research opportunities, study abroad, service learning, internships, and other experiences that expand learning beyond the classroom. Students receive personalized advising through a team of professionally-trained advisors.

The Honors College gives honors students maximum flexibility to serve their individual interests. Honors courses, taught by many of the university's best professors, encourage close interaction between students and faculty and allow students to experience a small-college atmosphere within a large research university.

Opportunities in the Honors College are described below.

## Honors Curriculum

Honors courses fall into 3 categories:

1. Courses offered through the Honors College.
2. Courses offered through individual departments. These include special topics courses and honors sections of regularly-offered courses.
3. Research and other independent-study types of courses, offered both through departments and the Honors College.

Honors courses offered through the Honors College include the following:

- Humanities Series. This series of historically-organized courses provides an interdisciplinary perspective on art, art history, literature, music, philosophy, and religion.
- Social and Behavioral Sciences Series. This series of thematically-based courses provides an interdisciplinary perspective on the behavioral and social sciences, including cultural geography, economics, family studies, history, psychology, and sociology.
- Science Series. This series of thematically-based courses provides an interdisciplinary, hands-on laboratory approach to science for non-science majors. It is designed to introduce students to the methods, range, and big ideas of science.
- Constitutionalism and Democracy Series. Study the same texts and work through the same questions and concerns that the nation's early

leaders and citizens engaged with during the years spanning from before the American Revolution through the aftermath of the War of 1812.

- Honors Discussion Groups and Seminars. These are small and informal courses typically focused on a special topic.
- Career Explorations Courses. These lower-level courses are designed to introduce students to different career choices in fields like Journalism, Medicine, Health, Nursing, and Law.
- Honors Tutorials. These courses are informal discussion groups of 2-5 students and a faculty member. Tutorials focus on special topics that change from semester to semester, depending on which faculty members are offering them. They are based on the Oxford-style of learning, with heavy emphasis on conversation and in-depth investigation.
- Honors Independent Study Courses. These courses provide honors students with an opportunity to study topics (typically of the student's choosing) with a faculty member. Credit is available for research, internships, and independent academic study.
- Honors Colloquia. These courses focus on interdisciplinary topics and typically adopt a more flexible and experimental approach to teaching.
- Learning-by-Contract. This arrangement allows honors students to take a non-honors course for honors credit by completing additional or alternative work. To do a Learning-by-Contract, students must enter into a contractual agreement with a professor and gain approval from the director of the Honors College. Contractual forms are available on our website (<https://honors.missouri.edu/courses/learning-by-contract>).
- Honors Credit Via Graduate Course Work. Honors students may earn credit toward the Honors Certificate by taking graduate-level classes. Graduate Course Work applications can be found on our website (<https://honors.missouri.edu/wp-content/uploads/graduate-credit-form.pdf>).

More information on honors courses can be found on the Honors College website. (<http://honors.missouri.edu>)

## Special Programs and Services

### Advising

The Honors College offers one-on-one academic advising for all honors students. Through its MedOpp office, it also offers specialized advising for students planning a career in medicine (allopathic medicine, osteopathic medicine, podiatry, and physician assistant), dentistry, or optometry. MedOpp advising provides students with a comprehensive program that includes a variety of services to guide students through the academic and application process necessary to become a health professional.

### Honors Housing

The Honors Learning Community fosters a living and learning space that enriches intellectual and social stimulation and encourages residents to succeed academically and socially during their time at the University of Missouri. Honors Freshman Interest Groups (FIGs) are available in a number of interest areas.

## Honors College Admissions

### Incoming Freshmen

Incoming freshmen may apply for automatic admission to the Honors College upon submission of an application, if they satisfy any one of the following three criteria:

- An ACT score of 31 (SAT 1420) AND either a top 15% class rank OR a high school Core or Enhanced Core GPA of 3.58
- An ACT score of 30 (SAT 1390) AND either a top 10% class rank OR a high school Core or Enhanced Core GPA of 3.74
- An ACT score of 29 (SAT 1350) AND either a top 5% class rank OR a high school Core or Enhanced Core GPA of 3.91

Incoming freshmen who do not meet both of the admission criteria are required to submit an essay as part of their application. Essays are evaluated on an individual basis. Specific information on the requirements for the essay can be found on the website (<https://honors.missouri.edu/admission>).

### Transfer Students

Transfer Students are eligible for admission to the Honors College if they have completed at least 30 credit hours of college credit at an accredited institution and have achieved a GPA of 3.7 or above. The cumulative GPA, for the purpose of applying to the Honors College, is the calculated average of transfer work from all institutions the student has attended. The application can be found on the website (<https://honors.missouri.edu/admission/transfer-students>).

### Current MU Students

Current students are eligible for admission to the Honors College if they are an MU student who has completed at least 12 credit hours and achieved a cumulative MU GPA of 3.7 or higher. Students who meet these criteria, must fill out the online application (<https://honors.missouri.edu/admission/current-students>).

## Program Requirements

### Maintaining Honors Eligibility

#### GPA Requirement

To retain membership in the Honors College, students must maintain an MU cumulative GPA of 3.5 or above. Students with an MU cumulative GPA below 3.5 will receive a warning letter the first semester in which this occurs. Students with an MU cumulative GPA below 3.5 for a second consecutive semester will no longer be members of the Honors College.

#### Participation Requirement

Students who join the Honors College as first-year students will be required to complete two honors courses per year for their first two years at MU. All honors courses will count toward this requirement, including honors-designated courses and Honors Learning-by-Contract. MU students who join the Honors College in their sophomore year and transfer students who are admitted with sophomore standing will be required to complete two courses in their first year of Honors College membership. MU students who join the Honors College after their second year and transfer students who are admitted with junior or senior standing are exempt from the participation requirement.

#### Honors Certificate Requirements

Students who complete 24 or more hours of courses for honors credit and maintain a 3.5 cumulative GPA (as calculated after final grades are posted at the end of the semester in which the student is graduating) are eligible to graduate with an Honors Certificate. In addition to General

Honors and Departmental Honors course credits, the 24 hours may include up to 6 hours of honors transfer credit, 8 hours of Learning-by-Contract credit, and 8 hours of approved graduate credit (form required) (<https://honors.missouri.edu/wp-content/uploads/graduate-credit-form.pdf>). Students must achieve a minimum letter grade for each course: a C or better for regular honors classes or a B or better for Learning-by-Contract courses and Honors Credit via Graduate Course Work. Students must apply for the Honors Certificate by completing the application (<https://honors.missouri.edu/graduating-with-honors/honors-certificate-application>). In order to participate in the Honors Convocation, students must apply no later than the end of the third week of classes in their final semester. For more information, see the Application for Graduation with the Honors Certificate (<https://honors.missouri.edu/graduating-with-honors/honors-certificate-application>).

### **University Honors Designation**

Students who complete the Honors Certificate and a qualified departmental honors program (<https://honors.missouri.edu/graduating-with-honors>) will be eligible for this designation, which will be noted on their permanent transcript. See your departmental advisor for information about departmental honor programs.

### **Faculty**

There are faculty from all disciplines who teach Honors College courses.



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# School of Law

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203 Hulston Hall  
Columbia, MO 65211-4190  
phone: 573-882-6042  
fax: 573-882-4984  
web: <http://law.missouri.edu>

**Welcome to the University of Missouri School of Law's online catalog for the 2017-2018 academic year.**

**Information in this searchable, interactive catalog is current as of May 2017. The next catalog will be made available in May 2018. In the interim, changes to the law school curriculum will be made on our website (<http://law.missouri.edu>).**

**Use the search box above or click on the left hand menus to navigate through the catalog. There is also a PDF version available through the "Print Options" link above.**

**Broken links inside the law school's online catalog may be reported by contacting [umclawweb@missouri.edu](mailto:umclawweb@missouri.edu). ([umclawweb@missouri.edu](mailto:umclawweb@missouri.edu))**

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The University of Missouri School of Law offers a collegial environment, reinforced by a small student body and a low faculty-student ratio. The intimacy of this setting, coupled with reasonable cost, consistently high bar passage rates, a network of alumni around the globe and access to top scholars in the legal world, make the School of Law one of the best values in the nation.

## Administration

- Lyriisa Lidsky, Dean, Judge C.A. Leedy Professor of Law
- S. David Mitchell, Associate Dean for Academic Affairs and Associate Professor of Law
- Paul Litton, Associate Dean for Faculty Research and Development and R.B. Price Professor of Law
- Elisabeth E. Key, Assistant Dean for Career Development and Student Services
- Randy J. Diamond, Director of Library and Technology Resources and Professor of Legal Research
- Rafael Gely, Director of the Center for the Study of Dispute Resolution and James E. Campbell Missouri Endowed Professor of Law
- Dennis D. Crouch, Co-Director of the Center for Intellectual Property & Entrepreneurship and Associate Professor of Law
- James Levin, Associate Director of the Center for the Study of Dispute Resolution, Co-Director of the Center for Intellectual Property & Entrepreneurship and Adjunct Professor of Law
- Alisha L. Rychnovsky, Manager of Business Administration
- Casey Baker, Director of External Relations
- Michelle L. Heck, Director of Admissions and Financial Aid
- Joakim Nyoni, Senior Director of Development

## Mission Statement

The MU School of Law aspires to be the school of choice for outstanding students, both from Missouri and other states. As a national leader in the

field of dispute resolution, we seek to complement a strong traditional curriculum with an orientation toward lawyering as a problem-solving endeavor. We strive to foster a diverse faculty of nationally recognized scholars who are committed to effective teaching, and to attract a student body with diverse experiences and views. We also strive to offer an intellectually rigorous and collegial environment for the study of law. Furthermore, we seek to graduate well-rounded lawyers who are sensitive to ethical issues, prepared to serve clients, and ready to be leaders in promoting justice.

## Academics

Known worldwide for its Center for the Study of Dispute Resolution, the School of Law's curriculum combines both traditional law school classes with an appreciation of the many dispute resolution techniques in which lawyers engage and includes a certificate program in the rapidly developing area of dispute resolution.

Mizzou Law students are required to complete 89 hours of law school classes in order to graduate. Following the prescribed first year, students are required to take Constitutional Law, Evidence, Criminal Procedure and Professional Responsibility. Several clinical and externship programs are available to upper level students, along with skills training in trial practice, negotiation, interviewing and counseling. The curriculum couples courses traditionally tested on the bar examination so that the law school can continue its long tradition of success on bar examinations nationwide, with cross disciplinary dual degree and certificate programs in several other areas. As a result, the law school's curriculum is appealing not only to those who want to engage in the traditional practice of law, but also to those who want to use their law degree as a stepping stone into other disciplines.

## Faculty

**Full Time Faculty** D. E. Abrams, A. G. Alexander, R. de R. Barondes, F. O. Bowman III, M. A. Cecil, C. N. Conklin, D. D. Crouch, B. M. Desnoyer, R. L. Dessem, R. J. Diamond, A. K. Drake, D. M. English, R. W. Freyermuth, R. Gely, B. E. Gotberg, S. F. Halabi, E. M. Hawley, C. Henson, R. H. Jerry II, K. K. Johnson, P. H. Ladehoff, T. A. Lambert, I. Lee, J. H. Levin, L. B. Lidsky, E. F. Lietzan, P. J. Litton, S. D. Mitchell, G. Myers, J. M. Niemann, C. D. Newman, R. C. Oliveri, R. C. Reuben, A. J. Schmitz, S. I. Strong, B. L. Trachtenberg, C. E. Wells

**Adjunct Faculty** M. Carney, C. J. Dykhouse, R. C. Geary, D. Y. Hall, N. A. Jones, C. Mitchell, W. Ohlemeyer, A. Pratzel, S. R. Stigall, J. W. Turley, J. T. Woods

**Professor Emeritus** R. G. Bailey, M. M. Beck, M. R. Daily, P. N. Davis, K. D. Dean, M. J. Dragich, C. H. Esbeck, W. B. Fisch, D. A. Fischer, P. B. Fry, P. J. Harter, W. H. Henning, J. Lande, M. A. Middleton, A. S. Neely IV, G. S. Nelson, P. G. Peters, Jr., L. L. Riskin, R. J. Uphoff, J. E. Westbrook, D. A. Whitman

The catalog also has a cumulative listing of all faculty at the University of Missouri (p. 2335) that includes information on the faculty member's highest degree attained.

Detailed faculty profiles for the School of Law faculty is also available at <http://law.missouri.edu/faculty/directory/>.

## Academic Policies

Below is a listing of policies that only apply to students in the School of Law. Be sure to also check the listing of the University's Academic Policies (p. 757) for policies that apply to all students.

*The policies and procedures of the MU School of Law are revised on a regular basis. Provisions regarding such policies and procedures contained on our website are subject to change without notice. If you have questions or note errors or omissions, please contact the Associate Dean for Academic Affairs. All statements concerning requirements, prerequisites, conditions or other matters are for informational purposes only, and are subject to change without notice. They are not to be regarded as offers to contract.*

Attendance (p. 761)

Course-Load Rules (p. 763)

Credit for Non-Law Courses (p. 764)

Disability Accommodations (p. 764)

Dismissal and Probation (p. 765)

Examinations (p. 769)

Grades & Ranks (p. 773)

Grievances (p. 776)

Residency (p. 781)

Student Conduct (p. 782)

Student Employment (p. 782)

Transfer Credit (p. 785)

## Juris Doctor (JD)

The Juris Doctor (J.D.), or "law degree," is a three-year post-baccalaureate program. Students must complete 89 credit hours of law courses, roughly one-half of which are required courses.

Upon favorable recommendation of the Faculty of Law, the degree of Juris Doctor will be conferred upon a student who:

1. Has pursued in residence the full-time study of law for at least three academic years (or the equivalent), two of which must have been completed in this School. A full-time student is one who is registered for credit in 12 or more hours in a semester or six or more hours in a summer session. A student registered for less than 12 hours in a semester or less than six in two summer sessions, will receive proportional residence credit. The maximum number of residency credits obtainable in any one summer session shall be seven, provided that for purposes of accelerated graduation (in less than three academic years) no more than 12 residency credits may be obtained in summer sessions.
2. Has received a passing grade in all required courses, except required courses, which have been waived.
3. Has received passing grades in law courses aggregating at least 89 credits and has a numerical grade point average of at least 77.5; and
4. Has received an undergraduate degree before or concurrently with his or her graduation from law school.

[Note: The summer school residency provisions allow a student to combine two six-hour summer sessions or a seven-hour summer session

with a five-hour summer session and obtain the equivalent of a full semester's residency credit.]

## Curriculum

### Required Courses

#### First Year

LAW 5010	Civil Procedure I	3
LAW 5015	Civil Procedure II	2
LAW 5020	Contracts I	3
LAW 5025	Contracts II	3
LAW 5035	Criminal Law	4
LAW 5050	Property	5
LAW 5070	Torts	5
LAW 5080	Legal Research and Writing	2
LAW 5085	Advocacy and Research	2
LAW 5090	Legal Reasoning ((if assigned))	1
LAW 5095	Lawyering: Problem Solving and Dispute Resolution	2

#### Second Year

LAW 5220	Constitutional Law	4
LAW 5260	Evidence	4

#### Second or Third Year

LAW 5240	Criminal Procedure	3
LAW 5280	Professional Responsibility	3

## Completion of a Writing Requirement for students who first matriculated in or after Fall 2006

1. Every J.D. student must complete a rigorous upper-level writing experience in either the second or third year of study.
2. A "rigorous writing experience" means an experience that culminates in an individually authored paper of at least 20 pages (double-spaced), based on independent research, through a process that includes preparation of a substantial draft, review and feedback by a faculty member, and revision of the draft.
3. Any of the following activities may satisfy the upper-level writing requirement, provided that the activity meets the definition of a "rigorous writing experience" in the individual case:
  - a. completion of any course designated as a writing course,
  - b. completion of a writing section attached to a traditional course,
  - c. completion of an independent research project under L5875 Research, or
  - d. membership on one of the journals of the University of Missouri School of Law.
4. A "designated writing course" is one in which all students complete a rigorous writing experience as defined in section (2) above and in which, in lieu of a final examination, a substantial portion of the final grade for the course is based on that writing.
5. In every case, the supervising full-time faculty member must certify that the writing requirement has been satisfied before a notation will be made in the student's record.
6. As stated in the Student Handbook, "[g]rading is done anonymously in all classes where it is possible." With the exception of Independent

Research, if grading is to be done other than anonymously, the syllabus shall so state.

iii At least one program during the year **MUST** be for the Career Component credit.

## Professional Perspectives Requirement

1. As lawyers, each of you will be required to complete a required number of Continuing Legal Education requirements each year.
2. As law students at MU, you have a similar requirement.
3. You **MUST** complete a certain number of Professional Perspective hours each year to be eligible to graduate from this law school.
4. Professional Perspective's hours are designed to further your legal knowledge by presenting you with information about current legal events from current practitioners, including judges, and about other legal or legally-related matters. These hours are also designed to present you with needed information about career planning, the job market, and placement.
5. Matters counting for Professional Perspectives credit are broken into two categories:
  - a. Professional Perspectives are those programs that give students a new or different prospective on the law or its practice.
  - b. Career Component credits are those programs that give students information about career planning and placement.
  - c. Any program approved for credit will designate the category applicable to that program.
6. Matters qualifying for Professional Perspectives credit will appear on the School of Law Calendar. It is your responsibility to select the events you wish to attend within the guidelines set out below.
7. Many programs sponsored by the School of Law automatically qualify for Professional Perspectives credit. When listed on the law school calendar, qualifying programs are so designated.
8. Programs sponsored by student or other groups may qualify for Professional Perspectives credit, but **ONLY** if an application for credit is filed **2 full business days** in advance of the event with the Associate Dean for Academic Affairs. Application forms are available in the Dean's Office.
9. Every event for which Professional Perspectives credit is offered **MUST** be overseen by a responsible person who agrees to maintain an attendance record for that event.
10. Because Professional Perspectives credit is required, it is an event for which attendance counts. As a result, please note that it is an offense under the Honor Code to misrepresent one's own or another's attendance or absence from such an event. This would include signing in for an event and then leaving before the conclusion of that event.
11. The Professional Perspectives requirement for each class of students is as follows:
  - a. For First Year Law Students:
    - i 1 Professional Perspective program in the fall semester;
    - ii 1 Career Component program in the fall semester;
    - iii 1 Professional Perspective program in the spring semester;
    - iv 1 Career Component program in the spring semester;
  - b. For Second and Third Year Law Students:
    - i 2 Programs each semester;
    - ii At least two of the programs during the year **MUST** be for general Professional Perspectives credit;

The above Degree Requirement checklist ([http://catalog.missouri.edu/schooloflaw/jurisdoctor/Degree\\_Requirements\\_Checklist.pdf](http://catalog.missouri.edu/schooloflaw/jurisdoctor/Degree_Requirements_Checklist.pdf)) is also available in PDF.

## Certificates & Emphasis

### JD Certificates

- Graduate Certificate in Dispute Resolution (p. 738)
- Graduate Certificate in Electronic, Commercial and Intellectual Property Law (p. 739)
- Graduate Certificate in Taxation (p. 739)

### JD Emphases

- Emphasis in Criminal Justice (p. 739)
- Emphasis in Tax Law (p. 739)

## Experiential Opportunities

The School of Law recognizes the importance of providing students with opportunities to apply the knowledge they receive in the classroom in "real-life" situations. Over their course of study, students have the opportunity to enroll in clinical programs or practicums in a variety of different areas: criminal prosecution, family violence, mediation, the state legislature, landlord/tenant law, entrepreneurship, veterans' disability law, and the wrongly convicted. Additional details are available from the School of Law at <http://law.missouri.edu/skills/>.

In addition to these clinical opportunities, students can participate in our extensive externship program. In this program, students work under the supervision of a lawyer or judge in a public law office, government agency or not for profit organization or for an attorney in private practice engaged in pro bono work. Additional details are available from the School of Law at <http://www.law.missouri.edu/academics/externships.html>.

## Graduate Certificate in Dispute Resolution

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### MU Certificate in Dispute Resolution

Clients and society today need and expect much more than traditional advocacy from their lawyers. Modern lawyers need to be able to address legal problems in ways that accommodate a variety of needs, goals and values, in addition to vindicating legal rights. As a result, today's lawyer must have the knowledge, skills and perspectives not only to advocate in the courtroom, but to participate in such processes as client counseling, negotiation, mediation, arbitration and creative problem-solving.

The MU Certificate in Dispute Resolution is designed to foster such learning in students by providing the opportunity to work with some of the nation's leading dispute resolution scholars and practitioners. The MU School of Law has been ranked No. 1 in dispute resolution by U.S. News and World Report since 1999, and has more full-time faculty specializing in dispute resolution than any other law school.

This certificate program will give students an advantage in addressing the complex challenges of today's legal environment.

## Requirements

### Students Graduating in 2016 or 2017

Students who enrolled at the law school for the first time before the Fall of 2015, can complete the Certificate in Dispute Resolution from the MU School of Law, by taking at least 10-11 credit hours of dispute resolution courses approved by the Law School. Eight of those credit hours are required core program courses and provide students with a basic understanding of the theory, skills and practice of dispute resolution. Students must take at least 2-3 additional elective hours from among the courses approved for the Certificate program.

### Students Graduating in 2018 or thereafter

To receive a Certificate in Dispute Resolution from the MU School of Law, a J.D. student must take at least 12 credit hours of dispute resolution courses approved by the Law School. Eight of those credit hours are required core program courses and provide students with a basic understanding of the theory, skills and practice of dispute resolution. Students must take at least 2 additional elective courses from among the courses approved for the Certificate program.

Additional details and a list of courses satisfying the certificate requirements are available from the School of Law at <http://www.law.missouri.edu/academics/certificates/resolution.html>.

Federal Gainful Employment disclosure information for this Graduate Certificate is available at <http://gradschool.missouri.edu/academics/programs/dispute-resolution-graduate-certificate/dispute-resolution-ge/Gedt.html>

## Graduate Certificate in Electronic, Commercial and Intellectual Property Law

This certificate program is not currently offered. A variety of other certificates, concentrations and dual-degree programs are offered at the Law School. Information available at <http://catalog.missouri.edu/schooloflaw/additionalacademicprograms/>.

## Graduate Certificate in Taxation

This certificate program is not currently offered. A variety of other certificates, concentrations and dual-degree programs are offered at the Law School. Information available at <http://catalog.missouri.edu/schooloflaw/additionalacademicprograms/>.

## Juris Doctor with Emphasis in Criminal Justice

### Criminal Justice Concentration

The Criminal Justice Concentration is designed for two groups of students: those who are considering beginning their legal careers as prosecutors or criminal defense counsel and those who may not have an express interest in criminal practice, but who are nonetheless seeking a course of study structured to provide training in the range of skills necessary to the practice of law in most substantive areas – particularly including legal analysis, factual investigation, counseling, negotiation and the persuasive arts employed in written and oral advocacy.

Additional details and a list of courses satisfying the Criminal Justice Concentration requirements are available from the School of Law here (<http://www.law.missouri.edu/academics/certificates/criminal.html>).

## Juris Doctor with Emphasis in Tax Law

### Tax Law Concentration

The Tax Law Concentration is designed to provide basic education in both general skills and subject-matter specific knowledge, and provide each participating student with an opportunity to bring the entire skill set to bear in a capstone experience designed to teach integrated legal problem-solving. Completion of a concentration should improve the overall preparedness of graduates by conferring entry-level competence to begin practicing law with appropriate supervision in the concentration's subject matter area or practice setting.

Additional details and a list of courses satisfying the Tax Law Concentration requirements are available from the School of Law here (<http://www.law.missouri.edu/academics/certificates/tax.html>).

## Master of Laws (LLM)

The Master of Laws degrees are offered through a joint effort of the Office of Graduate Studies and the School of Law. For detailed information on these programs, consult the Dispute Resolution (p. 690) or American Law (p. 680) pages.

## Additional Academic Programs - Law

Students in the School of Law have a wide variety of additional academic options before them, including a number of other degree and certificate programs available at the University of Missouri that can make a good accompaniment to the J.D. Below is a description of some of those options.

### Certificates

- Center for the Digital Globe (p. 739)
- European Union (p. 740)

### Dual/Concurrent Degrees

- Business Administration (Masters) (p. 740)
- Economics (Masters) (p. 740)
- Educational Leadership & Policy Analysis (Masters) (p. 740)
- Health Administration (Masters) (p. 740)
- Human Development & Family Studies (Masters) (p. 740)
- Journalism (Masters) (p. 740)
- Journalism (Doctorate) (p. 740)
- Library & Information Science (Masters) (p. 740)
- Public Affairs (Masters) (p. 740)

### Certificates:

#### Center for the Digital Globe (Certificate)

The Center for the Digital Globe (<http://cdig.missouri.edu>) (CDiG), established by the College of Business, School of Journalism, School

of Law, and Department of Textile and Apparel Management in the College of Human Environmental Sciences, offers an interdepartmental certificate to graduate students of the University of Missouri-Columbia. The certificate program supplements the students' graduate studies within the various colleges and schools that make up the University. This is not a degree-granting program. Instead, the certificate attests to the students' successful completion of a required course of study with emphasis on the managerial, theoretical and policy-related issues associated with digital media, electronic commerce and globalization.

## European Union (Certificate)

Designed to complement existing degrees, the Graduate Certificate Program (p. 728) consists of 12 credit hours of study to be completed in a variety of settings over four semesters. A portion of the coursework takes place via the electronic classroom, allowing students to pursue their Certificate while maintaining work responsibilities or completing other degree programs. Students typically begin their studies during the winter semester, though the program is flexible to accommodate different scheduling needs.

## Dual/Concurrent Degrees:

### Business Administration (Masters)

Students completing the Law and Business course of study will be eligible to receive the JD degree from the School of Law and the MBA degree from the School of Business. This course of study may be completed in four years. Normally, students require three years to complete the requirements for the JD degree and two years to complete the requirements for the MBA degree.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/mba-business.shtml>.

### Economics (Masters)

The Department of Economics and the School of Law offer an integrated program in which students may obtain both an MA degree in economics and a JD degree from the School of Law. Although an MA degree in economics normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/ma-economics.shtml>.

### Educational Leadership & Policy Analysis (Masters)

With and Emphasis in Higher Education

The College of Education's Department of Educational Leadership & Policy Analysis and the School of Law offer an integrated program in which students may obtain both an MA degree in higher education with a concentration in general higher education administration and a JD degree from the School of Law. Although an MA degree in higher and continuing education normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/ma-educational.shtml>.

### Health Administration (Masters)

Students completing this course of study will be eligible to receive the JD degree from the School of Law and the MHA degree from the Health

Management and Informatics graduate program. This course of study may be completed in four years and an additional summer session. Normally, students require three years to complete the requirements for the JD degree and two years to complete the requirements for the MHA degree.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/mha-health-admin.shtml>.

### Human Development & Family Studies (Masters)

The Department of Human Development and Family Studies and the School of Law offer an integrated program in which students may obtain both a JD degree from the School of Law and an MS or MA degree in Human Development and Family Studies. Although a Master's degree normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/mams-human-dev.shtml>.

### Journalism (Masters)

The School of Journalism and the School of Law offer an integrated program in which students may obtain both an MA degree in journalism and a J.D. degree in law. This program is especially suitable for students interested in enhancing their competencies, qualifications, and career options through the successful completion of two complementary professional programs. Although an MA degree in journalism normally requires two years of study, and a J.D. requires three, many students will be able to complete the full program in four years.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/ma-journalism.shtml>.

### Journalism (Doctorate)

The University of Missouri-Columbia School of Journalism and School of Law offer an integrated program for students seeking both a Ph.D. degree in journalism and a J.D. degree in law. Students should consider this program if they are interested in teaching or in senior-level practice or policy work in either of these fields, nationally or internationally. Although a Ph.D. degree in journalism normally requires three years of study, and a J.D. requires three, students may be able to complete the full program in as few as five years.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/phd-journalism.shtml>.

### Library & Information Science (Masters)

The School of Information Science and Learning Technologies (SISLT) and the School of Law offer an integrated program in which students may obtain both an MA degree in library and information science from SISLT and a JD degree from the School of Law. Although an MA degree in Information Science and Learning Technology with an emphasis in Library and Science normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/mls-library.shtml>.

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## **Public Affairs (Masters)**

Students completing the required course of study will be eligible to receive the JD degree from the School of Law and the MPA degree from the Harry S Truman School of Public Affairs. The course of study may be completed in four years. Normally, students require three years to complete the requirements for the JD degree and two years to complete the requirements for the MPA degree. Additional details are available from the School of Law at <http://law.missouri.edu/academics/dualdegree/mpa-public-admin.shtml>.

# School of Medicine

The MD degree is achieved after a four-year course of study. Please visit the School of Medicine website for information about the admissions process: <http://medicine.missouri.edu/admissions/>

The curriculum at the University of Missouri School of Medicine emphasizes clinical reasoning, self-directed learning, collaborative learning and early clinical experiences. It integrates the basic sciences and clinical reasoning. In years 1 and 2, emphasis is placed on small group learning with some lectures. Courses are not department or discipline based.

During the third year, seven core clerkships are required in Family Medicine, Internal Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry and Surgery. It is during these core clerkships that students learn the fundamentals of good patient care and faculty are assessing that students are competent upon completion of the clerkship. These clinical experiences must be under the supervision of Columbia-based School of Medicine faculty or community faculty appointed through the School of Medicine. All students may take up to three core clerkships developed and approved by School of Medicine departments through the University of Missouri School of Medicine Rural Track Clerkship program.

During the fourth year, three one-month clinical selectives, four one-month general electives and a one-month Advanced Biomedical Sciences are required. A minimum of four courses must be taken under the supervision of Columbia-based School of Medicine faculty as follows:

Students must take two of the three required clinical selectives under the supervision of Columbia-based School of Medicine faculty or community faculty appointed through the School of Medicine. One of the required selectives must be a surgical selective, one must be a medical selective and the third can be either a surgical or medical selective. Certain clinical experiences such as the Indian Health Service and designated rural community selectives approved by the department education director are considered under the supervision of Columbia-based School of Medicine faculty and will meet the requirement for one of the two clinical selectives. The third clinical selective may be taken at a site approved by the department, the advisor and the Office of Medical Education. Fourth year Rural Track elective courses approved at designated Rural Track training sites are considered to be under the supervision of Columbia-based School of Medicine faculty.

For more information about the School of Medicine, call (573) 882-9219. <http://medicine.missouri.edu>

## Patient Based Learning

### First and Second Years

Years one and two consists of four 9-week blocks. Each block has two components: Basic Science/Patient Based Learning (BSci/PBL) and Introduction to Patient Care (IPC).

#### BSci/PBL

In this component, students work through one authentic clinical case each week in small groups of students with a faculty facilitator. The facilitator is not a content expert, but rather guides the group as they work through the case seeking a diagnosis and patient care plan. BSci/PBL cases guide learning and the application of basic science concepts in clinical scenarios. A few basic lectures and laboratory experiences teach concepts that supplement the cases. BSci/PBL features about 10 hours

of patient-based learning with about 10 hours of traditional teaching such as lectures each week.

#### IPC

Themes change with each block and focus on clinical skills, including history taking and physical examination, psychosocial issues and increasing the students' understanding of epidemiology, diagnostic tests and psychopathology. The primary learning strategies also emphasize small-group learning with supporting lectures and laboratory experiences.

#### ACE (Ambulatory Care Experience)

ACE is required during blocks 2 through 4 of the first year and elective during the second year.. During the ACE each student spends half a day twice a month with a role-model faculty or community physician-preceptor.

#### Advanced Physical Diagnosis (APD)

APD is required during the second year. Students are assigned to a clinician mentor for the entire academic year. Times and frequency of meetings are at the discretion of the faculty member and the students; however, it is recommended that they meet at least twice each month. The emphasis of this APD experience is on history and physical exam skills and clinical reasoning. Successful completion of APD is required for advancing to the core clerkships.

#### Contemplating Medicine Patients, Self and Society (COMPASS)

This is a longitudinal small group course. Faculty facilitated small group sessions occur throughout all 4 years; addressing topics related to professional formation.

#### Independent Learning

Two half days each week are protected time for independent or student-directed learning; no faculty-initiated activities may be scheduled.

## M1 - Blocks 1, 2, 3, 4

MED_ID 5041	Structure and Function of the Human Body I	6
MED_ID 5042	Interviewing	3
MED_ID 5043	Structure and Function of the Human Body II	6
MED_ID 5044	Physical Examination	3
MED_ID 5045	Structure and Function of the Human Body III	6
MED_ID 5046	Psychosocial Aspects of Medicine	3
MED_ID 5047	Structure and Functions of the Human Body IV	6
MED_ID 5048	Clinical Epidemiology and Preventive Medicine	3
MED_ID 5051	Ambulatory Clinical Experience I	1

## M2 - Blocks 5, 6, 7, 8

MED_ID 5551	Pathophysiology I	6
MED_ID 5552	Diagnostic Tests and Medical Decisions	3
MED_ID 5553	Pathophysiology II	6
MED_ID 5554	Psychopathology and Behavioral Medicine	3
MED_ID 5555	Pathophysiology III	6
MED_ID 5556	Clinical Practicum	3
MED_ID 5557	Pathophysiology IV	6
MED_ID 5558	Physician as a Person	3
MED_ID 5561	Advanced Physical Diagnosis I	1

## Clerkships

Year three includes seven clerkships in Family Medicine, Internal Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry, and Surgery. During these core clerkships, students learn the fundamentals of good patient care, and faculty assesses student competencies. Clerkships must be supervised by Columbia-based School of Medicine faculty or community faculty appointed through the School of Medicine. Students may take up to three clerkships at designated community sites as part of the MU Rural Track Clerkship Program (<http://www.muahc.missouri.edu/rural-track.php>).

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

### Family and Community Medicine Clerkship - F\_C\_MD 6001

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

### Internal Medicine Clerkship - IN\_MED 6002

Students spend eight weeks on the internal medicine inpatient service at University Hospital and Harry S. Truman Veterans Hospital where they learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

### Obstetrics/Gynecology Clerkship - OB\_GYN 6004

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

### Neurology Clerkship - NEUROL 6003

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

### Psychiatry Clerkship - PSCHTY 6005

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

### Surgery Clerkship - SURGRY 6006

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Each student has a faculty mentor-advisor, attends faculty discussion sessions that cover objectives in the required textbooks and takes call under the supervision of surgical residents. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

### Patient-Centered Care Objective Structured Clinical Evaluation (PCC-OSCE)

A PCC-OSCE will be administered at the end of the third year to assess a student's ability to provide patient-centered care. Successful completion is required for graduation. Describe more here??

### Contemplating Medicine Patients, Self and Society (COMPASS)

This is a longitudinal small group course. Faculty facilitated small group sessions occur throughout all 4 years; addressing topics related to professional formation.

## Electives

The fourth year consists of three one-month advanced clinical selectives (sub-internships), in the core disciplines, four one-month general electives, and a one-month Advanced Biomedical Sciences (ABS) course. One of the advanced selectives must be in a surgical area and one must be in a medical area. A minimum of four fourth-year courses (including 2 advanced selectives) must be taken under the supervision of Columbia-based School of Medicine faculty.

The fourth year consists of two groups of advanced selectives and general electives.

### Advanced Clinical Selectives

Three advanced clinical selectives from the core disciplines of child health, family medicine, internal medicine, neurology, obstetrics and gynecology, psychiatry and surgery are required. Each selective is four weeks in length. One must be in a surgical area and one must be in a medical area. Advanced clinical selectives build on the knowledge and skills acquired during third-year core clerkships. Students are expected to assume more responsibility for patient care than in the core blocks.

### Advanced Basic Science Selectives

Advanced basic science selectives revisit the biomedical sciences in the context of a patient, disease, diagnosis or problem. Four options are available. Students may:

- Search and analyze the literature, integrate and evaluate data, produce a paper or presentation
- Conduct original research with mentors from the basic or clinical sciences
- Attend a series of graduate-level lectures and discussions of current literature
- Function as co-tutors for PBL, attend tutor preparation sessions and write a PBL case

### General Electives

Sixteen weeks of general electives are required. Off-site experiences are available but must be approved by the appropriate department.

For more information on fourth year course offerings, please refer to the **Senior Rotation Catalog**. This catalog contains descriptions of all senior rotations offered at the University of Missouri - Columbia School of Medicine, as well as information concerning enrollment for rotations.

### Contemplating Medicine Patients, Self and Society (COMPASS)

This is a longitudinal small group course. Faculty facilitated small group sessions occur throughout all 4 years; addressing topics related to professional formation. Fourth year students complete a required COMPASS capstone assignment.



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## USMLE

The United States Medical Licensing Examination (USMLE) (<http://www.usmle.org>) is a three-step examination for medical licensure in the United States and is sponsored by the National Board of Medical Examiners® (NBME) (<http://www.nbme.org>) and the Federation of State Medical Boards (FSMB) (<http://www.fsmb.org>). The USMLE assesses a physician's ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills that are important in health and disease and that constitute the basis of safe and effective patient care.

All medical students are required to take Step 1 at the end of the second year of medical school and must pass it prior to beginning the fourth year.

All medical students are also required to pass Step 2 Clinical Knowledge (CK) and Step 2 Clinical Skills (CS) prior to graduation.

Step 3 is typically taken after the first year of residency.

# College of Veterinary Medicine

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The college was established in 1946. It offers a four-year professional program leading to the Doctor of Veterinary Medicine (DVM) degree. Applicants (<http://cvm.missouri.edu/prospective.htm>) generally have a B.S. or B.A. degree but can be admitted after completing prerequisite course requirements

The Pre-Veterinary Medical Scholars and AgScholars programs (<http://cvm.missouri.edu/pre-vet-scholars.htm>) provide early assurance of admission to the MU College of Veterinary Medicine upon satisfactory completion of undergraduate and program requirements. Students work with advisers in the college, and they observe veterinarians at work as part of the program. Students with a minimum ACT score of 30 or an equivalent SAT score are eligible to apply for the Pre-Vet Scholars Program. The required minimum ACT score for the AgScholars Program is 27 and applicants must have demonstrated experience in livestock production and health. Once at Mizzou, scholars must meet program minimum standards, including maintaining a 3.3 cumulative GPA. For more information, call the College of Veterinary Medicine at 573-884-3341.

In addition to the professional program, on-line biomedical science courses (<http://biomedonline.missouri.edu/online-programs-for-graduate-veterinary-technicians-in-veterinary-biomedical-technology>) available to undergraduate and graduate students are listed in this catalog. These can be used to fulfill the requirements of a Certificate in Biomedical Science, for a licensed veterinary technician to complete a baccalaureate degree or to earn a master's degree in biomedical sciences.

The college also provides diagnostic and patient care services for animals. The CVM has a national reputation for excellent student-to-instructor ratio and state-of-the-art facilities. The college also offers post-graduate training to interns, residents in various specialties (<http://cvm.missouri.edu/residencies.htm>) and graduate students (<http://cvm.missouri.edu/research-gradstudies.htm>).

For more information about the College of Veterinary Medicine, call (573) 882-3768. <http://cvm.missouri.edu>

## Faculty

Department of Biomedical Sciences: <http://biomed.missouri.edu/faculty-and-staff/>

Department of Veterinary Medicine and Surgery: <http://www.vms.missouri.edu/faculty.html>

Department of Veterinary Pathobiology: <http://vpbio.missouri.edu/faculty.html>

## Academic Policies

Below is a listing of policies that apply only to students admitted to the College of Veterinary Medicine. The full CVM student handbook can be found at: <http://www.cvm.missouri.edu/stuhandbook.htm>

CVM students must also abide by the University's Academic Policies that apply to all students.

The policies and procedures of the MU College of Veterinary Medicine are revised on a regular basis. Provisions regarding such policies and

procedures contained on our website are subject to change without notice. If you have questions or note errors or omissions, please contact the College. All statements concerning requirements, prerequisites, conditions or other matters are for informational purposes only, and are subject to change without notice. They are not to be regarded as offers to contract.

Course Changes (<http://catalog.missouri.edu/academicpolicies/coursechangesv>)

Deficient Academic Performance (<http://catalog.missouri.edu/academicpolicies/deficientacadperf>)

Externships (<http://catalog.missouri.edu/academicpolicies/externshipsv>)

Final Examination Week (<http://catalog.missouri.edu/academicpolicies/finalexamwkv>)

Honors Recognition (<http://catalog.missouri.edu/academicpolicies/honorsrecognitionv>)

Student Files (<http://catalog.missouri.edu/academicpolicies/studentfilesv>)

Testing Out of Courses (<http://catalog.missouri.edu/academicpolicies/testoutv>)

Transfer Students from Other Accredited Veterinary Schools (<http://catalog.missouri.edu/academicpolicies/transferv>)

Withdraw from the University (<http://catalog.missouri.edu/academicpolicies/withdrawv>)

## DVM in Veterinary Medicine

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The DVM degree is achieved after a four-year course of study. Applicants generally have a B.S. or B.A. degree but can be admitted after completing prerequisite course requirements. <http://cvm.missouri.edu/prospective.htm>

At the University of Missouri, the first two years are largely spent in classrooms and laboratories with the second two years devoted primarily to clinical study in the Veterinary Health Center.

The curriculum at the MU College of Veterinary Medicine is designed to provide students with the knowledge and technical skills necessary to be competent entry level veterinarians. We prepare our students for general veterinary practice, for entry into graduate or specialty training programs and with the background necessary for careers in regulatory medicine.

In the first two years, all students follow the same schedule, and courses must be successfully completed in sequence. In the final two years of the professional program, the student must successfully complete the required and elective clinical rotations to fulfill graduation requirements.

To receive the DVM degree, students must pass all courses. In addition to passing examinations, attendance and participation in all lectures, laboratories and clinical exercises is required. The doctor or veterinary medicine degree is awarded after successful completion of the professional program.

## Curriculum

### Objectives and Summary of the Professional Curriculum

The primary objective of the CVM curriculum is to provide students with the knowledge and technical skills necessary to be competent entry level veterinarians. We prepare our students for general veterinary

practice, for entry into graduate or specialty training programs, or for careers in regulatory medicine. The overall objective of the first two years of the curriculum is to provide students with a solid foundation in basic biomedical sciences. The courses in the preclinical professional curriculum include anatomy, physiology, cell and molecular biology, pathology, pharmacology, microbiology, virology, and toxicology. The fundamentals of the clinical disciplines are also taught during this time and include anesthesiology, clinical pathology, radiology, public health, medicine and surgery.

The organizational scheme of the professional curriculum differs from that of other schools in that the first two academic years are divided into eight-week instructional periods and our academic year runs from August through June. The students have a summer break between the first and second years and second and third years of instruction that is approximately seven weeks in duration. The overall objective of the clinical curriculum is to solidify basic knowledge and practice clinical skills in the VMTH, VMDL, and external preceptorships. This portion of the curriculum is organized into 12 clinical blocks that begin in October of the third year of professional instruction. These clinical blocks are six to eight weeks in duration and may be divided into 1, 2, or 3 clinical courses. The required clinical rotations are listed below and organized by duration:

## Required Clinical Rotations

**Full Block Rotations:** Food Animal Medicine and Surgery; Equine Medicine and Surgery; Small Animal Community Practice and Shelter Medicine; Diagnostic Pathology and Special Species Medicine.

**Third Block Rotations:** Theriogenology; Ophthalmology; Small Animal Internal Medicine; Small Animal Emergency and Critical Care; Oncology; Soft Tissue Surgery; Orthopedic Surgery; Neurology and Neurosurgery

**Half Block Rotations:** Clinical Radiology; Clinical Anesthesia

Note that students are required to complete four credit hours (four weeks) of external evaluated preceptorships as part of the required curriculum. Students also select 10 credit hours of elective rotations (cardiology, nutrition, production medicine, special imaging, etc.). In addition to required and elective blocks, students are allotted two blocks as "free time." Most students utilize their free time to study for licensing examinations, complete preceptorships at practices, or interview with prospective employers. A total of 166 semester credit hours are required for graduation. Most students accumulate a higher number of credit hours as a result of enrollments in extra didactic or clinical elective courses.

### VM-1 Required Courses (Instructional Periods 1-4)

Instructional Periods 1 and 2; August - December		
V_BSCI 5500	Veterinary Anatomy with Laboratory	4
V_BSCI 5502	Veterinary Microscopic Anatomy with Laboratory	3
V_BSCI 5504	Veterinary Physiology	5
V_BSCI 5506	Veterinary Molecular and Cellular Biology	4
V_BSCI 5100	Veterinary Neuroscience	2
Instructional Period 3; January - February		
V_BSCI 5011	Veterinary Anatomy	3
V_BSCI 5020	Developmental Anatomy	0.5
V_BSCI 5503	Veterinary Microscopic Anatomy	2
V_BSCI 5051	Veterinary Gastrointestinal	2
V_M_S 6005	Clinical Skills	0.5
V_M_S 6140	Nutrition with Laboratory	1.5

### Instructional Period 4; March - April

V_BSCI 5012	Veterinary Anatomy with Laboratory	3
V_BSCI 5021	Developmental Anatomy	0.5
V_BSCI 5052	Veterinary Endocrinology and Reproductive Physiology	2
V_PBio 5511	Veterinary Immunology	1.5
V_PBio 5555	Epidemiology and Biostatistics with Laboratory	2
V_M_S 6006	Clinical Skills	0.5

### VM-2 Required Courses (Instructional Periods 5-9)

#### Instructional Period 5; May - June

V_PBio 5512	Veterinary Immunology	1.5
V_PBio 5552	Veterinary Bacteriology with Laboratory	3
V_PBio 5575	Veterinary Pathology with Laboratory	3
V_PBio 5579	Veterinary Genomics	1

#### Instructional Period 6; August - October

V_PBio 5553	Veterinary Bacteriology II	2.5
V_PBio 5554	Veterinary Virology	2.5
V_PBio 5557	Veterinary Parasitology with Laboratory	3
V_PBio 5576	Veterinary Systemic and Special Pathology with Laboratories	3

#### Instructional Period 7; October - December

V_BSCI 5507	Veterinary Pharmacology with Laboratory	3
V_PBio 5558	Veterinary Public Health	2
V_PBio 5577	Veterinary Systemic and Special Pathology II with	3

V_PBio 5601	Animals in Emergencies & Basic Emergency Response Training for Vet Students	1
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V_M_S 6130	Fundamentals of Veterinary Business Management	1
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#### Instructional Period 8; January - February

V_BSCI 5508	Veterinary Pharmacology	2
V_PBio 5578	Veterinary Clinical Pathology with Laboratory	3
V_PBio 6010	Laboratory Animal Medicine	1.5
V_M_S 6020	Veterinary Radiology with Laboratory	2

#### Instructional Period 9; March - April

V_BSCI 5509	Veterinary Toxicology	3
V_M_S 6030	Veterinary Anesthesiology with Laboratory	2
V_M_S 6040	Companion Animal Medicine with Laboratory	4
V_M_S 6060	Small Animal Surgery with Laboratory	2

### VM-3 Courses (Instructional Periods 10-11)

#### Instructional Period 10; May - June Required Courses

V_M_S 6050	Small Animal Medicine	2.5
V_M_S 6071	Small Animal Surgery	2
V_M_S 6073	Fundamental Surgery Laboratory	1
V_M_S 6081	Food Animal Medicine and Surgery	2.5
V_M_S 6151	Equine Medicine and Surgery	2

#### Instructional Period 10; May - June Electives

V_M_S 6072	Optional Surgery and Anesthesia Laboratory	1
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#### Instructional Period 11; August - October

V_M_S 6082	Food Animal Medicine and Surgery	2
V_M_S 6090	Small Animal Emergency and Critical Care with Laboratory	1
V_M_S 6110	Theriogenology	3
V_M_S 6120	Veterinary Ophthalmology	1
V_M_S 6152	Equine Medicine and Surgery	1.5

#### Instructional Period 11; August - October Elective Courses

V_PBio 5991	Introduction to Avian Medicine	1
V_M_S 6986	Advanced Clinical Neurology and Neurosurgery	1
V_M_S 6987	Problem-Based Learning Clinic Preparation	1
V_M_S 6988	Small Animal Clinical Nutrition	1
V_M_S 6989	Advanced Oncology of Animals	1
V_M_S 6990	Zoological Medicine	2
V_M_S 6991	Advanced Equine Lameness with Laboratory	1
V_M_S 6993	Advanced Veterinary Anesthesia	1
V_M_S 6994	Advanced Techniques in Small Animal Surgery with Laboratory	1
V_M_S 6995	Clinical Cardiology	1
V_M_S 6996	Advanced Dermatology	1
V_M_S 6997	Food Animal Diagnostic Exercises	1
V_M_S 6998	Small Animal Behavioral Medicine	1
V_M_S 6999	Food Animal Surgery Laboratory	1
<b>VM-3 and VM-4 Required Clinical Rotations (October - Graduation)</b>		
V_M_S 6010	Evaluated Veterinary Preceptorship	2-12
V_M_S 6400	Food Animal Medicine and Surgery I	6
V_M_S 6411	Small Animal Internal Medicine	2
V_M_S 6412	Small Animal Community Practice	6
V_M_S 6420	Equine Medicine and Surgery I	6
V_M_S 6432	Small Animal Soft Tissue Surgery	2
V_M_S 6434	Small Animal Orthopedic Surgery	2
V_M_S 6436	Veterinary Neurology/Neurosurgery	2
V_M_S 6441	Clinical Radiology I	3
V_M_S 6442	Clinical Anesthesiology I	3
V_M_S 6450	Theriogenology I	2
V_M_S 6460	Clinical Ophthalmology I	2
V_M_S 6490	Small Animal Specialty Medicine I	2
V_M_S 6820	Small Animal Emergency and Critical Care	2
V_PBio 6647	Diagnostic Pathology and Special Species Medicine	8

#### Elective Clinical Rotations

V_M_S 6700	Food Animal Medicine and Surgery II Elective	2-6
V_M_S 6710	Small Animal Medicine II Elective	2-6
V_M_S 6711	Small Animal Internal Medicine Elective Clinical or Research Rotation	2
V_M_S 6712	Private Practice Small Animal Internal Medicine Elective	2
V_M_S 6720	Equine Medicine and Surgery II Elective	2-6
V_M_S 6732	Small Animal Soft Tissue Surgery II Elective	2
V_M_S 6734	Small Animal Orthopedic Surgery II Elective	2
V_M_S 6736	Veterinary Neurology/ Neurosurgery-Elective	2
V_M_S 6741	Clinical Radiology II Elective	2-6
V_M_S 6742	Clinical Anesthesiology II Elective	2-6
V_M_S 6743	Radiology - Special Imaging Elective	2-3
V_M_S 6750	Theriogenology II Elective	2-6
V_M_S 6751	External Food Animal Service and Theriogenology Teaching Program	2-6
V_M_S 6760	Small Animal Nutrition	2
V_M_S 6800	Clinical Ophthalmology II Elective	2-6
V_M_S 6810	Cardiology II Elective	2
V_M_S 6821	Small Animal Emergency Critical Care Elective	2

V_M_S 6830	Food Animal Production Medicine	6
V_M_S 6850	Clinical Oncology	2-6
V_PBio 6676	Laboratory Animal Medicine and Management Elective	4-6
V_PBio 6678	Epidemiology and Community Health	2-6
V_PBio 6679	Diagnostic Pathology and Special Species Medicine	2-6
V_PBio 6684	Research Techniques in Veterinary Pathobiology	2-6

## Preceptorships

Missouri students are encouraged to use free blocks as preceptorships to increase exposure to veterinary practice and to meet the requirements of the Missouri Veterinary Medical Practice Act. The University of Missouri College of Veterinary Medicine does not have the authority to approve the use of student free block time or the veterinarians with whom they gain experience.

Available preceptorships may be found by contacting the Office for Student Affairs.

Preceptorship requirements and forms required by the Missouri State Veterinary Medical Board can be found at their website: <http://pr.mo.gov/veterinarian.asp>

The level of supervision required by preceptors is detailed at: <http://pr.mo.gov/boards/veterinary/VetSupervisionChart.pdf>

The Missouri State Veterinary Medical Board preceptorship form may be found at: <http://pr.mo.gov/veterinarian-application-forms.asp>

## Licensing Examination

### Professional Licensing Information

In addition successfully completing a professional veterinary education, most states require state and national licensing examinations to meet requirements to practice. Please visit the National Board of Veterinary Medical Examiners (NBVME (<http://www.nbvme.org>)) and the American Association of Veterinary State Boards (AAVSB (<http://www.aavsb.org>)) websites for further information.



## About MU

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### Our mission

Our distinct mission, as Missouri's only state-supported member of the Association of American Universities, is to provide all Missourians the benefits of a world-class education enriched by service and global interaction. We are stewards and builders of a priceless state resource, a unique physical infrastructure and scholarly environment in which our tightly interlocked missions of teaching, research, service and economic development work together on behalf of all citizens. Students work side by side with some of the world's best faculty to advance the arts and humanities, the sciences and the professions. Scholarship and teaching are driven by a sense of public service — the obligation to produce and disseminate knowledge that will improve the quality of life in the state, the nation and the world.

### We are MU — Missouri's Flagship University

We are a diverse group of students, faculty and staff who value the excitement and learning that come from interaction among people with richly different backgrounds and ideas.

We challenge talented undergraduates to stretch their minds and imaginations with the unique strengths of a major research university. Our students experience an interwoven web of learning experiences — in classrooms, in residence hall learning communities, and in collaborative research and creative, artistic and service projects with faculty.

We develop the world leaders of tomorrow through rigorous graduate and professional programs across the broadest range of disciplines offered on a Missouri campus.

We ensure improving the quality of MU through a financial model that supplements taxpayer support with rational tuition and student aid, public-private partnerships and aggressive fundraising. Our responsible fiscal planning assures both excellence and access for all well-prepared students, regardless of socioeconomic status.

We live and work in a community of scholars. We treasure our core values of respect, responsibility, discovery and excellence.

As a 21st century land-grant university, we are an economic engine for Missouri. We generate businesses and jobs by creating and disseminating the knowledge that fuels the new economy.

We use our unique intellectual resources to improve the civic, economic, health and educational well-being of Missourians from all walks of life and all corners of the state. We are committed to improving the quality of life of students and their families and communities through the creative and performing arts and the application of new knowledge.

## Accreditation

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The University of Missouri is accredited by the Higher Learning Commission. Various schools, colleges and departments are also accredited by their respective professional associations and accrediting agencies.

### Agriculture Food & Natural Resources

Society for American Foresters' Accreditation/Forestry

Council on Accreditation Parks Recreation & Tourism (CoAPRT)

Institute for Food Technologists (IFT) Higher Education Review Board

### Arts & Science

American Chemical Society/Chemistry

American Psychological Association/Clinical Psychology Training Program

National Association of Schools of Music/Music

### Trulaske College of Business

AACSB International Business Accreditation

### Education

Teacher Education Accreditation Council (TEAC)

American Psychological Association (Counseling Psychology)

Missouri Department of Elementary & Secondary Education(MDESE)

American Psychological Association Accreditation/School Psychology

American Psychological Association Accreditation/Counseling Program

American Library Association/MA

### Engineering

ABET - Engineering

ABET -Computer Science

Commission on the Accreditation of Medical Physics Education Programs - NSEI

### Health Professions

Accreditation Council for Occupational Therapy (ACOTE)/PT

Commission on Accreditation in Physical Therapy Education/PT

Council on Academic Accreditation/Audiology & Speech Lang Pathology (CAA)

Commission on Accreditation for Respiratory Care (CoARC)

Commission on Accreditation of Allied Health Education Programs (CAAHEP)/Diagnostic Med Sonography

Council on Education for Public Health

Joint Review Committee on Education in Radiologic Technology (JRCERT)

Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT)

National Accrediting Agency for Clinical Laboratory Sciences through University of Nebraska Medical Center

### Human Environmental Sciences

Accreditation Council for Education in Nutrition & Dietetics (ACEND)

Commission on Accreditation (COA) (Social Work)

Council on Social Work Education/Social Work

Council for Interior Design Accreditation (CIDA) /Architectural Studies

### Journalism

Accrediting Council on Education in Journalism & Mass Communications

### Law School

American Bar Association

### **Nursing**

Commission on Collegiate Nursing Education (CCNE)

### **Medicine**

Liaison Committee on Medical Education -Association of American Medical Colleges

Commission on Accreditation of Healthcare Management Education

Accreditation Council for Graduate Medical Education

Accreditation Council for Continuing Medical Education

### **Truman School for Public Affairs**

National Association of Schools of Public Affairs and Administration

### **Veterinary School**

American Veterinary Medical Association

## **Important Facts**

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### **History**

The University of Missouri was established in Columbia in 1839 as the first public university west of the Mississippi River, and the first public university in Thomas Jefferson's Louisiana Purchase territory. In 1870 the University of Missouri was approved as a land-grant university under the Morrill Act of 1862. The original mission of land-grant institutions was to make higher education accessible to more people. Gradually that mission has expanded to include research, service and outreach; enabling the state's citizens to benefit directly from the knowledge gained through university research. As Missouri's flagship university, MU continues its historic mission through its emphasis on excellence in teaching, research, service and economic development.

### **Students**

- Students come from all 50 states and more than 100 countries. The diversity of backgrounds, opinions and lifestyles improves the overall quality of the student experience.
- The university has more than 27,000 undergraduate students who choose courses from a broad range of academic disciplines.
- The university also has more than 7,000 graduate and professional students enrolled in more than 90 different degree programs. The professional schools include more than 1,200 students in law, medicine and veterinary medicine.
- MU is nationally recognized for its Freshman Interest Groups, where students with shared academic interests live in the same residence hall and often attend classes together. These communities provide a strong academic and social foundation for freshmen, as well as increased faculty involvement with students.

### **The Campus**

- The University of Missouri prides itself on respecting the past while embracing the future. The 1,262-acre Mizzou campus is a testament to that belief. From the six Ionic Columns that adorn Francis Quadrangle to the Memorial Union Tower that honors fallen soldiers to the MU Student Center completed in 2010, every piece of campus represents equally the heart and soul of what it means to be a Tiger.

- The campus is also a living museum with hundreds of plant species from all over the world that make up the Mizzou Botanic Garden. The garden features over 42,000 plants and invites a stroll through more than 170 years of history as MU was transformed into the global university it is today. National magazines and newspapers consistently rank Columbia, among the top cities in the nation for its excellent quality of life.

### **Alumni**

There are more than 260,000 living alumni worldwide. Many continue to support the University through membership in the Mizzou Alumni Association.

### **University of Missouri Board of Curators**

Darryl Chatman, St. Louis  
Maurice Graham, Clayton  
Jamie Farmer, Jefferson City  
Jeff Layman, Springfield  
Phil Snowden, Kansas City  
David Steelman, Rolla  
John R. Phillips, Kansas City

### **University of Missouri System Administration**

Mun Y. Choi, President UM System  
Gary R. Allen, Vice President Information Systems and Chief Information Officer  
E. Jill Pollock, Interim Vice President for Human Resources  
Robert Schwartz, Interim Executive Vice President for Academic Affairs, Research and Economic Development  
Leona Rubin, Associate Vice President for Academic Affairs and Graduate Education  
Stephen C. Knorr, Vice President for University Relations  
Ryan Rapp, Interim Vice President for Finance and Chief Financial Officer  
Steve Graham, Senior Associate Vice President for Academic Affairs  
Stephen J. Owens, General Counsel  
David Russell, Interim Chief of Staff

### **Leadership of the University of Missouri**

Alexander Cartwright, Chancellor  
Brian Millner, Interim Chief of Staff  
Mark McIntosh, Interim Senior Vice Chancellor for Research, Graduate Studies and Economic Development  
Tom Hiles, Vice Chancellor of University Advancement  
Kevin McDonald, Vice Chancellor for Inclusion, Diversity and Equity  
Rhonda Gibler, Vice Chancellor for Finance and Chief Financial Officer  
Gary Ward, Vice Chancellor for Operations and Chief Operating Officer, Interim Vice Chancellor for Student Affairs  
Leona Rubin, Associate Vice Chancellor for Graduate Studies  
Patty Haberberger, Vice Chancellor of Human Resource Services  
Todd McCubbin, Associate Vice Chancellor of Alumni Relations and Executive Director, Mizzou Alumni Association  
Jennifer Hollingshead, Interim Vice Chancellor for Marketing and Communications  
Ellen Eardley, Assistant Vice Provost/Title IX Administrator  
Garnett Stokes, Provost and Executive Vice Chancellor for Academic Affairs  
Christine Holt, Associate Provost

Jim Spain, Vice Provost for Undergraduate Studies  
Marshall Stewart, Vice Chancellor for Extension and Engagement  
Pelema Morrice, Vice Provost of Enrollment Management  
Jim Scott, Interim Vice Provost for International Programs  
Jim Sterk, Director of Intercollegiate Athletics  
Marc Linit, Interim Vice Chancellor for Agriculture and Dean, College of Agriculture, Food and Natural Resources  
Pat Okker, Interim Dean, College of Arts and Science  
Ajay Vinzé, Dean, Trulaske College of Business  
Katherine Chval, Dean, College of Education  
Elizabeth Lobo, Dean, College of Engineering  
Kristofer Hagglund, Dean, School of Health Professions  
Sandy Rikoon, Dean, College of Human Environmental Sciences  
David Kurpius, Dean, School of Journalism  
Lyrisa Lidsky, Dean, School of Law  
Patrick Delafontaine, Dean, School of Medicine  
Judith Fitzgerald Miller, Dean, Sinclair School of Nursing  
Barton Wechsler, Dean, Harry S Truman School of Public Affairs  
Neil Olson, Dean, College of Veterinary Medicine  
Ann Riley, Acting Director, University Libraries  
Ben Trachtenberg, Chair, Faculty Council  
Christine Kintner, Chair, Staff Advisory Council  
Nathan Willett, President, Missouri Students Association  
Rachel Bauer, President, Graduate Professional Council  
Ted D. Ayres, President, Mizzou Alumni Association

## Notifications

All statements in this catalog are announcements of present policies only, and are subject to change without notice. They are not to be regarded as offers to contract. If you have questions or note errors or omissions, please contact the Office of the University Registrar (<http://registrar.missouri.edu>). Below is additional information for items on which the University is required to make available.

## Accommodations for Students with Disabilities

The University of Missouri complies with the American with Disabilities Act and other applicable laws and regulations. If you have a disability and need accommodations, please contact Disability Services, S5 Memorial Union, Voice (573) 882-4696, TTY (573) 882-8054, or e-mail [disabilityservices@missouri.edu](mailto:disabilityservices@missouri.edu) as soon as possible so that appropriate arrangements can be made. For more information please visit the website at <http://disabilityservices.missouri.edu>. If you need this information in an alternative format (Braille, large print, or digital format), Disability Services can provide assistance.

## Complaint Resolution

The University of Missouri desires to resolve student grievances, complaints and concerns in an efficient, fair and amicable manner. For details on procedures to file a complaint, please refer to the section on Complaint Resolution at <http://financialaid.missouri.edu/consumer-information-disclosures/index.php>.

## Equity in Athletics Disclosure Act

The University of Missouri complies with the Equity in Athletics Disclosure Act of 1994, Section 360B of Pub. L. 103-382. This act and accompanying federal regulations require that certain information with regard to intercollegiate athletics, including operation expenses,

revenue, salaries and participation rates, be made available to current and prospective students and the public. This report is available from the Department of Intercollegiate Athletics at (573) 882-6501.

## Family Education Rights and Privacy Act (FERPA)

The University of Missouri policies and procedures adhere to this federal law. Students have the right to restrict the release of directory information. Directory information for MU is defined as: a student's name, address, telephone listing, e-mail address, major field of study, student level, dates of attendance, degrees and awards received, enrollment status in any past and present semester (i.e. full/part-time), and the most recent previous educational agency or institution attended by the student.

To restrict this information, students should change their privacy settings in myZou or contact the Office of the University Registrar-Registration, 125 Jesse Hall. For the full policy, go to <http://registrar.missouri.edu/policies/ferpa.php>.

Note: University of Missouri students can grant other users direct authorized online access to their student information in myZou, which may include academic information (including, but not limited to grades), account information, directory information and financial aid. See <http://registrar.missouri.edu/registration-adddrop/additional-authorized-access.php> for more information. The University does not release grades to parents unless the student specifically authorizes it in writing in the Office of the University Registrar or a parent shows proof that the student is a dependent as defined in Section 152 of the Internal Revenue Code of 1954. "Parent" means a parent of a student and includes a natural parent, a guardian, or an individual acting as a parent in the absence of a parent or guardian.

## Nondiscrimination

The University of Missouri does not discriminate on the basis of race, color, religion, sex, sexual orientation, national origin, age, disability, protected veterans. Any person having inquiries concerning the University of Missouri compliance with implementing Title VI of the Civil Rights Act of 1964, Title IV of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, or other civil rights laws should contact the Assistant Vice Chancellor, Human Resources Services, University of Missouri, 130 Heinkel Building, Columbia, MO 65211, (573) 882-4256, or the Assistant Secretary for Civil Rights, US Department of Education.

## Oak Ridge Associated Universities (ORAU) Consortium

Since 1981, students and faculty of the University of Missouri have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 96 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in



programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at <http://www.orau.gov/orise/educ.htm>, or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Robert V. Duncan  
Vice Chancellor for Research  
ORAU Councilor for University of Missouri  
Monnie E. Champion  
ORAU Corporate Secretary (865-576-3306); or  
Visit the ORAU Home Page (<http://www.orau.org>)

## State of Missouri Registration for Professional Engineers

The Revised Statutes of Missouri (Section 327.221) require that "all applicants for registration as a professional engineer in the State of Missouri after Jan. 1, 1977, be a graduate of and hold a degree in engineering in a curriculum accredited by the Accreditation Board for Engineering and Technology (ABET)." All MU undergraduate engineering bachelor's-level programs are so accredited. Applicants who receive advanced degrees in MU's engineering programs but who do not have a bachelor's degree in an accredited engineering program are not eligible for registration in Missouri. Candidates for a graduate degree (MS or PhD) in engineering who want to establish eligibility for registration should consult with their academic program chair about a plan of study that also will lead to a bachelor's degree in an ABET-accredited program. Further information about professional engineering registration may also be obtained from the Missouri Board for Architects, Professional Engineers and Land Surveyors, P.O. Box 184, Jefferson City, MO 65102.

## Veteran Access, Choice and Accountability Act of 2014, Section 702

The University is compliant with the requirements of PL 113-146 the Veteran Access, Choice and Accountability Act of 2014, Section 702. Section 702 targets educational assistance through ensuring in-state tuition/in-district rates to uniformed services veterans and their qualified dependents covered under this Section.

These new requirements will ensure that our Nation's recently discharged Veterans, and their eligible family members, will not have to bear the cost of out-of-state charges while using their well-deserved education benefits.

The following individuals shall be charged the in-state/in-district rate, or otherwise considered a resident, for tuition purposes:

- A Veteran using educational assistance under either chapter 30 (Montgomery G.I. Bill – Active Duty Program) or chapter 33 (Post-9/11 G.I. Bill), of title 38, United States Code, who lives in the State of Missouri while attending a school located in the State of Missouri (regardless of his/her formal State of residence) and enrolls in the school within three years of discharge from a period of active duty service of 90 days or more.
- Anyone using transferred Post-9/11 GI Bill benefits (38 U.S.C. § 3319) who lives in the State of Missouri while attending a school located in the State of Missouri (regardless of his/her formal State of residence) and enrolls in the school within three years of the transferor's discharge from a period of active duty service of 90 days or more.
- A spouse or child using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311(b)(9)) who lives in the State of Missouri while attending a school located in the State of Missouri (regardless of his/her formal State of residence) and enrolls in the school within three years of the Service member's death in the line of duty following a period of active duty service of 90 days or more.
- Anyone described above while he or she remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school. The person so described must have enrolled in the school prior to the expiration of the three year period following discharge or death described above and must be using educational benefits under either chapter 30 or chapter 33, of title 38, United States Code.

## A Statement of Values

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The University of Missouri, as the state's major land-grant university, honors the public trust placed in it and accepts the associated accountability to the people of Missouri for its stewardship of that trust. Our duty is to acquire, create, transmit, and preserve knowledge, and to promote understanding.

We the students, faculty, and staff of MU hold the following values to be the foundation of our identity as a community. We pledge ourselves to act, in the totality of our life together, in accord with these values.

### Respect

Respect for one's self and for others is the foundation of honor and the basis of integrity. A hallmark of our community is respect — for the process by which we seek truths and for those who engage in that process. Such respect is essential for nurturing the free and open discourse, exploration, and creative expression that characterize a university. Respect results in dedication to individual as well as collective expressions of truth and honesty. Respect is demonstrated by a commitment to act ethically, to welcome difference, and to engage in open exchange about both ideas and decisions.

### Responsibility

A sense of responsibility requires careful reflection on one's moral obligations. Being responsible imposes the duty on us and our university to make decisions by acknowledging the context and considering consequences, both intended and unintended, of any course of action.

Being responsible requires us to be thoughtful stewards of resources — accountable to ourselves, each other, and the public we serve.

## Discovery

Learning requires trust in the process of discovery. Discovery often fractures existing world views and requires acceptance of uncertainty and ambiguity. Therefore, the university must support all its members in this lifelong process that is both challenging and rewarding. As we seek greater understanding and wisdom, we also recognize that knowledge itself has boundaries — what we know is not all that is.

## Excellence

We aspire to an excellence that is approached through diligent effort, both individual and collective. Pursuing excellence means being satisfied with no less than the highest goals we can envision. Pursuing excellence involves being informed by regional, national, and global standards, as well as our personal expectations. We recognize and accept the sacrifices, risks, and responsibilities involved in pursuing excellence, and so we celebrate each other's successes. We commit ourselves to this process in an ethical and moral manner.

These statements are mere words until we integrate them as values in our individual lives and reflect them in our institutional policies and practices. We pledge ourselves to make them effective in the very fabric of our lives, our community, and all our relationships with others, thereby enhancing the development of individuals and the well-being of society.

## Supporting Offices

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### Academic Exploration & Advising Services

909 Lowry Mall  
Columbia, MO 65211  
phone: 573-884-9700  
email: [umcadvising@missouri.edu](mailto:umcadvising@missouri.edu)  
web: <http://aeas.missouri.edu>

### Academic Retention Services

110 Student Success Center  
Columbia, MO 65211  
phone: 573-882-9208  
fax: 573-884-4353  
email: [muarsinfo@missouri.edu](mailto:muarsinfo@missouri.edu)  
web: <http://success.missouri.edu/ars.html>

### Admissions - Undergraduate

phone: 573-882-7786  
fax: 573-882-7887  
email: [AskMizzou@missouri.edu](mailto:AskMizzou@missouri.edu)  
web: <http://admissions.missouri.edu>

### Admissions - Graduate

phone: 573-882-6311 or 1-800-877-6312  
fax: 573-884-5454  
email: [gradadmin@missouri.edu](mailto:gradadmin@missouri.edu)  
web: <http://gradschool.missouri.edu/admissions/index.php>

### Admissions - Law

103 Hulston Hall  
Columbia, MO 65211-4300  
phone: 573-882-6042 or 1-888-MULAW4U  
fax: 573-882-9625  
email: [mulawadmissions@missouri.edu](mailto:mulawadmissions@missouri.edu)  
web: <http://law.missouri.edu/admissions/>

### Admissions - Medicine

MA215 Medical Sciences Building  
Columbia, MO 65212  
phone: 573-882-9219  
fax: 573-884-2988  
email: [MizzouMed@missouri.edu](mailto:MizzouMed@missouri.edu)  
web: <http://medicine.missouri.edu/admissions/>

### Admissions - Veterinary Medicine

W-203 Veterinary Medicine Building  
Columbia, MO 65211  
phone: 573-884-3341  
fax: 573-884-5044  
email: [VetAdmissions@missouri.edu](mailto:VetAdmissions@missouri.edu)  
web: <http://vetmed.missouri.edu/prospective.htm>

### Campus Writing Program (CWP)

Conley House, 602 Sanford Street  
Columbia, MO 65201  
phone: 573-882-4881  
email: [cwp@missouri.edu](mailto:cwp@missouri.edu)  
web: <http://cwp.missouri.edu>

### Career Services

**(Career Major Exploration, Student Employment and Job Search)**

Lower Level, Student Success Center on Lowry Mall  
Columbia, MO 65211  
phone: 573-882-6801 or (573) 882-JOBS  
fax: 573-882-5540  
email: [career@missouri.edu](mailto:career@missouri.edu)  
web: <http://career.missouri.edu/>

### Cashiers

phone: 573-882-3097  
fax: 573-882-4453  
e-mail: [4cash@missouri.edu](mailto:4cash@missouri.edu)  
web: <http://cashiers.missouri.edu/index.html>

### Counseling Center

119 Parker Hall  
Columbia, MO 65211  
phone: 573-882-6601  
web: <http://counseling.missouri.edu>

### Disability Services

S5 Memorial Union  
Columbia, MO 65211  
phone: 573-882-4696 or (VP) 573-234-6662  
fax: 573-884-5002

email: [disabilityservices@missouri.edu](mailto:disabilityservices@missouri.edu)  
web: <http://disabilityservices.missouri.edu>

## Division of Information Technology

615 Locust St, Rm E100  
Columbia, MO 65211  
phone: 573-882-5000  
email: [helpdesk@missouri.edu](mailto:helpdesk@missouri.edu)  
web: <http://help.missouri.edu> (for IT help)  
web: <http://doit.missouri.edu> (for additional information)

## Financial Aid

Columbia, MO 65211  
phone: 573-882-7506 or 800-225-6075 (toll free in MO, KS, IL)  
fax: 573-884-5335  
email: [finaidinfo@missouri.edu](mailto:finaidinfo@missouri.edu)  
web: <http://financialaid.missouri.edu/>

## Intensive English Program and English Language Support Program

208 McReynolds Hall  
Columbia, MO 65211  
phone: 573-882-7523  
fax: 573-882-0360  
email: [iepmu@missouri.edu](mailto:iepmu@missouri.edu)  
web: <http://iep.missouri.edu>

## International Center

(International Center, Study Abroad and International Student and Scholar Services)

N52 Memorial Union  
Columbia, MO 65211  
phone: 573-882-6007  
email: [international@missouri.edu](mailto:international@missouri.edu) (International Center)  
web: <http://international.missouri.edu/> (International Center)  
email: [studyabroad@missouri.edu](mailto:studyabroad@missouri.edu) (Study Abroad)  
web: <http://international.missouri.edu/studyabroad> (Study Abroad)  
email: [iss@missouri.edu](mailto:iss@missouri.edu) (International Student and Scholar Services)  
web: <http://international.missouri.edu/iss> (International Student and Scholar Services)

## Learning Center

Student Success Center- 1st level  
phone: 573-882-2493  
e-mail: [learningcenter@missouri.edu](mailto:learningcenter@missouri.edu)  
web: <http://success.missouri.edu/tlc.html>

## Libraries

104 Ellis Library  
Columbia, MO 65201  
phone: 573-882-4701  
email: [ellisref@missouri.edu](mailto:ellisref@missouri.edu)  
web: <http://mulibraries.missouri.edu>

## Mizzou Online

136 Clark Hall  
Columbia, MO 65211

phone: 573-882-2491 or 1-800-609-3727  
fax: 573-882-5071  
email: [MizzouOnline@missouri.edu](mailto:MizzouOnline@missouri.edu)  
web: <http://online.missouri.edu>

## Office of the University Registrar

125 Jesse Hall  
Columbia, MO 65211  
phone: 573-882-7881  
email: [umcunivregistrarwr@missouri.edu](mailto:umcunivregistrarwr@missouri.edu)  
web: <http://registrar.missouri.edu>

## Student Health Center

1020 Hitt St, 4th Floor  
Columbia, MO 65201  
phone: 573-882-7481  
fax: 573-882-5370  
email: [mizzoustudenthealth@missouri.edu](mailto:mizzoustudenthealth@missouri.edu) (non-medical questions)  
email: [immunizations@health.missouri.edu](mailto:immunizations@health.missouri.edu) (immunization questions)  
web: <http://studenthealth.missouri.edu/>

## Student Success Center

909 Lowry Mall  
Columbia, MO 65211  
phone: 573-882-6803  
fax: 573-884-9625  
email: [success@missouri.edu](mailto:success@missouri.edu)  
web: <http://success.missouri.edu>

## Testing Services - Main Office

4 Parker Hall  
Columbia, MO 65211  
phone: 573-882-4801  
fax: 573-882-8439  
email: [umcvcsatesting@missouri.edu](mailto:umcvcsatesting@missouri.edu)  
web: <http://testing.missouri.edu>

## Testing Services - Computer-Based Testing

1 Parker Hall  
Columbia, MO 65211  
phone: 573-884-0911  
web: <http://testing.missouri.edu>

## Veteran's Center

N-5 Memorial Student Union  
Columbia, MO 65211  
phone: 573-884-4383  
fax: 573-884-4387  
email: [veterans@missouri.edu](mailto:veterans@missouri.edu)  
web: <http://veterans.missouri.edu/>

## Women's Center

G108 MU Student Center  
Columbia, MO 6511  
phone: 573-882-6621  
web: <http://womenscenter.missouri.edu>

## Undergraduate Academic Assessment Goals

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All undergraduate students are required to participate in the University's processes/program for assessing student learning in general education and in the major fields. The purpose of assessment at MU is to provide faculty and administrators with the information they need to ensure high levels of student learning. The key goal is to improve how and what students learn in their programs and to increase how much they learn. At the same time, the process provides documentation of student learning to help programs and the University meet external requirements, including those of accreditation organizations.

Faculty members develop assessment strategies specific to each degree program and conduct assessments at appropriate points in their students' undergraduate careers. Each program at the University has defined learning objectives for their students that form the basis of assessments. Students participate in assessments of discipline-specific learning objectives and of learning objectives aligned with the University's learning objectives for all students.

In order to meet the needs of the people of the State of Missouri, the nation and the global society, the University of Missouri shall provide its baccalaureate graduates with a sound intellectual foundation in the liberal arts and sciences and in the student's chosen major fields of study. Toward that end, in addition to having every bachelor's degree recipient fulfill appropriate course work requirements for general education and for degree programs, MU strives to have all students achieve the following goals:

### Goal 1: Graduates of MU will be able to identify and evaluate new information in light of previous knowledge.

MU graduates will be able to:

- Identify issues and problems important to society, define their scope, and identify information needed to address them.
- Find existing sources of information on a topic.
- Evaluate the accuracy, validity, and reliability of information presented in a wide variety of media.
- Conduct appropriately focused library, field or laboratory research.
- Analyze and synthesize information gathered, demonstrating strategic and logical reasoning skills.
- Demonstrate understanding of costs, benefits, and/or consequences of proposed resolutions of issues and problems important to society.
- Organize information, data and ideas for further analysis and/or presentation.

### Goal 2: Graduates of MU will possess the knowledge, abilities, and skills necessary to communicate effectively.

MU graduates will be able to:

- Communicate information to a variety of audiences and purposes.
- Revise and edit their presentations to improve clarity and accuracy.
- Engage in the healthy and positive exchange of ideas.
- Apply communication skills in furthering their post-MU careers.
- Use multiple formats and technologies to communicate ideas effectively.

### Goal 3: Graduates of MU will possess the knowledge, abilities, and skills necessary to serve society responsibly.

MU graduates will be able to:

- Understand the duties of being a responsible citizen.
- Identify and analyze the requisite behaviors for carrying out their academic and professional lives with integrity.
- Work collaboratively with others where appropriate.

### Goal 4: Graduates of MU will possess knowledge to observe and critically analyze the diverse human experience.

MU graduates will be able to:

- Engage in life-long learning.
- Appreciate fine art and literature.
- Understand the contributions of diverse groups and experiences to life at the individual, community, national, and the world levels.
- In addition, some students will be required to take standardized tests in their major field and/or for general education.

## University General Education Assessment

Each year, a sample of seniors will participate in a University general education assessment examination known as the CAAP Exam, which addresses University general education competencies of MU students in the areas of mathematics, science reasoning, reading, writing and critical thinking.

## Major Field Assessment

Prior to graduation, all seniors will participate in assessment of their mastery of course work in their major field. The assessment program is determined by the faculty of each department to measure the extent to which students are achieving instructional goals and outcomes for graduates in that field. The methods of assessment are appropriate to the educational goals for students in their respective major fields. Information on subject field assessment is included with the college and school sections of this catalog. Methods may include:

- Nationally-normed examinations
- Portfolio review
- Performance review
- Capstone project
- Faculty-developed exit examinations
- Exit interviews University

## University Organization

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The largest academic units at the University of Missouri are its colleges and schools. Each college and school may consist of smaller units called departments. Some colleges have divisions within them as well, which are a collection of departments within a college or school. By long tradition, some of the smaller units are also called schools.

The academic year is divided into two, 16-week semesters (fall and spring) and one, 8-week summer semester. The January intersession is considered part of the spring semester for registration and financial aid purposes. The May intersession is considered part of the summer session.

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## **Academic Programs and Degree Structure**

To earn a degree from the University of Missouri, students must complete all University, college and/or school, departmental and major requirements. In some cases, the major requirements may include emphasis areas and/or minors. In other cases, there may be options or tracks, which do not appear on transcripts.

# Academic Policies

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The academic rules and regulations of the University of Missouri are published online in the *Collected Rules and Regulations of the University of Missouri* and the *MU Faculty Council Academic Regulations* (<http://facultycouncil.missouri.edu/handbook/intro.html>). The following are selected policies and procedures. Many are summarized as a guide for students. Students needing additional information on academic regulations in specific colleges and schools may obtain this information from their deans' offices.

If a policy is only applicable to certain students and not all students, this is indicated with one of the following codes. Else the policy is applicable to all University of Missouri students.

- (G) policy applicable to Graduate students only
- (L) policy applicable to Law students only
- (U) policy applicable to Undergraduate students only
- (V) policy applicable to Veterinary Medicine students only

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## Absences

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Students are expected to attend all scheduled class sessions. A student who does not complete assigned academic work because of absence from class is responsible for making up that work in accordance with instructions provided by the faculty member consistent with any policy established by the faculty of the respective department, school or college. A school or college faculty, a department faculty, a course director or an individual instructor may establish attendance standards and will determine whether a student will be permitted to make up work missed as a result of absence(s). There is no dean's excuse or official absence. (See *Satisfactory Academic Progress Policy for Financial Aid Eligibility* (<http://financialaid.missouri.edu/eligibility/satisfactory-academic-progress.php>)).

However, a student who is also a member of a national guard, Federal Emergency Management Agency or military reserve unit and is called to active duty while the University is in session, will be permitted to make up work missed as a result of such absences for up to two weeks of absences, provided that to do so does not require the instructor to engage in individualized tutorial work with the student. Recognizing that some students have contractual obligations to the University, while others are participating in intercollegiate events at the behest of their departments, faculty are encouraged to make accommodations for absences incurred because of these responsibilities. In enforcing their absence policy, it is recommended that faculty give due consideration to the important role that extracurricular activities play in the development of students, as well as to the benefits they provide to both our university and community.

Students must notify instructors of any scheduled absences within the first two weeks of the semester. In the case of later qualifying events, the instructor must be informed two weeks prior to those events. Instructors are encouraged to advise students of their absence policy at the beginning of the semester.

## Academic Dishonesty

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Academic honesty is essential to the intellectual life of the University. Thus, academic dishonesty, such as cheating and plagiarism, is a basis for disciplinary action. In all cases of academic dishonesty, the faculty member makes an academic judgment about the student's grade on that work and in that course and reports all incidents to the provost for disciplinary action.

Academic honesty is fundamental to the activities and principles of the University. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting or collaboration, consult the course instructor. Refer to the *Collected Rules and Regulations*, Section 200.010, Standard of Conduct (<http://www.umsystem.edu/ums/rules/>

[collected\\_rules/programs/ch200/200.010\\_standard\\_of\\_conduct](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.010_standard_of_conduct)), and Section 200.020, Rules of Procedures in Student Conduct Matters ([http://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.020\\_rules\\_of\\_procedures\\_in\\_student\\_conduct\\_matters](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.020_rules_of_procedures_in_student_conduct_matters)) for more specific details. (The *Collected Rules* are available on the University of Missouri System web site.) According to the UM Rules of Procedures in Student Conduct Matters, when they suspect that academic dishonesty has occurred, faculty members have an obligation to report an incident to the Office of the Vice Provost for investigation.

## Academic Progress (G)

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### Measuring Graduate Student Progress

#### Annual Requirement: Review of Graduate Student Progress

Since 2006, the Graduate School has required that all graduate students file an annual report on their academic performance, degree program milestones, and related academic/scholarly/research/creative achievements. Faculty mentors (advisors) are required to review their advisees' annual reports to assess if their advisees are making satisfactory progress toward degree completion. In some cases, the director of graduate studies and/or department chair also reviews the students' annual reports and faculty member responses.

Each division/area/department degree program must inform all students of the annual progress reporting requirement. This includes printed, published or electronic materials provided to graduate students (e.g., handbooks, orientation materials, guidelines, web site.)

#### Graduate Student Progress System ([gsp.missouri.edu](http://gsp.missouri.edu))

The Graduate Student Progress System (GSPS) is a web-based reporting system where students document their progress toward degree completion. All graduate students (i.e., in all disciplines) are required to submit an annual progress report by starting/updating a GSPS record. Faculty members use the GSPS to review students' annual reports, assess their progress and provide feedback to the students.

At a minimum, students are required to report on academic progress, completion of required forms, award and honors, conferences, presentations, publications, service activities, creative activities, employment, funding activity, and job placement. Academic program faculty or administrators may require additional indicators of performance or achievement to accommodate the unique needs of their programs.

Additional information on measuring graduate student progress is at <http://gradschool.missouri.edu/policies/satisfactory-progress.php>.

#### Probation and Termination Dismissal

In addition to dismissal for failure to meet the usual examination and grade requirements, departments and graduate degree-granting area programs have the right to place on probation and, after at least 30 days of probation, to dismiss from their program any graduate student who is deemed to be making insufficient academic progress or whose work is not of the quality required. The faculty advisor or academic program chair must inform the Graduate School as soon as the student is notified and the probationary period begins. The dismissal may occur at any time during a student's work toward a graduate degree.

For additional information on satisfactory progress, probation, termination, extension and appeals go to the Extension and Appeals of Satisfactory Progress Infractions section of this policy manual (click here to go to that section), or go to the web page version of the catalog, found at <http://gradschool.missouri.edu/academics/progress/probation-termination.php>.

## Extension and Appeals of Satisfactory Progress Infractions

The progress of each graduate student is evaluated annually by the student's advisor and/or director of graduate studies (DGS). The definition of "satisfactory progress" and procedures for its verification may vary among departments/programs. If a department/program has instituted timelines that differ from those applying generally to graduate students (see below), these timelines should be made available to students from their entrance into the graduate degree program. If a student is authorized to diverge from progress timelines established by either the department/program or the Graduate School, this fact should be documented in written form and endorsed by the student's advisor and DGS.

### Progress Toward Degree

Full-time students (those taking 9 hours or more per semester) should follow the time frames associated with degree programs discussed in the Graduate Policy Manual under Master's Degrees and Doctoral Degrees. They must submit required forms on time and maintain a grade point average of 3.0 or better. Furthermore, they must successfully undergo their departments' annual review processes.

Part-time students should file a timeline for successful degree completion with their departments and the Graduate School. This timeline should be endorsed by the director of graduate studies and a prospective advisor by the end of the first calendar year of admission into the department/program. When these timelines conflict with time to degree guidelines laid out in the Graduate Policy Manual's sections on master's and doctoral degrees, they must receive the endorsement of the dean of the Graduate School.

### Distinction Between Requests for Extension and Appeals

A "Request for an Extension" and an "Appeal" are distinct processes for dealing with problems related to "satisfactory progress." A "Request for Extension" is the appropriate course of action when a student has failed to meet satisfactory progress provisions of the Graduate School. The "Appeal Process" should be followed when a department/program has dismissed a student after the required probationary period.

## Academic Progress (L)

### Annual Review of Students' Progress (Applicable to LLM Students)

The progress of each graduate student will be evaluated annually by the Director of the LL.M. Program.

For students who first enrolled in the LL.M. Program after January 1, 2001, the following are the standards of "satisfactory progress" in the LL.M. Program, subject to individual exceptions for good cause as approved by the Director of the LL.M. Program. Normally, students should complete all degree requirements within three (3) years of

enrollment. By the end of the first year of enrollment, students must have completed at least eight (8) credits that satisfy requirements for the LL.M. degree. By the end of the second year of enrollment, students must have completed at least sixteen (16) credits that satisfy requirements for the LL.M. degree. By the end of the third year of enrollment, students must have completed at least twenty-four (24) credits that satisfy requirements for the LL.M. degree. Time spent in the armed services will not count toward the period for completing the degree requirements.

For students who first enrolled in the LL.M. Program before January 1, 2001, to achieve "satisfactory progress," students must complete an average of at least four (4) credits for every academic year since their initial enrollment in the LL.M. Program.

The Graduate School will be informed of all students who are not making satisfactory progress. When there is a question as to whether satisfactory progress is being made, the Director of the LL.M. Program will write to the student and recommend a face-to-face meeting with the student. If there is disagreement, the Director of the LL.M. Program will ask the student to submit a separate letter to him or her. Copies of both letters will be made available to the student, maintained in a departmental file, and forwarded to the Graduate School.

If difficulties persist and the Director of the LL.M. Program determines that probation is appropriate, the Director will notify the student in writing of the probationary period, which may be from 30 days to a full semester. The probation letter will state explicitly that the student is on departmental probation and state precisely what must be accomplished and by what date in order to enable the student to return to good standing in the Program and be removed from probation. Within ten (10) working days of receipt of the probation letter, the student may submit a written request for a review of this decision by the LL.M. Admissions Committee, which may affirm or revise the probation letter or determine that probation is not appropriate.

If the student does not comply with the conditions of probation, a letter signed by Director of the LL.M. Program will be sent to the student (with a copy to the Graduate School) with notification of dismissal from the LL.M. Program. Within ten (10) working days of receipt of the probation letter, the student may submit a written request for a review of this decision by the LL.M. Admissions Committee, which may affirm or revise the notification of dismissal or determine that dismissal is not appropriate (with a copy to the Graduate School). The Graduate School sends the official notice of dismissal from the Program.

A student may appeal a dismissal decision to the Graduate Faculty Senate only after completing the Program's appeal process. The full text of the Dismissal Policy and Appeals Process for Graduate Students (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) can be found in the Graduate School Catalog on its web site.

## Academic Renewal (U)

Students who are returning to the University of Missouri to pursue an undergraduate degree after an extended absence may request permission to remove one or more complete academic terms from future degree and GPA considerations.

### Eligibility

To be eligible for academic renewal consideration, students must meet these requirements:



- Students must not have enrolled as degree-seeking at the University of Missouri for four or more consecutive years.
- Students must not have graduated from the University of Missouri-Columbia.
- Students must either:
  - be admitted as degree-seeking and have earned a minimum of 12.0 credits with at least a 2.5 GPA of record for those credits at the University of Missouri within the past 12 months; OR
  - have attended as a non-degree-seeking student and have earned thereby a minimum of 12.0 credits with at least a 2.5 GPA of record for those credits at the University of Missouri within the past 12 months and subsequently have been admitted as degree-seeking by the University.

## Conditions

Academic renewal is based on the following conditions:

- All courses and credits taken during the chosen terms will be removed from consideration for GPA and degree requirements. Students may not combine individual courses from multiple terms to comprise the semester(s) dropped. All courses and grades for the chosen terms will remain on the student's academic record.
- Renewal may be applied only to academic terms completed prior to the student's extended absence.
- Students may be granted only one academic renewal.
- Students who choose academic renewal must meet the degree requirements of the University of Missouri undergraduate catalog at the time of their readmission.
- Degree requirements met during the dropped terms must be repeated.
- To be eligible for a degree, students must complete a minimum of 24 credits at the University of Missouri after the granting of academic renewal.

## Procedures

- Students should discuss their desire to pursue academic renewal with an academic advisor in the college they wish to enter.
- Students should submit an application for academic renewal (<http://registrar.missouri.edu/policies-procedures/academic-renewal.php>) to the Office of the University Registrar.
- For each term approved for academic renewal, a note will appear on the transcript.

Questions may be directed to the Office of the University Registrar, 125 Jesse Hall, (573) 882-7881.

## Academic Standing

Academic performance is represented by academic standing, according to the *Faculty Handbook* (<http://facultycouncil.missouri.edu/handbook>), of which there are three levels: regular, academic probation, and ineligible to enroll. For the purposes of this policy, "term" may refer to a semester or summer term.

### Regular Academic Standing

Students whose term and cumulative GPAs are 2.0 or higher are in regular academic standing.

## Probation

Students in regular standing whose term GPA subsequently falls below 2.0, but is 1.0 or above are placed on probation. Students on probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to enroll.

Any beginning student admitted to the University of Missouri who does not meet the minimum entrance standards as specified in the *Faculty Handbook*, Article II, Admissions, Advanced Standing, and Classification will enter on scholastic probation and will have one semester in which to remove probation.

## Ineligible to enroll

Students whose term GPA falls below 1.0 are ineligible to re-enroll. Students on probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to enroll.

In the application of the foregoing rules, the dean or faculty committee of the division concerned will determine how an incomplete grade in a course will be considered in determining a student's academic standing. A student who has been ineligible to enroll for a period of one year may be readmitted only upon the approval of the dean of the school or college in which the student desires to enroll. If a readmitted student again becomes ineligible to enroll, his or her ineligibility is normally considered permanent. These regulations are the prescribed minimal standards but do not limit the authority of the faculty of any school or college to adopt and enforce additional regulations affecting students enrolled therein.

## Advanced Standing - Credit by Exam (U)

MU offers the opportunity for advanced credit by examination to any student with fewer than 90 credits. Credit may be awarded, but no grades or honors points are recorded. General eligibility to receive advanced standing at MU does not guarantee its applicability to a degree program. A student who has received credit for any portion of a lower level course will not receive advanced standing credit for that same course. More information can be found at <https://admissions.missouri.edu/apply-freshmen/college-credits/> The programs described below are used to award credit.

### Advanced Placement Program

The Advanced Placement Program of the College Board is accepted by MU. The examinations are prepared and graded by national committees, and the results are furnished to MU on request of the student. Students who receive a sufficiently high score are eligible for college credit. Students should contact their academic units if they have questions.

### College Level Examination Program

The College Level Examination Program of the College Board provides general examinations and subject examinations. Credit may be awarded for CLEP subject exams only. Credit must be applicable in students' programs of study. (Refer to the appropriate section in this catalog for the school or college, or contact the academic unit to ascertain the specific limitations for CLEP examinations.)

You are eligible to earn CLEP credit if you have fewer than 90 hours of college credit. Credit can be applied only to a course in your program of

study. In most cases, your scaled score must be higher than 50 to earn credit. Exceptions are noted below.

Credit is accepted by most individual schools and colleges but might not be considered by your specific degree program.

Visit the CLEP website (<https://clep.collegeboard.org/about/score>) to learn how to send your scores to Mizzou.

## History and Social Sciences

### Credit by Examination for Mathematics Courses

It is possible to receive credit in the following math courses by passing the appropriate examination:

MATH 1100	College Algebra	3
MATH 1140	Trigonometry	2
MATH 1160	Precalculus Mathematics	5
MATH 1360	Geometric Concepts	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
Total Credits		23

To inquire about these examinations, contact either the Group Testing Program, 220 Parker Hall, (573) 882-4801, or the departmental representative on testing for advanced placement. Credit for a course by examination is not available to students who have essentially covered the material of the course in college or university courses.

## Departmental Examinations

Departmental examinations are limited to students with fewer than 90 credits and with no official record of previous enrollment in the course(s) in which credit is to be received.

Departmental examinations are comparable to final examinations given in the various courses offered on campus. The examinations are objective or essay formats and are prepared and graded by the faculty of the department concerned and MU Testing Services. Arrangements for departmental examinations should be made through Testing Services. (Also see the College of Arts and Science information on departmental exams (p. 133).)

## International Baccalaureate

MU recognizes the International Baccalaureate Program. Students may receive credit and/or advanced standing for proficiency on the higher-level subject examinations. No credit is granted for subsidiary-level examinations.

## Additional College Course Work

MU recognizes college course work completed before high school graduation if the college attended provides an official transcript of the course work.

## Freshman Placement Tests

Placement in English is based on ACT score in English. Math placement is based on ALEKS Exam score or prior course credit. (See [mathplacement.missouri.edu](http://mathplacement.missouri.edu) for more details)

## Subject Examinations

Subject examinations are limited to students with fewer than 90 credits. The subject examinations are generally accepted by most schools and colleges but may not be considered for credit in all degree programs.

## Application for Degree

Students should contact their academic unit *at least* a full semester before they anticipate graduating to complete the appropriate steps and paperwork to apply for receiving their degree. The University does *not* automatically anticipate or calculate who will be degree candidates each term.

## Attendance (L)

### Policies & Rules — Attendance

Law Schools approved by the American Bar Association must adopt, publish and adhere to a written policy requiring regular class attendance. The rules below implement this requirement at MU, and were adopted by the faculty on January 23, 2015:

1. Class Attendance
  - a. Attendance is expected, in accordance with the ABA standards.
  - b. Administration of the attendance policy lies with the individual instructor for each course.
  - c. The individual instructor determines the number and nature of absences from each course for an excess of which sanctions may be imposed, as well as the sanctions which will be imposed, up to and including dismissal from the course.
  - d. If the instructor intends to attach a formal sanction (grade reduction or dismissal from the course) to inadequate attendance, he/she must announce to the class in writing at the beginning of the course what the rules governing attendance in that course will be, with appropriate provision for notice to late enrollers.
  - e. A student who is in danger of accumulating excessive absences must be given notice by the instructor in advance of the absence which will give rise to a significant sanction (major grade reduction or dismissal from the class).
2. Appeals
  - a. A student who is dropped from a course for excessive absences may meet with the Associate Dean for Academic Affairs and request reversal of the decision. A student may seek the assistance of the Student Bar Association in support of the request.
  - b. A final decision on the appeal rests in the discretion of the Dean.

## Auditing a Course (Hearer)

Students who wish to obtain knowledge from a course, but do not need or want the credit for graduation, may enroll in the course(s) as auditors/hearers.

- Hearers receive no credit toward a degree and an H grade appears on the transcript. The credit received when auditing a course does not count toward your verification of full, half or less than half time enrollment status. This credit is not reported to the National Student Clearinghouse for enrollment verifications.

- Students pay standard fees (<http://cashiers.missouri.edu>) for the course(s).
- Students may *not* change their registration status (hearer vs. credit) after two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session.
- Check the academic calendar (<http://registrar.missouri.edu/academic-calendar>) for deadlines.
- Students who want to change their grading basis must go to the academic advising office *before* two weeks following the first day of classes in regular session or equivalent thereof in a shorter session.
- Students who fail to meet class requirements may be dropped from the course by their academic advising unit upon request of their instructor and with the dean's stamp.
- Normally, a hearer will attend the course on a regular basis; either the department or an individual instructor will stipulate the requirements for enrollment in a course as a hearer.

## Catalog Editions (Which catalog applies to whom?)

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These policies concern the application of the University of Missouri's graduation, divisional and departmental degree requirements. MU students' academic requirements for graduation are typically met as follows:

University general education and other University-wide policies:

- Students must complete the graduation requirements in effect for the term that they first enroll at MU or they may choose those in effect for the term that their degree is awarded with the agreement of their academic unit.
- This policy applies to newly admitted freshmen as well as transfer students.
- Students who have a lapse in enrollment must meet the degree requirements in effect at the time the students are readmitted to MU.

Divisional, departmental and other degree requirements:

- Students must meet the specified divisional, departmental and major requirements for the degree(s) that were in effect when they were admitted as degree seeking to the program or may choose those in effect for the term in which they will graduate, with the agreement of their division or department.
- Students who have a lapse in enrollment must meet the standards of the degree requirements in effect when they return to MU.

After consulting with an advisor, students may appeal. Requests for exceptions to the above policy may be made to the academic dean for the academic unit in which the student is enrolled. Some academic units may have unique "grandfathering" policies that apply to changes in their programs and that supersede this policy. Students should consult with an advisor in all cases.

## Class Cancellation Guidelines

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Refer to the the MU Faculty Council on University Policy regarding class cancellation guidelines (<http://facultycouncil.missouri.edu/handbook/class-cancellation>).

## Completion of a Course

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A course is considered complete if the student earns a grade of A, B, C, D, F or U, and the "+" or "-" sign if appropriate, or S for the course. A course in which the student receives a grade of W, NR, or I is not considered a completed course.

- The faculty of the division concerned will determine how the grade of I in a course and a grade in a repeated course will be considered in determining a student's academic standing. However, for financial aid purposes the grade of I is not considered a completed course and a repeated course will be counted as additional credits attempted.
- The dean of the relevant division may, after consulting with relevant faculty, waive any of the regulations governing a student's eligibility to re-enroll. However, the Financial Aid Advisory Committee shall have authority concerning students' satisfactory progress toward their educational objectives and eligibility to receive federal, state and institutional student financial aid.

## Computer Policies (L)

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### Acceptable Use Policy

- Priority use of lab computing equipment is for academic rather than recreational purposes. If you are asked to relinquish use for this reason, your compliance is expected and appreciated.
- Computing at MU is a community enterprise serving academic, administrative and research needs. Please conserve resources by carefully managing your e-mail, data, web files, and printing.
- Users will respect copyright, slander, libel, anti-discrimination and other appropriate laws as well as the security and proper functioning of the campus network.
- MU is committed to privacy and will not routinely inspect the contents of your computer files.
- MU provides uncensored access to materials on the campus network or the Internet unless those materials violate federal or state laws.

For more detailed information on current acceptable use guidelines, or to report a potential violation, view MU's Acceptable Use Policy ([http://www.umsystem.edu/ums/rules/collected\\_rules/facilities/ch110/110.005\\_acceptable\\_use\\_policy](http://www.umsystem.edu/ums/rules/collected_rules/facilities/ch110/110.005_acceptable_use_policy)).

### Law School Computer Lab Polices

- **Limited Access to the Law School Computer Lab** - In order to use the computer lab you must be a current MU law student. Access to the computer lab is a privilege and is not transferable to non-law students. You may not let your family use the lab for any purpose.
- **Computer Availability and Priority of Use** - Computers in back of the lab are available during regular library service hours on a first-come, first-served basis. Computer training classes held in the front room of the lab take priority over individual use. An ADA workstation is available in Room 119 of the lab. Students who require access to this equipment in order to be able to access library resources have priority. All decisions as to the use of the computers are at the discretion of the Library Director, the Associate Director, or the Automation Librarian.
- **Copyright and Licensing Restrictions** - The user is responsible for observing all copyright laws. The software and documentation made available in the lab is for use only in the lab and is not to be

duplicated for use elsewhere. Duplicating a copyrighted program or documentation is illegal and is an Honor Code violation. Any use of computer-assisted legal research databases (Westlaw and Lexis) is for academic purposes only. Terms of use are governed by individual subscriber agreements for each system.

- **Assumption of the Risk** - The MU Law Library and MU School of Law make no guarantee with respect to any equipment, programs, or other materials in the computer lab. The entire risk as to the quality and performance of the computer equipment, programs, and documentation is with the user. The lab is not responsible for loss of data due to faulty programs or equipment.
- **Data Storage** - Users may not store their files on the hard drives of the individual workstations or on the law school's network. Users may not save their personal settings on individual workstations.
- **Reporting Equipment Problems** - Report any PC or printer problem, such as paper jams, toner replacement, backed-up print jobs, etc. to the User Support Analyst, student lab assistant, or reference office. Do not attempt to fix any lab equipment on your own. Lab supplies (paper reams, toner etc.) are to be handled by staff only.
- **Food, Drink and Tobacco are not allowed in the lab.**
- **Lab Phones and Help Desk** - Lab phones are for staff use only. Public telephones are available in the student area of the subplaza.

Failure to observe lab policies and directions from library staff regarding proper lab use may result in restriction or revocation of computer access, or in termination, academic probation, or prosecution under federal or state law.

## Course Repeat Policy

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The course repeat policy will not be applied automatically to a student's GPA. After completing the second attempt of a course, a student must submit a request for GPA adjustment form (<http://registrar.missouri.edu/policies-procedures/course-repeat.php>) to the University Registrar's Office 125 Jesse Hall.

When the grade received in an initial attempt, for an undergraduate course at University of Missouri-Columbia, or any University of Missouri System Campus, is a "C-", "D+", "D", "D-", "F" or "WF", the grade will be replaced in the calculation of the GPA by the grade received in any second attempt of the same course at the University of Missouri-Columbia (unless the repeat grade is an I or W). All grades received in second and subsequent attempts will be included in GPA calculations. No more than 15 semester hours will be dropped from the calculation of the student's GPA. All attempts of a given course will appear on the official transcript with the grade(s) earned. The transcript will have an explanation that the GPA is calculated using all grades earned in a course except the initial attempt when a course has been repeated. This policy is effective with course work where the initial enrollment and completion of the course was fall semester 2000 and thereafter.

Any course being repeated may not be taken on an S/U basis. This policy does not imply a guarantee that openings will be available in courses if and when students wish to retake them, and instructors will not ordinarily know whether a student is enrolled in a course for the second time. When a course is repeated, all applicable tuition and required fees apply.

Degree credit may be earned only once for a particular course unless a department or division has, in other policies, allowed for multiple credit from that course.

Students are strongly encouraged to visit with an advisor to determine whether re-enrollment is advisable (certain department or divisional policies may be important in this connection). Further, students should be aware that repeating a course may have an impact on financial aid, insurance, entrance to professional schools, participation in athletics, immigration status, and other non-academic matters.

The academic status of a student in a given semester will not change as a result of repeating a course.

The policy is applicable to undergraduate students only.

## Clarifying comments

Students should not re-enroll in a course for which they have been assigned a grade of "I".

Students may not apply the course repeat policy to courses once they have graduated. This also applies to students who are seeking a second undergraduate degree.

For the purposes of this policy, an undergraduate course is any course an undergraduate student attempts for undergraduate credit regardless of the course level. A student may not apply the course repeat policy to a course repeated as an undergraduate student for graduate credit.

If the department or course number has changed since the student completed the first attempt of a course, the department offering the course will verify that the subsequent course is substantially the same and the course repeat policy may apply. If the initial course is a cross-listed course, a student may apply the course repeat policy if the student subsequently completes the cross-listed course offered by the alternate department.

Courses for which a NR, W or a grade of I are assigned are not considered attempts since no final grade has been recorded.

If the initial attempt of a course contained an attribute such as; honors, writing intensive, math reasoning proficiency, service learning, or computer proficiency, the second attempt is not required to contain the same course attribute for the purpose of the course repeat policy. Students should be aware that if the second course does not have the same attribute as the initial course they will no longer be allowed to count the initial attribute toward any graduation requirement.

Grades of C or greater may not be repeated under the course repeat policy because these grades are considered acceptable work and would not prevent a student from graduating from MU.

Students may replace the grade earned from the course at the University of Missouri-Columbia or any other University of Missouri campus with a grade earned in an equivalent course at University of Missouri-Columbia campus. Courses for which a W or a grade of I are assigned are not considered attempts since no final grade has been recorded.

## Course-Load Rules (L)

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The maximum number of hours permitted for a semester is 17, and seven for a summer session, unless the Associate Dean for Academic Affairs for good cause approves a heavier load. The minimum number of hours permitted for a semester in order to be considered a full-time student is 12. There is no minimum for the summer session.

## Credit for Non-Law Courses (L)

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Law students are permitted to take up to a total of six hours of courses for Law School credit in other schools of the University during law school. Please note that because you are listed at "primary degree program-Law" with the University, you will be charged the same per credit hour rate for ANY non-law courses that applies to law courses (NOT the undergraduate or graduate per credit hour rate). This does not apply to students officially enrolled in a dual degree program.

1. These credits are taken on an S/U basis. In addition, non-law courses are subject to the following regulations:
  - a. The course must be at the graduate level (numbered 7000-9999).
  - b. The course must be related to the student's study and future practice of law.
  - c. The semester hours of the non-law course will be counted in the student's total number for the semester, and the student may not (without permission) take any more than a combined total of sixteen hours in a regular semester, or seven in a Summer Session.
  - d. Students wishing to take a non-law course for law credit MUST request approval of the course in writing prior to enrolling in the course. The request should be given to the Associate Dean and include the following (using a form available in Room 203):
    - i. Course name, number and instructor;
    - ii. Statement of purpose for taking the course as related to (b) above.
    - iii. Syllabus
  - e. Requests for the approval of below 7000-Level non-law courses within the guidelines given above must be referred to the Standards Committee. The Associate Dean may approve 7000-9999 level courses.
  - f. For purposes of calculating GPA, non-law course are treated as Satisfactory/Unsatisfactory courses.
2. Any petition for law school credit for non-law courses beyond a cumulative maximum total of three hours, shall be initially presented to the Associate Dean for Academic Affairs. If the student's request is declined, the student may then petition the Standards and Readmissions Committee. If the Committee declines the student's request, the student can petition the faculty.

## Degrees, Diplomas and Certificates

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The process for awarding Degrees, Diplomas and Certificates at the University of Missouri is governed by the Faculty Council. For a full listing of this process please see *Article IX of the Faculty Handbook* (<http://facultycouncil.missouri.edu/handbook/article-9.html>).

## Disability Accommodations (L)

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It is the policy and practice of the University of Missouri School of Law to comply with the Americans with Disabilities Act, Section 504 of the Rehabilitation Act, and state and local requirements regarding students and applicants with disabilities. No individual shall be discriminated against by the University of Missouri School of Law because of a disability, nor shall any qualified individual with a disability be denied

access to or participation in Law School services, programs, or activities because of the disability. The School of Law is committed to providing reasonable accommodations for individuals with disabilities, though the School is not required to make accommodations that are unduly burdensome or that fundamentally alter the nature of the program.

Students who have been accepted for admission are advised in their acceptance letter to contact the Associate Dean for Academic Affairs as soon as possible regarding disabilities that might require accommodation. Continuing students who believe they have acquired or developed a disability should also contact the Associate Dean for Academic Affairs (the "Associate Dean") as soon as possible. Early identification of disabilities is necessary to allow adequate time to evaluate documentation and to coordinate required accommodations. The accommodation process takes some time, so the Law School may be unable to grant last-minute requests for accommodation.

### Accommodation Process

To accommodate students with disabilities, the School of Law and the Disability Center have arranged the following accommodation process:

1. A student who believes he/she has a disability that requires any accommodation should notify the Associate Dean.
2. The Associate Dean will then refer that student to the Disability Center (<http://disabilitycenter.missouri.edu>), located at S5 Memorial Union.
3. The Director of the Disability Center or a representative will meet with the student, request medical records and other information from the student, and make a recommendation to the Associate Dean about what, if any, accommodations seem appropriate. Please note that the Disability Center must first receive all necessary medical documentation from the student.
4. The Associate Dean and the Disability Center will then decide what accommodations to provide, if any, in light of the student's medical information and the student's course schedule, exams, and/or graded exercises.
5. In the event the Disability Center and the Associate Dean disagree about what accommodations are appropriate, the Associate Dean's determination will govern.
6. The Associate Dean will then provide the student with a letter identifying the accommodations the Law School will provide. At that time, the Associate Dean will ask the student to indicate his/her acceptance of the accommodations in writing.
7. The Law School and the Disability Center will work in conjunction to coordinate the accommodations. Any problems that arise should be brought to the attention of the Associate Dean and/or the Disability Center.

### Academic Dismissal and Readmission

If a student who is academically dismissed raises a previously undisclosed disability as a basis for academic difficulty, the burden will be on the student to explain why the disability was not previously brought to the attention of the administration, to explain why accommodations were not requested or why those provided were not adequate, and to demonstrate that the disability was the cause of the dismissal.

Readmission requests should be directed to the Associate Dean for Academic Affairs. The Associate Dean will forward the request to the Law School's Standards & Readmissions Committee, which acts on the requests. For further information on the readmission process, please refer

to the Policies and Honor Code section on School of Law website under Dismissal and Probation (<http://catalog.missouri.edu/academicpolicies/dismissalandprobation/>).

## Bar Examination

Law students with disabilities who believe they will require accommodations in taking the bar examination (<http://law.missouri.edu/current/examination>) should inquire early in their legal education as to what will be necessary to obtain accommodations. Information on how to contact bar examiners in all states is available from the Office of Career Services or on the School of Law website. Many state boards of bar examiners will request that the law school provide information on accommodations provided during law school upon a written release from the student.

## Career Services

The Office of Career Development and Student Services provides assistance to all students and does not discriminate on the basis of disability. Students who believe that an employer working through Career Development and Student Services has discriminated on the basis of disability should bring their concerns to the attention of the Assistant Dean for Career Development and Student Services.

## Grievances

If a student who requests accommodations from the School of Law believes that he/she has been discriminated against on the basis of his/her disability, the student should bring this matter to the attention of the Associate Dean for Academic Affairs. The Associate Dean and the Disability Center will attempt to resolve the matter and will communicate their decision to the student. If the student is dissatisfied with the decision, the student may file a grievance with the ADA Coordinator (<http://ada.missouri.edu/complaints.php>). Grievances filed with the ADA Coordinator must be in writing and must be filed within two weeks of the date the Associate Dean communicated the decision to the student.

## Confidentiality

Information related to a student's disability is treated as confidential information under applicable federal, state and university laws.

## Dismissal

A dean may at any time, and following such procedures as are reasonable, dismiss a student from a class or from a school or college for failure to perform academic duties.

In addition, the director of the Student Health Center (<http://studenthealth.missouri.edu>) has the authority to exclude a student from classes and other University exercises and activities because of exposure to a communicable or contagious disease, or to require a student to withdraw from the University at any time if the student has a medical condition constituting a hazard to themselves, other students or the campus community.

*Adapted from the Faculty Handbook.* (<http://facultycouncil.missouri.edu/handbook/article-3>)

## Dismissal and Probation (L)

### A. Rules for Dismissal and Probation

1. For purposes of this section (Policies & Rules – Dismissal and Probation)
  - a. "First year" consists of that series of semesters or summer sessions, or both, at the end of which a student first receives grades in courses aggregating to not fewer than 24 hours.
  - b. "Semester" means either the fall or spring semester. The summer session is considered to be part of the next succeeding semester for the purpose of computing semester grade point averages.
2. A student is dismissed:
  - a. at the end of the student's
    - i first semester if the student's cumulative grade point average is equal to or less than 76.399; or
    - ii second semester if the student's grade point average for that semester is equal to or less than 76.399
    - iii first year if the student's cumulative grade point average is equal to or less than 76.399; or
  - b. at the end of any semester after the student's first year if the student's grade point average for that semester is equal to or less than 76.399 ; or
  - c. at the end of any semester during which the student has been on probation if the student's grade point average for that semester is equal to or less than 77.499; or
  - d. at the end of any semester during which the student has been on probation if the student's grade point average for that semester is
    - i not sufficient to raise his or her cumulative grade point average to an average greater than 77.499 if continued in future semesters until the remaining requirements for graduation have been satisfied; or
    - ii is less than the semester or cumulative grade point average which was imposed upon the student as a condition of probation or readmission;
  - e. at the end of any semester prior to the completion of the student's first year if
    - i the student has received grades in at least two sessions; and
    - ii has received grades in at least 12 hours of coursework; and
    - iii has a cumulative grade point average of equal to or less than 76.399;
  - f. at the end of that semester where the student has a cumulative grade point average equal to or less than 77.499 after completing 89 or more hours of course work.
3. A student is placed or continued on probation:
  - a. at the end of the student's first year if the student's cumulative grade point average is greater than 76.399 but equal to or less than 77.499; or
  - b. at the end of any semester after the student's first year, if the student's grade point average for that semester is greater than 76.399 but equal to or less than 77.499; or
  - c. a student who is on probation will remain on probation if the student's cumulative grade point average is equal to or less than 77.499, but the semester grade point average is sufficient to raise his or her cumulative grade point average to a cumulative grade point average greater than 77.499 if continued in future

semesters until the remaining requirements for graduation have been satisfied.

4. Any first-year student who does not achieve a grade point average greater than 77.499 in the fall semester will be required to take the Legal Reasoning course during the second semester. Students who are required to take Legal Reasoning under this provision will drop one of their courses. The course to be dropped will be decided in consultation with the Associate Dean for Academic Affairs.
5. A student ceases to be on probation at the end of a semester when the student's cumulative grade point average and grade point average for that semester are both greater than 77.499.
6. After the first semester of the first year, a student is in "good standing" at the School of Law if the student's cumulative GPA is greater than 76.399. Thereafter, a student is in good standing when both the student's current semester and overall GPA are greater than 77.499.

## **B. Rights of Students Petitioning for Readmission**

Students who petition the Law School for readmission following academic dismissal have the following rights:

1. Fair notice of the time and place of the meeting.
2. To submit any supporting written material to the Standards and Readmissions Committee and/or to the Faculty at large in advance of the meeting, or to present such material at the meeting.
3. To appear personally at the meeting and make a presentation of reasonable duration.
4. To be accompanied by a person of their own choosing.
5. To be informed promptly following the meeting of the Committee's recommendation or decision, or the Faculty's decision.

## **C. Readmission Procedures**

1. Readmission Procedures for students dismissed at the end of the first semester under Rule 2.a.1

- a. A student dismissed at the end of the student's first semester whose grade point average for the first semester is equal to or less than 75.299 will not be permitted to attend law school for the succeeding spring semester. Such student will be permitted to enroll for the next fall semester provided the student gives notice of his or her intention to enroll by April 15 of the semester following the student's dismissal. A student so re-enrolling will retake all the first year courses, and will be required to obtain a grade point average greater than 77.499 for the repeated semester. If the student fails to obtain this grade point average, the student will be dismissed. At its discretion, the Standards and Readmissions Committee (the "Committee") may require readmitted students or students on probation to drop one or more of their courses.
- b. A student dismissed at the end of the student's first semester whose grade point average is greater than 75.299 and equal to or less than 76.399 may apply for readmission for the spring semester. Such student may not attend classes unless he or she has filed a written petition for readmission within the time limits indicated in the letter of dismissal issued by the School of Law. To qualify for readmission, an applicant for readmission must show that the applicant's poor academic performance was the result of facts other than intellectual inability to perform satisfactory law school work and that these factors will not continue to impair the applicant's

performance in the future. If the Standards and Readmissions Committee denies readmission for the spring semester, or if the student requests readmission as of the next fall semester, the student shall be readmitted for the following fall semester subject to the same conditions described in paragraph C.1.a above, or under such conditions as the Standards and Readmissions Committee may determine. If the student is readmitted for the spring semester, the student will be subject to the dismissal rules under paragraph A.2.a.ii and A.2.a.iii above, but shall not be subject to dismissal under paragraph A.2.c or A.2.d above.

2. Readmission Procedures for students dismissed at any time after the first semester

- a. A student who has been dismissed may not attend classes unless the student has filed a written petition within the time limits indicated in the letter of dismissal issued by the School of Law.
- b. To qualify for readmission, an applicant for readmission must show: (1) that the applicant's poor academic performance was the result of facts other than intellectual inability to perform satisfactory law school work; (2) that these factors will not continue to impair the applicant's performance in the future; and (3) that there is a reasonable probability that the applicant's grade point average can be raised to the graduation level by the time 89 credits have been accumulated.
- c. A petition for readmission by a student who has been dismissed shall be heard by the Standards and Readmissions Committee. A quorum of the Standards and Readmissions Committee, for purposes of deciding petitions for readmission, shall consist of one less than all voting members. If the Committee's decision is favorable for readmission, or is unanimous against readmission, that decision shall be final and the student shall have no right of appeal to the Faculty at large. If the Committee's decision is unfavorable against readmission, but not unanimous, the petition shall be referred to the Faculty at large for decision.
- d. A student who petitions for readmission has the right to appear personally before the Standards and Readmissions Committee and, if allowed under these rules, the Faculty at large. The student may be summoned to appear before either group by making a personal appearance or by supplying answers to written questions. (See above for a full statement of rights of petitioners.)
- e. A student who has been dismissed for scholastic reasons and whose readmission is approved will be on probation and subject to such conditions as may be imposed. The conditions below will apply unless varied by the Faculty or Standards and Readmissions Committee.
- f. It is the policy of the Standards and Readmissions Committee to make decisions on readmission prior to the end of the summer term for those students who are dismissed at the end of the spring semester and who may be enrolled in the summer term. Therefore, the readmission decision will not be delayed until summer grades are received.

## D. Standard Conditions for Law Students Readmitted after Scholastic Dismissal, and for Law Students on Probation

Students who are readmitted or are on probation are subject to the following conditions as well as any specific conditions stated in the readmission action.

1. They will continue on academic probation until achieving academic good standing, which requires a cumulative grade point average greater than 77.499.
2. Students placed on probation at the end of the fall semester of their first year will be required to take the course in Legal Reasoning (5090) (<http://www.law.missouri.edu/academics/curriculum.html#5090>) during the second semester. At its discretion, the Standards and Readmissions Committee may require such students to drop one or more of their courses.
3. Until such time as they achieve a cumulative grade point average greater than 77.499, they must maintain a semester grade point average as set out in the readmission action. If no semester grade point average was specified, the student must maintain a semester grade point average sufficient to raise the student's grade point average to a cumulative grade point average greater than 77.499 by the time the other requirements for graduation are completed.
4. Their schedule of courses must be approved by the Associate Dean for Academic Affairs, and the dropping of any course during the semester must also be approved by the Associate Dean for Academic Affairs. In general, students will be required to take required courses before electives and take graded courses rather than S/U or pass-fail courses.
5. During any session in which they are enrolled, they will not engage in any employment for compensation or spend a substantial amount of time on extra-curricular activities without the prior written approval of the Associate Dean for Academic Affairs. "Substantial amount of time on extra-curricular activities" is interpreted by the Standards and Readmissions Committee to include participation in any internal or external competition sponsored by the Board of Advocates as well as any position of leadership on any student board or organization.
6. Unless exempted by the Standards and Readmissions Committee, they are not allowed to take the following courses:

- \* Externship
- \* Independent Research
- \* Courses taught outside Law School for Law School credit (e.g. graduate courses)
- \* Courses taught by adjuncts
- \* Seminars, except students classified as third-year students
- \* Participation in any Study-Abroad Programs
- \* Clinics or clinic-related courses including: Criminal Prosecution Clinic, Clinical Skills, Entrepreneurship Clinic, Family Violence Clinic, Innocence Project, Legislative Practicum, Landlord/Tenant Practicum, Mediation Clinic, Veterans Clinic

**PLEASE NOTE that the Committee cannot exempt students from prohibitions regarding courses that are**

**imposed by external sources such as Supreme Court rule or ABA accreditation requirements.**

## Drug and Alcohol Policy

### Drug Free Schools & Community Act

Pursuant to the Drug-Free Schools and Communities Act Amendments of 1989, the University of Missouri is required to establish a drug and alcohol prevention program for its students and employees. Following is a description of the University of Missouri-Columbia's program. A biennial review of this program will be done to determine its effectiveness, to implement changes to the program if they are needed and to ensure that the University's disciplinary sanctions are consistently enforced.

A reference listing of MU resources for alcohol and other drug educational prevention efforts, counseling, and referral are listed below. Please feel free to contact any of the offices listed for more information.

### Standards of conduct

University of Missouri-Columbia regulations prohibit the unlawful possession, use, distribution, and sale of alcohol and illicit drugs by University students and their guests and for employees on University-owned or controlled property and at University-sponsored or supervised activities.

### University Discipline

Violation of these University regulations can result in disciplinary action up to and including expulsion for students and discharge for employees.

### Legal sanctions

Local, state and federal laws also prohibit the unlawful possession, use, distribution, and sale of alcohol and illicit drugs. Criminal penalties for violation of such laws range from fines up to \$20,000 to imprisonment for terms up to and including life.

### Health risks

Specific serious health risks are associated with the use of alcohol and illicit drugs. Some of the major risks are listed below. For more information contact the Wellness Resource Center in G202 MU student Center or at [www.wellness.missouri.edu](http://www.wellness.missouri.edu).

### Alcohol and Other Depressants (barbiturates, sedatives, and tranquilizers)

Addiction; accidents as a result of impaired ability and judgment; overdose when used with other depressants; damage to a developing fetus; heart and liver damage.

### Marijuana

Impair short-term memory, thinking, and physical coordinations. Can cause panic reaction and increase the risk of lung cancer and emphysema. Can interfere with judgment, attention span concentration, and overall intellectual performance. Impairs driving ability. May cause psychological dependence and compromise the immune system.

### Cocaine

Addiction, cardiovascular system damage including heart attack, brain damage, seizures, lung damage, severe depression, paranoia, psychosis. Similar risks are associated with other stimulants, such as speed and uppers.



## Nicotine

Tobacco smoke contains thousands of chemical compounds, many of which are known to cause cancer. Nicotine, which is a central nervous system stimulant, produces and increase in heart and respiration rates, blood pressure, adrenaline production and metabolism. People can rapidly become physically and psychologically dependent on tobacco. Compromises the immune system.

## Inhalants

Inhalants are a diverse group of chemicals that easily evaporate and can cause intoxication when their vapors are inhaled. Most inhalants are central nervous system depressants. Use of these drugs slows down many body functions. High doses can cause sever breathing failure and sudden death. Chronic abuse of some of these chemicals can lead to irreversible liver damage and other health problems.

## Resources

### Wellness Resource Center - (Campus Alcohol and Drug Abuse Prevention Office)

Alcohol and other drug abuse prevention programs, speakers, peer educators, and referral services and research. Provides educational brochures and other printed materials and houses a large resource library of books, brochures, videos and other materials on a variety of wellness issues including alcohol and other drugs of wellness. Provides BASICS (Brief Alcohol Screening Intervention for College Students) workshops and individual assessments for students caught in violation of alcohol or drug policies or individual sessions for students who would like their alcohol or drug us evaluated.

- **MUSWA (MU Student Wellness Advocates): ADAPT** (Alcohol and Drug Abuse Prevention Team)/**PAWS** (Peers Advocating Wellness solutions) and **PASS** (Peers Advocating Smoke-free Solutions)
- **Sober In College (SIC):** SIC is for students in recovery and students who want to live a sober lifestyle. Sponsors 12 step meetings.
- **GAMMA (Greeks Advocating the Mature Management of Alcohol)** is composed of Greek students who are interested in issues related to responsible alcohol use.
- **Active Minds:** Students working to de-stigmatize mental health issues and increase help seeking skills.

**Counseling Center** (<http://counseling.missouri.edu>)

573-882-6601

This center provides individual counseling, and group counseling.

**Student Health Center** (<http://studenthealth.missouri.edu>)

573-882-7481

This center offers medical services and individual consultation.

**University Police crime prevention unit** (<http://www.mupolice.com/cp>)

573-884-7809

This unit provides alcohol- and drug-awareness presentations as well as printed and video resources.

## Dual Enrollment

### Dual Enrollment for Senior Undergraduates

Beginning Fall 2012, qualified undergraduate students will be eligible to enroll in up to 12 hours of graduate credit during the last 30 hours of their undergraduate program. The eligibility requirements are listed below.

#### Eligibility Requirement

With the approval of the undergraduate advisor, the undergraduate divisional dean, the Director of Graduate Studies, and the Graduate Dean, eligible seniors may dually enroll as an undergraduate for up to 12 semester hours of graduate credit. To qualify, seniors must:

1. Rank in the upper half of their class.
2. Have a B average in the most recent 45 semester hours of credit.
3. Be within 30 hours of completing graduation requirements for the first bachelor's degree.

**Note:** Graduate degree programs may establish their own policies with regard to enrollment in and the applicability of senior dual enrollment credits.

Dual enrollment forms (<http://gradschool.missouri.edu/forms-downloads/repository/dual-enrollment.pdf>) (PDF) must be completed and approved by the Graduate School prior to registering for the graduate level courses.

This program also is available to seniors in other Missouri colleges. Additional information may be obtained from the Graduate School.

### Undergraduate/Law Enrollment (90-Credit Program)

With prior written approval, select undergraduate MU Arts and Science students may have up to 30 credits in courses from the School of Law, which are acceptable to the faculty of the College of Arts and Science, applied toward a Bachelor of Arts degree. This combined curriculum enables students to obtain both the Bachelor of Arts (BA) and the Juris Doctor (JD) degrees in six years.

Other university divisions, and some colleges and universities other than MU, accept the Juris Doctorate in lieu of the fourth year of college and award a baccalaureate degree upon graduation from MU's Law School. Students interested in this program should check with the dean of their college early in their undergraduate careers to ensure compliance with all requirements.

The undergraduate degree is a requirement for the Juris Doctor degree. Students entering law school under this combined degree program must make arrangements with their undergraduate schools to complete all requirements for their undergraduate degree.

Students with Bright Flight or MU awarded scholarships, such as Curators, Excellence, and Diversity, may use these awards in the law school. Check with the Office of Financial Aid.

*Please note: While not a problem in the state of Missouri, prior to participating in the 90-credit program, students should determine whether participation would adversely affect admission to the bar in the jurisdiction in which they expect to practice. Some states will not admit to their bar persons with fewer than 14 semesters of university work or who did not have their bachelor's degree before entering law school.*

## **Enrollment Requirements (G)**

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### **Enrollment Requirements for Master's and Educational Specialist Degree Candidates**

After completing courses, students expecting to take examinations, present a thesis, manuscript, project, or portfolio must be enrolled when that activity occurs. If a master's and educational specialist candidate only needs to take exams or defend a thesis or project, the candidate can enroll for "Graduate Examination" hours in myZou. Registration in the "Graduate Examination" does not count toward enrollment certification. Students enrolled in the "Graduate Examination" would not be considered full-time or part-time. If students need to use the library or computers on campus, they should enroll in at least one hour of regular credit hour instead of "Graduate Examination".

### **Enrollment Requirements for Doctoral Candidates**

Candidacy for a doctoral degree is established by passing the comprehensive examination. Status as a continuous enrollment doctoral student begins the term after the term in which the comprehensive exam was successfully completed. The continuous enrollment requirement is met by enrolling in 2 hours each spring and fall semester and 1 hour each summer semester.

### **Important Note on Graduate Examination Registration and Financial Aid**

Students with financial aid should check with the Student Financial Aid office before registering for the Graduate Examination option. Failure to do so could cause serious consequences for the student's financial aid status.

### **Important Note for International Students regarding Graduate Examination Registration and Your Visa Status**

International students must check with the International Center before registering for the Graduate Examination option. Failure to do so could cause serious consequences for the student's visa status.

## **Examinations (U)**

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### **Evening examinations**

If a conflict arises between a group evening examination and a regularly scheduled class, the regularly scheduled class has priority. The instructor giving the group evening examination is responsible for scheduling a makeup examination at a mutually convenient time for both the student and the instructor.

### **Classes, Exams and Finals**

For the schedule of evening exams and finals week schedule, refer to the Class, Exams and Finals (<http://registrar.missouri.edu/academic-calendar>) on the University Registrar's website.

## **Credits by Examination**

<https://admissions.missouri.edu/apply-freshmen/college-credits/>

## **Examinations (L)**

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### **Policies Related to Final Examinations**

1. The examination schedule is specified by the Associate Dean for Academic Affairs.
2. All students should arrive and be settled in the examination room 15 minutes prior to the scheduled beginning of the examination.
3. Arrivals after the examination begins should report immediately to Room 203 Hulston Hall.
4. The "Instructions" page of any examination is reserved for all special instructions for the examination. This includes:
  - a. the length of the examination;
  - b. any special instructions for collaboration or material to be used during the examination;
  - c. any special instructions for turning in the examination or parts thereof; and
  - d. any other general instructions not a substantive part of the exam itself
5. Each student will have a different number on each examination. A three-part, perforated slip printed with a number on each of the three parts will be distributed to each student at the time of the examination. The student will complete each portion of the exam number slip and tear off the bottom part for his/her records. (If more than one bluebook is used for any one examination, the student will carefully number the extra book(s) with the assigned number.) At the end of the examination, students will turn in their bluebooks with the remaining two portions attached. The proctor collecting the examinations will remove the identifying second part to be retained in the office and the professor will receive the bluebook bearing only the examination number.
6. It is important for students to retain their portion of the number slip in order to review an examination or check grades when posted.
7. There must be an accounting of all copies of an examination. As a result, the person administering the exam will:
  - a. notify students to complete the exam slip on the front of the bluebook;
  - b. check the exam slips against the class roster at the conclusion of the exam (any portion of the exam slip that contains the student's name is removed by the law school staff before the exam is given to a faculty member); and
  - c. collect all copies of the examination itself -- all copies of the exam must be turned in with the exam answer.
8. Examinations are scheduled in rooms that accommodate the taking of that examination. A list of the examination rooms is posted in various places in the law school prior to the last day of classes. This list specifies the place at which examinations will be picked up.
9. Examinations are distributed in the rooms scheduled and in no other rooms unless the exams are take-home exams or a professor has made special arrangements for the administration of the exam.
10. Students may work on their examinations in assigned rooms only and in other designated areas in the law school. It is the responsibility of the student to return the completed examination to the place where it

is to be picked up, at or before the time scheduled for the end of the examination.

11. A student who chooses to leave a designated examination room is responsible for returning their examination to the designated place at or prior to the end of the examination period.
12. Earplugs are permitted in any exam room.
13. The items below are NOT permitted in any examination room, unless SPECIFICALLY authorized by the "Instructions" at the beginning of the written examination, or specifically permitted pursuant to the law school policy relative to exams on computer. These items should not be brought into the exam room. If they are, they MUST be turned into the proctor PRIOR TO THE START OF THE EXAMINATION. The proctor will keep these items until the examination has concluded:
  - a. Cellular phones or other communication devices;
  - b. Personal Digital Assistants (PDA) or any device having the characteristics of a PDA;
  - c. Laser Pointers;
  - d. Any device that allows for the recording of data, or the playing of recorded data, including, but not limited to iPods, MP3 players, CD players, DVD players, cassette players or recorders;
  - e. The devices above should not be brought into the examination room. The person administering the exam in each room will, however, have a box to collect any such device while the exam is being taken.
14. Smoking is NEVER permitted in any examination room.
15. Examinations are distributed by the proctor unless the professor elects to do so. Upon receipt of an examination, each student places his or her initials beside his or her name on the class roll. The proctor writes the time the examination begins and ends on the blackboard.
16. Students in the authorized examination rooms are given a 10-minute warning prior to the end of the examination period. The warning is given by the proctor unless the instructor elects to do so. Once the 10-minute warning is given, no student may leave the examination room. Students shall remain quietly seated.
17. The examination ends at the earliest of the following:
  - a. The time written on the blackboard by the proctor or at the conclusion of the time designated on the examination. In some rooms, a law school staff member may say "Stop," but the failure to do indicate does not allow a student to continue to write after the time limit has expired. No writing whatsoever is permitted after the exam ends.
  - b. The time a student submits a written examination to the proctor collecting exams and leaves the immediate line of sight of that proctor. Whether such a student has left the immediate line of sight of the proctor is a question left to the discretion of the proctor, it being recognized that as more students turn in exams, the sight line of the proctor will be decreased.
  - c. The time a student taking an exam on computer submits an exam and exits from the exam-writing software.
18. When the examination period ends, students who have not earlier completed the examination go to the place announced for examination pickup and hand to the proctor the examination, bluebooks and/or answer sheet and all scratch paper, used and unused. The material is checked at that time to be sure exam numbers are on each examination, bluebook and/or answer sheet and then placed in receptacles provided for that purpose. Students

should not walk away until the proctor has confirmed they have all materials.

19. At the conclusion of each examination, each student again places his or her initials by his or her name on the class roll. The proctor checks to be sure all examinations and materials that should be returned are returned.

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## Full-time/Part-time Status

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Undergraduate students who register for fewer than 12 hours and graduate students who register for fewer than nine hours during the fall or spring semesters are considered to be enrolled part time. Undergraduate students may not enroll in a program part time without the express permission of the academic advising unit of the school or college in which the student is, or plans to be, enrolled.

### Undergraduate Students

- A full-time undergraduate student is enrolled in at least 12 semester hours during the fall and spring semesters, or an equivalent number of hours during the summer session.
- A three-quarters-time undergraduate student is enrolled in at least nine semester hours during the fall and spring semesters, or an equivalent number of hours during the summer session.
- A half-time undergraduate student is enrolled in at least six semester hours during the fall and spring semesters, or an equivalent number of hours during the summer session.

### Graduate Students

- A full-time graduate student is enrolled in at least 9 semester hours during the fall and spring semesters, or an equivalent number of hours during the summer session.
- A three-quarters time graduate student is enrolled in at least 6 semester hours during the fall and spring semesters, or an equivalent number of hours during the summer session.
- A half-time graduate student is enrolled in at least 4 semester hours during the fall and spring semesters, or an equivalent number of hours during the summer session.

### Professional Students

- Law student — 12 hours
- Medical student — 14 hours
- Veterinary medicine student — 12 hours

*Policy Source: Faculty Council, Article VII (<http://facultycouncil.missouri.edu/handbook/article-7.html>)*

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## Grades

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### GPA of Record

The grade point average for any period is obtained by dividing the quality points earned by the total number of credits for which the student was enrolled during that period. Grades of S, U, H, W, NR, or I are not included in determining the grade point average.

The undergraduate CUM GPA is the University of Missouri GPA, which will include all grades, credits, and honor points attempted at any University of Missouri campus, including all grades and credits. In computing the undergraduate GPA the grade points assigned to students'

transfer work are the grade points that would have been assigned if the courses had been taken on the University of Missouri System campus, including any adjustments made under policies related to course repeats and/or Academic Renewal/Forgiveness.

## GPA Calculator Web Site

To calculate a grade point average, go to the GPA Calculator Web Site at <http://registrar.missouri.edu/grades-calculators/gpa-calculator.php>

## Plus-Minus Grading System

The purpose of the grading system is to provide a framework in which the faculty can report evaluation of student performance and achievement. For undergraduates, all teachers are expected to use the grading scale approved by the faculty. This precludes any department or unit from opting to use a modification of the scale.

The A through F grading system is appropriate for those subjects and situations that allow discrimination in quality of achievement and performance. The S/U grading system is more appropriate for students wishing to take elective courses in a subject matter field in which they will be competing with majors, for mastery learning situations, and for courses graded primarily on the basis of attendance.

Grades carrying credit are: A+/-, B+/-, C+/-, D+/-, and S. Grades calculated in the grade point average are A+ (4.00), A (4.00), A- (3.7), B+ (3.3), B (3.00), B- (2.7), C+ (2.3), C (2.00), C- (1.7), D+ (1.3), D (1.00), D- (0.7), and F (0). The grades of S, U, NR, and W are not incorporated in the grade point average.

Students must have a cumulative GPA of 2.00 to remain in good academic standing.

All regulations currently applicable on a course-by-course basis and currently tied to a specific letter grade would be interpreted to mean a specific letter grade range. Hence, if a student must achieve a C in one course in order to proceed to another course, under the plus-minus grading system, that student must achieve a grade in the "C range," which would include the grade of C-.

All regulations currently tied to a specific grade average are interpreted to mean the numerical average currently associated with that specific grade. Hence, the required "C average or better" on all courses is a "2.00 average or better."

The grade of S (on S/U basis) is defined as equivalent to the letter grade of C- or higher.

## Satisfactory/Unsatisfactory Grading System

Students may elect to take courses under the S/U (pass/fail) grading system in several MU colleges and schools. Before electing to take a course on a pass/fail basis, the student should evaluate the advantages and disadvantages of the S/U grading system. The S/U grading status is indicated in the appropriate column on the registration or add/drop form. Students may change to or from the S/U status only through the tenth day of classes in a semester.

In general, the teacher of a course does not know which students, if any, are enrolled on the S/U system, and a grade of A-/-, B-/-, C-/-, D-/- or F for each student is reported to the Office of the University Registrar. The Office of the University Registrar staff members ascertain which students are enrolled on the S/U system and assign a grade of U to those reported for grades of D-/- or F, and a grade of S for those reported A-/-, B-/- or

C-/- . Grades of S and U are not included in the computing of grade point averages.

Enrollment in courses under the S/U system is subject to the following restrictions by the University faculty:

- Students cannot change from one grading system to the other after the tenth day of classes in the fall or spring semesters, or the equivalent thereof in a shorter session.
- Students cannot elect to enroll in more than one course on an S/U basis in a given semester. This excludes courses taught only with the S/U grading system.
- First-semester freshmen and students on scholastic probation are not eligible to enroll in courses on an S/U system. This excludes courses taught only with the S/U grading system.
- A+/-, B+/-, and C+/- grades are recorded on the transcript as an S. S grades are not included in the semester or cumulative grade point average on the transcript. Full credit is earned for courses completed with a grade of S.
- D+/- and F grades are recorded on the transcript as a U. U grades are not included in the semester or cumulative grade point average on the transcript and no academic credit is awarded for courses completed with a grade of U.
- Courses completed with a grade of S may be accepted in an area of concentration only with the prior approval of the area advisor.

Courses completed with a grade of S may constitute no more than 20 percent of the total credits for the baccalaureate degree.

- Taking S/U courses may affect eligibility for Latin or other graduation honors for undergraduate students. Contact the academic advising unit for information.
- Some specified courses may not be taken on S/U basis to meet graduation or degree program requirements. Contact the academic advising unit for S/U approval.

## Selecting Grading Options (S/U vs. A through F)

Students must choose to change their grading option no later than after the expiration of two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session. Students' academic advising unit must approve and change their grading option in myZou for the change to become official. See the University Registrar's website at <http://registrar.missouri.edu/academic-calendar/> for deadlines for each term.

## How Dropping/Withdrawing from a Class Affects the GPA

Students may drop a course through the end of the business day of the fifth week or the 25th class day of the semester. It will have no effect on the grade point average. After the 25th class day, the signature of the course instructor and/or dean of the academic unit is required. After the last day to drop, students are withdrawing from a course if they choose to leave the course. Students may withdraw from a course through the end of the business day of the 10th week or 50th class day of the semester. At this point a grade of W for withdraw is recorded if the student was passing at the time of withdrawal. If the student was failing at the time of withdrawal, the course grade is F. The instructor determines which grade to assign. A W grade does not affect the grade point average, while a

grade of F does. The grade generally will not appear until all grades for the course are submitted at the end of the semester.

## Grades for Students Who Officially Withdraw from the University

No grade will be assigned to a student who officially drops prior to the 26th day of the fall or spring semester or an equivalent period in a summer session (other non-standard classes are also adjusted accordingly).

Students who officially withdraw from a standard 16-week course on or after the 26th day may be required to obtain the signature of the course instructor on the Course Withdrawal Form, available from the academic advising unit. This will inform the student of the grade (*W* or *F*) that will be submitted to the Office of the University Registrar at the end of the semester. A grade of *F* is assigned if the student is judged to be failing at the time of the withdrawal and will be calculated into the grade point average. Once the course withdrawal form is completed, students should return the form to their academic advising unit to obtain the dean's signature (stamp of approval) on an add/drop form. The add/drop form is submitted to 125 Jesse Hall for processing.

Dropping or withdrawing from all classes for a term is considered withdrawing from the University. If done after the first day of standard classes the student remains eligible to pre-register for the following term. If a term elapses (other than summer) between enrollments, the student must apply for readmission. **NOTE:** Refund dates are different from withdrawal dates. (See Withdrawal from the University section on the University Registrar's website: <http://registrar.missouri.edu/policies-procedures/withdrawal-university.php>.)

## Grade Appeal

Guidelines for grade changes are as follows:

- Students who believe that they have been graded unfairly or incorrectly should see the course instructor.
- If still dissatisfied, the student may appeal to the chair of the department. (If the course has a large number of sections, it may have a course director. If so, the student should see the director before appealing the grade to the department chair.)
- The chair of the department will conduct an investigation. The chair cannot substitute his or her judgment for that of the instructor concerning the quality of the student's work.
- If the instructor of the course also is the department chair, the dean of the school or college will handle grade appeals.
- No one may substitute personal judgment for that of the instructor concerning the quality of the student's work. However, mathematical or mechanical errors in scoring examinations may be corrected.
- No grade shall be otherwise changed unless there is clear, convincing and unequivocal evidence that it was a direct result of arbitrary and capricious conduct by the instructor.

## Incomplete Grades (Grade of I)

Whenever students cannot be assigned a grade at the end of a course in which they have been enrolled because their work is for good reason incomplete, the instructor will postpone the grades, reporting *I* grades to the University Registrar.

An *I* grade may be assigned only when:

1. The completed portion of the student's work in the course is of passing quality AND
2. There is such evidence of hardship as to make it unjust to hold the student to the limits previously fixed for the completion of the work.

Each department of the schools and colleges maintains a record of *I* grades in courses of that department. (Exemptions are made for research courses and problems courses related to research assignments.) This record, kept in the electronic student information system, will include:

- The name of the student
- The course number, title and credits
- Semester and year of enrollment
- A brief statement of the reason for delaying the grade
- An adequate guide for the removal of the *I* grade along with a suggested final grade in the event of the departure or extended absence of the instructor from the campus

An undergraduate student who receives an *I* grade must complete the course requirements either:

1. within one year from the date it was recorded (unless the course is numbered 4950-4959 or 4995), OR
2. before the date of graduation (whichever comes first).

When an incomplete is satisfactorily resolved, the faculty member responsible for the grade change will notify the University Registrar of the revised grade.

Otherwise, the University Registrar will remove the *I* and record a grade of *F* in classes graded A-F or a grade of *U* in classes graded S/U. Any student planning to graduate with an unresolved *I* grade should be aware that translation to an *F* could drop the GPA below the requirements for graduation. As with any academic deficiency, the low GPA would delay the student's graduation until all requirements for graduation are met.

### Note:

- A grade of *I* is not figured into the grade point average.
- Students should not re-enroll in a course for which they have been assigned a grade of *I*.
- For further information, see the Faculty Handbook, Academic Regulations (<http://facultycouncil.missouri.edu/handbook/intro.html>).
- Exceptions to unresolved incomplete grades changing to an *F* are as follows:
  - Courses taken for graduate level credit
    - Courses taken prior to Fall 2003
    - Undergraduate research, honors research or problems courses that are approved for multiple terms of continuous research
- Grades of *I* and the reason for the delay of grade may also be entered directly into myZou.

Questions may be directed to the Office of the University Registrar, (573) 882-4249.

## Unassigned or Erroneous Grades

To correct a grade erroneously reported, proper notification is sent from instructors and their department chairs to the Office of the University Registrar on a form provided for that purpose.

**Note:** Grade corrections must be processed within one year of the original reporting date.

In situations when there is a failure to record a grade on the official grade sheet, the University Registrar will record a *NR* (not reported) and send a written notification of this action to the faculty member and relevant department chair. The faculty member is responsible for submitting a corrected entry. After 12 months *NR* will change to an *F*.

For graduate and professional students, the *NR* grade will remain on the transcript until a letter grade is submitted. If a letter grade is not submitted, an *NR* can remain on the student's record indefinitely and will not convert to an *F*.

No student may be re-examined for the purpose of changing a grade after a final grade has been reported to the University Registrar. For further information see the Faculty Handbook, Academic Regulations (<http://facultycouncil.missouri.edu/handbook/intro.html>). Questions may be directed to the Office of the University Registrar, (573) 882-4249.

## Grades & Credits (G)

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### Grading Scale

Graduate students' grades in all courses counting toward an advanced degree may be reported as: A +/-, B +/-, and C +/- . Faculty members are not required to use a plus/minus grading scale; that decision should be based on the faculty member's evaluation of student performance and/or policies of their academic program.

Grade point averages are calculated as: A+ (4.0), A (4.0), A- (3.7), B+ (3.3), B (3.0), B- (2.7), C+ (2.3), C (2.0), and C- (1.7).

The Graduate School considers grades of C+, C and C- as passing grades; however, grades in the C range may not be acceptable for specific program-matic requirements and may result in the student being unable to maintain a 3.0 cumulative average. No D grade may be awarded to a graduate student, and a grade of F means the work has not satisfied the minimum requirements of the course. W denotes withdrawn passing and does not affect a student's grade point average.

### S/U Grading

Graduate students may be graded satisfactory/unsatisfactory (S/U) in graduate-level courses only when those courses are designated as "graded on S/U basis only" in the online Schedule of Courses available through myZou.

### Incompletes

An incomplete grade (I) may be recorded when the student's work is incomplete but otherwise worthy of credit, or when the instructor is unable to assign a grade at the end of the semester. The student must finish this work (Problems and Research courses exempted) within the next calendar year of residence.

If the work is not completed after one calendar year, the request to change an "I" grade will require an accompanying letter of justification from the instructor. Although grades of "I" do not automatically convert to an "F" if not completed, academic programs or the instructor may establish conditions or regulations pertaining to "I" grades that are more stringent.

### Unreported Grades: NR

When grades are not reported by the instructor, these "Blank Grades" will be recorded as "NR" (Not Recorded). The *NR* designation will remain on the student's transcript until a letter grade is submitted. If a letter grade is not submitted, the *NR* can remain on the student's record indefinitely and will not revert to an "F".

### Grade Changes by Faculty

Faculty members may change grades within the policies set by the faculty. Grade Change Forms, available from the faculty member's academic unit, must be completed, signed and submitted to the Office of the University Registrar - Records Dept., 126 Jesse Hall.

### Graduate-Level Credit

No graduate credit is given for courses numbered below 7000. Graduate students taking 7000-level courses that are cross-leveled with 4000-level courses will be given additional course requirements in order to warrant graduate credit received for those courses. Courses at 8000/9000 level are primarily for graduate credit. 8090/9090 research (8990/9990 Research for Engineering students) is reserved for master's and doctoral degree students working on a thesis or dissertation.

### Grade Point Average

A graduate student's grade point average is based on the student's entire graduate record at MU. To remain in good standing, a graduate student must maintain a cumulative GPA of 3.0 or better.

### GPA and Probation

At the end of each semester, graduate students with a cumulative GPA below 3.0 are placed on probation. If at the end of the following semester the cumulative GPA is 3.0 or better, the probationary status is removed. A student on probation failing to raise the cumulative GPA to 3.0 may, on the recommendation of the department or area program, be allowed a second probationary semester.

A student is subject to dismissal upon failure to raise the cumulative GPA to 3.0 by the end of the second probationary semester, or at any time a semester/term or cumulative GPA falls below 2.0. Note: Summer session is not counted as a semester.

### GPA and Graduation

To graduate, a student must have an overall GPA of 3.0 in all graduate courses taken at MU and not just those courses listed on a plan of study.

For more information on grading, credit and related policies go to <http://gradschool.missouri.edu/academics/progress/grading-credit.php>.

## Grades & Ranks (L)

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### Class Rankings

At the end of each semester, students are included in the first year, second year or third year class lists and are given a class rank based on their position in their class list. Classes are ranked by expected date of graduation.

When calculating the class rankings for the first year and second year classes, summer grades are included in the rankings for the following fall semester.

The graduating class ranking is determined as of the end of the summer semester and includes all students graduating within the academic year (preceding fall and spring semesters and current summer session).

## Rules for Determining Class Levels

In order to register for courses, students are assigned a class level. The class levels are determined as follows:

1. **First Year Students:** A student who has received 24 hours or fewer of law school grades;
2. **Second Year Students:** A student who has between 25 and 56 (inclusive) hours of law school grades;
3. **Third Year Students:** A student who has received more than 56 hours of law school grades;
4. **Law School Grades:** As used herein, "law school grades" means grades counting towards credit at the School of Law. Failing grades do not count as "law school grades;"
5. **Effect of Summer School.** The determination of class level is made ONLY at the conclusion of the fall and spring semesters. A student's class level will NOT therefore change at the end of summer school;
6. **Exceptional Circumstances:** In cases of students in unusual situations, including, for example, part-time or unusually heavy- or light-load semesters, a determination will be made on the basis of dividing the student's law school career into relatively equal periods for the first, second and third years.

## Computation of Grade Point Average (GPA)

Grade point averages are based only on law school courses taken at this school and only upon "graded courses." For the purpose of computing grade point averages, a "graded course" is one which is graded on the 65-100 scale.

A grade point average is obtained as follows:

1. The "grade points" for a graded course are obtained by multiplying the numerical grade for the course by the number of credit hours for the course.
2. The "grade point average" is obtained by dividing the total grade points for all graded courses by the total number of credit hours for all graded courses.

In computing grade point averages, all graded courses are included. When a course is repeated, the grade and hours for both takings are included in computing cumulative grade point averages subject to the following exception:

A student who is required to repeat a course will have his or her cumulative grade point average computed as follows: If the grade on the repeated course is 81 or higher, neither the hours nor the grade for the previous taking of the course will thereafter be used in the computation of the student's cumulative grade point average. The earlier grade will, however, remain on the transcript.

Grade point averages are computed for each student by semester, year and cumulatively. The fall semester grade point average includes the courses taken in the fall semester and courses taken in the preceding summer session. The yearly grade point average is based upon courses taken during a student's first, second and third years.

## Course Repeat Policy

The School of Law's Standards and Readmissions Committee ("the Committee") has adopted the following course repeat policy:

1. Students who petition the Committee for readmission may be required to repeat any or all courses previously completed;
2. Students who achieve a grade in a course above the graduating average are not eligible to repeat that course;
3. Students who achieve a passing grade in a course that is below the graduating average are eligible to petition the Committee for permission to repeat the course. The Committee may grant such petition based on exceptional circumstances;
4. Students who fail a non-required course are eligible to petition the Committee for permission to repeat the course. The Committee may grant such petition based on exceptional circumstances.
5. Students who fail a required course are required to repeat that course unless, in exceptional circumstances, repeating the course is waived.

Note: When a course is repeated only the hours for one taking may be credited toward meeting the graduation requirement of having passed 89 hours, without regard to how the course is treated for computing grade point averages.

## Dean's List

A student qualifies for inclusion on the Dean's List with a semester average greater than 85.999.

## Good Standing

After the first semester of the first year, a student is in "good standing" at the School of Law if the student's cumulative GPA is greater than 76.399.

Thereafter, a student is in "good standing" at the School of Law when both the student's current semester and overall GPA are greater than 77.499.

## Grades and Grading

The grades recorded in the School of Law are the official grades and the determination of grade point averages and satisfaction of law school requirements is based on the grades recorded in the School of Law.

Grades are recorded in the School of Law as numerical grades ranging from 65 through 100 or, where authorized, by the letters "S" (Satisfactory) and "U" (Unsatisfactory). The grades of S and of 70 through 100 are passing grades and earn course credit. The grades of U and of 65 through 69 are failing grades and do not earn course credit. A 70 is the lowest passing grade and a cumulative grade point average greater than 77.499 is the minimum required for graduation.

With the exception of Independent Research, and any of the activities that satisfy the writing requirement, if grading is to be done other than anonymously, the syllabus shall so state. Professors do not know the names of students until after grades are turned in to the Dean's Office. Professors may not obtain the names of students prior to assigning a class rank order for grades. The rank order may not be changed after the names are known.

Explanation of the Grading Scale (<http://law.missouri.edu/students/pdf/gradingscale.pdf>) (PDF)

## Grades from myZou

Students may obtain their grades from MyZou. In addition to the student's PawPrint, when checking grades for only one course, students must know the course number.

## Student Honors

### J.D. Degree Cum Laude

Any student with a graduating grade point average greater than 96.999 is eligible for the designation of Juris Doctor Summa Cum Laude upon graduation.

Any student with a graduating grade point average within the top 7 percent of the graduating class is eligible for the designation of Juris Doctor Magna Cum Laude.

Any student with a graduating grade point average within the top 12 percent of the graduating class is eligible for the designation of Juris Doctor Cum Laude.

### Order of the Coif

The Order of the Coif is a national law school honor society, founded for the purpose of encouraging legal scholarship and of advancing the ethical standards of the legal profession. It has established chapters in the leading law schools of the country. Its members are selected by the faculty from the top ten percent of the graduating class and rank highest in scholarship, and whose achievements as students make them worthy of this distinction. Selections are made after six semester grades and rankings have been determined. To be eligible for membership in the Order of the Coif students must complete 75 percent of their law studies in graded courses. Starting in 2014, transfer students will be considered as having completed their first year of law studies in graded courses for purposes of calculating the 75 percent of coursework in graded courses requirement.

### Order of the Barristers

The Order of the Barristers is a national law school honor society founded for the purpose of promoting legal advocacy and of advancing the ethical standards of the legal profession. Members are selected based upon participation and excellence in the advocacy programs of the School of Law.

## Graduate Academic Minors (G)

### Non-designated minors

Non-designated minors consist of course work constituting a unified plan of study that includes a minimum of nine hours of graduate course work. These minors should be listed on a student's plan of study; however, they are not listed on a student's transcript.

### Obtaining approval for a minor

Both designated and non-designated minors must be approved by the student's major advisor, the student's academic program director of graduate studies, and the Office of Graduate Studies.

In addition, the inclusion and completion of a designated minor must be approved by the director of graduate studies (or academic program chair/program director) of the academic program or interdisciplinary group offering the minor. Designated minors are listed on a student's transcript.

## Graduate Assistants and Fellows (G)

### Graduate Assistantships

Graduate assistantships give students opportunities for professional experience, academic training and financial support while pursuing advanced degrees. Specific assignments vary by type of assistantship. Graduate assistantships generally entail 10-20 hours of work per week (.25 to .50 full-time exempt). Students who hold graduate assistantships are discouraged from working more than 20 hours per week for more than one semester during the period of the assistantship.

### Fellowships

Fellowships are a type of aid granted to graduate students to help support their education. Some fellowships include a tuition waiver or a payment to the university in lieu of tuition. Most fellowships include a small stipend to cover living expenses. Unlike a loan, a fellowship is a form of gift aid and does not have to be repaid. However, fellowships may be taxable and reportable to the Internal Revenue Service. No service or work requirement is associated with a fellowship.

### Assistantship and Fellowship Policies

The complete set of policies regarding graduate assistantships and fellowships may be found on the Graduate School's website (<http://gradschool.missouri.edu/policies/graduate-assistantships-fellows.php>).

## Graduate Certificates

A graduate certificate is not a graduate degree. Rather, it is a document verifying the successful completion of a specified group of graduate courses. Certificates are intended to help students acquire (or enhance) discipline-related knowledge and skills. Upon completion of a designated set of courses and other requirements, the name of the graduate certificate will appear on the student's official University of Missouri Transcript.

To accommodate a variety of learners' needs, MU offers two types of graduate certificate programs:

- Stand-alone graduate certificates allow individuals to earn graduate credit hours without having to enroll in a specific degree program. Prospective students have an option to apply for graduate study as a Certificate-Seeking Student only. Degree seeking students may also pursue this type of certificate as complementary to (or independent of) their graduate degree program.
- Degree-dependent graduate certificates are designed for degree-seeking students only. Further, the students must be enrolled in the particular degree program offering the certificate. In other words, this type of certificate is intended for degree seeking students who wish to pursue specialized courses or related, complementary study.

Federal Disclosure Requirements for Stand Alone Graduate Certificates "Final regulations published in the Federal Register on October 29, 2010, require institutions to report certain information about students who enrolled in Title IV eligible educational programs that lead to gainful employment in a recognized occupation (GE programs). Those regulations also provide that institutions must disclose to prospective students certain information about the institution's GE programs.

Finally, the new regulations require institutions to notify the Department if they wish to add an additional GE Program to its list of Title IV eligible programs. All of these requirements are effective July 1, 2011. The Secretary published additional regulations related to the program eligibility metrics that will be calculated for gainful employment programs in the Federal Register on June 13, 2011."



Source: Federal Student Aid, see <http://www.ifap.ed.gov/GainfulEmploymentInfo/index.html>

At the University of Missouri, the Graduate School's Stand Alone certificates are subject to federal Gainful Employment disclosure requirements. A disclosure form for each Stand Alone certificate may be found in the last section of this catalog and on our web site.

## Certificate Admission Information

Stand-Alone Certificate Applicants. All students enrolled in a stand-alone graduate certificate program will be classified as Graduate Certificate-seeking graduate students. As such, to qualify for admission, they must have successfully completed the baccalaureate degree at an accredited college/university. Specific graduate certificate programs may have admission standards that exceed those for post-baccalaureate graduate students. New graduate applicants wishing to pursue a stand-alone certificate only should complete the Graduate School's online application for admission and meet the Graduate Faculty Senate's minimum admission requirements for all programs.

## Degree-Dependent Certificate Applicants

New applicants applying for a degree program should complete the Graduate Studies' online application for admission for the degree program. Once enrolled at MU, the Application for Graduate Change of Division, Program, Degree Emphasis or Advisor Form (pdf) should be completed to add a graduate certificate.

## Financial Aid

Check eligibility on both types of certificates Degree-dependent graduate certificate programs are federal financial-aid-eligible. Students only enrolled in stand-alone graduate certificates are potentially eligible for federal financial aid. Read our disclosure pages to learn more about the costs (tuition & fees); time needed to complete the certificate; and future placement (e.g., degree programs, jobs) of certificate holders. Next, check with MU Student Financial Aid Office to determine eligibility. Students enrolled only in a stand-alone graduate certificates are not eligible for scholarships, fellowships, assistantships, tuition waivers, etc. from the Office of Graduate Studies or University of Missouri.

## Stand-Alone Certificate Admission Requirements for Non-Degree Seeking Students

A non degree-seeking student who is admitted into a stand-alone certificate program will be officially classified as "certificate-seeking" graduate student. To be admitted, the student must have successfully completed a baccalaureate degree at an accredited college/university. Specific graduate certificate programs may have admission standards that exceed those for post-baccalaureate graduate students. Transfer credit for stand-alone certificate seekers. A maximum of three graduate credit hours which correspond directly to the MU graduate certificate program course requirements may be used as transfer credit from another university to satisfy the requirements for the certificate program. An original transcript from the other university, verifying graduate credit received for the requested hours of transfer credit, must be submitted to the Graduate School when the Plan of Study form is submitted. Please refer to the certificate program's site for certificate policy updates.

## Credit Hours Necessary for Certificate Completion

Graduate certificates vary in completion requirements, including the minimum credit hours. Please refer to the certificate program's site for credit hour requirements.

Up to 12 hours of graduate credit earned for graduate certificate may be applied to degree requirements for a graduate degree upon approval of the degree program.

## Grievances (L)

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The School of Law is a charter member of the Association of American Law Schools. Information on the AALS may be found at [www.aals.org/](http://www.aals.org/) (<http://www.aals.org/>).

The School of Law is fully accredited by the American Bar Association. Questions regarding ABA accreditation may be directed to the Office of the Consultant on Legal Education, American Bar Association, 321 N. Clark Street, 21st Floor, Chicago, IL 60654-7597 or 312-988-6738.

Student complaints implicating compliance with the standards imposed by the American Bar Association Section on Legal Education and Administration to the Bar shall be filed in writing with the Associate Dean for Academic Affairs, or if the complaint involves the person serving in that capacity, with the Dean of the Law School. The complaint shall include the date on which the complaint is being filed; the name and address of the complainant; and a description of the complaint. The description of the complaint shall include a description of the accreditation standard which the law school's action or inaction implicates. The Associate Dean for Academic Affairs (or the Dean of the Law School) will investigate the complaint and respond to the complainant in writing within 30 calendar days from receiving the complaint. The response will indicate whether the Law School has taken any corrective action, or if not, the reasons for not taking any action.

Students who have a grievance not implicating the ABA accreditation standards may file it with the Student Bar Association, which meets periodically with the Dean or Associate Dean for Academic Affairs.

## Holds

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There are several types of holds, which are restrictions that may block registration. Students are notified through myZou if they have a hold. They should go to the location indicated in myZou to resolve the hold.

*Policy Source: Academic Unit/Department*

In some situations, it is important that records or holds preventing certain actions be maintained in student records across the four campuses in the University of Missouri System. For instance, if a student is sanctioned with University Dismissal, University Suspension, University Expulsion or other sanctions / agreements that extend beyond a given campus, a mechanism to enforce such agreements or sanctions is applied. ([https://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.025\\_equity\\_resolution\\_process\\_for\\_resolving\\_complaints\\_of\\_harassment](https://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.025_equity_resolution_process_for_resolving_complaints_of_harassment) here for the policy ([http://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.025\\_equity\\_resolution\\_process\\_for\\_resolving\\_complaints\\_of\\_harassment](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.025_equity_resolution_process_for_resolving_complaints_of_harassment) ([https://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.025\\_equity\\_resolution\\_process\\_for\\_resolving\\_complaints\\_of\\_harassment](https://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.025_equity_resolution_process_for_resolving_complaints_of_harassment)

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## Late Registration

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A student cannot register in classes offered by any school or college after one week following the first day of classes in a regular semester or the equivalent period of time for other sessions or classes. Class session meeting dates may be found in the class details on myZou (<http://myzou.missouri.edu>).

A late registration fee equal to the tuition for one undergraduate credit hour will be assessed starting the first day of classes for the regular session for the term.

Exceptions to this rule are enrollments in class sections of graduate exam, internships, problems, research and special readings.

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## Leave of Absence (G)

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### Key Terms

#### Leave of Absence

The student anticipates a need to discontinue enrollment for one or more semesters.

#### Active Duty Leave or Withdrawal

Students who are members of the US Military (e.g., Reserve or National guard) may be called into active duty by the government. As a result of the assignment, the student may need to request an active duty leave or may decide to withdraw from the University.

#### Contact Advisor and Director of Graduate Studies

Students considering a leave of absence that will result in a break in enrollment of one or more semesters must first contact their graduate advisor and the academic program's director of graduate studies to inform them of their intent, the reason requesting leave and the expected duration.

#### Letters to the Office of Graduate Studies

After approval of the leave at the academic program level, the director of graduate studies and the student will submit letters to the associate vice chancellor for graduate studies. The DGS letter will verify that the academic program has been informed and that a leave of absence has been approved. The letter from the student will provide an explanation for the request as well as the anticipated departure and return date.

#### Resolving Financial Support Responsibilities

It will be the responsibility of students to resolve all issues pertaining to their support (e.g., research or teaching assistantship, scholarship) with their advisor or other relevant authority before departure. These issues include the date when support will be terminated and whether or under what conditions the student will be reinstated for support upon their return.

#### Notification for Re-Entry

Before the completion of the Leave of Absence, the student must notify the academic program's director of graduate studies and the Office of Graduate Studies so that the re-entry process can be initiated.

## Contact with the University During Leave

Students on a Leave of Absence may not make significant use of University resources and services or engage in significant consultation with the faculty.

## Extension of Degree Time, Continuous Enrollment

Time spent on leave does not automatically extend limits for completion of the graduate degree but can be considered in a request for an extension.

Doctoral students who are required to maintain continuous enrollment may petition for an exception to this policy while they are on an approved Leave of Absence.

## International Students

International students in F-1 and J-1 non-immigrant status must also obtain authorization from the International Center before the initiation of a Leave of Absence and before returning to campus to ensure compliance with current SEVIS regulations and visa restrictions.

F-1 and J-1 students approved for a leave of absence may not remain in the United States during the leave period unless authorized by the International Center. For students who must depart the United States, leave periods exceeding five months will necessitate updated student immigration documentation for re-entry.

All international students considering a leave of absence should meet with an international student advisor to determine the appropriate steps to safeguard their immigration status.

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## Military - Active Duty (Voluntary or Involuntary)

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Enrolled students called into active service in the armed forces of the United States prior to the completion of the semester, whether voluntarily or involuntarily, but not including active service for training, shall be eligible for either of the options listed as follows: **NOTE: Students must choose either option 1 or 2**

Students taking distance / online classes who reside in states other than Missouri where a conflicting law may require other options than listed below will be given the accommodations required by that law when the student provides documentation of the law's existence and proof of its applicability to him/her. **Please note:** Students who are enrolled at the University of Missouri and reside in a state outside of Missouri should review the information below related to unique military deployment benefits:

State of Iowa "Code Section 261.9(1)"g" (<https://www.iowacollegeaid.gov/content/postsecondary-registration-iowa-code-chapter-261b-additional-requirements/#codes>)

### Option 1 - Withdrawal from all courses for semester

They may choose to withdraw from all classes. In such cases, a student may request either:

1. That the official transcript indicate the courses from which he or she has withdrawn, the date of withdrawal and the reason for withdrawal. Students choosing this option will have their tuition and fee charges

and their student financial aid eligibility calculated effective with their official withdrawal date.

2. Or the student may request that all courses for that semester be expunged from the student's academic record. Students taking this option will receive a complete refund of all educational and incidental fees paid by the student for enrollment for that semester. However, students who have received federal, state or institutionally funded financial aid must return all aid disbursed to them for the semester

NOTE: Students must see their Academic Advising Unit to withdraw and return the form to Office of the University Registrar, 125 Jesse Hall.

Refunds will not be immediately available. Refunds are based on your last method of payment (i.e. credit card, check, etc). Refund checks will be sent to your mailing address unless a forwarding address is left with the University.

## Option 2 - Receive Incompletes in all courses for the semester

The student may choose to receive an incomplete in all courses not yet completed for the semester. In that case the following rules apply:

- The student must complete all course work for the semester to the satisfaction of the instructor(s), and the time a student spends on active military duty shall not be counted against time allowed for the completion of an "Incomplete" grade.
- **I to F policy:** Students called to active military duty will be exempted from the one-year automated changes of I to F grades for the term of deployment and the year prior to deployment. In accordance with State statute, students may complete work upon their return from duty or may choose to maintain the I grade. Therefore, I grades for students called to active military duty will remain listed as "I" until a change of grade is submitted by the faculty member, or indefinitely, if so desired by the student.
- **NR to F Policy:** Military duty will be exempted from the one -year automated changes of NR to F grades for the term of deployment and the year prior to deployment. In accordance with State statute, students may choose to maintain the NR grade. Therefore, NR grades for students called to active military duty will remain listed as "NR" indefinitely, if so desired by the student.

Upon completion of all course work for the semester, the student may choose either to:

1. Have the grade earned for the course and have the "Incomplete" expunged from his or her official record  
OR
2. Have the "Incomplete" grade remain as the final grade with reason for the "Incomplete" noted on his or her official record

**NOTE:** No refunds will be given for option 2.

**Residential life:** Residential life will be contacted and informed of your intent to exit the University. Room, board and social fees will be prorated and applied to your University student account based on the effective date of your official check out from the residence hall or other University accommodations.

**Financial Aid:** The Office of Student Financial Aid will be informed of your student status and your official withdrawal date and may make adjustments according to federal, State of Missouri and institutional guidelines.

**Scholarships:** Scholarships may or may not be applicable upon the student's return to the University. For example, Section 41.948.2, RSMo, provides that if a student has been awarded a scholarship to be used to pursue an academic program in any higher education institution in Missouri and he or she is not able to complete the term for which the scholarship was granted, the student shall be awarded that scholarship at any subsequent academic term provided the student returns to the academic program at the same institution at the beginning of the next academic term after the completion of active military service. If a student has any scholarships or other aid or award, he or she should contact the issuer to determine whether it will be applicable on his or her return and whether he or she will need to satisfy any other conditions.

### Contact:

Office of the University Registrar  
125 Jesse Hall  
The University of Missouri - Columbia  
Columbia, MO 65211  
Office: (573) 882-7881  
Fax: (573) 884-4530

### The Office of the University Registrar will require the following information:

- A copy of your military orders, as soon as possible
- Forwarding Address
- Name, address and phone number of a contact or your representative
- Your name as it is on MU records
- MU ID number
- Which option student wishes to choose for classes

This information may be brought to 125 Jesse Hall or faxed to (573) 884-4530.

## Re-admission of previously enrolled students

**Undergraduate** students who are returning to MU after an absence of at least one semester must complete a request for re-admission for undergraduate studies (<http://admissions.missouri.edu/apply/re-admission>) and return it to the Office of Admissions, 230 Jesse Hall, Columbia, MO 65211-1300 or fax to 573-882-7887.

Degree-seeking **graduate** students who are returning to MU after an absence of at least two semesters must complete a graduate studies re-activation form (PDF) (<http://gradstudies.missouri.edu/forms-downloads>) and return it directly to the academic program for approval. Post-baccalaureate (non-degree seeking) graduate students should return the completed form to the Graduate Admissions Office, 210 Jesse Hall, Columbia, MO 65211-1160 or fax it to 573-884-5454.

View Missouri Revised Statutes Chapter 41 (41.948) (<http://www.moga.mo.gov/mostatutes/stathtml/04100009481.html>). This policy is implemented to assure that students called to active duty prior to the end of a term receive fair and just treatment, both financially and academically.

Contact the Office of the University Registrar-Registration for more information at 573-882-7881.

## Name Changes

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### Policy Related to Changing Preferred Names for Students at the University of Missouri

The student may use preferred first and middle names at Mizzou. Preferred first and middle names are used on class rosters, ID cards, transcripts and diplomas and other locations where the legal name is not required. The policy outlining the use of the name may be found at: The University of Missouri Office of the University Registrar Preferred Name Policy ([https://www.umsystem.edu/ums/rules/collected\\_rules/information/ch180/180.040\\_student\\_preferred\\_name\\_policy](https://www.umsystem.edu/ums/rules/collected_rules/information/ch180/180.040_student_preferred_name_policy))

The path to update a preferred name in myZou is:  
Student Center>Personal Information>Names>Add a New Name.

NOTE: The Human Resource computing system overrides ID card names. If students who are employed by MU wish to have a preferred name on ID cards, they need to contact their department MU HR officer. Students who have questions may contact the University Registrar.

### Policy Related to Changing Names for Students at the University of Missouri

The student must submit one of the legal documents listed below under "Proof of legal change to new name."

The document submitted must have date of birth, a photograph and a signature. If you have multiple documents that prove your legal name change, please bring copies of the documents along with the name change form (<http://registrar.missouri.edu/forms/name-change.pdf>) to the Office of the University Registrar (<http://registrar.missouri.edu/contact>). (<http://registrar.missouri.edu/contact>)

Proof of legal change to new name:

1. current, government-issued ID card such as a driver's license, military ID, passport
2. current, valid Social Security card with new name
3. federally recognized Indian tribe's enrollment card or a US Bureau of Indian Affairs identification card containing the new name, the signature and photograph of the individual
4. certified copy of a court order or a marriage certificate or a dissolution decree reflecting the new name in full

NOTE: Students may abbreviate their middle name(s) without documentation. Documentation is required if a student is adding or deleting a middle name or changing an initial to a name.

## Non-Degree Graduate Study (G)

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The Non-Degree Graduate Student Program allows post-baccalaureate students to complete graduate courses without being formally accepted into a degree-granting program. Many students use this enrollment option to explore a discipline, take courses for career advancement, prepare for application to a graduate degree program, or as personal enrichment.

Once enrolled, the non-degree graduate student may take undergraduate- or graduate-level courses but hours earned are not credit toward a graduate degree. However, if the student is later admitted to a degree-granting program, up to 12 hours of earned graduate credit may

be applied toward a graduate degree program, at the discretion of faculty in the admitting academic program.

Students admitted under the non-degree seeking status have access to MU libraries, museums, laboratories, and recreational and athletic facilities.

Note: To manage course enrollment, some academic programs may limit available courses to non-degree graduate students. Contact the academic program in which you wish to take courses for more information.

### Eligibility

Applicants who hold a baccalaureate degree or its equivalent from a U.S. university or a university in which instruction is in the English language may be admitted to MU as non-degree graduate students.

### International Student Eligibility

International students residing in the United States who do not satisfy the above requirement and are seeking admission as post-baccalaureate graduate students must provide evidence of proficiency in English. Either a minimum score on the TOEFL or IELTS or a minimum of 24 semester credit hours in which the student maintains a 2.0 GPA (A=4.0) in a degree program in which English was the primary language is required. The minimum required TOEFL score for entrance to the Graduate School is 500 paper-based, 61 internet-based. The Graduate School also accepts a 5.5 Academic IELTS score for admission to the Graduate school. Please consult your academic program of interest to determine if it requires higher TOEFL or IELTS scores for admission.

The University of Missouri will not issue I-20s to international students so that they may enter the United States to become non-degree graduate students.

### Tuition and Fees

Non-degree graduate students must pay graduate educational and student activities fees regardless of whether they take graduate or undergraduate courses.

### Financial Aid

Non-degree graduate students are not eligible to receive federal financial aid or veteran's benefits or to hold campus-sponsored assistantships.

### How to Apply for On-Campus Non-Degree Study

- Complete and submit the Graduate School Application ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=umc-grad)). The Graduate School encourages applicants to use the online application. The submission of a hard-copy application (PDF) (<http://gradschool.missouri.edu/forms-downloads/repository/gradapp.pdf>) will slow the application review process.
- Submit the application fee, (<http://gradschool.missouri.edu/admissions/eligibility-process/non-degree-applicants/application-fee.php>) which is \$55 (US) for domestic applicants and \$75 (US) for nonresident international applicants. You can pay the fee online through the Graduate School's online application.
- Official transcripts or mark sheets must be sent directly from each university or college you have attended to the Graduate Admission Office, 210 Jesse Hall, Columbia, MO 65211. Transcripts/mark sheets for all baccalaureate degrees or their equivalents and any

additional degrees must be sent. At this time, the Graduate School only accepts hard copies of transcripts. All transcripts/mark sheets become the property of MU.

- Standardized test scores, such as the GRE, are not required for non-degree graduate applicants. See below for the transfer and use policies for non-degree courses taken at MU.

## How to Apply for Online Non-Degree Study

If you are planning to take course work online or at a distance, please contact Mizzou Online (<http://online.missouri.edu>) about course offerings and registration. The application process is different for online-only students.

## Maintaining Good Standing

Non-degree graduate students must maintain a 3.0 GPA. If the cumulative GPA is less than 3.0, the student will be given one automatic probationary semester. If, after one semester of probation, the student's cumulative GPA does not reach 3.0, the student may be granted a second probationary semester following a successful written petition made directly to the associate vice chancellor for graduate studies. (Summer sessions are not counted as probationary semesters.) If the student fails to achieve a cumulative GPA of 3.0 following the second probationary semester, the student will be made ineligible to enroll as a non-degree or degree-seeking graduate student. If at any time a student's term or cumulative GPA falls below 2.0, the student will be ineligible to enroll as a non-degree or degree-seeking graduate student.

## Switching Student Status from “Non-Degree” to “Degree-Seeking”

Non-degree graduate students who want to earn a graduate degree (master's, doctoral or educational specialist) must:

- Submit official scores, if required by the degree program of interest (<http://gradschool.missouri.edu/academics/programs>), from an appropriate graduate admission examination (GRE, GMAT, MAT). The scores must be sent directly from the examination service to Graduate Admissions, 210 Jesse Hall, Columbia, MO 65211.
- Meet Graduate School minimum admission requirements (<http://gradschool.missouri.edu/admissions/eligibility-process>).
- Apply directly to the degree program of interest using a Change of Degree form (PDF) (<http://gradschool.missouri.edu/forms-downloads/repository/change-degree.pdf>).

## Posthumous Degree Awarding (G)

### Honoring Deceased Graduate Students

The following policies and procedures apply in instances in which a graduate student dies before being awarded a degree.

### Student Completed All Degree Requirements

If the student has completed all degree requirements, the college or school's representative (dean, assistant/associate dean or director) will contact the Office of the Provost and the Associate Vice Chancellor for Graduate Studies to nominate the individual to receive a posthumous degree.

The diploma for the degree that the student was pursuing will be prepared in the same manner as if the student had lived. This diploma may be presented to the family of the deceased in a special ceremony, at Commencement or in whatever manner is deemed appropriate.\*

## Student Did Not Yet Complete Degree Requirements

If the student had not completed degree requirements but was making satisfactory progress at the time of death, a dean's certificate honoring the student can be provided by the appropriate academic unit(s). These certificates may be designed and presented in a manner that is fitting to the circumstances.\*

- \* In some instances, presentation of the degree or certificate to family members may be made at a remembrance ceremony.

## Refund of Fees Policy

### Exceptions to published tuition and required fees assessment policy and charges

1. The Office of the University Registrar and the vice provost for enrollment management are charged with considering and approving exceptions to published tuition and required fees assessment policy.
2. Any change in assessment can be adjusted or pro-rated only to a rate already established in the published university tuition and required fees schedule.
3. Only tuition required related to a student's assessment for registration in credit hours are covered by these guidelines. Other required fees such as those for residence halls, the bookstore, etc. need to be directed to departments responsible for assessment of those required fees.
4. Grade assignments and other academic issues are not within the scope of these procedures and should be addressed to the dean of the college or school in which the student is enrolled for further direction.

### Initial appeal by a student

1. An appeal and all pertinent written documentation must be submitted in writing within 90 calendar days of notification of assessment, adjustment or refund. In cases of incapacitation, exceptions may be made on a case-by-case basis.

Minimally, each written appeal must be dated and include the student name, address and phone number, student number, signature of the student, statement describing specifically what is being requested and for what term, statement of any extenuating circumstances, and why the request should be honored.

2. All appeals must be submitted to the Office of the University Registrar, 125 Jesse Hall. Appeals must meet one or more of the following criteria to be considered and approved:
  - a. Written documentation of an illness, accident, injury or situation that could not be influenced, planned for, or prevented by the student or the institution and which subsequently caused a change in the student's enrollment, thus changing the assessment. This provision specifically excludes conditions or

chronic illnesses that remain static and are known to the student at the time of enrollment.

- b. Written documentation of substantiated circumstances involving deadlines where a student has in good faith relied on information provided by a named University official, or the official's interpretation of the text of a University document or publication, and was consequently misled or mistaken about its terms.
  - c. In individual cases and when it is in the best interest of the student and the institution, the University registrar or his/her designated assistant registrar may grant an exception that is not deemed to be served appropriately by the exception criteria stated elsewhere in this document.
3. Decisions will address only whether an adjustment of charges will be made. Grade assignments and other academic issues are not within the scope of these procedures and should be addressed to the dean of the college or school. Record changes, such as requests to withdraw, drop, add or enroll for courses in a term that has ended must be submitted on a separate form to the Revision of Records Committee, c/o the Office of the University Registrar, 130 Jesse Hall.
  4. Generally, grounds for consideration of an appeal will be restricted to those circumstances personally experienced by the enrolled student with whom the University has a direct relationship.
  5. Decisions will be rendered by the designated official of the Office of the University Registrar and will be based solely upon any and all pertinent written documentation.
  6. Notification of the status of the tuition appeal will be made in writing within 10 calendar days of receipt of the written appeal.

## Appeal of the decision rendered by the Office of the University Registrar

1. Upon written request a student may appeal the decision rendered by the Office of the University Registrar.
2. A written appeal must be submitted to the Office of the University Registrar.
3. The written appeal must request a review of the original decision and may contain additional written documentation to support the appeal.
4. The appeal will be reviewed by the same designated official. If the appeal information is sufficient to overturn the original decision, the designated Office of the University Registrar official can direct staff to issue a tuition refund or adjustment in accordance with appropriate fiscal procedures.

If denied within 10 calendar days of receipt, the information must be forwarded to the University Registrar. If the appeal is denied a second time by the University Registrar, it may be forwarded to the vice provost for enrollment management for further consideration, upon the student's request.

The decision rendered by the vice provost for enrollment management is the final University determination on the matter.

## Refund of tuition and fees in the event of a student death

1. When a student dies prior to completing the current academic semester, a full refund of or credit for tuition and required fees will be made after the deduction of the following:
  - a. Any required adjustments to scholarships, grants or loans determined by federal formula applied by the Office of Student Financial Aid.
  - b. Any other debts owed to the University that occurred prior to the death of the student.
2. Any refund will be made payable to the student.
3. If, after all adjustments are made, there still remains a debt to the University, generally the University would not attempt to recover the debt from the estate of the deceased student.

## Students called to active military duty

Enrolled students called into active service in the armed forces of the United States prior to the completion of the semester, whether voluntarily or involuntarily, but not including active service training, and unable to complete their course work, shall be eligible for two options. The options are implemented to assure that students called to active duty prior to the end of a term receive fair and just treatment, both financially and academically. Contact the Office of the University Registrar at 573-882-7881 for more detailed information.

## Students called to jury duty

Full refunds (100 percent) of required tuition and any applicable required fees for all credit hours from which a student withdraws, when following University procedures announced by the provost.

## Residency (L)

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The School of Law residency rules satisfy the requirements of the American Bar Association and the Association of American Law Schools. The purpose of the residency requirements is to assure that the study of law will be spread evenly over a minimum period of six semesters or the equivalent.

The rules regarding the size of a student's course load -- the number of hours a student enrolls in for a given semester -- and residency rules are not the same.

The residency requirement means that students may not graduate in less than six semesters or the equivalent. Most students attend law school for six semesters. However, some students plan to graduate after only five semesters by attending summer school. Students who plan to attend summer school for two years and graduate a semester early should visit with the Associate Dean for Academic Affairs concerning their summer course load requirements.

For residency purposes, a minimum load of twelve hours is required for a semester. Thus, each student generally needs at least 12 hours each semester to meet residency requirements. For purposes of accelerated graduation, the law school's residency rules require students to take a minimum of five hours in one summer session and combine it with

another summer session of no less than seven hours. Two summer sessions of six hours each serve the same purpose. This approach gives students five semesters of at least 12 hours and two combined summers of 12 hours, which satisfies our residency requirements. If fewer hours are taken in a summer session, they may not be used toward residency for the purpose of accelerated graduation.

However, a student may combine any summer hours with an appropriate number of hours in a regular semester in order to fulfill a 12-hour semester residency requirement if they should fall below 12 hours during a semester for some reason. Students completing more than 12 hours in a semester may not use surplus hours over 12 toward residency in any other session; hence the three surplus hours from a 15-hour semester cannot be added to a subsequent nine-hour semester to give residency for two semesters. On the other hand, a nine-hour semester can be combined with a three-hour summer session to give residence for one semester.

In cases of extreme hardship the Faculty may make a slight variance in the residency requirements, but cannot go below the standards set by the American Bar Association and the Association of American Law Schools.

## Revision of Records

The Committee for Revision of Records reviews petitions from students asking for changes to their academic records. Students should discuss the petition process with their advisor before appealing to the committee to verify that changes are warranted and will benefit the student.

**For instructions for completing petition to the committee see Revision of Records** (<http://registrar.missouri.edu/policies-procedures/revision-records.php>).

The committee is composed of faculty appointed by the chancellor. Members are anonymous and students are not allowed to communicate directly with them. Forward questions to [revisionofrecords@missouri.edu](mailto:revisionofrecords@missouri.edu).

## Student Conduct (L)

The academic life of students at the School of Law is governed by a Code of Honor that has been adopted by the Faculty and the Student Bar Association.

Students should note that they generally will be required to report any Honor Code violation on state bar application forms.

The Honor Code is available at <http://law.missouri.edu/current/policies-rules-student-conduct/>.

Incidents involving bias or harassment can be reported through the Office of Civil Rights and Title IX. Information is available at <http://missouri.edu/civil-rights-title-ix/>.

## Student Employment (L)

No student shall work more than 20 hours per week in a semester where she or he is enrolled as a full-time first-year law student (hereinafter the "1L 20-hour rule").

The 1L 20-hour rule does not apply to the period between semesters, or the summer (unless the student is enrolled in summer school full-time) or to any break during the semester (e.g., spring or Thanksgiving breaks).

## Student Level (U)

Students are assigned to a particular class level based upon the number of credits they have completed in accordance with the following limitations:

Class	Credits
Freshman	0 to 29 credits
Sophomore	30 to 59 credits
Junior	60 to 89 credits
Senior	90 or more credits

For registration purposes, student level will be determined by earned credits plus those credits in progress at MU. Undergraduate students pursuing degree programs at other institutions who enroll at MU as visiting students will generally be considered as freshmen, non-degree students. They are not assigned to a school or college. This applies to students who enroll under agreements with the Mid-Missouri Associated Colleges and Universities as well as those from other colleges and universities.

## Theses and Dissertations: Submission Deadline, Review and Public Disclosure (G)

### Formatting the Thesis

A thesis, when required for a master's program, must be written on a subject approved by the candidate's advisory committee. The thesis must be the student's own work and must demonstrate a capacity for research and independent thought. Refer to the Master's Degree section for details.

Thesis formatting guidelines may be found at <http://gradstudies.missouri.edu/policies/thesis-dissertation/guidelines/>. Students must follow the style manual recommended by their academic program. All work must be properly cited and permission to use copyrighted materials must be obtained prior to submission.

### Formatting the Dissertation

A dissertation is required for the PhD and EdD degrees and must be written on a subject approved by the candidate's advisory committee. The dissertation must include the results of original and significant investigation, and it must be the candidate's own work. Refer to the Doctoral Degree section for details.

Dissertation formatting guidelines may be found at <http://gradstudies.missouri.edu/policies/thesis-dissertation/guidelines/>. Students must follow the style manual recommended by their academic program. All work must be properly cited and permission to use copyrighted materials must be obtained prior to submission.

### About Third-Party Copyright

If your work contains material that has been copyrighted by another party, you may need to seek permission to use the material in your thesis or dissertation. Examples of materials for which you would need to seek copyright permission include but are not limited to: third-party software, images, graphics, large portions of text and maps. If copyright permission is needed, you must submit written approval for the use of the copyrighted material along with your thesis or dissertation.

## Substituting for Copyrighted Materials in Theses and Dissertations

The Office of Graduate Studies encourages students to seek permission to use copyrighted material in their theses and dissertations. Your work is published after it is submitted in approved form to the Office of Graduate Studies, and it will be available to audiences who wish to know more about the subject you investigate. The more full and complete the thesis or dissertation, the better the experience for your reader and therefore the better the response to the fruits of your hard work. However, if you are unable or unwilling to obtain copyright permission for some of the materials in your research, you may substitute for the copyrighted material as described below.

*Acceptable substitutions include:*

- Redrawing or tracing of maps, images, graphics, etc
- References to URLs, printed documents, or physical locations where the copyrighted material can be found

A student whose thesis or dissertation has had copyrighted material removed prior to submission must have his or her advisor sign a document reading:

[Student's name] has removed copyrighted material from the copy of the thesis or dissertation submitted to the Office of Graduate Studies for electronic publication. I certify that:

- I approve the thesis or dissertation in this form;
- The student has presented accurate information as to where the removed, copyrighted material can be found

Advisor's name (signature line) Date (date line)

## Submission Deadline for a Thesis or Dissertation Following Committee Approval

Each semester the Graduate School establishes semester deadlines for the Report of the Examining Committee (master's & EdS students), Report Dissertation Defense (doctoral students), and submission of theses, dissertations and supplemental materials. Those deadlines may be found on the Office of Graduate Studies' page.

<http://gradstudies.missouri.edu/about/news-events/events/index.php>

After successful defense of the thesis or dissertation, students must comply with their academic program's and/or the International Center's enrollment requirements.

Generally, based upon input from the thesis/dissertation committee, a student will make corrections to a thesis/dissertation. The student will prepare the final document and supplemental materials in the required format (<http://gradschool.missouri.edu/policies/thesis-dissertation>) and submit everything to the Graduate School by the semester deadline. In the event the student misses the current semester deadline, the student is required to submit the final dissertation or thesis by the end of the following semester after a successful defense. If an extension is needed, the student's advisor and program's DGS must submit a request for an extension letter to the associate vice chancellor for graduate studies.

## Submission Requirements and Forms

A thesis or dissertation must be presented before the deadline to the Office of Graduate Studies on a high-quality CD. The thesis

or dissertation must be contained in a Portable Document Format (PDF) file (<http://gradschool.missouri.edu/policies/thesis-dissertation/guidelines/technology-ch7.php>), with the appropriate margins and formatting. Additional electronic files must be included (<http://gradschool.missouri.edu/policies/thesis-dissertation/guidelines/supplements-cd-ch4.php>) on the CD as PDF documents with the appropriate file name. If all files will not fit on one CD, a DVD or multiple CDs may be used, as long as no single file is split between CDs.

## Additional Documents that Accompany the Electronic Submission

Several other documents must be submitted electronically or on CD, including the original signed Approval of the Committee page, paper copies of the Short Academic Abstract and Title Page, fees forms, release forms, and copyright agreement forms. Some forms are required on paper. See <http://gradstudies.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline/supplemental-paper-materials/index.php> for more information.

## Review of Theses and Dissertations by the Graduate School

Before a manuscript can be accepted for publication in scholarly journals, it is examined by editorial board members, for conformance to specific format style guidelines in addition to validity of content. In much the same manner, MU Graduate Studies' staff, acting as an editorial board, reviews every submitted thesis and dissertation for conformance to University guidelines. Failure to meet the appropriate standards will result in the rejection of your work.

## Copies of Theses and Dissertations

The MU library catalogs all thesis and dissertations in the Merlin system. To locate a thesis or dissertation go to the MOSpace repository.

## Specific Questions about MU Theses or Dissertations?

Specific questions should be directed to the academic advising staff of the Office of Graduate Studies, 210 Jesse Hall, (573) 882-9575 or (573) 882-3885 or 1-800-877-6312.

## Thesis and Dissertation Research Must be Open to Public Disclosure

Students are prohibited from using research (data, results, methods or other content) in their theses or dissertations that could restrict subsequent publication or public disclosure of these documents.

Examples of restricted information include classified or proprietary materials. It is important to note that these restrictions do not apply to non-thesis or non-dissertation research that is approved by the student's advisor and allowed by University of Missouri policies. Questions regarding the applicability of this policy to thesis or dissertation content should be referred to the Office of Graduate Studies.

## Transfer Credit and Degree Applicability

- Transfer from a Regionally Accredited Missouri College (p. 784)
- Transfer from a Community College (p. 784)
- Transfer Within the UM Systems (p. 785)



- Military Transfer Credits (p. 785)
- Transfer Students and University General Education Requirements (p. 785)

## Credits and Transfers

After students are admitted to the University of Missouri (MU), an admissions evaluator will evaluate whether any college credit earned elsewhere is transferable to MU. Coursework being transferred from schools outside of Missouri may need faculty review, which can delay the evaluation process.

- Advanced Placement (<http://admissions.missouri.edu/apply/ap-ib-and-college-credits/advanced-placement-program.php>) credit is only awarded based on official score reports sent to MU directly from the College Board, and not based on scores reported on transcripts.
- Dual credit (<http://admissions.missouri.edu/apply/ap-ib-and-college-credits/dual-credit.php>) must be evaluated by Admissions prior to being awarded.
- All courses transferring from community colleges will transfer as lower-division credit.
- For details on course equivalences for most school in Missouri and for select out-of-state institutions, check MU's transfer course equivalencies which can be accessed from the myZou log-in page (<http://myzou.missouri.edu>) and then clicking on Transfer Course Equivalency. Students interested in seeing how transfer courses might apply toward MU degree requirements can go online to transfer.org (<https://www.transfer.org/uselect/login.htm>) to enter course data, review equivalencies, and produce an unofficial degree audit.
- The Mizzou Connection Program (<http://admissions.missouri.edu/apply/transfer/mizzou-connection>) is available for students wishing to transfer from Moberly Area Community College of MU.
- Advanced standing credit in a foreign language awarded by previous institutions will not transfer to MU. It can be requested after you have successfully completed a course at MU at or above that level.
- Military veterans may be awarded some credit if they meet certain criteria (<http://admissions.missouri.edu/documents/military-credit.pdf>).

Generally, coursework completed at a regionally accredited institution and oriented toward a baccalaureate degree will be accepted if each grade is C or better. Generally, the following types of credit are exceptions that are excluded from transferable courses: Technical, vocation or remedial courses; Courses not intended for a baccalaureate degree and/or terminal vocational degree or certificate program; Courses from non-regionally accredited institutions, though there is an appeal process.

Questions should be directed to the MU Office of Admissions (<http://admissions.missouri.edu>).

## Transfer from a Regionally Accredited Missouri College

Students may transfer more than 64 credit hours of lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major, in accordance with the Missouri Coordinating Board's policy.

## Transfer from a Community College

Community college courses can only have transferable equivalents at the 1000 or 2000 level. At no time can a community college course be the equivalent of a University of Missouri-Columbia course of 3000 or greater.

If a 2000 level course title from a community college is similar to a 3000 level title on this campus, that course can be an elective in that department at the 2000 level. Individual schools and colleges can waive the requirement for a student to take a course with similar or same title on this campus, however there will be no direct transfer equivalency.

If a college or department wants to accept a course from a community college as an equivalency to a course numbered 3000 or greater, they need to give that course a new number of less than 3000.

Courses from a community college can account for six of the last 36 credits, but only for students who have general education or other 1000-2000 level courses remaining for their degree. (The University is not prohibited from accepting community college credit for juniors and seniors if it is at the 1000-2000 level.)

Students may transfer more than 64 credit hours for lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major, in accordance with the Missouri Coordinating Board's Handbook.

For additional information, contact the college or school from which the degree is sought or see Credits and Transfers (<http://admissions.missouri.edu/apply/transfer/credits-and-transfers.php>) information from the MU Office of Admissions (<http://admissions.missouri.edu>).

## Articulation Agreements

Contact departmental advisors for information on articulation programs and agreements.

## Associate of Arts Degree

An Associate of Arts degree (AA) is a two-year program that indicates the completion of a student's lower-division education. It also is a specific transfer degree for entry, at the junior level, into the general range of baccalaureate degree programs offered by the University.

Students transferring to MU from a regionally-accredited Missouri college or university with an AA degree and a certified 2.0 GPA will be accepted with junior standing. They will also have completed lower-division, general education requirements if the AA degree consisted of at least 60 credits of college-level work. These 60 credits must include completion of an institutionally-approved, general-education program of not fewer than 39 credits.

Students holding the AA degree are admissible to MU, but are not necessarily admissible to specific programs. Some of the specific programs with specialized lower-division requirements are the colleges of Business, Education, Human Environmental Sciences and the schools of Health Professions, Journalism, Nursing and Social Work. The transfer requirements for all academic units may be found in this catalog on the degree specific pages. Students applying with an AA degree from another state will have their courses reviewed for equivalency on an individual basis.

## Associate of Science Degree

An Associate of Science degree (AS) is a specialized degree intended for transfer into a specific, preprofessional program. Junior standing is guaranteed to the transfer student only if curricular details have been agreed on by MU and the institution granting the AS. Students who receive a specialized AS degree do not automatically qualify for junior standing in all MU programs. To enroll in some degree programs, students may have to take additional, general-education courses.

## Students without Associate Degrees

Students transferring without associate degrees must meet regular MU transfer admission standards.

## Transfer within the UM System

Students may transfer among campuses within the University of Missouri System. University of Missouri Policy states that "Any course that leads to an undergraduate degree on any campus of the University of Missouri shall be accepted in transfer toward the same degree on each campus of the University offering said degree." Students transferring within the UM system are still required to satisfy the course and residency requirements of the campus from which they wish to graduate. Grades, including D and F grades, and grade points earned will also transfer and be included in the cumulative UM grade-point-average.

For more information contact the following offices:

University of Missouri - Columbia, Office of Admissions, 800-225-6075, [mu4u@missouri.edu](mailto:mu4u@missouri.edu)

University of Missouri - Kansas City, Registration & Records Office, 816-235-1125, [registrar@umkc.edu](mailto:registrar@umkc.edu)

Missouri University of Science and Technology, Registrar's Office, 573-341-4181, [registrar@mst.edu](mailto:registrar@mst.edu)

University of Missouri - St. Louis, Office of the Registrar, 314-516-5545, [registration@umsl.edu](mailto:registration@umsl.edu)

## Military Transfer Credits

Military veterans, with at least two years of honorable service are allowed to transfer military course credit. The transcript coursework must have been accredited by the American Council of Education (ACE). Veterans are advised to contact University Admissions regarding specific transfer credit policies. An exception to current transfer credit policies is that military veterans be allowed a maximum of 9 hours credit as general electives. This policy began with military veterans enrolled for the Fall 2010 semester.

## Transfer Students and University General Education Requirements

All University, general-education requirements are considered completed for students who transfer to MU with an AA degree from a regionally-accredited Missouri institution. Transfer credits for other students are evaluated on a course-by-course basis. All students must complete University graduation requirements beyond the University general education requirements.

NOTE: Many departments, degrees and majors have more specific requirements for foundation course work in addition to the University, general-education requirement. However, the reverse is not true. Departments or academic units may not have fewer general education requirements than described by the University general education requirements. Careful planning will allow students to simultaneously meet

University, general-education requirements and prepare for many of the more specific foundation courses required by their field of study.

## Transfer Credit (L)

### Credit Earned at Other Law Schools

A student may earn credits at another law school to be applied toward the J.D. graduation requirements of the School of Law, on the following conditions:

1. No more than 31 semester credits may be so applied. Grades in courses taken at other law schools are reflected in the transcript. However, those grades do not calculate in the student's grade point average.
2. The law school at which the credits are earned must be, at the time of the student's work there, approved by the American Bar Association.
3. The Associate Dean for Academic Affairs must approve, in advance of the student's work, the particular law school and the course of study the student will pursue there.

### Credit Toward LL.M. Requirements for Non-Law Courses/Transfer Credit

With approval of the Director of the LL.M. Program, students may apply to the LL.M. graduation requirements up to six (6) graduate credits of university or college courses from outside the School of Law. This limit includes independent study courses supervised by faculty in units other than the School of Law. Credit toward the LL.M. degree for a non-law school course will be granted only under the following conditions:

- The course must be a graduate-level course and clearly marked as such on the transfer transcript complete with credit hours and a grade. If taken at the University of Missouri, it must be numbered 5000 or above.
- The transfer coursework is from a regionally-accredited institution in the U.S. or an overseas institution that is recognized by its country's Ministry of Education as a graduate degree-granting institution.
- The course must involve at least 14 class hours per credit (based on 50-minute class hours).
- The course must be related to the student's program of study. Students must submit a copy of the course syllabus if possible.
- The semester hours of the non-law-school course will be counted in the student's total number for the semester.
- The grade must be B or higher.
- The transfer coursework is not online, extension or correspondence credit.

Normally, the Director of the LL.M. Program must approve the course in advance of the student's work. In unusual situations, the Director of the LL.M. Program may approve application of credits earned within four (4) years prior to initial enrollment in the LL.M. Program if the credits were for work closely related to the student's work in the LL.M. Program and were taken for graduate credit. Credits will not be applied from the student's J.D. degree program or equivalent. A written request must be submitted to the Director of the LL.M. Program and include the following:

- (a) Institution, course name, number, and instructor; and
- (b) Description of how the course relates to the student's program of study.

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## MU Course Work Required

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MU requires that 30 of a student's last 36 credits must be MU course work. Mizzou Online-Self Paced courses authored by MU faculty are acceptable as are courses offered for credit through Mizzou Online. (NOTE: This policy has replaced the requirement for courses to be taken "in residence.")

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## Visiting Graduate Student Program (G)

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Effective Fall 2011, the UM Visiting Graduate Student Program replaces the UM Traveling Scholars Program. The UM Visiting Graduate Student Program offers eligible graduate students a streamlined process for applying and registering for graduate courses on other UM campuses.

To participate in the UM System Visiting Graduate Student Program, a graduate student must be a degree-seeking graduate student and in good-standing on the **home** campus and **host** campus.

To apply for this program, a "UM System Visiting Graduate Student Application (<http://gradschool.missouri.edu/forms-downloads/repository/um-system-visiting-graduate-student-application.pdf>)" should be completed and submitted to the **home** campus Graduate office for certification, at least two weeks before the beginning of the semester. The graduate student's **home** campus Graduate office will review the form; if approved, the **home** campus Graduate office will transmit the approved form to the **host** campus Graduate office. The **host** campus will notify the student when they are eligible to register for courses.

All course fees are paid to the **host** campus. Graduate students should contact their **home** campus Financial Aid office for more information on financial aid.

International (non-U.S. citizen) students should consult the International student office on their **home** campus to determine eligibility for this program.

Important Points:

- No application fee is required for this program.
- The **home** campus determines maximum enrollment requirements and the transferability of courses taken at other UM campuses. At MU, all courses taken in UM Visiting Graduate Student Program will be considered "transfer courses" and are subject to MU's graduate course transfer policies.
- Visiting UM Graduate Students are subject all **host** campus registration requirements and restrictions.
- To officially transfer courses from the host campus to the **home** campus, students must order an official transcript from the **host** campus and comply with the home campus's transfer policies and processes.

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## Withdrawing from a Course

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If a student wishes to drop a course after the last day to drop a course without a grade, the process is referred to as "withdrawing" from a course. To withdraw from a course, students must begin in their academic advising unit. Following the approval from the academic advising unit, the student takes the form for processing to the Office of the University Registrar, 125 Jesse Hall. The process must be completed by the end of the business day of the Monday of the last week of classes

or prior to completing the final in a self-paced course. See Academic Policies: Grades (p. 770) for more information on withdrawing from a course

**NOTE: Students may not withdraw from all courses or their last course via myZou after the tenth day prior to the start of the semester or term. This must be done in the academic advising unit.**

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## Withdraw from the University

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### From the Term

A student who wishes to withdraw from the Term (University) must process the appropriate Term Withdraw Form (<http://registrar.missouri.edu/policies-procedures/withdrawal-university.php>) (PDF). Dropping all classes is considered a withdrawal from the Term (University) and must be initiated in the students academic school or college and completed by the end of the business day of the Monday of the last week of classes or prior to completing the final in a self-paced course. Finals are not included as part of the term for this purpose.

Withdrawal forms will normally be dated according to the date the request was first received with the following exception: When health or other critical circumstances constitute the reason for withdrawal, the dean may designate an earlier date to which academic rules will apply.

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### Withdraw from the University (L)

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Formal withdrawal from MU is arranged through the Graduate School using a Notice of Withdrawal form that is signed by the Director of the LL.M. Program and the Dean of the Graduate School. If the student is making a C or better at withdrawal time, a grade of W is recorded. If the student is doing failing work at withdrawal time, a grade of F is recorded. Students are responsible for notifying their instructors of their intention to withdraw and for determining if their work qualifies for a W grade. Students who leave MU without filing a statement of formal withdrawal are given a grade of F in all courses. If the reason is so urgent that an official withdrawal cannot be obtained, the student should notify the LL.M. Program as soon as possible and officially request to be withdrawn.

# Course Numbering

Course	Number	Description
Basic skills courses	0000-0999	Courses that do not count toward degree requirements- primarily used for skill development. May NOT be corss listed or cross level
Freshmen-level courses	1000-1999	Entry-level courses that have only skill development courses for course prerequisites. (Test scores, etc. are acceptable prerequisites.) Considered lower-division. Community college courses will be considered equivalent to this level. May NOT be listed as cross level with 5000-8999.
Sophomore-level courses	2000-2999	Intended primarily for second-year or sophomore students who have the essential prerequisites or background. Considered lower-division. Community College courses will be considered equivalent to this level as well. May NOT be listed as cross level with 5000-8999.
Junior/Senior-level courses (Upper Division)	3000-3999	Upper-division courses that may NOT be listed as cross level with 5000-8999. Intended primarily for third and fourth-year (juniors and seniors) students who have the essential prerequisites or background. Often restricted to students admitted to junior-level entry degree programs.

Junior/Senior-level courses (Upper Division)	4000-4999	Upper-division courses that may be listed as cross level with 5000-7999. Intended primarily for juniors and seniors. Note special sub-ranges for capstone, research and departmental honors courses.
Undergraduate Research courses	4950-4959	Upper-division, undergraduate research courses
Capstone courses	4970-4990	
Capstone/Honor courses	4991	Courses that are both capstone and departmental honors courses
Capstone/Reading courses	4992	
Capstone/Internship courses	4993	
Capstone/Research courses	4994	
Extended Research & Departmental Honors course	4995	Multiple term duration courses based on research
Departmental Honors courses	4996-4999	Used only for departmental honors courses. Include Dept. Honors in title or course description. No "H" is listed after the catalog number.
Professional-level courses	5000-6999	Professional-level courses for Law, Vet. Med and Medicine. Generally, not for undergraduate credit. May be listed as cross-level with 4000- 4999 courses.
Beginning Graduate courses	7000-7999	Graduate-level courses for beginning and mid-level graduate students primarily. Generally not for undergraduate credit, but may be listed as cross-level with 4000-4999 courses.

Mid-level Graduate courses	8000-8999	Graduate-level courses intended primarily for mid-and upper-level graduate students. Not for undergraduate credit. May NOT be listed as cross-level with 4000-4999 courses.
Upper-level Graduate courses	9000-9999	Graduate-level courses intended primarily for upper-level graduate students. Not for undergraduate credit. May NOT be listed as cross-level with 4000-4999 courses.

"H" after a number indicates that it is an Honors course, approved by the Honors College for use toward Honors Certificate or University Honors. Not applicable to courses only designated for departmental honors.

"W" after a number indicates that it is a Writing Intensive course, approved by the Campus Writing Board for use toward fulfilling MU's writing requirement.

## Undergraduate Topics Courses

Final two digits represent the distribution category within the University requirements.

Distribution Category	Description
01	General
02	Biological/physical/mathematical sciences
03	Behavioral sciences
04	Social sciences
05	Humanities

## Guidelines for Cross-Listed and Cross-Level Courses \*

\* Approved by Faculty Council February 13, 2003

Per the faculty approved policies, only 4000 and 7000 level courses may be cross-level listed. Courses that are cross-listed should be from different departments, but cover the same content, with matching course descriptions.

### Cross-Listed Courses *must*:

- Be at the same level
- Cover the same content
- Not meet different general education requirements

### Cross-Listed Courses *may*:

- Not have the exact same number, but it is preferred that they do
- Have different additional fees. However, students may need to enroll in a specific course to meet a requirement and may or may not be allowed to substitute the cross-listed course to avoid the fee. There are limits on enrollment and space may not be available in the non-fee course or section.

- Exceptions: Fine art and music "skills" classes such as painting or drawing may have different levels meeting in the same room at the same time, such as 1000, 2000, etc. with the instructor requiring the appropriate additional quality and/or quantity of work for the respective level.

### Cross-Level Courses:

- Only 4000 and 7000-level courses may be cross-level listed.
- The 7000-level course must require work appropriate for graduate credit and be approved as such by the Graduate Faculty Senate.
- Exceptions: Fine art and music "skills" classes such as painting or drawing may have different levels meeting in the same room at the same time, such as 1000, 2000, etc. with the instructor requiring the appropriate additional quality and/or quantity of work for the respective level.

**Courses that are not cross-level may not meet in the same room at the same time or near each other at the same time so that they attempt to "get around" this rule.**

### Restrictions by Course Level

#### Not allowed:

- 0000-0999 – May **not** be cross listed or cross leveled outside of the 0000-0999 range
- 1000-3999 – May **not** be cross listed or cross leveled with 5000-9999
- 4000-4999 - May **not** be listed as cross level with 8000-9999
- Linked cross-leveling may not result in a 1000-3999 level being linked with a 4000-4999, that is subsequently linked with 5000-7999, and a 7000-7999 that is cross-level with 8000-9999

#### Permissible:

- 1000-3999 May be cross-listed and/or cross-leveled with 1000-4999
- 4000-4999- May be listed as cross level with 5000-7999
- 5000-6999 – May be listed as cross level with 4000-4999 or with 7000-7999
- 7000-7999 – May be listed as cross level with 4000-6999 or with 8000-8999, but not both

# Curriculum Designator Abbreviations

The abbreviations listed below are used in course descriptions. They may be called Curriculum Designators.

Designator	Subject Area	Academic Unit
ACCTCY	Accountancy	BUS
AERO	Aerospace Studies	A&S
AFNR	Agriculture, Food and Natural Resources	CAFNR
AG_EC	Agricultural Economics	CAFNR
AG_ED_LD	Agricultural Ed & Leadership	CAFNR
AG_S_M	Agricultural Systems Management	CAFNR
ANESTH	Anesthesiology	MED
AN_SCI	Animal Science	CAFNR
ANTHRO	Anthropology	A&S
ARABIC	Arabic	A&S
ARCHST	Architectural Studies	HES
ART_CERM	Art-Ceramics	A&S
ART_DRAW	Art-Drawing	A&S
ART_FIBR	Art-Fibers	A&S
ART_GNRL	Art-General	A&S
ART_GRDN	Art-Graphic Design	A&S
ART_PHOT	Art-Photography	A&S
ART_PNT	Art-Painting	A&S
ART_PRNT	Art-Printmaking	A&S
ART_SCUL	Art-Sculpture	A&S
AR_H_A	Art History and Archaeology	A&S
ASTRON	Astronomy	A&S
ATHTRN	Athletic Training	HP
ATM_SC	(Atmospheric Science) Soil, Environmental and Atmospheric Sciences	NAT R
BIOCHM	Biochemistry	CAFNR
BIOL_EN	Biological Engineering	CAFNR
BIO_SC	Biological Sciences	A&S
BIOMED	Biomedical Sciences	VET M
BL_STU	Black Studies	A&S
BUS_AD	Business Administration	BUS
CDS	Cardiopulmonary and Diagnostic Sciences	HP
CH_ENG	Chemical Engineering	ENGR
CHEM	Chemistry	A&S
CH_HTH	Child Health	MED
CHINSE	Chinese	A&S
CV_ENG	Civil Engineering	ENGR

CL_HUM	Classical Humanities	A&S
CLASS	Classics	A&S
CL_L_S	Clinical Laboratory Sciences	HP
COMMUN	Communication	A&S
C_S_D	Communication Sciences and Disorders Program	HP
CMP_SC	Computer Science	ENGR
DATA_SCI	Data Science	ENGR
DERM	Dermatology	MED
DST	Digital Story Telling	A&S
DMU	Diagnostic Medical Ultrasound	HP
ECONOM	Economics	A&S
EDUC_H	Education Honors	EDUC
ED_LPA	Educational Leadership and Policy Analysis	EDUC
ESC_PS	Educational, School and Counseling Psychology	EDUC
ECE	Electrical and Computer Engineering	ENGR
EMR_ME	Emergency Medicine	MED
ENGINR	Engineering	ENGR
ENGLSH	English	A&S
ELSP	English Language Support Program	ELSP
ENV_SC	Environmental Science	NAT R
ENV_ST	Environmental Studies	PRVST
F_C_MD	Family and Community Medicine	MED
FILM_S	Film Studies	A&S
FINANC	Finance	BUS
F_W	Fisheries and Wildlife	NAT R
F_S	Food Science	CAFNR
FOREST	Forestry	NAT R
FRENCH	French	A&S
GN_HES	General Human Environmental Sciences	HES
G_STDY	General Studies	A&S
GEOG	Geography	A&S
GEOL	Geological Sciences	A&S
GERMAN	German	A&S
GRAD	Graduate School	GRAD
GREEK	Greek	A&S
HMI	Health Management and Informatics	MED
HTH_PR	Health Professions	HP
HLTHPSYC	Health Psychology	HP
HLTH_SCI	Health Sciences	HP
HEBREW	Hebrew	A&S

HIST	History	A&S	MICROB	Molecular Microbiology and Immunology	MED
GN_HON	Honors General	PRVST	INFOINST	MU Informatics Institute	MED
HSP_MGMT	Hospitality Management	CAFNR	MUS_APMS	Music-Applied Music	A&S
H_D_FS	Human Development and Family Studies	HES	MUS_ENS	Music-Ensemble Courses	A&S
IMSE	Industrial and Manufacturing Systems Engineering	ENGR	MUS_GENL	Music-General	A&S
IS_LT	Information Science and Learning Technology	EDUC	MUS_H_LI	Music-Music History and Literature	A&S
INFOTC	Information Technology	ENGR	MUS_I_VR	Music-Instrumental and Vocal Repertory	A&S
IEPG	Intensive English Program - Grammar	ELSP	MUS_I_VT	Music-Instrumental and Vocal Techniques	A&S
IEPL	Intensive English Program - Listening and Speaking	ELSP	MUS_EDUC	Music-Music Education	A&S
IEPR	Intensive English Program - Reading	ELSP	MUS_THRY	Music-Music Theory	A&S
IEPS	Intensive English Program - Special Topics	ELSP	MUSIC_NM	Music-Courses for Non-Majors	A&S
IEPW	Intensive English Program - Writing	ELSP	NAIS	Native American and Indigenous Studies	A&S
INTDSC	Interdisciplinary Studies	A&S	NAT_R	Natural Resources	NAT R
IN_MED	Internal Medicine	MED	NAVY	Naval Science	ENGR
INTL_S	International Studies	A&S	NEP	Nutritional and Exercise Physiology	HES
ITAL	Italian	A&S	NEUROL	Neurology	MED
JAPNSE	Japanese	A&S	NEUROSCI	Integrative Neuroscience	A&S
JOURN	Journalism	JOURN	NU_ENG	Nuclear Engineering	GRAD
KOREAN	Korean	A&S	NUCMED	Nuclear Medicine	HP
LAB_AN	Laboratory Animal Medicine	VET M	NURSE	Nursing	NURS
LATIN	Latin	A&S	NUTRIT	Nutrition	CAFNR
LAW	Law	LAW	OB_GYN	Obstetrics – Gynecology	MED
LINGST	Linguistics	A&S	OC_THR	Occupational Therapy	HP
LTC	Learning, Teaching & Curriculum	EDUC	OPHTH	Ophthalmology	MED
LTC_V	Learning, Teaching & Curriculum - Vocational	EDUC	P_R_TR	Parks, Recreation and Tourism	NAT R
MANGMT	Management	BUS	PTH_AS	Pathology and Anatomical Sciences	MED
MRKTNG	Marketing	BUS	PEA_ST	Peace Studies	A&S
MATH	Mathematics	A&S	FINPLN	Personal Financial Planning	HES
MAE	Mechanical and Aerospace Engineering	ENGR	PHIL	Philosophy	A&S
MDVL_REN	Medieval Renaissance Studies	A&S	PM_REH	Physical Medicine and Rehabilitation	MED
MPP	Medical Pharmacology and Physiology	MED	PH_THR	Physical Therapy	HP
MED_ID	Medicine – Interdisciplinary	MED	PHYSCS	Physics	A&S
MIL_SC	Military Science	A&S	PLNT_S	Plant Science	CAFNR
			POL_SC	Political Science	A&S
			PORT	Portuguese	A&S
			PSCHTY	Psychiatry	MED
			PSYCH	Psychology	A&S
			PUB_AF	Public Affairs	GRAD
			P_HLTH	Public Health	GRAD

RA_SCI	Radiological Sciences	HP
RADIOL	Radiology	MED
REL_ST	Religious Studies	A&S
RS_THR	Respiratory Therapy	HP
RM_LAN	Romance Languages and Literatures	A&S
RU_SOC	Rural Sociology	CAFNR
RUSS	Russian	A&S
SCI_AG_J	Science and Agricultural Journalism	CAFNR
SOC_WK	Social Work	HES
SOCIOL	Sociology	A&S
SOIL	Soil Science	NAT R
S_A_ST	South Asia Studies	A&S
SPAN	Spanish	A&S
SPC_ED	Special Education	EDUC
SRV_LRN	Service Learning	PRVST
STAT	Statistics	A&S
SSC	Student Success Center	PRVST
SURGRY	Surgery	MED
T_A_M	Textile and Apparel Management	HES
THEATR	Theatre	A&S
V_BSCI	Veterinary Biomedical Science	VET M
VMED_I	Veterinary Medicine - Interdisciplinary	VET M
V_M_S	Veterinary Medicine and Surgery	VET M
V_PBIO	Veterinary Pathobiology	VET M
WGST	Women's and Gender Studies	A&S



# Course Offerings

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- Agricultural Education and Leadership (AG\_ED\_LD) ([http://catalog.missouri.edu/courseofferings/ag\\_ed\\_ld](http://catalog.missouri.edu/courseofferings/ag_ed_ld))
- Agricultural Systems Management (AG\_S\_M) (p. 1599)
- Agriculture, Food and Natural Resources (AFNR) (p. 1604)
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## D

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## G

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## L

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## O

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## P

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## R

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## T

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## V

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## W

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## Accountancy Courses

### ACCTCY 2010: Introduction to Accounting

Introduction to accounting for non-business majors. Emphasis on introducing students to business operations, as well as preparing and using management information and financial accounting information for business decisions (does not count as either ACCTCY 2036 or ACCTCY 2037).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

### ACCTCY 2026: Accounting I

An introduction to the field of accounting, this course covers the fundamentals of financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2026 and ACCTCY 2036.

**Credit Hours:** 3

**Prerequisites:** Sophomore Standing

### ACCTCY 2027: Accounting II

This course covers the fundamentals of managerial accounting and additional topics in financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2027 and ACCTCY 2037. Course only offered through Mizzou Online (self paced).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2026

### ACCTCY 2036: Accounting I

First half of two-part course focusing on the business environment and the use of managerial and financial accounting information for decision making in various business settings. Emphasizes the use of accounting

information about a retail company (sole proprietorship) by internal and external users, followed by an introduction to other forms of business and, then, planning for corporate operations.

**Credit Hours:** 3

**Prerequisites:** Completion of 28 credit hours. May be restricted to lower-level business and lower-level accountancy students during early registration

### ACCTCY 2037: Accounting II

Second half of two-part course focusing on the business environment and the use of managerial and financial accounting information for decision making in various business settings. This half emphasizes the use of accounting information about a manufacturing company (corporation) by internal and external users.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2036 or ACCTCY 2136H

### ACCTCY 2136H: Honors Accounting I

First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users.

**Credit Hours:** 3

**Prerequisites:** sophomore standing in Accounting or Business, 3.3 or higher GPA. Honors eligibility required

### ACCTCY 2137H: Honors Accounting II

Continuation of Accountancy 2136H.

**Credit Hours:** 3

**Prerequisites:** C or better ACCTCY 2136H. Honors eligibility required

### ACCTCY 2258: Computer-Based Data Systems

Introduces the computer as a tool in the efficient operation of a business. Skills developed in the course include electronic information retrieval, information analysis using a spreadsheet, what-if analysis macro development, and information presentation. In addition, computer components, data storage, networks, and information technology are discussed.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

### ACCTCY 3326: Financial Accounting Theory and Practice I

Institutional structure, conceptual framework, and reporting standards and practices of financial accounting, with special emphasis on accounting for assets.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

### ACCTCY 3328: Accounting Information Systems

Introduction to accounting information systems (AIS). General AIS concepts. Transaction processing systems and accounting cycles. Alternative platforms for computerized transaction processing. Database management and data modeling. Control concepts and design.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 3346: Financial Accounting Theory and Practice II**

Continuation of Accountancy 3326, with special emphasis on income recognition and accounting for liabilities and ownership equity.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 3347: Cost and Managerial Accounting**

Activity based and traditional job order and process cost systems for service, merchandising, and multinational manufacturing companies; Cost accounting techniques and procedures for financial reporting by multinational companies. Strategic focus to management accounting measurement and reporting. Standard costs and variances, capital budgeting.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

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**ACCTCY 4000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 7000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 4301: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 4353: Introduction to Taxation**

(cross-leveled with ACCTCY 7353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 4356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 7356). Current issues in the financial reporting of business corporations to external parties.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310. Not open to accountancy majors

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**ACCTCY 4365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 7365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 4384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 7384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 4940: Professional Accounting Internship**

(cross-leveled with ACCTCY 7940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Accountancy Majors only and 105 credit hours completed and ACCTCY 3326 and ACCTCY 3328 and ACCTCY 3346 and ACCTCY 3347 and ACCTCY 4353, and GPA of 3.0 or higher

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**ACCTCY 7000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 4000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 7310: Accounting for Managers**

Introduction to understanding how accounting information is used to help make informed decisions in various business settings. Includes an introduction to basic financial and management accounting concepts and procedures.

**Credit Hours:** 3

**Prerequisites:** MBA or MSPA candidate, or departmental consent

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**ACCTCY 7353: Introduction to Taxation**

(cross-leveled with ACCTCY 4353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 7356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 4356). Current issues in the financial reporting of business corporations to external parties. Not open to accountancy majors.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310

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**ACCTCY 7365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 4365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

---

**ACCTCY 7384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 4384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 7940: Professional Accounting Internship**

(cross-leveled with ACCTCY 4940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Completion of undergraduate portion of 150 hour program (or equivalent) and consent of Internship Coordinator

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**ACCTCY 8358: Systems Analysis and Design**

Modern information systems analysis and design, focusing on business process modeling.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Recommended:** CMP\_SC 1001 or CMP\_SC 1050

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**ACCTCY 8363: Multi-Jurisdictional Tax**

This course takes a practical approach to exploring multistate and international tax concepts by focusing on tax issues that can arise as a company expands from a single business location into a multinational corporation. Part 1 of this course focuses on the economic, political, and constitutional constraints imposed on state and local taxation, including the due process clause, the commerce clause and state uniformity and equality clauses. Part 2 of the course includes a survey of state and local tax laws, with a particular emphasis on the imposition of sales and use taxes and the allocation and apportionment of state income taxes. Part 3 of the course surveys principals of international taxation, including U.S. taxation of the foreign investments or activities of U.S. taxpayers (outbound) and U.S. taxation of the U.S. activity or investments of foreign taxpayers (inbound).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353. Restricted to Accountancy Majors

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**ACCTCY 8373: Taxation of Corporations and Shareholders**

Life cycle of a corporation including formations, operations, distributions, and liquidations of corporations.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8383: Taxation of Flow-Through Entities**

This course covers formations, operations, distributions, and liquidations of partnerships and S-Corporations. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8393: Taxation of Trust, Gifts and Estates**

This course covers two main topics. Students are introduced to the construction, operation and income taxation of trusts. After this portion of the course students will learn about the gift tax consequences of completed exchanges. Finally, students will learn the basic rules regarding the estate tax. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8401: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 8404: Internal Auditing**

This course covers the concepts, practices, and application of internal audit activities. The course will review the entire internal audit process including annual audit and engagement planning, fieldwork, reporting, and management communication. Other topics including internal controls, enterprise risk management, and key behavior skills will be discussed. The Professional Practices Framework and industry best practices will be incorporated throughout the semester. This course will prepare students for entry-level internal audit positions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8408: Advanced Accounting Information Systems**

Emerging concepts and technologies in accounting information systems, with an emphasis on E-Business. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328. Restricted to Accountancy Majors

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**ACCTCY 8414: Audit of Internal Controls**

A combination of control theory, concept application, demonstration of actual practice, and student research to develop an understanding of the concepts and practices used in the design, development or assurance of information systems (IS) controls. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, and ACCTCY 4384 or ACCTCY 7384.  
Restricted to Accountancy Majors

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**ACCTCY 8419: International Accounting**

Introduction to accounting regulations and practices outside of the U.S., accounting regulations for foreign registrants on the NYSE and NASDAQ, international accounting standards and international management control issues. Review of cultural frameworks; transfer pricing methods and international accounting standards.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 and ACCTCY 3347. Restricted to Accountancy Majors

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**ACCTCY 8423: Tax Research and Planning**

Applied tax research using print and electronic data bases; heuristic biases in tax judgments; responsibilities of professional tax practices.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373  
**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8424: Fraud Examination**

A study of the methods and techniques of fraud examination, particularly with regard to frauds perpetrated by the company against the public. The ethical and professional standards that underlie the accountant's responsibility for fraud detection and prevention are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8425: Accounting for Governments and Other NonProfit Entities**

Role of accounting information in planning, managing, and controlling nonbusiness organizations; reporting to external parties; concepts of governmental auditing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4365 or ACCTCY 7365 or instructor's consent.  
Restricted to Accountancy Majors

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**ACCTCY 8428: Data Warehousing and Data Mining**

Enterprise-wide view of data and transaction processing. Concepts and techniques of data warehousing and data mining of business-critical data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 or departmental consent. Restricted to Accountancy Majors

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**ACCTCY 8433: Mergers and Acquisitions Taxation**

This course covers the basic taxation of mergers and acquisitions, both taxable and tax-free acquisitions; issues in merger and acquisition deal making, such as due diligence and understanding contract tax provisions; and an overview of securities regulations with respect to publicly traded companies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373

**Prerequisites:** ACCTCY 4353

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**ACCTCY 8434: Applications of Auditing Concepts**

Application of auditing concepts and techniques in various phases of audit engagements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384. Restricted to Accountancy Majors

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**ACCTCY 8436: Advanced Accounting**

Continuation of ACCTCY 3346. Addresses a series of special financial accounting topics including income taxes, pensions, leases, business combinations, consolidated statements, and foreign currency translation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 8437: Strategic Cost Analysis**

Analysis to support organizational strategy including cost management, performance evaluation, and control of responsibility centers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3347, MATH 1320 and STAT 3500, or the equivalent. Restricted to Accountancy Majors

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**ACCTCY 8438: Forensic Accounting**

Coverage of forensic accounting processes and tools used in the detection and prevention of fraud against the company. Topics include skimming, cash larceny, check tampering, billing schemes and others. An emphasis of the course will be upon the use of computer aids. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, ACCTCY 4384 or ACCTCY 7384.  
Restricted to Accountancy Majors

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**ACCTCY 8444: Advanced Audit**

The Advanced Auditing course helps students develop a better understanding of the audit environment and gives them the opportunity to gain hands-on experience planning for an audit engagement, performing test work, and completing an audit engagement. The course also addresses additional topics not covered in detail in the Audit Theory and Practice I course, including inventory observation, legal liability issues faced by auditors today, the regulatory environment, professional responsibilities of auditors, preparing appropriate documentation for audit engagements, providing required communications to clients, and performing Single Audits. The course is designed to encourage open discussions of cases and current issues and provide learning opportunities for the students. The class meetings and assignments are designed to improve the student's critical thinking skills, communication skills, and team-building skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8446: Application of Financial Accounting Pronouncements**

Development, content and application of authoritative pronouncements in financial accounting. Problems and case studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8436. Restricted to Accountancy Majors

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**ACCTCY 8448: Emerging Issues in Accounting Information Systems**

Current developments in the implementation of accounting information systems. Topics may vary. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8408. Restricted to Accountancy Majors

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**ACCTCY 8450: Accounting and Strategic Business Analysis**

Capstone course in the Master of Accountancy program. Emphasis on case analysis to develop critical thinking and analytical skills in the use of accounting reports for broad-based business analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 or equivalent. Restricted to Accountancy Majors

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**ACCTCY 8453: Taxes and Business Strategies**

This class examines the role taxes in business decisions. The analysis involved considers 1) tax consequences of all parties to a transaction, 2) both explicit and implicit taxes, and 3) tax as well as non-tax costs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8456: Corporate Governance**

Corporate governance has taken on new prominence in light of the accounting scandals of the early 2000's (e.g., Enron) and the new regulatory regime of Sarbanes-Oxley. As a result, corporations, investors, auditors, and others are paying more attention to corporate governance. This course will familiarize students with corporate governance mechanisms and how they interact with financial reporting. This course should appeal to students pursuing careers in auditing, finance, management, as well as anyone seeking a deeper understanding of relations between financial reporting and corporate governance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8436. Restricted to Accountancy Majors

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**ACCTCY 8463: Partnership Taxation**

Formations, operations, distributions, and liquidations of partnerships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or 7353

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**ACCTCY 9090: Research in Accounting**

Each student is under direction and guidance of an accountancy professor in writing a dissertation. Periodic seminars discuss research projects. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** doctoral candidacy and instructor's consent

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**ACCTCY 9401: Doctoral Research Problems in Accounting**

Independent investigations, reports on approved topics. Restricted to Doctoral level students only

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and director's consent

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**ACCTCY 9444: Seminar in Auditing Research**

The economic role of auditing; the audit process; audit reports and the consequences of auditing on financial statements; new audit directions and perspectives.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9455: Seminar in Governmental and Nonprofit Accounting**

Critical review of the governmental and nonprofit accounting research literature, with emphasis on auditing issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent. ACCTCY 4384 or ACCTCY 7384 and ACCTCY 4365 or ACCTCY 7365

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**ACCTCY 9457: Quantitative Methods in Accounting**

Application of mathematics and statistics to managerial and financial accounting problems.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3347, MATH 1300 and MATH 1320 and STAT 3500, or instructor's consent

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**ACCTCY 9460: Research Methods in Accounting**

Application of research methods to the investigation of current accounting issues. A research paper is required.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9466: Seminar in Financial Accounting Research**

Theory of financial accounting and regulated disclosure; empirical tests of financial accounting theory, with emphasis on the nature of the research question addressed, and the method used to address the research question.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9467: Seminar in Behavioral Accounting Research**

Critical review of the Behavioral accounting research literature with emphasis on issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy and instructor's consent

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**ACCTCY 9468: Seminar in Information Systems Research**

Overview of research related to advanced systems and how accounting information is processed, with emphasis on current issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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## Aerospace Studies Courses

### **AERO 1100: The Foundations of the United States Air Force**

Introduces the Air Force and Air Force ROTC. Topics include professional appearance, military customs and courtesies, core values, equal opportunity and treatment, officer opportunities, group leadership problems. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 1200: The Foundations of the United States Air Force**

Continues the introduction to the Air Force and Air Force ROTC. Topics include Air Force origins, organizations, major commands, installations, sister services (Army and Navy), group leadership problems. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 2100: The Evolution of USAF Air and Space Power**

A survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC officer candidate. Explores Air Force heritage, Air Force leaders and Air Power doctrine. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 2200: The Evolution of USAF Air and Space Power**

Continues the examination of air and space power from the Vietnam era through the present. Topics include the Vietnam War, the Persian Gulf War, and overseas contingency operations. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 3100: Air Force Leadership Studies**

An integrated leadership and management survey course emphasizing development of the individual as an Air Force leader. Special topics include situational leadership, principle centered leadership, corrective supervision and counseling. Leadership lab.

**Credit Hours:** 3

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### **AERO 3200: Air Force Leadership Studies**

Air Force leadership principles are examined from the foundation developed in AERO 3100. Ethical decision making, personal core values, and character development are discussed. Military evaluation systems are outlined. Leadership lab.

**Credit Hours:** 3

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### **AERO 4100: National Security Affairs/Preparation for Active Duty**

Examines the national security process, regional studies, Air Force and joint doctrine. Special topics include the military as a profession and civilian control of the military. Continued emphasis on communicative skills. Leadership lab.

**Credit Hours:** 3

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### **AERO 4200: National Security Affairs/Preparation for Active Duty**

Examines civilian control of the military, officership, the military justice system, and current issues affecting military professionalism. Continued refinement of communicative skills. Leadership laboratory.

**Credit Hours:** 3

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## Agricultural Economics Courses

### **AG\_EC 1010: Introduction to Agribusiness Management**

Agribusiness and agricultural economics touches many parts of business, agriculture, the environment and other areas. This course is designed to help students successfully make the adjustment to college/MU, provide an overview of the Department of Agricultural and Applied Economics degree programs and, enhance professional and career development.

**Credit Hours:** 3

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### **AG\_EC 1011: Survey of Global Agribusiness**

Economic, social and political forces and trends and the impact on U.S. and global agribusinesses. Global production, consumption trade, and investment patterns in agriculture-food sector. Developing management strategy in changing economic political environment.

**Credit Hour:** 1

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### **AG\_EC 1041: Applied Microeconomics**

Introduction to the microeconomic principles and their application to decision-making in agribusinesses. Consumer decision analysis, producer goals and optimization and the market environment where they meet and trade. Applications to current issues. Students who complete AG\_EC 1041 may not have credit for ECONOM 1014.

**Credit Hours:** 3

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### **AG\_EC 1042: Applied Macroeconomics**

Introduction to macroeconomic principles and their application to agriculture-food sector and natural resource issues. Using macroeconomic principles in decision making and in evaluating national and regional economic problems and issues. Students who complete AG\_EC 1042 may not have credit for ECONOM 1015.

**Credit Hours:** 3

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### **AG\_EC 1200: Applied Computer Applications**

This course is an applied problem based learning opportunity for students to gain Excel spreadsheet related skills critical to careers in agriculture, food and natural resources. Students will learn intermediate and advanced spreadsheet skills essential for problem solving and decision making in these biologically influenced fields.

**Credit Hours:** 3

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### **AG\_EC 2050: For the Love of Food: Global Food System Debate**

This course is designed to develop students' understanding of the food system from farm to plate and the consumer's role in the global food system. Gaining a knowledge base on food system dynamics will allow students to better understand the societal and policy making processes behind food production. Each week we will discuss key topics and issues facing the food system today. This class will help students develop critical thinking skills to address challenges in the global food system.



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**Credit Hours:** 3

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**AG\_EC 2070: Environmental Economics and Policy**

(same as ENV\_ST 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** ENGLISH 1000

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**AG\_EC 2070W: Environmental Economics and Policy - Writing Intensive**

(same as ENV\_ST 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** ENGLISH 1000

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**AG\_EC 2123: Quantitative Applications in Agricultural Economics**

Familiarize students with the use of calculus and other quantitative tools in developing and analyzing fundamental economic concepts.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and MATH 1400

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**AG\_EC 2156: Introduction to Environmental Law**

Environmental issues from a legal perspective, using current controversies from both the USA and other countries. Major environmental laws dealing with water, air, noise, endangered species, waste disposal, and land use.

**Credit Hours:** 3

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**AG\_EC 2183: The Agricultural Marketing System**

Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

**Recommended:** AG\_EC 1042 or ECONOM 1015

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**AG\_EC 2183W: The Agricultural Marketing System - Writing Intensive**

Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

**Recommended:** AG\_EC 1042 or ECONOM 1015

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**AG\_EC 2223: Agricultural Sales**

Principles of salesmanship in agricultural input and output markets; buyer motivations; time and territory management; communication models and techniques; planning and executing sales calls; after-sale service.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or AG\_EC 1042 or ECONOM 1014 or ECONOM 1015 and sophomore standing

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**AG\_EC 2225: Statistical Analysis**

Elementary statistical inference. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_EC 2940: Practicum in Agricultural Economics**

Off-campus integrated working and learning experience for departmental majors and minors. Application of economic concepts in business or government. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**AG\_EC 3150: International Agribusiness**

This course covers the primary factors that shape the business environment for food and agricultural firms conducting business across borders. The course examines how culture, institutions and public policy affect business operations and business strategies.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183

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**AG\_EC 3224: New Products Marketing**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3224W: New Products Marketing - Writing Intensive**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3230: Agricultural and Rural Economic Policy**

Study and analysis of past and present government policies affecting agriculture and rural economy.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 1042 or ECONOM 1015

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**AG\_EC 3241: Ethical Issues in Agriculture**

The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the

environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and junior standing

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**AG\_EC 3241W: Ethical Issues in Agriculture - Writing Intensive**

The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and junior standing

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**AG\_EC 3256: Agribusiness and Biotechnology Law**

Legal concepts applicable to agribusiness and biotech firms. To include contracts, torts, product liability, warranties, corporate farming laws, UCC, corporations/partnerships/limited liability companies, labor laws, patent copyrights/trademark laws, international and ethical perspectives.

**Credit Hours:** 3

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**AG\_EC 3257: Rural and Agricultural Law**

Everyday practical legal problems facing rural residents, farmers, agribusiness, and local government. Laws include statutes, common law (cases), customs, and administrative regulations. Topics include corporate/contract farming, right-to-farm, leases, fence laws, estate planning and water rights.

**Credit Hours:** 3

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**AG\_EC 3260: General Farm Management**

Economics and management principles applied to planning and operating farm businesses. Includes enterprise combination, resource acquisition, water management, profit maximizing techniques and annual adjustments to changing conditions.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3270: Conservation and Use of Protected Areas**

Evaluation of socioeconomic, cultural and ecological values influencing the development and management of protected areas including parks, forests, wildlife refuges, wilderness and wild/scenic rivers.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 2070

**Recommended:** Introductory natural resources courses

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**AG\_EC 3271: International Agricultural Development**

Examines world food problem; analyzes its causes; economic and noneconomic policy alternatives for modernizing agriculture in less-developed countries.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 1042 or ECONOM 1015

**Recommended:** junior standing

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**AG\_EC 3272: International Food Trade and Policy**

Examines food trade; develops economic analyses of trade impacts on domestic agricultural policies; examines international trade agreements; and interface of trade and environment.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 1042 or ECONOM 1015

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**AG\_EC 3282: Agribusiness Finance**

Application of the concepts and methods of finance to the management of agribusiness firms, including cooperatives. Special attention is given to the working capital needs of agribusiness and to the specialized lending institutions in the agricultural economy.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026

**Recommended:** ACCTCY 2037 or ACCTCY 2027

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**AG\_EC 3283: Fundamentals of Entrepreneurship**

Introduce students to entrepreneurial way of thinking. Entrepreneurship is a way of thinking about identifying/creating opportunities and transforming those opportunities into new businesses, new institutions, or solutions to problems. Students will participate in the process of formulating and evaluating solutions to problems and identifying and exploiting opportunities.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026. Restricted to Agricultural Economics and Agribusiness Management majors during early registration

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**AG\_EC 3285: Problems in Agricultural Economics**

Supervised study in a specialized phase of agricultural economics. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AG\_EC 3286: Economics of Managerial Decision Making**

Introduces tools and concepts from price theory, game theory, industrial organization and organizational economics, and applies them to managerial decision making activities for businesses in the agrifood system and for natural resource and environmental management.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2123 and AG\_EC 2183

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**AG\_EC 3294: Agricultural Marketing and Procurement**

Content of course focuses on marketing issues in the agriculture supply chain. Topics covered include price discovery, basis, futures/options, contracting, logistics, and management decision making.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183

**Recommended:** AG\_EC 2225 or STAT 2500

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**AG\_EC 3295: Real Money: Speculative Trading for Beginners**

Familiarize students with the learning components of commodity future/option trading. Students learn through involvement by investing in a commodity pool and trading futures/options. Students apply both fundamental and technical analysis. Students taking this course are required to invest from \$200 to \$600 in \$200 increments. Students cannot lose more money than invested.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183

**Recommended:** AG\_EC 3294

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**AG\_EC 3296: In the Money with Options Trading**

This online course focuses on learning the basics of trading options market contracts. Students will be investing/contributing members of the University of Missouri Educational Marketing Club. Students will be introduced to principles of price forecasting using technical and fundamental analysis and will study a variety of trading strategies.

**Credit Hours:** 2

**Prerequisites:** AG\_EC 3295

**Recommended:** AG\_EC 3294

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**AG\_EC 3297: Technical Trading Tactics**

Learn the tactics of technical trading through student investment and commodity futures contracts. Technical Trading Tactics will provide students with tools to support trade recommendations based on technical analysis. Each student invests real money as a learning incentive and will complete one trade recommendation during the course.

**Credit Hour:** 1

**Prerequisites:** AG\_EC 3295

**Recommended:** AG\_EC 3294

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**AG\_EC 3321: Economic History of Agriculture**

Emphasizes Europe and U.S. historical interpretation; usefulness in evaluating present and probable future developments in agriculture.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3383: Rural Entrepreneurship II**

Rural Entrepreneurship II is designed for students that realize they may need to create their own career or opportunity if they want to return to their rural community and for students who would like to better understand how to create that option in their career choice set.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3283

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**AG\_EC 4110: In-Service Course in Agricultural Economics**

(cross-leveled with AG\_EC 7110). A. Profit Maximizing Principles B. Farm Planning C. Farm Records and Analysis D. Business Management E. Using Computers in Farm Management Decision Making. Basic principles of farm management. Applications of principles and subject matter in successful classroom presentation primarily for high school teachers. Course is offered in sections A-E as listed, for 2 hours each.

**Credit Hour:** 2-10

**Prerequisites:** instructor's consent. Recommended AG\_EC 3260

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**AG\_EC 4230: Understanding the Agricultural Policy Process**

The goal of this course is to prepare students for a career in agricultural policy and will build the skill set needed in the agricultural policy environment.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3230

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**AG\_EC 4251: Agricultural Prices**

(cross-leveled with AG\_EC 7251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2123 and AG\_EC 2225 or STAT 2500

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**AG\_EC 4295: Agricultural Risk Management**

(cross-leveled with AG\_EC 7295). This class will examine the range of risks business face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183 and AG\_EC 2225 or STAT 2500

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**AG\_EC 4301: Topics in Agricultural Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**Credit Hour:** 1-6

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**AG\_EC 4301H: Topics in Agricultural Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**Credit Hour:** 1-6

**Prerequisites:** honors eligibility required

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**AG\_EC 4310: Local Economic Analysis**

(cross-leveled with AG\_EC 7310). Economic based theory, including multipliers and how local economies are affected by external events. Methods for local economic analysis: trends, location quotients, shift-share, and retail analyses.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AG\_EC 4340: Rural Real Estate Appraisal**

(cross-leveled with AG\_EC 7340). Principles, techniques, practices of rural real estate appraisal. Field trips.

**Credit Hours:** 3

**Recommended:** AG\_EC 3260

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**AG\_EC 4356: Environmental Law and Policy**

(cross-leveled with AG\_EC 7356). Legislative, administrative, and common law dealing with the environment. Introduces the fundamental concepts and classic issues underlying the body of law and policy dealing with the environment. Includes air and water quality, endangered species preservation, land use, and waste disposal.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Recommended AG\_EC 3256, senior or graduate standing. For non-law students

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**AG\_EC 4940: Internship Opportunities**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** 75 hours completed

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**AG\_EC 4962: Planning the Farm Business**

(cross-leveled with AG\_EC 7962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3260

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**AG\_EC 4971: Agribusiness Management Strategy**

(cross-leveled with AG\_EC 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3282 or FINANC 3000 and AG\_EC 3286 or MANGMT 3000

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**AG\_EC 4971W: Agribusiness Management Strategy - Writing Intensive**

(cross-leveled with AG\_EC 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3282 or FINANC 3000 and AG\_EC 3286 or MANGMT 3000

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**AG\_EC 4972: Agri-Food Business and Cooperative Management**

(cross-leveled with AG\_EC 7972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4971 and AG\_EC 3286 or MANGMT 3000

**Recommended:** AG\_EC 3256

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**AG\_EC 4983: Strategic Entrepreneurship in Agri-Food**

Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3283 and AG\_EC 3282 or FINANC 3000

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**Recommended:** senior standing

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**AG\_EC 4990: Economic Analysis of Policy and Regulation**

(cross-leveled with AG\_EC 7990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4251

**Recommended:** ECONOM 4351

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**AG\_EC 4995: Economics of Agricultural Production and Distribution**

(cross-leveled with AG\_EC 7995). Applies economic principles to agricultural production including price theory, linear programming and uncertainty.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 and AG\_EC 2225 or STAT 2500

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**AG\_EC 7110: In-Service Course in Agricultural Economics**

(cross-leveled with AG\_EC 4110). A. Profit Maximizing Principles B. Farm Planning C. Farm Records and Analysis D. Business Management E. Using Computers in Farm Management Decision Making. Basic principles of farm management. Applications of principles and subject matter in successful classroom presentation primarily for high school teachers. Course is offered in sections A-E as listed, for 2 hours each. Prerequisites:

**Credit Hour:** 2-10

**Prerequisites:** instructor's consent. Recommended AG\_EC 3260

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**AG\_EC 7251: Agricultural Prices**

(cross-leveled with AG\_EC 4251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2123 and AG\_EC 2225 or STAT 2500

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**AG\_EC 7295: Agricultural Risk Management**

(cross-leveled with AG\_EC 4295). This class will examine the range of risks businesses face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183 and AG\_EC 2225 or STAT 2500

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**AG\_EC 7301: Topics in Agricultural Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**Credit Hour:** 1-6

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**AG\_EC 7310: Local Economics Analysis**

(cross-leveled with AG\_EC 4310). Economic based theory, including multipliers and how local economies are affected by external events. Methods for local economic analysis: trends, location quotients, shift-share, and retail analyses. On-line course.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AG\_EC 7340: Rural Real Estate Appraisal**

(cross-leveled with AG\_EC 4340). Principles, techniques, practices of rural real estate appraisal. Field trips.

**Credit Hours:** 3

**Recommended:** AG\_EC 3260

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**AG\_EC 7356: Environmental Law and Policy**

(cross-leveled with AG\_EC 4356). Legislative, administrative, and common law dealing with the environment. Introduces the fundamental concepts and classic issues underlying the body of law and policy dealing with the environment. Includes air and water quality, endangered species preservation, land use, and waste disposal.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Recommended AG\_EC 3256, senior or graduate standing. For non-law students

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**AG\_EC 7940: Internship Experiences in Agricultural Economics**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** 2.5 GPA; 75 hours of course work and instructor's consent

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**AG\_EC 7962: Planning the Farm Business**

(cross-leveled with AG\_EC 4962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3260

---

**AG\_EC 7971: Agribusiness Management Strategy**

(cross-leveled with AG\_EC 4971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3282 or FINANC 3000 and AG\_EC 3286 or MANGMT 3000

---

**AG\_EC 7972: Agri-Food Business and Cooperative Management**

(cross-leveled with AG\_EC 4972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4971 and AG\_EC 3286 or MANGMT 3000

**Recommended:** AG\_EC 3256

---

**AG\_EC 7990: Economic Analysis of Policy and Regulation**

(cross-leveled with AG\_EC 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4251

**Recommended:** ECONOM 4351

---

**AG\_EC 7995: Economics of Agricultural Production and Distribution**

(cross-leveled with Applies economic principles to agricultural production including price theory, linear programming and uncertainty. Prerequisites:

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 and AG\_EC 2225 or STAT 2500

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**AG\_EC 8001: Advanced Topics in Economics**

Analyzes economic logic problems. Current agricultural economic problems.

**Credit Hours:** 3

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**AG\_EC 8010: Research Methodology**

Students explore the roles of theory and methods in economics research, develop a program of research, and critique published research. Students also study the scientific methods and the research process, including problem definition, research design, data collection and analysis, and generalization.

**Credit Hours:** 3

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**AG\_EC 8024: Advanced Production Economics**

Production function analyses and advanced theory of the firm as applied to agricultural production problems. Concepts of input demand, production supply, quality, time and technology, dynamic analysis and production under uncertainty.

**Credit Hours:** 3

**Prerequisites:** MATH 1500, AG\_EC 4995; ECONOM 8451; STAT 4510 or ECONOM 8472

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**AG\_EC 8050: Economics of Institutions and Organizations**

This course expands upon the fundamental principles of neo-classical economics by relaxing traditional behavioral and informational assumptions and by introducing the importance of transaction costs and institutions for economic analysis.

**Credit Hours:** 3

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**AG\_EC 8060: Mathematical Modeling for Social Scientist**

Introduction to mathematical programming, emphasizing problem formulation and solution interpretation. Computer applications are stressed.

**Credit Hours:** 3

**Prerequisites:** STAT 4510

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**AG\_EC 8085: Masters Problems in Agricultural Economics**

Supervised study, research in specialized phases of agricultural economics.

**Credit Hour:** 1-99

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**AG\_EC 8087: Seminar in Agricultural Economics**

Lectures, reports on economic problems in agriculture.

**Credit Hour:** 1

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**AG\_EC 8090: Masters Thesis Research in Agricultural Economics**

Independent investigation of advanced nature, leading to dissertation.

Graded on a S/U basis only.

**Credit Hour:** 1-6

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**AG\_EC 8210: Theory of Markets**

Development of theories of monopolistic, monopolistic competition; application to agricultural markets. Market structure influence on price, nonprice competition in buying, selling of farm products and inputs.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351

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**AG\_EC 8350: Regional Development Issues and Analysis**

(same as PUB\_AF 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**AG\_EC 8410: Natural Resource and Environmental Economics**

Contemporary natural resource/environmental problems; natural resource capacity, alternative economic theories, property rights, externalities, market failures, efficient use of exhaustible and renewable resources, and economics of environmental pollution.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351

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**AG\_EC 8430: International Agricultural Development Policy**

An analytical review of economic policies directed toward stimulating agricultural development in the world's low income countries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and ECONOM 7353

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**AG\_EC 8448: Society and Ecosystems Research Seminar**

(same as RU\_SOC 8448 and NAT\_R 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**AG\_EC 8450: Masters Non Thesis Research**

Independent investigation of advanced nature. Report required.

**Credit Hour:** 1-6

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**AG\_EC 8520: Economics of Transaction and Contracting**

This course focuses on the economic incentives underlying transaction relationships and develops and implements a framework for analyzing contract documents governing various kinds of transactions.

**Credit Hours:** 3

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**AG\_EC 8610: Economic and Sociological Approaches to Collective Action**

(same as RU\_SOC 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 7972

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**AG\_EC 8860: International Comparative Rural Policy**

(same as PUB\_AF 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AG\_EC 9001: Advanced Topics in Economics II**

Analyzes economic logic problems. Current agricultural economic problems.

**Credit Hours:** 3

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**AG\_EC 9040: Advanced Microeconomics Theory and Applications I**

First semester course that rigorously examines the microeconomic theory of producer and consumer behavior, combined with applications of the theoretical concepts to empirical economic research on agricultural, business, development, and environmental issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructors consent

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**AG\_EC 9042: Advanced Microeconomics Theory and Applications II**

Second semester advanced micro theory covering choice under uncertainty, industry structure, game theory, information econ, and political economy of regulation. Includes applications of micro models to issues in agricultural, natural resource, and development sectors.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 9040

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**AG\_EC 9085: Doctoral Problems in Agricultural Economics**

Supervised study, research in specialized phases of agricultural economics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_EC 9090: Doctoral Dissertation Research in Agricultural Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AG\_EC 9220: Advanced Price Analysis**

Applies economic theory and quantitative methods to analyze agricultural price issues. Examines problem formulation, estimation, and model evaluation applied to demand and supply situations.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or ECONOM 8472; STAT 4510

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**AG\_EC 9230: Welfare and Consumption Economics**

Introduces welfare economic principles; application to problems of resource allocation. Appraises economic policies, programs; consumers' choice; measurement of consumption; living standards; household decisions and markets relation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or instructor's consent

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**AG\_EC 9265: Food, Agricultural and Rural Policy**

Application of welfare economics theory to food, agricultural and rural development policy analysis. Historical perspective and economics analysis of contemporary issues in national and international policy and institutions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and AG\_EC 9230

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**AG\_EC 9320: Regional Economic Theory and Methods**

Theory of spatial economics: Central place theory, spatial labor markets, location theory, social accounting matrices, input-output, computable general equilibrium, geographic information systems and regional econometric models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351, ECONOM 7353, and matrix algebra

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**AG\_EC 9475: Econometrics I**

Emphasis is given to special estimation problems which occur in integrating the theory with various types of economic data.

**Credit Hours:** 3

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**AG\_EC 9476: Econometrics II**

(same as ECONOM 9476).

**Credit Hours:** 3

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**AG\_EC 9510: Economics of Agribusiness Firm**

This course builds on transaction cost-based theories and tools to study the economic underpinnings of intra-firm organization, firm boundaries, and the structure of inter-firm transactions.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 8050

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**AG\_EC 9520: Economics of Agribusiness Markets**

Relationships of neoclassical and new institutional economics to designing organizational strategy and structure. Internal coordination and structure, organizational boundaries, and competitiveness and sustainability of food system organizations.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 8050

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## Agricultural Education and Leadership Courses

**AG\_ED\_LD 1000: Orientation to Agricultural Education and Leadership**

Overview of the discipline of agricultural education including: career opportunities, certification requirements, professional development, and current issues.

**Credit Hour:** 1

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**AG\_ED\_LD 2220: Verbal Communication in Agriculture, Food and Natural Resources**

Application of verbal communication skills used in the dissemination of information related to agriculture, food, and natural resource topics. Acquisition of interpersonal communication skills and small group, impromptu and professional presentation skills.

**Credit Hours:** 3

**Prerequisites:** Restricted to College of Agriculture, Food and Natural Resources students only during Early Registration

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**AG\_ED\_LD 2250: Introduction to Leadership**

Overview of basic leadership principles and theories, including, but not limited to: personal leadership development, characteristics of effective leaders, leadership styles, ethics as a leader and leadership obstacles.

**Credit Hours:** 3

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**AG\_ED\_LD 2260: Team and Organizational Leadership**

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**Credit Hours:** 3

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**AG\_ED\_LD 2260W: Team and Organizational Leadership - Writing Intensive**

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**Credit Hours:** 3

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**AG\_ED\_LD 2270: Leadership Development in Youth Organizations**

This course focuses on how to develop leadership in youth through participation in a youth organization. In particular, this course explores youth development, how to develop leadership through youth organizations and their activities, and organizational structures.

**Credit Hours:** 3

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**AG\_ED\_LD 2271: Early Field Experience**

This field experience is designed for students to explore the role of being a school-based agricultural educator. In particular, students will experience the total agricultural education program with a focus on youth organizations.

**Credit Hour:** 1

**Prerequisites:** AG\_ED\_LD 2270 or concurrent enrollment

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**AG\_ED\_LD 3085: Problems in Agricultural Education and Leadership**

Supervised and independent study of problems and issues in Agricultural Education and Leadership at the undergraduate level.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 3320: Metal Fabrication and Laboratory Management**

Application of metal fabrication skills, including cutting, bending, and welding, using a variety of processes. Operations of hand tools and power equipment used in project construction. Also includes laboratory management, instructional strategies, and assessment techniques related to secondary agriculture programs. Prerequisites: Agriculture Education Majors Only

**Credit Hours:** 3

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**AG\_ED\_LD 3776: Litton Leadership Scholars**

The Litton Leadership Scholars class focuses on developing students as leaders. Through leadership coursework, field-based mentorship and self-reflection, students will practice and develop exemplary leadership skills. Students will have an opportunity to spend time with industry leaders, expand their personal growth boundaries and develop their unique leadership style. Students will engage in an interview process to be selected for the Litton Leadership Scholars program. Graded on A-F basis only.

**Credit Hour:** 1-2

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**AG\_ED\_LD 4001: Topics in Agricultural Education and Leadership**

Courses on specialized topics offered on a trial basis until the course has been assigned a course number.

**Credit Hour:** 1-3

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**AG\_ED\_LD 4087: Internship Seminar in Agricultural Education and Leadership**

Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experiential learning and leadership development activities, managing the complete program, and professional development.

**Credit Hours:** 3

**Corequisites:** AG\_ED\_LD 4995

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**AG\_ED\_LD 4240: Leading Organizational and Community Change**

(cross-leveled with AG\_ED\_LD 7240). This course provides the diagnostic and strategic foundations for students to enact leadership in organizational and community contexts. Designed for undergraduate students and graduate-level professionals alike, this course increases a student's capacity to lead with or without authority, and with or without a formal organizational or political position. The course is based heavily on Heifetz's Adaptive Leadership theory, which challenges individuals to think beyond individual, role-based leadership skills and behaviors when enacting change in systems, such as organizations and communities.

**Credit Hours:** 3

**Recommended:** AG\_ED\_LD 2250 and AG\_ED\_LD 2260

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**AG\_ED\_LD 4310: Intracurricular Program Management in Agricultural Education**

This course explores the philosophical foundations and current structures of secondary Agricultural Education Programs. Students will learn how to plan, supervise, and evaluate the intracurricular components within Agricultural Education programs.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**AG\_ED\_LD 4320: Methods of Teaching I**

(cross-leveled with AG\_ED\_LD 7320). Investigations into the teaching and learning process which including lesson planning, direct instruction methods, and assessment. Enrollment limited to students accepted into Phase II of the Teacher Development Program.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**AG\_ED\_LD 4321: Field Experience I**

A field-based experience that examines the integration of Supervised Agricultural Experience and Career Development Events into the secondary agriculture curriculum. Investigates the use of advisory committees and graduate follow-up data in curriculum planning. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** AG\_ED\_LD 4320

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**AG\_ED\_LD 4330: Methods of Teaching II**

Further investigations into the teaching and learning process which includes methods beyond direct instruction, classroom and behavior management, and curricular design. Enrollment limited to students accepted into Phase II of Teacher Development Program.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 4320 or instructor's consent

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**AG\_ED\_LD 4331: Field Experience II**

A field-based experience that provides students with comprehensive experience directed toward learning, teaching, and assessment in secondary agriculture programs. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** AG\_ED\_LD 4330



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**AG\_ED\_LD 4340: Designing and Delivering Educational/Leadership Programs**

Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**AG\_ED\_LD 4993: Internship in Agricultural Education and Leadership**

Field-based learning experience that combines study, observation, and employment with an agricultural business, industry or government agency in the area of education, training, and development. Individual internship plans are developed by a student, faculty supervisor, and an industry cooperator.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent

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**AG\_ED\_LD 4995: Student Teaching Internship in Agriculture**

A field-based learning experience that combines observation and practice in a secondary/adult agriculture program. The purpose of the internship is to provide an opportunity to apply teaching and learning concepts in a practical context.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**AG\_ED\_LD 7087: Internship Seminar in Agricultural Education and Leadership**

Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experimental learning and leadership development activities, managing the complete program, and professional development.

**Credit Hours:** 3

**Corequisites:** AG\_ED\_LD 4995

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**AG\_ED\_LD 7240: Leading Organizational and Community Change**

(cross-leveled with AG\_ED\_LD 4240). This course provides the diagnostic and strategic foundations for students to enact leadership in organizational and community contexts. Designed for undergraduate students and graduate-level professionals alike, this course increases a student's capacity to lead with or without authority, and with or without a formal organizational or political position. The course is based heavily on Heifetz's Adaptive Leadership theory, which challenges individuals to think beyond individual, role-based leadership skills and behaviors when enacting change in systems, such as organizations and communities.

**Credit Hours:** 3

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**AG\_ED\_LD 7310: Intracurricular Program Management in Agricultural Education**

This course explores the philosophical foundations and current structures of secondary Agricultural Education Programs. Students will learn how

to plan supervise and evaluate the intracurricular components within Agricultural Education Programs.

**Credit Hours:** 3

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**AG\_ED\_LD 7320: Methods of Teaching I**

(cross-leveled with AG\_ED\_LD 7320). Investigations into the teaching and learning process which includes lesson planning, direct instruction methods, and assessment.

**Credit Hours:** 3

**Prerequisites:** acceptance into the Teacher Certification option

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**AG\_ED\_LD 7330: Methods of Teaching II**

Further investigations into the teaching and learning process which includes methods beyond direct instruction, classroom and behavior management, and curricular design.

**Credit Hours:** 3

**Prerequisites:** acceptance into Teacher Certification option and AG\_ED\_LD 4320 or AG\_ED\_LD 7320

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**AG\_ED\_LD 7340: Designing and Delivering Educational/Leadership Programs**

Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 2220 or equivalent

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**AG\_ED\_LD 7350: Inservice Course in Agricultural Education and Leadership**

Professional development course which focuses on enhancing the technical, administrative, or management skills of agricultural educators.

**Credit Hour:** 1-99

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**AG\_ED\_LD 8080: Creative Component in Agricultural Education and Leadership**

Independent original work that culminates in a scholarly project, document or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8085: Problems in Agricultural Education and Leadership**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8087: Seminar in Agricultural Education and Leadership**

Seminar in Agricultural Education and Leadership.

**Credit Hour:** 1-99

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**AG\_ED\_LD 8090: Thesis Research in Agricultural Education and Leadership**

Independent research activities by a master's student that culminates in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8210: History and Leadership of the Land Grant University**

Historical overview of the evolution and development of land-grant colleges. Students examine early public mandates and evaluate education, research, public service developments and new initiatives needed for Land Grant universities to effectively serve society.

**Credit Hours:** 2

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**AG\_ED\_LD 8250: Leadership Theory and Application**

Survey of concepts, theories and practices of leadership, personal development and group dynamics. Exploration of leadership traits and models with a focus upon how they apply to Agricultural Education.

**Credit Hours:** 3

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**AG\_ED\_LD 8330: Advanced Methods of Teaching**

Explores the principles and psychological aspects of teaching and learning; teaching strategies, methods, and techniques; evaluating student learning; motivating students; and personal teacher behaviors that influence learning.

**Credit Hours:** 3

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**AG\_ED\_LD 8340: Student and Teacher Development in Agricultural Education and Leadership**

Examines planning and supervising career exploration, experiential learning, and leadership development activities of secondary agriculture students. The professional development of the secondary agriculture teacher is also examined.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 4310 or equivalent

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**AG\_ED\_LD 8350: College Teaching of Agriculture, Food and Natural Resources**

A course designed to assist current or future college faculty who wish to improve their teaching skills. Topics include theories, principles and practices associated with effective teaching and learning in higher education.

**Credit Hours:** 3

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**AG\_ED\_LD 8351: Induction Year Teaching I**

Continuing education course for the professional development of first-year teachers of agriculture. The course focuses on the pedagogical knowledge, skills, and attitudes and managerial skills needed by beginning teachers of agriculture.

**Credit Hour:** 1-2

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**AG\_ED\_LD 8352: Induction Year Teaching II**

Continuing education course for the professional development of second-year teachers of agriculture. The course is a continuation of AG\_ED\_LD 8351 and focuses on the pedagogical knowledge, skills, and attitudes and managerial skills needed by beginning teachers of agriculture.

**Credit Hour:** 1-2

**Prerequisites:** AG\_ED\_LD 8351

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**AG\_ED\_LD 8410: Philosophical Foundations of Agricultural Education and Leadership**

Overview of the history and philosophical development of agricultural education and leadership as a discipline. Philosophers, policy makers, movements, trends, and legislation that has influenced agricultural education. Current issues and future trends impacting the field. Graded on A-F basis only.

**Credit Hour:** 1-3

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**AG\_ED\_LD 8430: Evaluation of Educational Programs**

(same as RU\_SOC 8430). Examines program evaluation concepts, principles, and models; and identifies major steps in planning, conducting, and reporting results of evaluation objects.

**Credit Hours:** 3

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**AG\_ED\_LD 8510: Research Methods and Design**

(same as RU\_SOC 8510). A foundations course on quantitative research methodology and design principles for investigating problems in social and behavioral sciences. A focus is on the language of research, purposes, validity threats, and data collection methods. Graded on A-F basis only.

**Credit Hours:** 3

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**AG\_ED\_LD 8520: Preparing Manuscripts for Publication**

An introduction to planning, preparing, and submitting research based articles for publication in professional journals and research proceedings.

**Credit Hour:** 1

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**AG\_ED\_LD 8530: Grant Proposal Writing**

Preparation of proposals designed to solicit grant funding to support teaching, research or outreach programs. Emphasis on proposal development, identifying funding sources, and proposal review processes.

**Credit Hours:** 2

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**AG\_ED\_LD 8540: Methods of Qualitative Research**

(same as RU\_SOC 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**AG\_ED\_LD 8995: College Teaching Practicum**

Learning experience that combines the study, observation, and practice of teaching university-level courses in food, agriculture and/or natural resources under the supervision of teaching mentors. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and AG\_ED\_LD 8330 or AG\_ED\_LD 8350

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**AG\_ED\_LD 9090: Doctoral Research in Agricultural Education and Leadership**

Independent research activities by a doctoral student that culminates in a dissertation or other scholarly work. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 9410: Foundations and Practices of Teacher Education**

Foundations and practices of teacher preparation programs including student selection and advisement, licensure requirements, accreditation, curriculum, clinical and field experiences, supervision, evaluation and research.

**Credit Hours:** 3

**Prerequisites:** Doctoral student or instructor's consent

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**AG\_ED\_LD 9510: Data Collection, Analysis and Interpretation**

(same as RU\_SOC 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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## Agricultural Systems Management Courses

**AG\_S\_M 1002: Topics in Agricultural Systems Management-Biological/Physical/Math**

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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**AG\_S\_M 1020: Introduction to Agricultural Systems Management**

Introductory course that acquaints students with the general technical areas of Agricultural Systems Management. A systematic problem-solving approach is applied to problems derived from each of the technical areas within Agricultural Systems Management .

**Credit Hours:** 3

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**AG\_S\_M 1040: Physical Principles for Agricultural Applications**

Introductory survey course to help students: formulate problems; understand units/accuracy; learn basic definitions; understand simple machines, power transmission, fluid statics, electricity, heat-flow, and temperature/moisture relationships.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 1120: Agricultural/Industrial Materials and Processes**

Structure and properties of manufacturing materials; conditioning and machining materials; assembling processes; finishing processes; automation of manufacturing systems.

**Credit Hours:** 3

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**AG\_S\_M 2002: Topics in Agricultural Systems Management-Biological/Physical/Math**

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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**AG\_S\_M 2020: Environmental Ethics in Agriculture**

Influence of agricultural technology and production practices on environmental quality. Stewardship concepts. Long-term vs. short-term consequences. Development of a scientifically sound ethic toward agricultural production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**AG\_S\_M 2199: Seminar in Professional Development**

This course is taught once a year in the Spring semester. The course explores the concept of what it means to be a professional in the field of Agricultural Systems Management. The course includes aspects of what it means to be a professional, such as resume writing, interviewing, finding a job, and building one's career. A second major aspect of the course is to explore the field of Agricultural Systems Management to gain a better understanding of various potential career paths available to students in Agricultural Systems Management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ASM Freshman or Sophomores or instructor consent

**Recommended:** AG\_S\_M 1020

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**AG\_S\_M 2220: Agricultural/Industrial Structures**

A building science course looking at construction materials, structural component selection, ventilation, moisture control and energy use. Math reasoning proficiency course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 2320: Internal Combustion Power**

Basic internal combustion engine principles, mechanisms, combustion cycles, fuels, fuel injection, electrical systems, engine testing.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 1040

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**AG\_S\_M 2340: Pesticide Application Equipment**

Principles of pesticide application; sprayer hydraulics and spray atomization; calibration, mixing calculations and compatibility of tank mixes; personal and environmental protection; pesticide labels and regulations. Students earn their private applicators license.

**Credit Hours:** 3

**Prerequisites:** MATH 1100  
**Recommended:** AS\_S\_M 1040

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**AG\_S\_M 2345: Chemical Application Systems**

Systems, components and operation practices used in the chemical application industry. Liquid and granular application systems and respective components will be studied along with procedures for minimizing drift, system calibration, recommended maintenance, and off-season storage procedures.

**Credit Hour:** 2-3

**Prerequisites:** MATH 1100 or equivalent

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**AG\_S\_M 2360: Fluid Power**

Basic power hydraulic theory. Hydraulic systems, components and circuits. Math reasoning proficiency course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 3350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 7020). Analysis, organization and implementation of agriculture safety ). and health programs. Physical and economic impact of accidents, standards and liabilities. Role of man in the man-machine system.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**AG\_S\_M 4120: Advanced Agricultural/Industrial Materials and Processes**

(cross-leveled with AG\_S\_M 7120). Primarily for students majoring in agricultural education. Applies shop principles to the design and construction of projects.

**Credit Hour:** 2-3

**Prerequisites:** instructor's consent

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**AG\_S\_M 4140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 7140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Basic electrical theory.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 4145: Sensors and Control Systems for Agri-Industries**

This course helps one understand sensors including performance, data acquisition systems and selection. In addition, introduction to programmable logic controllers, ladder-rung diagram programming, fluid flow rate, and associated analysis is discussed.

**Credit Hours:** 2

**Prerequisites:** AG\_S\_M 1040 and AG\_S\_M 4140

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**AG\_S\_M 4150: Biorenewable Systems Technology**

Converting biorenewable resources into bioenergy and biobased products. Biorenewable concepts as they relate to drivers of change, feedstock production, processes, products, co-products, economics, transportation and logistics, and marketing.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 and AG\_EC 1041

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**AG\_S\_M 4220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 7220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk material.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, AG\_S\_M 1040 and junior standing

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**AG\_S\_M 4225: Preservation of Grain Quality**

Principles and management for grain quality preservation. Grain drying and grain storage. Psychrometrics. Fan and airflow. Grain handling methods and system planning. Grain quality measurement and end-use value analysis.

**Credit Hours:** 2

**Prerequisites:** MATH 1100. Recommended AG\_S\_M 1040 and AG\_S\_M 4220

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**AG\_S\_M 4320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 7320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 1040

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**AG\_S\_M 4330: Principles for Food Processing**

(same as F\_S 4330; cross-leveled with AG\_S\_M 7330, F\_S 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy and material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, AG\_S\_M 1040 or PHYSCS 1210

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**AG\_S\_M 4350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4360: Precision Agriculture Science and Technology**

(same as PLNT\_S 4360, SOIL 4360; cross-leveled with AG\_S\_M 7360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110

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**AG\_S\_M 4365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7365). Planters, combines, fertilizer application equipment, and sprayer management along with GPS technologies are the focus of the course. One will learn how to manage these tools efficiently and accurately. Valuable precision agriculture management skills emphasized.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AG\_S\_M 1040, and AG\_S\_M 4360

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**AG\_S\_M 4366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360 and AG\_S\_M 4365

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**AG\_S\_M 4368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360 or instructor consent, or equivalent

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**AG\_S\_M 4370: In-Service Course Agriculture System Management-Farm Power and Machinery**

A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level.

**Credit Hour:** 1-8

**Prerequisites:** Instructor's consent

**Recommended:** 10 credits from Agricultural System Management courses; a B.S. degree in Agriculture

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**AG\_S\_M 4390: Optimization and Management of Food and Agricultural Systems**

(same as F\_S 4390, HSP\_MGMT 4390; cross-leveled with AG\_S\_M 7390, F\_S 7390, HSP\_MNGMT 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function. Recommended AG\_S\_M 1040

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 4420: Surface Water Management**

(cross-leveled with AG\_S\_M 7420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

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**AG\_S\_M 4440: Water Quality and Pollution Control**

(cross-leveled with AG\_S\_M 7440). Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 7460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems. Recommended: AG\_S\_M 1040

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 4940: Agricultural Systems Management Internship**

Combines study, observation, and employment with industry or government agency in an area of Agricultural Systems Management. A special problem / learning experience is selected by internship company representative, faculty problem advisor and student. Written and oral reports evaluated by faculty.

**Credit Hour:** 2-5

**Prerequisites:** Instructor's consent

**Recommended:** Sophomore standing and minor or major in Agricultural Systems Management

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**AG\_S\_M 4970: Agricultural Systems Management - Capstone**

Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** Senior Standing

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**AG\_S\_M 4970W: Agricultural Systems Management - Capstone - Writing Intensive**

Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** Senior Standing

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**AG\_S\_M 7001: Topics in Agricultural Systems Management**

Initial offering of a course in a specific subject matter area related to Agricultural Systems Management. The course is offered when proposed by a faculty member in that area of expertise.

**Credit Hours:** 3

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**AG\_S\_M 7020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 4020). Analysis, organization and implementation of agriculture safety and health programs. Physical and economic impacts of accidents, standards and liabilities. Role of man in the man-machine system.

**Credit Hours:** 3

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**AG\_S\_M 7085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

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**AG\_S\_M 7120: Advanced Agricultural/Industrial Materials and Processes**

(cross-leveled with AG\_S\_M 4120). Primarily for students majoring in agricultural education. Applies shop principles to the design and construction of projects.

**Credit Hour:** 2-3

**Prerequisites:** instructor's consent

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**AG\_S\_M 7140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 4140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Basic electrical theory.

**Credit Hours:** 3

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**AG\_S\_M 7220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 4220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 and AG\_S\_M 1040

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**AG\_S\_M 7320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 4320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 1040

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**AG\_S\_M 7330: Principles for Food Processing**

(same as F\_S 7330; cross-leveled with AG\_S\_M 4330, F\_S 4330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy and material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Instructor's consent

**Prerequisites:** MATH 1100 and AG\_S\_M 1040 or PHYSCS 1210

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**AG\_S\_M 7340: Agricultural Mechanization Systems**

Review of current literature. Case study of mechanization systems. Computer analysis of management alternatives.

**Credit Hours:** 3

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**AG\_S\_M 7360: Precision Agriculture Science and Technology**

(same as PLNT\_S 7360 and SOIL 7360; cross-leveled with AG\_S\_M 4360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PLNT\_S 2110 or instructor's consent

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**AG\_S\_M 7365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4365). This course focuses on agricultural equipment that is commonly used in conjunction with GPS technology. Planters, combines, fertilizer application equipment and sprayer application equipment are commonly equipped with GPS equipment to control and record operational parameters. These parameters focus around the equipments geographic location and can be recorded simultaneously with the volume of product applied and weather information (wind, temperature, humidity, etc.). GPS guidance is one of the main technologies to be studied throughout this course. The management of this equipment and the GPS technologies used to control and record this information is the focus of the course.

**Credit Hours:** 3

**Recommended:** AG\_S\_M 7360

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**AG\_S\_M 7366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 7360, AG\_S\_M 7365, instructor consent, or equivalent

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**AG\_S\_M 7368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360 or instructor consent, or equivalent

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**AG\_S\_M 7370: In-Service Course Agriculture Systems Management-Farm Power and Machinery**

A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level.

**Credit Hour:** 1-8

**Prerequisites:** 10 credits from Agricultural Systems Management courses; a B.S. degree in Agriculture or instructor's consent

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**AG\_S\_M 7390: Optimization and Management of Food and Agriculture Systems**

(same as F\_S 7390, HSP\_MGMT 7390; cross-leveled with AG\_S\_M 4390, F\_S 4390, HSP\_MGMT 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AG\_S\_M 7420: Surface Water Management**

(cross-leveled with AG\_S\_M 4420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 7440: Water Quality and Pollution Control**

(cross-leveled with AG\_S\_M 4440). Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 7460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 4460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4420 or instructor's consent

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**AG\_S\_M 8085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hours:** 3

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**AG\_S\_M 8090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AG\_S\_M 8142: Agricultural Energy Efficiency**

The study of the efficient use of energy concerning the planning, economics, and finance of efficient technology for livestock, crops, farm buildings including alternative energy resources, and associated environmental systems.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4140 or consent of instructor

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**AG\_S\_M 8340: Agricultural Mechanization Systems**

Review of current literature. Case study of mechanization systems. Computer analysis of management alternatives.

**Credit Hours:** 3

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**AG\_S\_M 9090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Agriculture, Food and Natural Resources Courses

**AFNR 1101: Special Topics in Agriculture**

Selected topics not offered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AFNR 1111: Computing and Information Systems I**

Provide students with a basic understanding of microcomputer usage, electronic communications, and use of the internet. Topics include operating systems, word processing, database management systems, spreadsheets, electronic mail, online library searches, and the World Wide Web.

**Credit Hours:** 3

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**AFNR 1115: Foundations for College Success**

An investigation of principles and practices associated with academic success and the interpersonal challenges encountered in collegiate life. Learning preferences, time investment, study skills, degree requirements, and personal development opportunities available in the College and across campus are explored. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AFNR 1120: Computing and Information Technology**

Provides students with a basic understanding of computer usage, electronic communications and use of the internet. Topics include understanding of operating systems, word processing, and presentation media.

**Credit Hours:** 2

**Prerequisites:** Restricted to freshmen and sophomores

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**AFNR 2115: College to Career: Strategies for Success**

Systematic approach to self-assessment, career research and exploration, goal-setting and implementation of a career development plan. Students will learn specific skills, research knowledge and lifelong career management techniques.

**Credit Hour:** 1

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**AFNR 2120: Working with Data Using Excel**

Provide students with a basic understanding of computer usage and spreadsheet applications.

**Credit Hour:** 1

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**AFNR 2150: Agricultural Travel Course**

General travel course designed to broaden the perspective of agricultural students. Cost of course is borne by the student.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AFNR 2190: International Agriculture and Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-15

**Prerequisites:** instructor's consent

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**AFNR 2191: International Agriculture and Natural Resources - Humanities**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2191W: International Agriculture and Natural Resources - Humanities - Writing Intensive**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2192: International Agriculture/Natural Resources-Social Science**

This course is designed to provide students with an examination of the social sciences of the host country; including the sociology, psychology, economics, government, and history of the country; including the dynamics of urban and rural communities. May be repeated for credit. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture**

This experiential course provides an overview of the theoretical and practical principles of sustainable agriculture by exploring the holistic nature of sustainable agriculture, and analyzing agriculture systems based on their impact on the environment, economy and community.

**Credit Hours:** 3

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**AFNR 3115: Lifelong Career Management and Success Strategies**

Systematic approach to understanding the importance of effective leadership in the professional world, obtaining transferable skills necessary in the work force, and understanding important aspects that allow one's career to grow over the course of one's professional life. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** junior standing or higher

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**AFNR 3215: Community Food Systems**

Essential concepts in research, implementation and understanding of community food systems and macro-level global trends in food production and distribution will be discussed. Students will examine the social, economic and health implications of conventional and alternative food systems.

**Credit Hours:** 3

**Recommended:** AFNR 2215

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**AFNR 3315: Advanced Practices in Sustainable Agriculture**

Course furthers students' understanding of sustainable production systems with an emphasis on stewarding natural resources (soil, water, biodiversity and energy) while maintaining and economically profitable enterprise that provides for a good quality of life.

**Credit Hours:** 3

**Recommended:** AFNR 2215; SOIL 2100

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**AFNR 4001: Topics in Agriculture-General**

Topics in Agriculture-General

**Credit Hour:** 1-99

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**AFNR 4972: Capstone Project in Agriculture, Food and Natural Resources**

A culminating learning experience focused on student's area of concentration that requires the application of knowledge and skills taught in the undergraduate curriculum. The capstone project comprises independent, original work culminating in a scholarly project, written document, and/or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent**Recommended:** junior or senior standing

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**AFNR 4993: Internship in Agriculture, Food and Natural Resources**

Field-based learning experience combining the study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about agriculture, food and natural resources in a practical context.

The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-6**Prerequisites:** instructor's consent**Recommended:** junior or senior standing

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**AFNR 7190: International Agriculture/Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-9**Prerequisites:** advisor and instructor's consent

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## Anesthesiology Courses

**ANESTH 6203: ABS Anesthesiology Research**

ABS Anesthesiology Research

**Credit Hour:** 5-10

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**ANESTH 6205: ABS Anesthesiology Research and Review**

ABS Anesthesiology Research and Review

**Credit Hour:** 5-10

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**ANESTH 6400: Anesthesiology**

Goals/Objectives: The goals are providing students with opportunities to: 1. Understand the anesthetic state (e.g. the inability of a person to protect themselves from the environment; concomitant and common depression of other systems of the body other than the nervous system). 2. Learn how to think and react quickly and correctly in times of stress. 3. Develop knowledge and skill at maintaining artificial ventilation and circulation. 4. Develop technical skills (e.g. insertion of endotracheal tubes, intravenous catheters). 5. Understand the rationale behind the

choice of an anesthetic agent or technique. 6. Learn the function of an anesthesiologist as a perioperative physician and pain consultant. 7. Learn about the specialty of anesthesiology as a possible future career. Notes: Curriculum: Direct participation in anesthetic evaluation and administration for surgical procedures is combined with close individual supervision. Attendance at weekly teaching conferences is expected. Each student will follow a patient pre, intra, and post operatively and write a case presentation. Interblock: First consideration given to students interested in anesthesia as a career choice; honors considered only with documentation of participation and completion of a research project related to anesthesia. Evaluations: Evaluations are compiled from daily encounter cards completed by anesthesia providers, a written paper that discusses one patient's anesthetic, and a 50 question written examination at the end of the rotation.

**Credit Hours:** 5

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**ANESTH 6927: Anesthesiology Two-Week**

Through daily participation, students will gain insight into the specialty of anesthesiology and will develop an appreciation for the integration of basic science knowledge (especially anatomy, physiology, and pharmacology) in the clinical care of patients.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school

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## Animal Science Courses

**AN\_SCI 1001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 1011: Animal Science**

Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 3

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**AN\_SCI 1011H: Animal Science - Honors**

Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**AN\_SCI 1012: Introduction to Captive Wild Animal Management**

(same as F\_W 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1013: Biotechnology in Animal Agriculture**

Concepts, discoveries, and applications of biotechnology ranging from the discovery of brewing and baking to animal cloning and genetic engineering are covered. Students will acquire a foundation to understand how biotechnology affects agriculture and our everyday lives. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1065: Animal Science Laboratory Practicum**

An introductory course in skill, related to the care and management of livestock and poultry plus a section dealing with meats and a section dealing with research methods. Students will be expected to participate in hands-on learning development of fundamental skills and animal husbandry. This class will include one 3 hour lab and 1 hour DIS per week.

**Credit Hours:** 2

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**AN\_SCI 2001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 2045: Equine Practicum**

Focus on learning hands-on equine skills through the care of horses at the university's equine facility. Experiential learning is emphasized. Skills include: how to identify the general health and well-being of horses, recognize early onset of illness or lameness, understand basic feeding, housing, and daily care, and demonstrate the ability to handle and feed horses in a safe manner. Monthly meetings, scheduled feed shifts, monthly journals, required skill assessments, and attendance at various educational activities are required. Feed shift scheduling is determined around individual availability and no equine or animal experience is required. To enroll, students should contact the instructor for an application. Graded on A-F basis only.

**Credit Hour:** 1-2

**Prerequisites:** Instructor consent required

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**AN\_SCI 2085: Problems in Animal Science**

Library and laboratory study of assigned problems in animal breeding, nutrition, physiology or production and management. Planning, conduction and reporting to be in consultation with instructor.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AN\_SCI 2095: Equine Behavior and Training**

Students learn the psychology and ethology of equine behavior and how it relates to training. The use and proper fitting of equipment is taught and students learn to teach horses to perform the basic movements needed prior to advancing to specialized training.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 2110: Global Animal Agriculture**

Animal Agriculture as influenced globally by political, religious cultural, economic and climatic factors.

**Credit Hours:** 2

**Prerequisites:** sophomore standing

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**AN\_SCI 2111: Sophomore Seminar: Societal Issues Facing Animal Agriculture**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**AN\_SCI 2111W: Sophomore Seminar: Societal Issues Facing Animal Agriculture - Writing Intensive**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**AN\_SCI 2114: Live Animal and Meat Evaluation**

(same as F\_S 2114). The composition and quality meat produced from food animals is the driving component of livestock economic value. This course will teach the principles and procedures involved in evaluation, grading, selection, and economic value of meat animals and poultry and the carcasses they produce. This course is an excellent introduction and (or) prerequisite for all livestock production courses and will provide a baseline of information for students interested in livestock or meat judging.

**Credit Hours:** 3

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**AN\_SCI 2115: Livestock Judging**

Comparative judging and evaluation; various classes of farm animals; particular reference to utility. Reference reading; illustrated lectures.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065

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**AN\_SCI 2131: Dairy Products Evaluation**

(same as F\_S 2131) Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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**AN\_SCI 2135: Horse Selection and Evaluation**

Techniques of selecting and evaluating horses based on conformation and performance characteristics. Effects of conformation on soundness. Includes learning to organize observations on the relative merits of a group of horses into an oral presentation.

**Credit Hours:** 2

**Recommended:** AN\_SCI 1065

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**AN\_SCI 2140: Companion Animals**

(same as BIOMED 2140). Focus on companion dog, cat, and horse owners concerns re: health zoonoses, legal responsibilities, inbreeding, choice of breeds, behavioral problems and loss of companion animals.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**AN\_SCI 2165: Introduction to Ruminant Livestock Production**

This is an introductory theory course which provides fundamental understanding of ruminant livestock - beef cattle and dairy cattle, production, management and associate industries. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065

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**AN\_SCI 2175: Introduction to Monogastric Production**

Introductory course which provides fundamental understanding of hogs, horses and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065

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**AN\_SCI 2195: Equine Facility Management and Marketing**

Focuses on learning equine facility management through student care and management of the University's equine facility and breeding herd. Students also learn handling techniques for a wide variety of horses and gain experience in general equine facility maintenance. Students will be responsible for marketing horses sold in the annual MU online horse auction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** AN\_SCI 2135 and instructor's consent. Cannot be taken at the same time as AN\_SCI 2095

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**AN\_SCI 3001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 3085: Problems in Animal Science**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3085W: Problems in Animal Science - Writing Intensive**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3190: Study Abroad: International Meat, Dairy and Enology**

(same as F\_S 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparisons to the US industries. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 3212: Principles of Animal Nutrition**

The purpose of this course is to teach students the essential nutrients for animal life and to understand the basic principles of nutrition. Graded on A-F basis only. Recommend: 1 course in biochemistry or at least 4 hours of chemistry and MATH 1100 or equivalent.

**Credit Hours:** 3

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**AN\_SCI 3213: Genetics of Agricultural Plants and Animals**

(same as PLNT\_S 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200 or BIO\_SC 1500.

**Credit Hours:** 3

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**AN\_SCI 3214: Principles of Meat Science**

(same as F\_S 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biology

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**AN\_SCI 3231: Principles of Dairy Foods Science**

(same as F\_S 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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**AN\_SCI 3232: Animal Feeds and Feeding**

Description of feed ingredients, formulation of diets, and animal feeding management.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212 and MATH 1100 or equivalent

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**AN\_SCI 3242: Principles and Applications of Animal Nutrition**

Fundamentals of animal nutrition, including digestion, absorption, metabolism, and function of nutrients; nutrient and energy requirements; feedstuffs used in livestock and companion animal nutrition; and integration of these principles with nutrition-based calculations to make nutritional management decisions. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or higher, CHEM 1320 or higher, Sophomore standing or higher

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**AN\_SCI 3254: Physiology of Domestic Animals**

A lecture and laboratory course that covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 5

**Prerequisites:** F\_W 1100 or BIO\_SC 1100 or BIO\_SC 1500; CHEM 1320; MATH 1100

**Recommended:** CHEM 1330; CHEM 2030 or CHEM 2100

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**AN\_SCI 3254H: Physiology of Domestic Animals - Honors**

Basic concepts of physiology and anatomy as related to domestic animals.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500; CHEM 1310 and CHEM 1320; Honors eligibility required

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**AN\_SCI 3255: Physiology of Domestic Animals Laboratory**

This laboratory course covers the basic concepts of physiology as related to domestic animals.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500; CHEM 1310 and CHEM 1320; AN\_SCI 3254 or equivalent

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**AN\_SCI 3275: Meat Animal Evaluation**

Meat animal evaluation highlights the relationships and limitations that exist when evaluating market and breeding animals and develops an appreciation for carcass excellence as it relates to production, merchandising and consumption. Some travel time and commitments will be necessary.

**Credit Hours:** 2

**Prerequisites:** AN\_SCI 2114 and AN\_SCI 2115

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**AN\_SCI 4001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4001W: Topics in Animal Science - Writing Intensive**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 7010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also

cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to Junior and Seniors

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 4011: Pasture Based Dairy Management Lab**

This course is a hands-on experience class taught over 4 days during spring break. The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Students will have the opportunity to interact with successful pasture-based dairy producers in Missouri and apply their experience from AN\_SCI 4010 on real farm situations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** AN\_SCI 4010

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**AN\_SCI 4312: Monogastric Nutrition**

(same as NEP 4020; cross-leveled with AN\_SCI 7312 and NUTRIT 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 4314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 7314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254

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**AN\_SCI 4314H: Physiology of Reproduction - Honors**

Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254

**Prerequisites:** BIO\_SC 1500; Honors eligibility required

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**AN\_SCI 4323: Applied Livestock Genetics**

Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500 and MATH 1100

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**AN\_SCI 4324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 7324). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 2

**Recommended:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500, MATH 1100, AN\_SCI 3213 /PLNT\_S 3213 or equivalent

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**AN\_SCI 4332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 7332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 4344: Processing Muscle Foods**

(same as F\_S 4344; cross-leveled with AN\_SCI 7344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Recommended:** One Chemistry course

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**AN\_SCI 4354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 4354; cross-leveled with AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or AN\_SCI 3214 or instructor's consent

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**AN\_SCI 4384: Reproductive Management**

Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies.

**Credit Hours:** 3

**Prerequisites:** senior standing and AN\_SCI 4314 and instructor's consent

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**AN\_SCI 4386: Equine Reproduction**

Focuses on reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 and AN\_SCI 4314 or instructor's consent

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**AN\_SCI 4387: Equine Breeding Management**

Focuses on practical applications of reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Students will gain hands-on experience in each of these areas.

**Credit Hours:** 5

**Prerequisites:** instructor's consent

**Recommended:** AN\_SCI 2175 and AN\_SCI 4314

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**AN\_SCI 4437: Environmental Physiology**

Principles of environmental physiology and animal adaptation with emphasis on mechanisms of temperature regulation and related nutritional and metabolic-hormonal functions.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254

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**AN\_SCI 4910: Senior Seminar in Captive Wild Animal Management**

(same as F\_W 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded A-F only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012 or instructor's consent; junior or senior standing

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**AN\_SCI 4940: Internship in Animal Science & Technology**

Off-campus training to develop technical skills and understanding of an area of animal science. Written reports required. Graded on an S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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**AN\_SCI 4950: Undergraduate Research in Animal Science**

Individually directed field or laboratory research culminating in a poster or oral presentation for upper-class students under faculty supervision.

**Credit Hour:** 1-3

**Prerequisites:** At least sophomore standing or instructor's consent

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**AN\_SCI 4973: Molecular and Cellular Techniques in Animal Science**

A directed research project that employs current molecular and cellular technologies. Students will generate experimental data, analyze the data and draft a research report in the format of a scientific paper.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** an introductory course in biology and a course in organic chemistry, at least junior standing

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**AN\_SCI 4975: Beef Production and Management**

(cross-leveled with AN\_SIC 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4975W: Beef Production and Management - Writing Intensive**

(cross-leveled with AN\_SIC 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4976: Dairy Production**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165, AN\_SCI 3212, and AN\_SCI 3232 or instructor's consent

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**AN\_SCI 4976W: Dairy Production - Writing Intensive**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165, AN\_SCI 3212, and AN\_SCI 3232 or instructor's consent

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**AN\_SCI 4977: Horse Production**

(cross-leveled with AN\_SCI 7977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4978: Swine Production**

Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4978W: Swine Production - Writing Intensive**

Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4979: Poultry Production**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4979W: Poultry Production Writing Intensive**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 7001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 7010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 4010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 7312: Monogastric Nutrition**

(same as NUTRIT 7020 and NEP 7020; cross-leveled with AN\_SCI 4312 and NEP 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 7314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 4314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 and BIO\_SC 1500 or equivalent; or AN\_SCI 3254 as a co-requisite and instructor's consent

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**AN\_SCI 7323: Applied Livestock Genetics**

(cross-leveled with AN\_SCI 4323). Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500 and MATH 1100

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**AN\_SCI 7324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 4323). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500, MATH 1100, AN\_SCI 3213 /PLNT\_S 3213 or equivalent; and instructor's consent

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**AN\_SCI 7332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 4332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 7344: Processing Muscle Foods**

(same as F\_S 7344; cross-leveled with AN\_SCI 4344, F\_S 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

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**AN\_SCI 7354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 7354; cross-leveled with AN\_SCI 4354, F\_S 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or AN\_SCI 3214 or instructor's consent

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**AN\_SCI 7384: Reproductive Management**

(cross-leveled with AN\_SC 4384). Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314 and instructor's consent

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**AN\_SCI 7437: Environmental Physiology**

(cross-leveled with AN\_SCI 4437). Principles of environmental physiology and animal adaptation with emphasis on mechanisms of temperature regulation and related nutritional and metabolic-hormonal functions.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or equivalent

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**AN\_SCI 7975: Beef Production and Management**

(cross-leveled with AN\_SCI 4975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 7976: Dairy Production**

(cross-leveled with AN\_SCI 4976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165, AN\_SCI 3212 and AN\_SCI 3232 or instructor's consent

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**AN\_SCI 7977: Horse Production**

(cross-leveled with AN\_SCI 4977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 7978: Swine Production**

(same as AN\_SCI 4978). Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 7979: Poultry Production**

(cross-leveled with AN\_SCI 4979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 8085: Problems in Animal Science**

Advanced independent studies in fields not directly related to thesis or non-thesis degree research program. May be graded on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 8087: Seminar in Animal Science**

Critical consideration of research and other selected subjects in animal breeding, animal nutrition, reproductive physiology, growth and development and livestock production and management.

**Credit Hour:** 1

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**AN\_SCI 8090: Thesis Research in Animal Science**

Investigations in animal breeding, animal nutrition, reproduction physiology, growth and development livestock production and management. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AN\_SCI 8413: Reproductive Biology Seminar**

Presentation and discussion of selected topics from all phases of reproductive biology. Open to qualified students of graduate standing in the field of Reproductive Biology.

**Credit Hour:** 1

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**AN\_SCI 8414: Meat Quality**

(same as F\_S 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3214 or equivalent

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**AN\_SCI 8415: Survey of Epigenetics**

This course will introduce graduate students to the basic concepts in epigenetics, including DNA methylation, histone modifications, epigenetic modifiers/transacting factors, non-coding RNAs, genomic imprinting, and dosage compensation. The course is designed to be a combination of lectures, paper discussions, and research talks by invited faculty speakers from across campus.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 8420: Endocrinology**

Hormones of pituitary and endocrine glands; special reference to influence on growth, reproduction, milk secretion.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 7314 or equivalent

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**AN\_SCI 8424: Meat Investigations**

(same as F\_S 8424). Discussions of scientific literature and hands-on experimentation with research techniques customarily used in the field of meat science. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 /AN\_SCI 3214 or equivalent; instructor's consent

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**AN\_SCI 8430: Introduction to Bioinformatics Programming**

(same as PLNT\_S 8430). This course provides the basics of programming and database development to students in the life sciences who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**AN\_SCI 8431: Nutritional Biochemistry of Lipids**

(Same as NEP 8310 and NUTRIT 8310). Current concepts in the nutritional regulations of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**AN\_SCI 8438: Nutrient Regulation of Gene Expression**

(same as NUTRIT 8438, NEP 8438 and BIOCHM 8438). This second semester of the graduate nutritional sciences core curriculum will cover nutritional biochemistry of minerals and on research literature, with an emphasis on in-depth coverage of several minerals that illustrate emerging themes in mineral nutritional biochemistry and nutrient regulation of gene expression. The course will be taught in tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272 and 1st semester Graduate Nutrition core curriculum

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**AN\_SCI 8441: Livestock Production and Management Research Methods**

Techniques of experimentation, with application to livestock production and management. Exercises in methods of planning, conducting, analyzing, evaluating and reporting research.

**Credit Hours:** 3

**Prerequisites:** STAT 4530/STAT 7530 or equivalent or instructor's consent

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**AN\_SCI 8443: Functional Genomics of Mammalian Genomes: Focus on Microarray**

The curriculum covers methods for functional genomics. It explores experimental designs, data filtering, ANOVA analysis, power calculations, clustering and classification systems, and functional annotation of genes through lectures, and bioinformatics and regular laboratories. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 4974 and BIO\_SC 4374 or equivalent courses, Anova analysis course (STAT 7530) or equivalent experience in using Anova analysis

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**AN\_SCI 8447: Recent Advances in Environmental and Endocrine Physiology**

Seminar. Presentation, discussion, and critical evaluation of current status of selected topics in environmental and endocrine physiology.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 3254 or equivalent

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**AN\_SCI 8450: Research in Animal Science**

Research in Animal Science

**Credit Hour:** 1-99

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**AN\_SCI 8472: Amino Acid Metabolism**

An in-depth study of amino acid metabolism and their relationship to animal nutrition.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**AN\_SCI 8633: Molecular and Network Evolution**

(same as BIO\_SC 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**AN\_SCI 8725: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725, PHYSCS 8350 and LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**AN\_SCI 9001: Topics in Animal Science**



**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AN\_SCI 9090: Dissertation Research in Animal Science**

Investigations in animal breeding, animal nutrition, livestock production and management. Dissertation required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AN\_SCI 9423: Genetics of Populations**

Introduction to quantitative genetics with application to animal and plant breeding.

**Credit Hours:** 4

**Prerequisites:** STAT 4530 or STAT 7530

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**AN\_SCI 9432: Ruminant Nutrition**

(same as NUTRIT 8320). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, metabolism, utilization of nutrients. Lecture, laboratory, assigned readings.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4332/AN\_SCI 7332 or equivalent and BIOCHM 4270

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**AN\_SCI 9433: Gamete and Embryo Development**

A classical and molecular approach to spermatogenesis, oogenesis, fertilization and preimplantation development in the domestic species.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314/AN\_SCI 7314 or BIO\_SC 4984 or equivalent

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**AN\_SCI 9434: Gonadal Function**

(same as BIOMED 9434).

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314, biochemistry or cell biology and AN\_SCI 8420

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**AN\_SCI 9435: Placentation**

Provide students with current and in-depth information about the mechanisms involved in placental development and how the placenta (and placental products) influence maternal physiology - both locally at the placenta-uterine interface and systemically. All course topics will be covered in a comparative cross-species approach whenever possible. Emphasis will be placed on the most recent literature regarding the interactions taking place between the placenta and maternal system and how these interactions lead to the eventual birth of live young.

**Credit Hours:** 3

**Recommended:** It is preferred that students take AN\_SCI 9433 prior to this class, but this is not an absolute requirement

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**AN\_SCI 9441: Bioenergetics**

(same as NUTRIT 8400). Energetic interactions of animals and their physical and nutritional environments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 9442: Vitamins and Minerals**

Designed to provide students with an understanding of the chemical, metabolic, and functional role of vitamins and minerals in nutrition. While the primary focus will be on animals, comparative aspects to human nutrition will be discussed.

**Credit Hours:** 4

**Prerequisites:** AN\_SCI 3212, BIOCHM 4270 or equivalent

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**AN\_SCI 9452: Mycotoxins**

Designed to provide students with an understanding of the occurrence of mycotoxins, mechanisms of toxicity, analytical methodology, and approaches for ameliorating the toxic effects of mycotoxin in animals.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and courses in Nutrition and Biochemistry

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## Anthropology Courses

**ANTHRO 1000: General Anthropology**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, physical anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

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**ANTHRO 1000H: General Anthropology - Honors**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, physical anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 1001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 1002: Topics in Anthropology - Biological/Physical/Mathematics**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1003: Topics in Anthropology - Behavioral**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 1004: Topics in Anthropology - Social Science**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 1005: Topics in Anthropology - Humanities**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 1060: Human Language**

(same as LINGST 1060, C\_S\_D 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**ANTHRO 1150: Introduction to Folklore Genres**

(same as ENGLSH 1700). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 1200: Significant Discoveries of Archaeology**

Detailed consideration of approximately 20 archaeological discoveries and conclusions, from the field and the laboratory, which have been of surpassing importance for an understanding of human origins, behavior, culture and past experiences on earth.

**Credit Hours:** 3

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**ANTHRO 1300: Multiculturalism: An Introduction**

Examines contemporary multiculturalism (and its origins) globally; introduces key concepts; uses diverse, extended cross-cultural and American examples; and emphasizes complexity of cultures, practicality of issues, and change.

**Credit Hours:** 3

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**ANTHRO 1350: Deviance: A Cross-Cultural Perspective**

Cross-cultural studies of problem behavior with emphasis on violence, suicide, sexual misconduct, drug use and mental disorder.

**Credit Hours:** 3

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**ANTHRO 1500: Monkeys, Apes and Humans**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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**ANTHRO 1500W: Monkeys, Apes and Humans - Writing Intensive**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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**ANTHRO 2001: Topics in Anthropology-General**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2002: Topics in Anthropology-Biological/Physical/Mathematics**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2003: Topics in Anthropology - Behavioral**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2004: Topics in Anthropology - Social Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2020: Fundamentals of Archaeology with Laboratory**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. The lab involves hands-on experience with archaeological materials. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 4

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**ANTHRO 2021: Fundamentals of Archaeology**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 3

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**ANTHRO 2022: Fundamentals of Archaeology Lab**

Involves hands-on experience with archaeological materials. No credit given to students who have taken ANTHRO 2020.

**Credit Hour:** 1

**Prerequisites:** must have completed ANTHRO 2021

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**ANTHRO 2030: Cultural Anthropology**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2030W: Cultural Anthropology - Writing Intensive**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2040: Anthropological Linguistics**

(same as LINGST 2040). Language in relation to other aspects of human behavior. Introduction to description and analysis of the basic units of language. Emphasis on non-Indo-European and preliterate languages.

**Credit Hours:** 3

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**ANTHRO 2050: Introduction to Biological Anthropology with Laboratory**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. Three hours lecture and two hours lab. No credit for both ANTHRO 2050 and ANTHRO 2051. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** MATH 1100 or MATH 1160

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**ANTHRO 2051: Introduction to Biological Anthropology**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. No credit for both ANTHRO 2050 and ANTHRO 2051.

**Credit Hours:** 3

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**ANTHRO 2052: Biological Anthropology Laboratory**

Laboratory exercises dealing with human genetics, non-human primates, the human fossil record, and human variation. Credit not given for students who have taken ANTHRO 2050. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites:** ANTHRO 2051 (or equivalent) and MATH 1100

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**ANTHRO 2100: Indigenous Religions**

(same as REL\_ST 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

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**ANTHRO 2100H: Indigenous Religions - Honors**

(same as REL\_ST 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 2150: Introduction to Folklore Field Research**

(same as ENGLISH 2700). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ANTHRO 2215: World Archaeology**

Major events in cultural evolution such as control of fire, invention of ceramic and metallurgical technologies, colonization of Australia and the Americas, development of agriculture, and emergence of complex sociopolitical organization are described in all regions of the world.

**Credit Hours:** 3

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**ANTHRO 2300: Anthropology of War**

Anthropological approaches to tribal and modern war; theories of war's origins; relation to ecology, economy, gender, belief systems, politics; transformation of tribal warfare by state expansion; peace.

**Credit Hours:** 3

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**ANTHRO 2340: Hunters and Gatherers**

Exploration of how different hunter-gatherer groups interact with their physical and social environment. Topics include food acquisition, allocation of labor, reproduction and family life, and deciding where to live and when to move.

**Credit Hours:** 3

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**ANTHRO 2500: Primate Anatomy and Evolution**

This course will explore why primates (and humans) are built the way they are, how they evolved, and what their anatomy tells us about their biology. We will cover basic primate anatomy and ecology, and then survey the fossil record of primate evolution.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2520: Forensic Anthropology**

This course will introduce students to how biological anthropologists apply expertise in human osteology, skeletal variation and plasticity,

skeletal pathology, body decomposition, and archaeological recovery of evidence to medicolegal investigations.

**Credit Hours:** 3

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**ANTHRO 2530: Human Evolution through Film and Literature**

This course will use recent films and novels as starting points to introduce students to concepts in human biology, history and evolution. Topics will range broadly from genetics and mutation to primatology to paleoanthropology and the human fossil record.

**Credit Hour:** 1-3

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**ANTHRO 2570: Parents and Offspring**

A comparative investigation of the evolution of parental behaviors and family interactions in humans and other primates.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580: Evolution of Human Sexuality**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580W: Evolution of Human Sexuality - Writing Intensive**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2800: Introduction to Field Methods in Archaeology**

Techniques of field research and laboratory analysis through field experience.

**Credit Hour:** 1-6

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 2825: Analyzing Artifacts**

A brief introduction to the main methods used to analyze artifacts.

**Credit Hours:** 3

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**ANTHRO 2950: Research Skills in Anthropology**

Participation in faculty research activities. Course coordinator matches students with participating faculty. Three hours of research activities per week per credit hour. May be repeated to a maximum of nine hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ANTHRO 3001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3002: Topics in Anthropology-Biological/Physical/Mathematics**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3003: Topics in Anthropology - Behavioral Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3004: Topics in Anthropology - Social Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3150: American Folklore**

(same as ENGLSH 3700). Regional and ethnic American folklore, with emphasis on analysis of folklore in context. Book reports and two analytical papers based on student field research required.

**Credit Hours:** 3

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**ANTHRO 3340: The Evolution of Human Nature**

(same as ANTHRO 3340H, ANTHRO 3340HW, GN\_HON 3241H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with the capacity?). Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 3340H: The Evolution of Human Nature - Honors**

(same as GN\_HON 3241H, ANTHRO 3340, ANTHRO 3340HW). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently

selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 3340HW: The Evolution of Human Nature - Honors/Writing Intensive**

(same as ANTHRO 3340, ANTHRO 3340H GN\_HON 3241H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with the capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility Required

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**ANTHRO 3380: Native American Religions**

(same as REL\_ST 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**ANTHRO 3380H: Native American Religions - Honors**

(same as REL\_ST 3380H). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 3470: Culture as Communication**

(same as COMMUN 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ANTHRO 3490: Indian Cinema**

(same as AR\_H\_A 3790, S\_A\_ST 3490 and FILM\_S 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**ANTHRO 3540: Human Biology and Life History**

A general survey of human biology, focusing on the development of the individual from infancy to adult and the biology of human populations.

**Credit Hours:** 3

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**ANTHRO 3560: Plagues and Peoples**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3560W: Plagues and Peoples - Writing Intensive**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3600: North American Indian Culture**

Comparative study of American Indians north of Mexico, emphasizes eastern United States.

**Credit Hours:** 3

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**ANTHRO 3610: Peoples of Canada**

This course provides an anthropological approach to the culture and peoples of Canada. The course will include in depth studies of several First Nations People, Quebec, various recent immigrant populations, and the modern popular culture of Canada.

**Credit Hours:** 3

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**ANTHRO 3660: Peoples of the Andes**

Archaeological and linguistic prehistory set the stage for the clash of Iberian and indigenous peoples whose descendants make up the Andean countries. Ethnographic studies provides a basis for their understanding.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3680: Plants and People in Native America**

Explores the present and past interactions between people and the plant world, covering use of plants as foods, medicines, and in rituals, and reviewing the origin of major food plants.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3700: Cultures of Europe**

Examines ethnic, linguistic, and folk cultural backgrounds of contemporary Europe and the articulation of local sociocultural units with national society and culture.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3780: Cultures of Southeast Asia**

Survey of peoples and cultures of Southeast Asia; topics include regional geography and prehistory, European colonialism, economic and social organization, religious practices, changing status of women, urban and rural poverty, and environmental transformations.

**Credit Hours:** 3

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**ANTHRO 4001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4002: Topics in Anthropology - Biological/Physical/Mathematics**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4003: Topics in Anthropology - Behavioral Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4004: Topics in Anthropology - Social Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4005: Topics in Anthropology - Humanities**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on

needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4150: Special Themes in Folklore**

(same as ENGLSH 4700; cross-leveled with ANTHRO 7150 and ENGLSH 7700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ANTHRO 4160: Themes in African Diaspora Folklore**

(same as ENGLSH 4710 and BL\_STU 4710; cross-leveled with ENGLSH 7710 and BL\_STU 7710). Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. ANTHRO 4150 and ANTHRO 4160 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4200: Environment and Archaeology**

(cross-leveled with ANTHRO 7200). Study of Quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4240: History of Archaeology**

(cross-leveled with ANTHRO 7240). Growth of archaeology worldwide since AD 1700. Emphases include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 4280: Archaeology of Religion**

(same as REL\_ST 4280; cross-leveled with ANTHRO 7280 and REL\_ST 7280). Examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmogonical constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or REL\_ST 2100

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**ANTHRO 4300: Comparative Social Organization**

(cross-leveled with ANTHRO 7300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross-culturally.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030

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**ANTHRO 4320: Ecological and Environmental Anthropology**

(cross-leveled with ANTHRO 7320). Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 7340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030 or instructor's consent

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**ANTHRO 4350: Psychological Anthropology**

(cross-leveled with ANTHRO 4350). Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 4360: Medical Anthropology**

(cross-leveled with ANTHRO 7360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4370: Anthropology of Gender**

(same as WGST 4370; cross-leveled with ANTHRO 7370 and WGST 7370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 4380: Anthropological Theories of Religion**

(same as REL\_ST 4380; cross-leveled with ANTHRO 7380 and REL\_ST 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 4385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 7385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins,

holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4400: Language and Culture**

(same as LINGST 4400; cross-leveled with ANTHRO 7400 and LINGST 7400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis.

**Credit Hours:** 3

**Recommended:** ANTHRO 2040 or LINGST 2040

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**ANTHRO 4412: Gender, Language, and Communication**

(same as COMMUN 4412 and LINGST 4412; cross-leveled with COMMUN 7412 and LINGST 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**ANTHRO 4420: Historical Linguistics**

(same as LINGST 4420; cross-leveled with ANTHRO 7420 and LINGST 7420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4500: Human Origins**

(cross-leveled with ANTHRO 7500). History and theory in the study of human paleontology.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 7520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4540: Human Biological Variation**

(cross-leveled with ANTHRO 7540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 or ANTHRO 2051 or BIO\_SC 1010

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**ANTHRO 4580: Evolutionary Medicine**

(cross-leveled with ANTHRO 7580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

**Recommended:** lower level course in Biology or Biological Anthropology, junior or senior standing

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**ANTHRO 4600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 7600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4620: North American Archaeology**

(cross-leveled with ANTHRO 7620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 7640). The course will introduce students to the archaeology of aboriginal peoples of the American Southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 7650). Archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 4670: Archaeology of South America**

(cross-leveled with ANTHRO 7670). Development of culture in South America from the Pleistocene to European contact.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 7680). Ethnographic survey of indigenous Amazonian cultures.

**Credit Hours:** 3

**Recommended:** Junior standing required

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**ANTHRO 4700: Old World Prehistory**

(cross-leveled with ANTHRO 7700). Beginnings of culture in the Old World through the early Iron Age.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4720: Mesolithic, Neolithic, and Bronze Age Archaeology**

(cross-leveled with ANTHRO 7720). Analysis of both hunter-gatherer and food-producing prehistoric sociocultural systems in western Eurasia and adjacent areas from the end of the Pleistocene until the development of iron metallurgy. Includes the symbolic material of these periods.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4740: Celtic and Iron Age Archaeology**

(cross-leveled with ANTHRO 7740). Analysis of the pre-and protohistoric sociocultural systems of the Celts and other iron-using tribal cultures of western Eurasia from the inception of an iron based technology until the full historic period. Includes the symbolic material of these cultures.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4770: Asiatic Prehistory**

(cross-leveled with ANTHRO 7770). Prehistory and early cultures of Asia excluding the Near East. Emphasis on Northern Asia, China, Japan, South and Southeast Asia and Oceania.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4790: Culture and Society in South Asia**

(same as S\_A\_ST 4790; cross-leveled with ANTHRO 7790 and S\_A\_ST 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4800: Field Methods in Archaeology**

(cross-leveled with ANTHRO 7800). Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 4810: Paleoethnobotany**

(cross-leveled with ANTHRO 7810). Application of ethnobotanical approaches in archaeology; techniques to recover and interpret floral



remains (macroremains, phytoliths, pollen); research questions in ethnobotany; integration of ethnobiological and archaeological data. Critique of original works in the field emphasized.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4820: Zooarchaeology**

(cross-leveled with ANTHRO 7820). Survey of specialized techniques for archaeological faunal analysis, including zooarchaeological sampling, taphonomy, study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 7826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 7828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022

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**ANTHRO 4830: Ethnographic Methods**

(cross-leveled ANTHRO 7830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

**Recommended:** ANTHRO 2030

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**ANTHRO 4840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 7840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

---

**ANTHRO 4850: Practical Phonetics for Fieldwork**

(same as LINGST 4850; cross-leveled with ANTHRO 7850 and LINGST 7850). Self-paced course using computer and tape recorded lessons

from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4860: Techniques in Linguistic Analysis**

(same as LINGST 4860; cross-leveled with ANTHRO 7860 and LINGST 7860). Problems in analyzing data from various languages.

**Credit Hours:** 3

**Recommended:** introductory course in Linguistics

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**ANTHRO 4870: Field Methods in Linguistics**

(same as LINGST 4870, ENGLSH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4870W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870, ENGLSH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4880: Demographic Anthropology**

(cross-leveled with ANTHRO 7880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** junior or senior standing

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**ANTHRO 4885: Anthropological Genetics**

(cross-leveled with ANTHRO 7885). Population genetics theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050, or ANTHRO 2051 and ANTHRO 2052, or BIO\_SC 1500, or instructor's consent

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**ANTHRO 4890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 7890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4894: Skeletal Biology**

(cross-leveled with ANTHRO 7894). This course is designed to provide students advanced and in-depth training in skeletal biology. Basic bone biology will be studied and advanced methods of skeletal analysis applicable to forensic anthropology and bioarchaeology will be explored.

**Credit Hours:** 3

**Recommended:** ANTHRO 4890 or equivalent background in osteology and/ or anatomy

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**ANTHRO 4940: Internship in Anthropology**

(cross-leveled with ANTHRO 7940). Students will work for a semester in a community-based organization (NGO, nonprofit, for profit, or governmental). They will conduct a research study in coordination with that agency. Upon completion of the research study, students will prepare a final report to be given to the agency and turned in for course credit. The course coordinator will help students identify and make contact with interested organization and oversee their progress during the internship. Graded on S/U basis only. Enrollment is limited to Anthropology Majors with Junior Standing or higher with a 3.5 GPA in Anthropology.

**Credit Hour:** 3-6

**Prerequisites:** coordinator's consent

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**ANTHRO 4950: Undergraduate Research in Anthropology**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4950H: Honors Research in Anthropology**

Individual study and research leading to Honors in Anthropology. In consultation with instructor, student works on Honors Thesis. May be repeated for up to 6 credit hours. Enrollment is limited to Anthropology Majors with Junior Standing or higher, honors eligibility and a 3.5 GPA in Anthropology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 4950HW: Undergraduate Research in Anthropology - Honors/Writing Intensive**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors with Honors Eligibility.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4960: Undergraduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 4990: Capstone Seminar in Anthropology**

Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 4990W: Capstone Seminar in Anthropology - Writing Intensive**

Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 7001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on needs of faculty or students and will be announced in advance.

**Credit Hours:** 3

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**ANTHRO 7150: Special Themes in Folklore**

(same as ENGLSH 7700; cross-leveled with ANTHRO 4150 and ENGLSH 4700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours. Instructor's consent for repetition.

**Credit Hours:** 3

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**ANTHRO 7160: Themes in African Diaspora Folklore**

(same as ENGLSH 7710 and BL\_STU 7710; cross-leveled with ANTHRO 4160, ENGLSH 4710 and BL\_STU 4710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLSH 7700 and ENGLSH 7710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

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**ANTHRO 7200: Environment and Archaeology**

(cross-leveled with ANTHRO 4200). Study of quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

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**ANTHRO 7240: History of Archaeology**

(cross-leveled with ANTHRO 4240). Growth of archaeology worldwide since AD 1700. Emphasis include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

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**ANTHRO 7280: Archaeology of Religion**

(Same as REL\_ST 7280; cross-leveled with ANTHRO 4280 and REL\_ST 4280) This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past

religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**ANTHRO 7300: Comparative Social Organization**

(cross-leveled with ANTHRO 4300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross culturally.

**Credit Hours:** 3

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**ANTHRO 7320: Ecological and Environmental Anthropology**

(cross-leveled with ANTHRO 4320). Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use.

**Credit Hours:** 3

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**ANTHRO 7340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 4340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

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**ANTHRO 7350: Psychological Anthropology**

Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 7360: Medical Anthropology**

(cross-leveled with ANTHRO 4360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

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**ANTHRO 7370: Anthropology of Gender**

(same as WGST 7370; cross-leveled with ANTHRO 4370 and WGST 4370) The Anthropology of Gender Introduces the student to the variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 7380: Anthropological Theory of Religions**

(same as REL\_ST 7380; cross-leveled with ANTHRO 4380 and REL\_ST 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 7385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 4385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7400: Language and Culture**

(same as LINGST 7400; cross-leveled with ANTHRO 4400 and LINGST 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis.

**Credit Hours:** 3

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**ANTHRO 7412: Gender, Language, and Communication**

(same as COMMUN 7412 and LINGST 7412; cross-leveled with ANTHRO 4412, COMMUN 4412 and LINGST 4412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**ANTHRO 7420: Historical Linguistics**

(same as LINGST 7420; cross-leveled with ANTHRO 4420 and LINGST 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**ANTHRO 7500: Human Origins**

(cross-leveled with ANTHRO 4500). History and theory in the study of human paleontology.

**Credit Hours:** 5

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**ANTHRO 7520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 4520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7540: Human Biological Variation**

(cross-leveled with ANTHRO 4540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

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**ANTHRO 7580: Evolutionary Medicine**

(cross-leveled with ANTHRO 4580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

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**ANTHRO 7600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 4600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

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**ANTHRO 7620: North American Archaeology**

(cross-leveled with ANTHRO 4620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

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**ANTHRO 7640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 4640). The course will introduce students to the archaeology of aboriginal peoples of the American southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 7650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 4650). Covers the archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 7680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 4680). Ethnographic survey of indigenous Amazonian cultures

**Credit Hours:** 3

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**ANTHRO 7700: Old World Prehistory**

(cross-leveled with ANTHRO 4700). Beginnings of culture in the old world through the early Iron Age.

**Credit Hours:** 3

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**ANTHRO 7720: Mesolithic, Neolithic, and Bronze Age Archaeology**

(cross-leveled with ANTHRO 4720). Analysis of both hunter-gatherer and food-producing prehistoric sociocultural systems in western Eurasia and adjacent areas from the end of the Pleistocene until the development of iron metallurgy. Includes the symbolic material of these periods.

**Credit Hours:** 3

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**ANTHRO 7740: Celtic and Iron Age Archaeology**

(cross-leveled with ANTHRO 4740). Analysis of the pre-and protohistoric sociocultural systems of the Celts and other iron-using tribal cultures of western Eurasia from the inception of an iron based technology until the full historic period. Includes the symbolic material of these cultures.

**Credit Hours:** 3

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**ANTHRO 7770: Asiatic Prehistory**

(cross-leveled with ANTHRO 4770). Survey of the prehistory and early cultures of Asia excluding the Near East. Emphasis on Northern Asia, China, Japan, South and Southeast Asia and Oceania.

**Credit Hours:** 3

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**ANTHRO 7790: Cultures and Society in South Asia**

(same as S\_A\_ST 7790; cross-leveled with ANTHRO 4790 and S\_A\_ST 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian Diaspora.

**Credit Hours:** 3

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**ANTHRO 7800: Field Methods in Archaeology**

Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 7810: Paleoethnobotany**

(cross-leveled with ANTHRO 4810). Application of ethnobotanical approaches in archaeology; techniques to recover and interpret floral remains (macroremains, phytoliths, pollen); research questions in ethnobotany; integration of ethnobiological and archaeological data. Critique of original works in the field emphasized.

**Credit Hours:** 3

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**ANTHRO 7820: Zooarchaeology**

(cross-leveled with ANTHRO 4820). Survey of specialized techniques for archaeological/faunal analysis, including zoo archaeological sampling, taphonomy study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

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**ANTHRO 7826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 4826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

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**ANTHRO 7828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 4828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or ANTHRO 2022

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**ANTHRO 7830: Ethnographic Methods**

(cross-leveled with ANTHRO 4830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

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**ANTHRO 7840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 4840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7850: Practical Phonetics for Fieldwork**

(same as LINGST 7850; cross-leveled with ANTHRO 4850 and LINGST 4850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

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**ANTHRO 7860: Techniques in Linguistic Analysis**

(same as LINGST 7860; cross-leveled with ANTHRO 4860 and LINGST 4860). Problems in analyzing data from various languages.

**Credit Hours:** 3

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**ANTHRO 7870: Field Methods in Linguistics**

(same as LINGST 7870 and ENGLSH 7670; cross-leveled with ANTHRO, LINGST 4870 and ENGLSH 4870). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** 6 hours of Linguistics and instructor's consent

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**ANTHRO 7880: Demographic Anthropology**

(cross-leveled with ANTHRO 4880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography.

**Credit Hours:** 3

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**ANTHRO 7885: Anthropological Genetics**

(cross-leveled with ANTHRO 4885). Population genetic theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 and ANTHRO 2052 or BIO\_SC 1500

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**ANTHRO 7890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 4890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

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**ANTHRO 7894: Skeletal Biology**

(cross-leveled with ANTHRO 4894). This course is designed to provide students advanced and in-depth training in skeletal biology. Basic bone biology will be studied and advanced methods of skeletal analysis applicable to forensic anthropology and bioarchaeology will be explored.

**Credit Hours:** 3

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**ANTHRO 7940: Internship in Anthropology**

Students will work for a semester in a community-based organization (NGO, nonprofit, for profit, or governmental). They will conduct a research study in coordination with that agency. Upon completion of the research study, students will prepare a final report to be given to the agency and turned in for course credit. The course coordinator will help students identify and make contact with interested organization and oversee their progress during the internship. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** coordinator's consent

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**ANTHRO 7950: Introduction to Post-Graduate Anthropology**

How to succeed in graduate school and profession, and who is MU Anthropology. Introduces skills for success in graduate school, describes attributes of a professional anthropologist and how to find a job. Handouts and readings supplement discussions. Graded on S/U basis only.

**Credit Hour:** 1

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**ANTHRO 7960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 7990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and is announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 8010: History of Anthropology I**

Development of anthropological theories, methods, perspectives, major figures and contributions in cultural and linguistic subfields.

**Credit Hours:** 3

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**ANTHRO 8020: History of Anthropology II**

Development of anthropological theories, methods, perspectives, major figures and contributions in archaeology and biological anthropology.

**Credit Hours:** 3

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**ANTHRO 8090: Masters Thesis Research in Anthropology**

Advanced work leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 8157: Seminar in Folklore**

(same as ENGLSH 8700 and REL\_ST 8700). Roots of folklore scholarship and methodology; their evolution in modern approaches to the study of oral, traditional, verbal genres; and their performance in natural folk groups. May repeat to twelve hours with departments consent.

**Credit Hours:** 3

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**ANTHRO 8187: Seminar in Ecological Adaptation**

Relationships and interactions between humans and their environments, with emphasis on the physical and cultural adaptations to environment. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8257: Seminar in Ethnohistory**

Introduction to the uses of historical documents and historical methods in anthropological research. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8287: Seminar in Theory and Methods in Archaeology**

Application of theory and conceptual frameworks to archaeological studies drawn from both Old and New Worlds. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8357: Seminar in Psychological Anthropology**

Focuses on developments in psychological anthropology, cross-cultural psychology. Special attention on cognition, perception, socialization, personality assessment, psycho-cultural change, psycho-linguistics, psychometrics, within cross-cultural contexts. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8387: Seminar in Health Anthropology**

We survey the field of health behaviors from an anthropological perspective. We ask, what are health behaviors? and what models have social scientists proposed to account for such actions? May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8487: Seminar in Anthropological Linguistics**

(same as LINGST 8487). Topics: Ethnolinguistics, linguistic prehistory, pidgin and Creole languages, linguistic theories and cultural and cultural analysis. French structural anthropology. May be repeated for 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 8587: Seminar in Physical Anthropology**

Readings and discussion concerning current problems in human and nonhuman primate evolution, with emphasis on taxonomy, morphology, and behavior. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8687: Seminar in Cultural Dynamics**

Focuses on geographical, topical, and/or theoretical developments within cultural anthropology. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8787: Seminar in Old World Archaeology**

Intensive studies in application of anthropological concepts to problems in Old World archaeology and prehistory. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8857: Scientific Writing in Anthropology**

Students will be taught to construct research papers that reflect logic, organization, and clarity. Topics covered include outline preparation, syntax, punctuation, sentence construction, and correct reference citation.

**Credit Hours:** 3

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**ANTHRO 8887: Seminar in Anthropological Methods**

Focuses on specific methods/techniques for collecting and analyzing data in archaeological, biological, linguistic, and/or cultural anthropology. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8888: Analyzing Anthropological Data I**

Provides students with the conceptual and analytic tools necessary to conduct and evaluate the analysis of anthropological data. Examples gleaned from archaeology, bioanthropology, ethnography, and linguistics will provide a broad perspective of the application and utility of the various methods discussed.

**Credit Hours:** 3

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**ANTHRO 8889: Analyzing Anthropological Data II**

This course introduces a variety of conceptual tools and advanced quantitative methods that anthropologists use to analyze their data. It includes an introduction of common software packages used to manipulate and analyze anthropological data.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 8888 or grad-level intro stats or instructor's consent

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**ANTHRO 8960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8987: Seminar in Formal Anthropological Research Design**

Methods of fitting statistical and formal research designs to quantitative and qualitative data discussed and illustrated, with research by participants. May be repeated to 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** introductory course in statistics

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**ANTHRO 8990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a dissertation.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 9090: Doctoral Dissertation Research in Anthropology**

Advanced work leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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## Arabic Courses

**ARABIC 1100: Elementary Arabic I**

For beginners with no prior knowledge of Arabic. An elementary level course designed to facilitate student's acquisition of basic proficiency in communication within culturally significant contexts. Students learn Modern Standard Arabic language skills in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

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**ARABIC 1200: Elementary Arabic II**

This course builds upon the foundation established in ARABIC 1100. Greater emphasis is placed on oral and written expression. Cultural

issues are explored in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

**Prerequisites:** C- or higher in ARABIC 1100, or instructor's permission

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**ARABIC 2005: Undergraduate Topics in Arabic - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**ARABIC 2130: Intermediate Arabic**

Builds on students' knowledge of Elementary Arabic by investing in four language skills of listening, speaking, reading, and writing. Course is culturally oriented and considers various social, political, and religious forces to play in Arab world. Offers a unique blend of modern standards and colloquial Arabic. Enables students to develop listening comprehension, initiate and sustain conversations on daily-life topics, read texts on familiar topics, and write informal essays on topics, and write informal essays on topics connected to daily life.

**Credit Hours:** 3

**Prerequisites:** ARABIC 1200 or equivalent

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## Architectural Studies Courses

**ARCHST 1005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 1100: Visual Design**

Design study as an introduction to basic design and visual composition with application to creating two- and three-dimensional abstract and /or functional design work. Studio exercises expressed through drawings and abstract models, using various media.

**Credit Hours:** 3

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**ARCHST 1200: Architectural Drafting and Working Drawings**

Beginning drafting including equipment and materials; lettering; floor plans, sections, elevations; orthographic and axonometric drawings; working drawings; and details.

**Credit Hours:** 3

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**ARCHST 1600: Fundamentals of Environmental Design**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ARCHST 1600W: Fundamentals of Environmental Design - Writing Intensive**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ARCHST 2005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 2085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 2100: Understanding Architecture and the American City**

Multifaceted introduction to the architectural and social roots of urban form in the U. S.: historic precedents from around the world; growth, decline and revival of cities; rise of suburbia; tradition and transformation in campus communities; continuing housing challenges; sustainable design and the future of urbanism. Explores a diverse range of opportunities to improve communities available to professionals and general public.

**Credit Hours:** 3

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**ARCHST 2210: Understanding Visualization for Animated Films**

Provides a critical overview of design and visualization techniques in animated film making. Emphasizes the role of built environment and spatial design features.

**Credit Hours:** 3

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**ARCHST 2220: Introduction to CAD**

Introduction to computer-aided drafting and design with AutoCad software. Emphasis will be placed on development of skills and problem solving related to the professions of environmental and interior design.

**Credit Hours:** 3

**Recommended:** ARCHST 1200

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**ARCHST 2230: Design Communication I**

Beginning studio course in techniques and conventions of graphic communication as an aid in the design process for interior designers.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 2310: Building Systems**

Integrated building systems: structure, construction, technology, comfort; including voice-data communication, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems; and project estimating.

**Credit Hours:** 3

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**ARCHST 2315: Introduction to Building Systems Laboratory**

Building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. All equipment training and safety is covered in this introductory course.

**Credit Hour:** 1

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**ARCHST 2316: Advanced Building Systems Lab**

Advanced exposure to building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ARCHST 2315

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**ARCHST 2323: Sustainable Building Design Fundamentals**

Environmental concerns addressed by green building design practices for consumers and owners of homes and businesses. Overview of how green buildings improve prospects for ecology, economy, social equity, and human health. Hands-on lab experiments reference national performance standards for decision making in sustainable building projects. Emphasis on energy and water use, sustainable sites, environmentally friendly building products, indoor air quality, and design for sustainable behaviors. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 2620: People, Places and Design**

Understanding human behavior and interaction with environments; the influence of architectural design on built places. Practical application for design.

**Credit Hours:** 3

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**ARCHST 2811: Studio I**

Application of basic design and composition to built form. Studio exercises in two and three dimensions using various media relating to usable spaces. Formation of design concept, development of form and space, and application in built environment.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**ARCHST 3100: Color and Light**

The theory, application, and specification of color and light for interior and architectural design. Includes assigned lab exercises for color and light portfolio.

**Credit Hours:** 3

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**ARCHST 3182: Studio II**

Application of basic design principles to built forms and functional spaces. Identification and manipulation of elements of design, understanding spatial relationships between human body and spatial enclosures related to built forms. Spatial organization and familiarity with role of immediate context.



**Credit Hours:** 4

**Prerequisites:** ARCHST 2811

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**ARCHST 3230: Advanced Design Communication Using BIM**

Advanced course in techniques and conventions of computer aided design (CAD) and Building Information Modeling (BIM) for contemporary design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2230

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**ARCHST 3371: Design Resource Management**

Field experience (5 hours per week) in organization and management of resources used by interior designers, including references, product information, and samples of materials and finishes.

**Credit Hour:** 1

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**ARCHST 3600: Environmental Analysis**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 3600W: Environmental Analysis - Writing Intensive**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 3860: Human Factors Programming**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 3860W: Human Factors Programming - Writing Intensive**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 4001: Topics in Architectural Studies**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 4085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4230: Computer Graphic Application for Design I**

Applications of computer graphics for design and art; includes visualization, animation and creative development. May repeat up to 12 credit hours maximum.

**Credit Hours:** 3

**Recommended:** junior standing

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**ARCHST 4320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Recommended:** ARCHST 2310

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**ARCHST 4323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in building and interiors.

**Credit Hours:** 3

---

**ARCHST 4333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2220 and ARCHST 2811

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**ARCHST 4355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 1-99

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**ARCHST 4411: Study Abroad in Architectural History**

Discovery of historic architecture through on-site tour of timeless cities and places. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARCHST 4420: History of the Designed Environment after 1750**

An in-depth study of the designed environment, including housing, interiors, and furniture of the major historical periods from the Industrial Revolution to today.

**Credit Hours:** 3

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**ARCHST 4430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 7430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Recommended:** American History or Government, or Art History

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**ARCHST 4435: History of the Designed Environment to 1750**

An in-depth study of the designed environment including interiors, architecture, art, and the decorative arts within the major historical periods and cultural context from prehistory to the Industrial Revolution.

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**Credit Hours:** 3

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**ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 7440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

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**ARCHST 4550: Visual Presentation for Design**

Emphasizes principles and techniques for effective visual design presentation. Focuses on concepts of design, layout, storytelling, critiques, and hands on exercise.

**Credit Hours:** 3

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**ARCHST 4555: Recent Trends**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 4630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 4660: Housing Concepts and Issues**

Evaluate housing policies, regulations, codes, programs; global and ecological perspectives of environment and behavior; historic preservation; financial issues; trends and projections.

**Credit Hours:** 3

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**ARCHST 4700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 4710: Design Business Practices**

Analysis of the basic professional, human, and business skills necessary for the successful design practice.

**Credit Hours:** 3

**Prerequisites:** ARCHST 4814 or ARCHST 4824

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**ARCHST 4760: Healthcare Facilities Design**

(cross-leveled with ARCHST 7760). Health care facilities design and planning course provides an in-depth investigation of best practice examples. Design and research methods include evidence-based design, simulation, and space syntax analysis leading to high-performance healthcare design. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4813: Interiors Studio III**

Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design processes. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to interiors.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4814: Interiors Studio IV**

Continuation of ARCHST 4813. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces--both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4813

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**ARCHST 4815: Construction Documents and Building Information Modeling Studio**

Studio of how materials, systems, and assemblies reinforce and extend intentions of designers. Course teaches strategies and techniques for integration and coordination of the building components and details in construction documents and building information modeling.

**Credit Hours:** 4

**Prerequisites or Corequisites:** ARCHST 4814 or ARCHST 4824

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**ARCHST 4823: Architectural Studio III**

Continuation of ARCHST 3182. Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design process. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to architecture.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4824: Architectural Studio IV**

Continuation of ARCHST 4823. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces - both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4823

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**ARCHST 4860: Programming for Thesis Design Studio**

Develop written comprehensive program for thesis design studio project. Supervised by student-selected committee -- one departmental thesis advisor and at least one additional faculty member.

**Credit Hour:** 0-1

**Prerequisites:** ARCHST 3860 and ARCHST 4814 or ARCHST 4824

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**ARCHST 4940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4960: Readings in Architectural Studio**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 4961: Design Research and Service Design**

(cross-leveled with ARCHST 7961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and Communication of research findings to informed design concepts.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 7962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4963: Human Factors Research for Design**

(cross-leveled with ARCHST 7963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

**Recommended:** ARCHST 3860

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**ARCHST 4964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 7964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition computations, and design protocol studies.

**Credit Hours:** 3

**Recommended:** ARCHST 4813 or ARCHST 4823

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**ARCHST 4990: Thesis Design Studio**

Capstone experience on a single comprehensive project. Objective is to enable synthesis of previous course work by addressing a design problem defined in ARCHST 4860.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4860, ARCHST 4814 or ARCHST 4824

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**ARCHST 7001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 7085: Problems in Environmental Design**

Supervised independent work.

**Credit Hour:** 1-99

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**Prerequisites:** 3000-level course in field of problem and instructor's consent

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**ARCHST 7100: Allied Architecture and Urban Design**

Overview of the built environment in relation to architecture and allied design. Emphasis on architecture, interior, landscape and urban design studies.

**Credit Hours:** 3

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**ARCHST 7230: Computer Graphic Application for Design I**

Applications of computer graphics for design and art; includes visualization, animation and creative development. May repeat up to 12 credit hours maximum.

**Credit Hours:** 3

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**ARCHST 7232: Graduate Design Communication I**

Studio course in techniques and conventions of graphic communication as an aid in the design process of built forms.

**Credit Hours:** 3

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**ARCHST 7310: Graduate Building Systems**

Integrated building systems; structure construction, technology, comfort; including voice-communications, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems, project estimating and management.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7315: Graduate Systems Laboratory**

Experimental learning setting involving building construction systems, renovation, materials and finishes testing and experimentation. Focus on hands-on opportunities investigating building technology properties in detail. Laboratory 3 hrs/week.

**Credit Hour:** 1-9

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**ARCHST 7320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

---

**ARCHST 7323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in buildings and interiors.

**Credit Hours:** 3

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**ARCHST 7325: Energy-Efficient Building Design**

This course is a broad study of energy use and energy-efficient strategies for buildings. The course will cover the fundamentals of climate-based design, energy-efficient heating/cooling/daylighting strategies, alternative energy systems applicable to buildings, energy auditing/modeling/verification, applicable building energy codes, and high performance building technologies. Recommended for graduate students with

undergraduate degrees and experience in engineering, architecture, and/or building science.

**Credit Hours:** 3

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**ARCHST 7333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2100 and MATH 1100 or MATH 1120

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**ARCHST 7355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 2-4

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**ARCHST 7410: History of the Designed Environment to 1750**

An in-depth study of the designed environment including housing interiors, and furniture of the major historical periods from prehistory to the Industrial Revolution.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 1110 and AR\_H\_A 1120

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**ARCHST 7411: Study Abroad in Architectural History**

Discovery of historic architecture through on-site tour of timeless cities and places. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 7420: History of the Designed Environment after 1750**

An in-depth study of the designed environment, including housing, interiors, and furniture of the major historical periods from the Industrial Revolution to today.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 1110 or AR\_H\_A 1120

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**ARCHST 7430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 4430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Prerequisites:** American History or Government or Art History or instructor's consent

---

**ARCHST 7440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 4440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

---

**ARCHST 7550: Visual Presentation for Design**

Emphasizes principles and techniques for effective visual design presentation. Focuses on concepts of design, layout storytelling, critiques and hands on exercises.

**Credit Hours:** 3

---

**ARCHST 7555: Recent Trends in Environmental Design**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

---

**ARCHST 7620: Environment and Behavior**

Evaluate relationships between human behavior and environmental design. Survey of environment and behavior theoretical foundations examining how these concepts translate into a more responsive theory of design.

**Credit Hours:** 3

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**ARCHST 7630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

---

**ARCHST 7640: Physical Function and Older Adults**

(same as F\_C\_MD 7750, HMI 7750, H\_D\_FS 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7650: Psychosocial Function and Older Adults**

(same as F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7660: Housing Concepts and Issues**

Evaluate housing policies, regulations, codes, programs; global and ecological perspectives of environment and behavior; historic preservation; financial issues; trends and projections.

**Credit Hour:** 1-12

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**ARCHST 7700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 7710: Design Business Practices**

Analysis of the basic professional, human, and business skills necessary for the successful design practice. Prerequisites or Corequisites of Studio IV and anticipated graduation during final academic year.

**Credit Hours:** 3

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**ARCHST 7760: Healthcare Facilities Design**

(cross-leveled with ARCHST 4760). Health care facilities design and planning course provides an in-depth investigation of best practice examples. Design and research methods include evidence-based design, simulation, and space syntax analysis leading to high-performance healthcare design. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7815: Studio V**

A continuation of previous studio with emphasis on digital media.

**Credit Hours:** 4

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**ARCHST 7840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 7940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

---

**ARCHST 7960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

---

**ARCHST 7961: Design Research and Service Design**

(cross-leveled with ARCHST 4961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and communication of research findings to inform design concepts.

**Credit Hours:** 3

---

**ARCHST 7962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 4962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

---

**ARCHST 7963: Human Factors Research for Design**

(cross-leveled with ARCHST 4963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

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**ARCHST 7964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 4964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition and computations, and design protocol studies.

**Credit Hours:** 3

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**ARCHST 8001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 8050: Research Methods in Environmental Design**

A comparative study of quantitative and qualitative methods in environmental design with emphasis on research results and analyses. Lectures and seminar discussions.

**Credit Hours:** 3

**Prerequisites:** 12 hours advanced design

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**ARCHST 8085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 8090: Master's Research in Environmental Design**

Independent research leading to a creative project. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 8230: Computer Graphic Application for Design II**

Creative computer graphic modeling, rendering and animation projects related to the academic background and interests of individual students. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ARCHST 8233: Graduate Design Communication II**

Advanced studio in techniques and conventions of graphic communication as aides in the design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 7232 or advisor's consent

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**ARCHST 8600: Graduate Environmental Analysis**

Analysis of design principles and organizational factors operating in a building by means of dissection. Volumetric disposition, circulation pattern, axes, structural system, materials, purpose, and symbolism.

**Credit Hours:** 3

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**ARCHST 8630: Philosophy of Environmental Design Research**

Formal environmental design theory concerning historical precedents, current aesthetic trends, and design processes. Assignments investigate philosophical influences, architectonic vocabularies, and communication of idea and artifact. May be repeated up to 12 credit hours.

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**Credit Hours:** 3

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**ARCHST 8633: Theoretical Perspectives of Design Computing**

Key theoretical ideas underlying the relationship between design and computing. Main research topics relevant to current discourse in design computing.

**Credit Hours:** 3

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**ARCHST 8650: Theories in Architectural and Interior Design**

Architectural and interior design theory is explored as a field of inquiry. Students become familiar with a theoretical framework that is sensitive to the play between the principles of a building (what it is as a design) and the circumstances of a building (what it becomes to be).

**Credit Hours:** 3

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**ARCHST 8820: Graduate Digital Design Studio**

Graduate level design experience emphasizing project complexity, design skill refinement, and use of digital media for design representation.

**Credit Hour:** 1-99

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**ARCHST 8830: Digital Design Studio II**

Advanced graduate level design experience emphasizing design, documentation, and representation using digital media. Optional development of graduate thesis project may be scheduled in this studio.

**Credit Hours:** 4

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**ARCHST 8840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 8850: Seminar in Environmental Design**

Reports, discussion of recent work in area of concentration.

**Credit Hour:** 1-4

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**ARCHST 8887: Environment and Behavior II**

Synthesis of environment and behavior themes in design research and application to professional practice. Research on socio-behavioral phenomena, user groups, places. Emphasis on integrated interactive character of elements.

**Credit Hours:** 3

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**ARCHST 8950: Qualitative Research Methods**

Explores qualitative research methods as foundation for subsequent study. Focuses on qualitative research of the built environment. Course may be repeated for credit.

**Credit Hours:** 3

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**ARCHST 8960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

**Prerequisites:** ARCHST 4960 or ARCHST 7960

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**ARCHST 8990: Thesis Project Proposal**

The formal opportunity to express the intent and scope of the thesis project.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ARCHST 9001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 9085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 9090: Doctoral Research in Environmental Design**

Independent research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 9555: Recent Trends in Environmental Design**

For students seeking additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-99

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**ARCHST 9990: Dissertation Proposal**

A formal dissertation proposal is written and presented to the dissertation committee for approval.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**ARCHST 9995: Pilot Project for Dissertation**

Working with advisor, student proposes, conducts, and reports the findings from a pilot study germane to the dissertation topic in preparation for the dissertation research.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art History And Archaeology Courses

**AR\_H\_A 1005: Undergraduate Topics in Art History and Archaeology- Humanities**

Special studies in Art History and Archaeology.

**Credit Hour:** 1

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**AR\_H\_A 1010: Introduction to Museum of Art and Archaeology, UMC**

This course is a brief introduction to the Museum of Art and Archaeology on Francis Quadrangle. Special attention will be given to the history of the Museum, to its operation and to its collection. Guest lecturers from the from the Museum will provide first hand accounts of their contributions

to the day-to-day operations of the Museum and to the academic mission of the University.

**Credit Hour:** 1

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**AR\_H\_A 1020: Giotto and the Arena Chapel**

This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) Chapel of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**Credit Hour:** 1

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**AR\_H\_A 1030: Early Works of Michelangelo**

This course is a brief introduction to the life and work of Michelangelo. Special attention will be given to his early works and to stories about him, especially those by Giorgio Vasari in his Lives of the Artist, Florence, 1568.

**Credit Hour:** 1

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**AR\_H\_A 1040: Rembrandt**

This course is a brief introduction to the life and work of the seventeenth-century Dutch painter Rembrandt van Rijn. Special attention is given to the appreciation of his art by his contemporaries.

**Credit Hour:** 1

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**AR\_H\_A 1105: Undergraduate Topics in Art History and Archaeology**

Special studies in Art History and Archaeology.

**Credit Hours:** 3

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**AR\_H\_A 1110: Ancient and Medieval Art**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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**AR\_H\_A 1110H: Ancient & Medieval Art - Honors**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AR\_H\_A 1110W: Ancient and Medieval Art - Writing Intensive**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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**AR\_H\_A 1120: Renaissance through Modern Art**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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**AR\_H\_A 1120H: Renaissance through Modern Art - Honors**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AR\_H\_A 1120W: Renaissance through Modern Art - Writing Intensive**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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**AR\_H\_A 1230: Introduction to Asian Arts**

(same as HIST 1820, REL\_ST 1820, S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**AR\_H\_A 2005: Topics Art History and Archaeology - Humanities**

Study of special topics in Art History and Archaeology.

**Credit Hour:** 1-3

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**AR\_H\_A 2150: The Art of the Book**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**AR\_H\_A 2150W: The Art of the Book - Writing Intensive**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**AR\_H\_A 2230: Introduction to the Arts of Islam**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AR\_H\_A 2230W: Introduction to the Arts of Islam - Writing Intensive**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AR\_H\_A 2410: Ancient Technology**

Engineering, architecture, and military technology in the ancient world.

**Credit Hours:** 3

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**AR\_H\_A 2720: African-American Visual Culture**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**AR\_H\_A 2720W: African-American Visual Culture - Writing Intensive**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**AR\_H\_A 2830: American Art and Architecture**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**AR\_H\_A 2830W: American Art and Architecture - Writing Intensive**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**AR\_H\_A 2850: Introduction to Visual Culture**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**AR\_H\_A 2850W: Introduction to Visual Culture - Writing Intensive**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**AR\_H\_A 2860: The Lives of Objects**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**AR\_H\_A 2860W: The Lives of Objects - Writing Intensive**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**AR\_H\_A 2940: Archaeological Methods**

Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AR\_H\_A 2960: Special Readings in Art History and Archeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AR\_H\_A 3005: Topics in Art History and Archaeology- Humanities**

Selected studies in various facets of art history and archaeology.

**Credit Hour:** 1-3

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**AR\_H\_A 3005H: Topics in Art History and Archaeology- Humanities - Honors**

Selected studies in various facets of art history and archaeology. Enrollment limited to students with Honor's eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AR\_H\_A 3010: Study Abroad in Art History and Archaeology**

Instruction in art history, architecture, or archaeology takes place in a foreign country or countries. Trips are led and taught by University of Missouri faculty.

**Credit Hour:** 3-6

**Prerequisites:** departmental consent

**Recommended:** Sophomore standing or higher

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**AR\_H\_A 3120: Art and Gender in Antiquity**

Comparative survey of Egypt, Greece, and Rome, focusing on gender construction and cultural perception through material resources.

**Credit Hours:** 3

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**AR\_H\_A 3210: Near Eastern and Egyptian Art and Archaeology**

General survey of material culture of the Near East and Egypt from the earliest times to the early Iron Age.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3310: Greek Art and Archaeology**

General survey of material culture in Greece from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3410: Roman Art and Archaeology**

General survey of material culture in the Roman world from earliest times through the 3rd century.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3510: Byzantine and Islamic Art and Archaeology**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3510W: Byzantine and Islamic Art and Archaeology - Writing Intensive**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent



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**AR\_H\_A 3520: Early Medieval Art and Archaeology**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3520W: Early Medieval Art and Archaeology - Writing Intensive**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3530: Late Medieval Art**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3530W: Late Medieval Art - Writing Intensive**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3620: Italian Renaissance Art**

General survey of the architecture, painting and sculpture of Italy from the 14th through the 16th century.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3630: Northern Renaissance Art**

General survey of northern European art and architecture from the late 14th through the late 16th century.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3640: Baroque Art**

General survey of 17th century European architecture, painting and sculpture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3720: Cities in the Western Imagination**

Interdisciplinary introduction to the forms, functions, and meanings of cities in Europe and the Americas from ancient to modern times; plans and predictions for the future also considered. Emphasis is placed on cities as fields for imaginative activity on the part of those who have designed, built, used, and interpreted them.

**Credit Hours:** 3

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**AR\_H\_A 3730: Eighteenth Century European Art**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3730W: Eighteenth Century European Art - Writing Intensive**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3740: Nineteenth Century European Art**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3740W: Nineteenth Century European Art - Writing Intensive**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3750: Modern Art in Europe and America**

General survey of international directions in painting, sculpture, and architecture from 1885 to ca. 1940.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3760: Contemporary Art**

General survey of painting, sculpture, and architecture from the Second World War to the present.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3775: The Ancient World on Film**

(same as CL\_HUM 3775 and FILM\_S 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** Prior 2000 level coursework in Classical Humanities, Art History and Archaeology, or Film Studies

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**AR\_H\_A 3780: Architecture in Film**

(same as FILM\_S 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a

variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**AR\_H\_A 3785: Arts and Artists on Film**

(same as FILM\_S 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**AR\_H\_A 3790: Indian Cinema**

(same as ANTHRO 3490, S\_A\_ST 3490 and FILM\_S 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**AR\_H\_A 3830: American Art and Culture, 1500-1820**

General survey of American visual culture - painting, sculpture, architecture-between 1500 and 1820.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3840: American Art and Culture, 1820-1913**

General survey of American visual culture - painting, sculpture, architecture, photography - between 1820-1913.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or AR\_H\_A 2830 or equivalent

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**AR\_H\_A 3850: American Art and Culture, 1913-Present**

General survey of American visual culture - painting, sculpture, architecture, photography, advertising, film, new media - between 1913 and the present.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or AR\_H\_A 2830 or equivalent

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**AR\_H\_A 4005: Topics in Art History and Archaeology-Humanities**

Special studies in art history/archaeology; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 4120: Gender and the Arts**

(same as WGST 4120; cross-leveled with WGST 7120, AR\_H\_A 7120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AR\_H\_A 7320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4340: Greek Architecture**

(cross-leveled with AR\_H\_A 7340). Survey of the art of building in the Aegean and Classical world from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4350: Greek Pottery**

(cross-leveled with AR\_H\_A 7350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4360: Greek Sculpture**

(cross-leveled with AR\_H\_A 7360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4420: Minor Arts of Antiquity**

(cross-leveled with AR\_H\_A 7420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4440: Roman Architecture**

(cross-leveled with AR\_H\_A 7440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4460: Roman Sculpture**

(cross-leveled with AR\_H\_A 7460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4490: Late Antique Art and Archaeology**

(cross-leveled with AR\_H\_A 7490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4510: Byzantine Art and Archaeology**

(cross-leveled with AR\_H\_A 7510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

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**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AR\_H\_A 7520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4530: Romanesque Art and Architecture**

(cross-leveled with AR\_H\_A 7530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4540: Gothic Art and Architecture**

(cross-leveled with AR\_H\_A 7540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4620: Michelangelo and the High Renaissance**

(cross-leveled with AR\_H\_A 7620). Sculpture, architecture, paintings, and drawings of Michelangelo in the context of his times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4630: The Renaissance Artist**

(cross-leveled with AR\_H\_A 7630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4640: Renaissance and Baroque Architecture**

(cross-leveled with AR\_H\_A 7640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4650: Venetian Painting**

(cross-leveled with AR\_H\_A 7650). Survey of Venetian Painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4660: Art and Ideas in the Northern Renaissance**

(cross-leveled with AR\_H\_A 7660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4670: Baroque Figural Arts**

(cross-leveled with AR\_H\_A 7670). Painting and sculpture of Italy in the 17th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4710: The Arts of the Rococo**

(cross-leveled with AR\_H\_A 7710). This course explores European Art from approximately 1710 to 1770, focusing on art associated with two different social sectors: The early modern aristocratic court culture whose artistic predilections had formed the European norm, and the increasingly powerful merchant classes whose newfound wealth enabled new artistic genres and styles to proliferate. Our inquiry begins with an exploration of the rococo as an ornamental style; we examine its origins in Italian garden architecture and subsequent transformation into a decoration for both French palatial interiors and German Churches. We then launch a succession of case studies of important artists, media, and objects in order to assess the varied ways that diverse social identities were deflected through the periods' art an architecture. Students will pursue a research topic on rococo art for their semester project.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4720: Revolution and Romanticism: Art C. 1800**

(cross-leveled with AR\_H\_A 7720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4730: Realism Through Post-Impressionism**

(cross-leveled with AR\_H\_A 7730). Styles and issues in nineteenth-century art.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4740: Modern Architecture**

(cross-leveled with AR\_H\_A 7740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4750: Contemporary World Architecture**

(cross-leveled with AR\_H\_A 7750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films, and field trips. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4760: Modern Sculpture**

(cross-leveled with AR\_H\_A 7760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4780: Advanced Course in Contemporary Art**

(cross-leveled with AR\_H\_A 7780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4820: American Material Culture**

(cross-leveled with AR\_H\_A 7820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4840: American Architecture**

(cross-leveled with AR\_H\_A 7840). An exploration of architecture and urbanism from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4960: Special Readings in Art History and Archaeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4970: Capstone: Art History and Archaeology**

Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**AR\_H\_A 4980: Internship**

A one-semester or full summer intensive internship for departmental majors with specific projects and responsibilities to be arranged by the student in cooperation with a faculty member and an appropriate agent of the museum involved. May be taken as an elective only. May be repeated for a maximum of 6 hours credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4996: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4999: Honors Reading and Research I**

Individual research projects in preparation of senior thesis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7005: Topics in Art History and Archaeology**

Special studies in art history or archaeology; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 7120: Gender and the Arts**

(same as WGST 7120; cross-leveled with AR\_H\_A 4120, WGST 4120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7130: Museum Studies**

Functions and history of museums and interrelations among departments, including those of director, curator, registrar, education, conservation, and marketing. Topics include acquisitions policies; public outreach; role of architecture; and philosophical and legal issues pertaining to administration of museums.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7170: Historic Preservation**

(same as HIST 7450). Survey of the historic preservation movement and techniques by faculty and guest speakers active in the field.

**Credit Hour:** 3-9

**Prerequisites:** instructor's consent

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**AR\_H\_A 7320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AR\_H\_A 4320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7340: Greek Architecture**

(cross-leveled with AR\_H\_A 4340). Survey of the art of building in the Aegean and Classical world from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7350: Greek Pottery**

(cross-leveled with AR\_H\_A 4350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7360: Greek Sculpture**

(cross-leveled with AR\_H\_A 4360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7420: Minor Arts of Antiquity**

(cross-leveled with AR\_H\_A 4420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7440: Roman Architecture**

(cross-leveled with AR\_H\_A 4440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**AR\_H\_A 7460: Roman Sculpture**

(cross-leveled with AR\_H\_A 4460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7490: Late Antique Art and Archaeology**

(cross-leveled with AR\_H\_A 4490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7510: Byzantine Art and Archaeology**

(cross-leveled with AR\_H\_A 4510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AR\_H\_A 4520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7530: Romanesque Art and Architecture**

(cross-leveled with AR\_H\_A 4530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7540: Gothic Art and Architecture**

(cross-leveled with AR\_H\_A 4540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7620: Michelangelo and the High Renaissance**

(cross-leveled with AR\_H\_A 4620). Sculpture, architecture, paintings, and drawings of Michelangelo in the context of his times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7630: The Renaissance Artist**

(cross-leveled with AR\_H\_A 4630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7640: Renaissance and Baroque Architecture**

(cross-leveled with AR\_H\_A 4640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**AR\_H\_A 7650: Venetian Painting**

(cross-leveled with AR\_H\_A 4650). Survey of Venetian painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7660: Art and Ideas in the Northern Renaissance**

(cross-leveled with AR\_H\_A 4660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7670: Baroque Figural Arts**

(cross-leveled with AR\_H\_A 4670). Painting and sculpture of Italy in the 17th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7710: The Arts of the Rococo**

(cross-leveled with AR\_H\_A 4710). This course explores European art from 1710 to 1770, beginning with an exploration of the rococo as an ornamental language and then moving to case studies of artists, media, and objects in order to assess how social identities were expressed through design.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 8110 and instructor's consent

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**AR\_H\_A 7720: Revolution and Romanticism: Art Circa 1800**

(cross-leveled with AR\_H\_A 4720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with

the major events of the French Revolution, its aftermath, and its global repercussions.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 8110 and instructor's consent

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**AR\_H\_A 7730: Realism Through Post-Impressionism**

(cross-leveled with AR\_H\_A 4730). Styles and issues in nineteenth-century art.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7740: Modern Architecture**

(cross-leveled with AR\_H\_A 4740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7750: Contemporary World Architecture**

(cross-leveled with AR\_H\_A 4750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective, topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films and field trips. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 1120 and instructor's consent

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**AR\_H\_A 7760: Modern Sculpture**

(cross-leveled with AR\_H\_A 4760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**AR\_H\_A 7780: Advanced Course in Contemporary Art**

(cross-leveled with AR\_H\_A 4780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7820: American Material Culture**

(cross-leveled with AR\_H\_A 4820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7840: American Architecture**

(cross-leveled with AR\_H\_A 4840). An exploration of architecture from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7940: Archaeological Methods**

(cross-leveled with AR\_H\_A 4940). Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AR\_H\_A 7960: Special Readings in Art History or Archaeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 7980: Internship in Art History and Archaeology**

A one semester or full summer intensive internship with specific projects and responsibilities to be arranged by the student and the program director.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8070: Master's Tutorial**

Consultation with faculty advisory and preparation of a scholarly essay based on a graduate research paper. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** AR\_H\_A 8110, and other graduate courses in Art History & Archaeology

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**AR\_H\_A 8080: Readings for MA Thesis in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8090: Master's Thesis Research and Thesis**

Individual research leading to preparation of the M.A. thesis Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8110: Introduction to Graduate Study**

Research methods, bibliography, use and criticism of source material. Required of graduate students in Art History and Archaeology who have not had AR\_H\_A 4996.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**AR\_H\_A 8120: Theories and Methodologies in Art History and Archaeology**

Literature of art and archaeology in terms of works of leading European and American art historians, archaeologists.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8130: Museum Studies Seminar**

Appropriate means for care and display of artifacts. Topics include: accessioning, cataloging, retrieval of information, and laws and ethics of collecting; the museum environment and its monitoring; condition reports, shipping and storage, and conservation. Field trips.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8140: Art Theory and Criticism**

Theoretical and critical literature of art from earliest times to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8170: Historic Preservation Seminar**

Research techniques to solve research problems and conduct field recording in historic preservation, material culture, historic architecture, and cultural heritage studies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8320: Seminar in Greek Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8420: Seminar in Roman Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8440: Ancient/Medieval Topography**

(same as CLASS 8440). Descriptive and historical analysis of a selected city or site. Subject varies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8490: Seminar in Late Antique Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 7490 or equivalent

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**AR\_H\_A 8520: Seminar in Medieval Art and Archaeology**

Specific subjects of study will be assigned to students for presentation in relation to broader questions of the cultural/ historical phenomena of the time, from ca 700 to ca 1400.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8620: Seminar in Renaissance Art**

Special subjects of study assigned for Northern or Southern Renaissance for individual research, discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8710: Seminar in 18th Century Art**

Special subjects of study in 18th century art assigned for individual research; reports to be presented and discussed by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8720: Seminar in 19th Century Art**

Special subjects of study in 19th century art assigned for individual research; reports to be presented and discussed by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8740: Seminar in Modern Architecture**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8750: Seminar in Modern and Contemporary Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8800: Seminar in American Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 9080: Readings for PhD Dissertation in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/ or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 9090: Doctoral Dissertation Research in Art History and Archaeology**

Individual research leading to preparation of the Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art-Ceramics Courses

**ART\_CERM 2100: Beginning Ceramics**

Exploration of ceramic art as an expressive, communicative medium. Study of ceramic design, technique and historic and contemporary models within the context of the creative process. Group critiques, slides, demonstrations. Expendable materials fee.

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**Credit Hours:** 3

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**ART\_CERM 3100: Intermediate Ceramics**

Continuation of ART\_CERM 2100 with emphasis on wheel throwing and the vessel format. Further exploration of glazing and firing techniques. Group and individual critiques, demonstrations, slide lectures and visiting artists. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_CERM 4100: Advanced Ceramics**

Continuation of ART\_CERM 3100. Includes advanced problems in firing, clay and glaze technology, forming and ornamentation. Payment of expendable materials fee required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_CERM 4110: Ceramics Sculpture**

Sculptural forms constructed of slabs, coils and wheel-thrown elements. Payment of expendable materials expense is required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

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**ART\_CERM 4185: Problems in Ceramics**

Problems in Ceramics.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_CERM 7100: Graduate Ceramics**

Advanced study of ceramic technology and design concepts with emphasis on directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_CERM 4100

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**ART\_CERM 7110: Graduate Ceramic Sculpture**

Directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_CERM 4100

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**ART\_CERM 7185: Problems in Ceramics**

Graduate level work in ceramics.

**Credit Hour:** 1-3

**Prerequisites:** ART\_CERM 7100 and ART\_CERM 7110 and departmental consent

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**ART\_CERM 8100: Graduate Ceramics II**

Continuation of ART\_CERM 7100. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_CERM 7100 or equivalent

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## Art-Drawing Courses

**ART\_DRAW 1050: Drawing I**

An introduction to visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_DRAW 2200: Drawing II**

An introduction to drawing systems, problem solving and study of the proportions of the human form. Development of skills and concepts in drawing based on historical and contemporary models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050

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**ART\_DRAW 2210: Beginning Color Drawing**

Theory and practice in the use of pastel working from stilllife, landscape, and portrait. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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**ART\_DRAW 3200: Drawing III**

Development of drawing techniques with an emphasis on materials and methods. Emphasis in conceptual and formal skills based on contemporary and historical models. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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**ART\_DRAW 3210: Intermediate Color Drawing**

Continuation of ART\_DRAW 2210 with emphasis on design and organization. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050, ART\_DRAW 2200 and ART\_DRAW 2210

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**ART\_DRAW 3220: Anatomical Drawing**

Anatomical structure of human figure as it relates to art. Drawing from live model; emphasis on gross anatomy as defined by skeletal and muscular structure. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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**ART\_DRAW 3230: Beginning Illustration**

An introduction to visual problem solving from initial concept through final execution. Emphasis in drawing and painting skills and exploration of mixed media techniques including drawing from the model. Graded on A-F basis only. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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**ART\_DRAW 4200: Drawing IV**

This course will provide an intensive experience in the development of a portfolio of artwork. Students will explore the connections between their work and contemporary art. May be repeated 3 times. Expendable Materials Fee Required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050, ART\_DRAW 2200 and ART\_DRAW 3200

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**ART\_DRAW 4210: Advanced Color Drawing**

Continuation of ART\_DRAW 3210 with emphasis on the expressive properties of color in figural compositions. Repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050, ART\_DRAW 2200, ART\_DRAW 2210 and ART\_DRAW 3210

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**ART\_DRAW 4220: Advanced Anatomical Drawing**

Continuation of ART\_DRAW 3220 with and emphasis on formal analysis of the figure in drawing based on superficial and deep anatomical structure. May be repeated to 15 hour maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 3220  
**Recommended:** ART\_DRAW 2200 and ART\_DRAW 3200 before taking this class

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**ART\_DRAW 4230: Advanced Illustration**

Further development of conceptual problem solving skills and technical proficiency through self generated assignments. Emphasis is placed on portfolio development by exploring sequential and narrative themes. Topics include contract, copyrights, and the art of freelancing. Students are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200  
**Recommended:** ART\_DRAW 3230

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**ART\_DRAW 4285: Problems in Drawing**

Problems in Drawing.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_DRAW 7200: Graduate Drawing: Studio Practice and Critique**

Drawing with emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ART\_DRAW 7210: Graduate Color Drawing**

Continuation of ART\_DRAW 4210 with emphasis on individual creative expression. Repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 4210 and instructor's consent

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**ART\_DRAW 7285: Problems in Drawing**

**Credit Hour:** 1-3

**Prerequisites:** ART\_DRAW 7200 and departmental consent

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**ART\_DRAW 8200: Graduate Drawing: Advanced Studio Practice and Critique**

Continuation of ART\_DRAW 7200. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 7200 or equivalent

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**ART\_DRAW 8210: Graduate Color Drawing II**

Continuation of ART\_DRAW 7210. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 7210 or equivalent

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**ART\_DRAW 8270: Graduate Drawing - Theory and Context**

Contextualizing artwork in culture, history, and theory, May be repeated to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art Majors

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**ART\_DRAW 8285: Problems in Drawing II**

Advanced independent studio practice including critical evaluation of student's creative work. Individual study in drawing is to be proposed by the student and approved by the instructor. The student will meet on a regular basis with the instructor to review student progress. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** for students with strong preparation in Art; departmental consent; ART\_DRAW 7285

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## Art-Fibers Courses

**ART\_FIBR 2300: Beginning Fibers**

Exploration of various fiber and media including papermaking, weaving, surface design and sculptural techniques. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_FIBR 3300: Intermediate Fibers**

Continuation of ART\_FIBR 2300 with emphasis on utilizing acquired technical processes in loom and off weaving, paper making and surface design and a means of developing visual statements. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 2300

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**ART\_FIBR 4300: Advanced Fibers**

Exploration of aesthetic concepts, development of personal style and instruction in advanced fiber techniques within medium selected by student. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 3300 or approved equivalents

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**ART\_FIBR 4385: Problems in Fibers**

Problems in Fibers.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_FIBR 7300: Graduate Fibers**

Advanced technical and aesthetic study in medium of choice with emphasis on development of the individual student's ideas and goals. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 4300

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**ART\_FIBR 7385: Problems in Fibers**

Graduate level work in fibers.

**Credit Hour:** 1-3

**Prerequisites:** ART\_FIBR 7300 and departmental consent

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**ART\_FIBR 8300: Graduate Fibers II**

Continuation of ART\_FIBR 7300. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 7300 or equivalent

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## Art-General Courses

**ART\_GNRL 1010: Introduction to Art**

Basic practice in drawing, painting, design. Exploratory course for beginners.

**Credit Hours:** 3

**Prerequisites:** Restricted to Non-majors only

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**ART\_GNRL 1020: Appreciation of Art**

Illustrated discussion with examples from varied historic and contemporary art fields on nature of art, functions, methods of creative expression. One section is writing intensive each semester and the other is NON writing intensive each semester.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 may be required on some sections

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**ART\_GNRL 1020W: Appreciation of Art - Writing Intensive**

Illustrated discussion with examples from varied historic and contemporary art fields on nature of art, functions, methods of creative expression. One section is writing intensive each semester and the other is NON writing intensive each semester.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ART\_GNRL 1030: Basic 2-D Design**

(Art Foundations) Study of the basic principles and elements of two-dimensional composition in art. These principles of organization are the bases for expression and critical analysis of the visual arts. Students will

create several studio projects exploring design variables, while employing a range of tools and materials from drawing to digital methods.

**Credit Hours:** 3

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**ART\_GNRL 1040: Basic 3-D Design**

A foundational course designed to familiarize students with the elements and principles of three-dimensional design as well as some of the materials, tools, processes and techniques used in the creation of sculptural art. Study and development of formal aesthetic ideas, conceptual vocabulary and technical skills is emphasized. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_GNRL 2000: Color Theory**

An investigation of various color systems and their application to art.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030

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**ART\_GNRL 2001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics course are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 2001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 2005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ART\_GNRL 2005H: Topics in Art - Humanities - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 2020: International Summer Study Abroad**

A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at schedule critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit.

**Credit Hours:** 4

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**ART\_GNRL 2030: Context and Culture**

The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand.

**Credit Hours:** 3

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**ART\_GNRL 2030H: Context and Culture - Honors**

The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ART\_GNRL 2040: Sophomore Seminar**

This course is a bridge between contemporary art practices and developing a strong independent studio practice. Students develop a foundational sense of being a visual artist from the perspective of studio practice, professional application and creating an artistic identity through contemporary theory and short critical writings. Students will learn how to document and create a digital platform for their work, as well as search for internships, residencies and other professional arts opportunities. Through lectures, demonstrations, student collaborations, and visits with the local arts community, students will create a sphere of professional influences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030, ART\_GNRL 1040 and ART\_DRAW 1050

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**ART\_GNRL 3001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with junior standing.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 3001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 3005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ART\_GNRL 3005H: Topics in Art - Humanities Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 3020: International Summer Study Abroad**

A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at scheduled critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**ART\_GNRL 3030: Undergraduate Internship in Art**

Special learning situations not covered by coursework. Credit standards pre-arranged with dept. Limit on total hours of problems courses applies. Enrollment limited to Art and Art Education majors with Junior Standing.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_GNRL 4001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 4001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 4005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ART\_GNRL 4005H: Topics in Art - Humanities Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 4030: Video Art and the Moving Image**

(same as FILM\_S 4030; cross-leveled with ART\_GNRL 7030). Video as a fine art form intersection sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is

integrated with studio practice. Students create video works in Final Cut Pro demonstrating technical ability and aesthetic vision. May be repeated for credit.

**Credit Hours:** 3

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**ART\_GNRL 4040: 2-D Portfolio Development**

This course will provide an intensive experience in the development of a portfolio of personal work outside the traditional media boundaries. Students will explore media relevant to their particular needs and begin to explore the connections between their work and contemporary art and culture through readings, discussions and critiques. Expendable Materials Fee Required. May be repeated t 6 credits. Enrollment limited to students with Junior Standing. Recommended: 3000-level or above course in one of the following media areas: Drawing, Painting or Printmaking.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**ART\_GNRL 4050: Performance Art**

(cross-leveled with ART\_GNRL 7050). This studio art course will survey the practices in Performance Art and its intersections with visual and media-based art, experimental theater, music and dance. Modules will include performance and: the object, culture, the mediatized body and alternative spaces. Graded on A-F basis only. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**ART\_GNRL 4975: Senior Seminar in Art**

A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 4975W: Senior Seminar in Art - Writing Intensive**

A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 4976: Design - Senior Seminar**

Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. Students connect with Graphic Design Alumni who are working in the field of design. All students will participate in a final, formal portfolio review.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 4976W: Design - Senior Seminar - Writing Intensive**

Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. Students connect with Graphic Design Alumni who are working in the field of design. All students will participate in a final, formal portfolio review.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 7000: Graduate Art - Studio Practice and Critique**

Art studio practice emphasis on individual creative expression. Course may be repeated for up to 15 credit hours. Expendable materials fee required. Graded on A-F basis only. Prerequisites: Graduate Art Major

**Credit Hours:** 3

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**ART\_GNRL 7001: Topics in Art**

Special studies in studio art at the graduate level; covers subjects not included in regularly offered courses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_GNRL 7005: Topics in Art - Humanities**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 7020: International Summer Study Abroad**

A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at scheduled critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated for credit.

**Credit Hours:** 4

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**ART\_GNRL 7030: Video Art and the Moving Image**

(cross-leveled with ART\_GNRL 4030). Video as a fine art form intersecting sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is integrated with studio practice. Students create video works in final Cut Pro demonstrating technical ability and aesthetic vision. May be repeated for credit.

**Credit Hours:** 3

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**ART\_GNRL 7050: Performance Art**

(cross-leveled with ART\_GNRL 4050) This studio art course will survey the practices in Performance Art and its intersections with visual and media-based art, experimental theater, music and dance. Modules will include performance and: the object, culture, the mediatized body body, culture and alternative spaces. Graded on A-F basis only.

**Credit Hours:** 3

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**ART\_GNRL 7085: Problems in Art**

Individual study in a subject area to be proposed by the student and approved by the instructor. The student will meet periodically on a regular basis with the instructor to review progress on the work assigned. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** for students with strong preparation in Art; departmental consent

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**ART\_GNRL 8000: Graduate Art - Advanced Studio Practice and Critique**

Continuation of ART\_GNRL 7000. Art studio practice with emphasis on individual creative expression. Course may be repeated for up to 15 credit hours. Expendable materials fee required. Graded on A-F basis only. Prerequisites: Graduate Art Major

**Credit Hours:** 3

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**ART\_GNRL 8001: Topics in Art**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 8005: Topics in Art - Humanities**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 8020: International Summer Study Abroad**

A four week study abroad in studio art with required participation in scheduled excursion to art-related sites. Students create original art for review at schedule critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 4

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**ART\_GNRL 8070: Graduate Art - Theory and Context**

Contextualizing artwork in culture, history, and theory. May be repeated up to 18 hours for credit. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ART\_GNRL 8090: MFA Thesis Exhibition Documentation**

Preparation of materials deemed necessary to document in a permanent form the thesis exhibition. Credit will be granted upon the satisfactory completion of the document, which will be retained by the Department of Art. Required of all MFA candidates. Graded on S/U basis only.

**Credit Hour:** 1

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**ART\_GNRL 9010: Graduate Studio Seminar**

Practical and philosophical concerns of the visual artist. Mandated for all MFA candidates.

**Credit Hour:** 1-2

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## Art-Graphic Design Courses

**ART\_GRDN 1400: Beginning Digital Imaging**

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

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**ART\_GRDN 2400: Advanced Digital Imaging**

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** ART\_GRDN 1400

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**ART\_GRDN 2410: Graphic Design I**

Emphasis on developing a design language and vocabulary. Projects explore visual images in two-dimensional space, each one focusing on a specific set of relationships. Introduction to methodological and research practices for designers. Course concludes with portfolio review for admission to ART\_GRDN 2420 and further Graphic Design Courses. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030, ART\_DRAW 1050; restricted to BA/BFA art majors

**Recommended:** ART\_GNRL 1040

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**ART\_GRDN 2420: Graphic Design II**

Introduction to the discipline, function and tradition of typography. Topics include communication, text intensive documents, legibility/readability, movement, language sequence and information hierarchy. Payment of expendable materials fee is required. Enrollment is limited to students who have completed ART\_GRDN 2410 and successful completion of the graphic design portfolio review.

**Credit Hours:** 3

**Prerequisites:** consent of instructor

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**ART\_GRDN 2430: Calligraphy and Hand Lettering**

Technical and historical instruction on several calligraphic alphabets. Application of hand lettering to both two and three-dimensional design projects. Emphasis placed on both technical mastery of letters, development of personal style and creative expression in projects.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030, ART\_DRAW 1050 or instructor's consent

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**ART\_GRDN 3410: Graphic Design III**

Digital media and motion graphics are explored through the development of interactive presentations and web site design. Students experiment with the computer as a medium for delivery of communication. New, practical and conceptual skills will be discussed in order to develop meaningful, interactive user experiences. Payment of expendable materials fees is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 2420

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**ART\_GRDN 3420: Graphic Design IV**

Goal directed graphic design problem solving stressing the integration of theory and practical applications while sharpening conceptual, computer, and research skills. Topics include current design theory, advanced typographic study, production methods and design/client interaction. Payment of expendable materials fee is required.

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**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3410

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**ART\_GRDN 3430: Advanced Calligraphy and Hand Lettering**

Continuation of ART\_GRDN 2430. Students will expand their skills including study of more complex alphabets and further their personal style. Emphasis placed on both mastery of letters and creative exploration in projects. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 2430

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**ART\_GRDN 3440: Packaging Design**

This course will look at the discipline of packaging design from a three-dimensional perspective. By gaining an understanding of the materials and processes that relate to packaging, students will develop a selection of packaging solutions for a variety of different clients. Payment of expendable material fee is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3410

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**ART\_GRDN 3441: The History of Graphic Design**

Broad overview of the history of graphic design. Topics will range from the history of printing, the beginnings of the profession, major movements and developments to the practice of design. Also looks at how the history of design and printing apply to today's visual communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_GRDN 3442: Design for Corporate Identity and Branding**

Planning, strategy, and design of the visual components necessary to create a corporate identity. Course will focus on how cohesive design programs function across various mediums and engage specific audiences. Payment of expendable materials fees is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3410

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**ART\_GRDN 3443: Letterpress**

This course is about creating conceptual design solutions using the letterpress printing process. Projects are very broad, conceptual and highly individual with the opportunity to explore letterpress printing processes using several different presses and printing techniques. Each project will require a limited edition print run. Repeatable to 9 hours.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ART\_GRDN 4410: Graphic Design V**

Directed research, study and critical analysis in graphic design. Emphasis placed on research, writing, problem solving, aesthetic perception, conceptual thinking skills and technical proficiency. Students will focus on portfolio preparation and are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3420

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**ART\_GRDN 4485: Problems in Graphic Design**

Problems in Graphic Design.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_GRDN 4996: Imprint - Design Practicum**

Class operates as professional design studio doing work for university, local and regional clients. Focus on client/designer relationships, contracts and teamwork. Students passing with grade in A range will graduate with departmental honors. May be repeated for credit. Admission based on GPA (3.3 in art courses) and portfolio review. Enrollment limited to students with junior standing or higher.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**ART\_GRDN 7400: Graduate Graphic Design**

Graduate level work in graphic design. Emphasis on self-directed research and critical analysis. Students are encouraged to focus on conceptual development of their design work. Instruction is tailored to the student's individual investigations. Repeatable to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_GRDN 7485: Problems in Graphic Design**

Graduate level work in graphic design.

**Credit Hour:** 1-3

**Prerequisites:** ART\_GRDN 4410 and departmental consent

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**ART\_GRDN 8400: Graduate Graphic Design II**

Continuation of ART\_GRDN 7400. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 7400 or equivalent

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## Art-Painting Courses

**ART\_PNT 2500: Beginning Painting**

Introduces primary techniques of painting. Emphasis on conceptualization of visual perception (understanding how we see) and the creative processes (understanding how we create). Sections either in oil or acrylic; contact instructor. Expendable material fee required.

**Credit Hours:** 3

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**ART\_PNT 2510: Beginning Watercolor Painting**

Theory, practice of painting in water color from still life, landscape, figure. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_PNT 3500: Intermediate Painting**

Continuation of ART\_PNT 2500 with the addition of portrait painting. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 2500

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**ART\_PNT 3510: Intermediate Watercolor Painting**

Continuation of ART\_PNT 2510. Theory and practice of painting in watercolor. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 2510

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**ART\_PNT 4500: Advanced Painting**

Advanced problems in oil and acrylic painting. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 3500

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**ART\_PNT 4510: Advanced Watercolor Painting**

(cross-leveled with ART\_PNT 7510). Advanced problems in watercolor. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 3510

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**ART\_PNT 4585: Problems in Painting**

Problems in Painting. Enrollment limited to students who have taken ART\_PNT 4500.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_PNT 7500: Graduate Painting: Studio Practice and Critique**

Advanced study. Emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ART\_PNT 7510: Graduate Watercolor Painting**

(cross-leveled with ART\_PNT 4510). Advanced study in watercolor. Emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 4510

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**ART\_PNT 7585: Problems in Painting**

**Credit Hour:** 1-3

**Prerequisites:** ART\_PNT 7500 and departmental consent

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**ART\_PNT 8500: Graduate Painting: Advanced Studio Practice and Critique**

Continuation of ART\_PNT 7500. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 7500 or equivalent

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**ART\_PNT 8510: Graduate Watercolor Painting**

Continuation of ART\_PNT 7510. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 7510 or equivalent

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**ART\_PNT 8570: Graduate Painting - Theory and Context**

Contextualizing artwork in culture, history, and theory. Repeatable to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ART\_PNT 8585: Problems in Painting II**

Advanced independent studio practice including critical evaluation of student's creative work. Individual study in painting is to be proposed by the student and approved by the instructor. The student will meet on a regular basis with the instructor to review student progress. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** For students with strong preparation in Art; departmental consent; ART\_PNT 7585

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## Art-Photography Courses

**ART\_PHOT 2600: Beginning Photography**

Introduction to photography within an art context; digital workflow including use of camera, software, and digital output methods; and a survey of both contemporary and historical topics related to visual and conceptual concerns. Digital camera with RAW capability and manual aperture + shutter controls required. DSLR recommended. Payment of expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** BA/BFA art majors only through early registration

**Recommended:** ART\_GNRL 1030, ART\_GNRL 1040, ART\_DRAW 1050

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**ART\_PHOT 3600: Intermediate Photography**

Continuation of ART\_PHOT 2600 with emphasis utilizing acquired technical process to facilitate use of the camera as a means of developing awareness of immediate environment and the capabilities of Photography as a communicative, documentary, and expressive medium. Payment of expendable material fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 2600

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**ART\_PHOT 4600: Advanced Photography**

Exploration of aesthetic concepts, development of personal vision, and instruction in advanced technical process including fine B&W printing, negative and positive color, large format, zone system, and portfolios and book design to facilitate critical observation and personal expression through the medium of Photography. Payment of expendable materials fee is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 2600 and ART\_PHOT 3600

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**ART\_PHOT 4685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_PHOT 7600: Graduate Photography**

Advanced technical study with emphasis on development of the individual student's creative ideas. Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 3600 and consent required

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**ART\_PHOT 7685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** ART\_PHOT 4410

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**ART\_PHOT 8600: Graduate Photography II**

Continuation of ART\_PHOT 7600. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 7600 or equivalent

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## Art-Printmaking Courses

**ART\_PRNT 2700: Beginning Printmaking**

Introductory Relief, Intaglio and Lithography techniques in color and black and white including woodcut, linocut reduction, etching; aquatint, dry point, photo mechanics and pronto plate lithography. May be repeated to six hours maximum. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_PRNT 2730: Serigraphy**

Introduces methods, materials, and techniques of printmaking with the silk screen. Payment of expendable materials expense is required. May repeat to 6 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030

**Recommended:** one semester of Drawing

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**ART\_PRNT 3700: Intermediate Printmaking**

Continuing work in litho, intaglio, relief or serigraphy. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 2700

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**ART\_PRNT 4700: Advanced Printmaking**

Advanced study in relief, intaglio, lithographic and/or serigraphy printmaking with emphasis on individual creative expression. May be repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 3700

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**ART\_PRNT 4785: Problems in Printmaking**

Problems in Printmaking.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_PRNT 7700: Graduate Printmaking**

Graduate level study in relief, intaglio or lithographic printmaking with emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 4700

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**ART\_PRNT 7785: Problems in Printmaking**

**Credit Hour:** 1-3

**Prerequisites:** ART\_PRNT 7700 and departmental consent

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**ART\_PRNT 8700: Graduate Printmaking II**

Continuation of ART\_PRNT 7700. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 7700 or equivalent

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## Art-Sculpture Courses

**ART\_SCUL 2800: Beginning Sculpture**

Principles of sculptural organization, figure studies, modeling techniques, simple plaster casting. Payment of expendable materials expense is required.

**Credit Hours:** 3

**Prerequisites:** BA/BFA Art majors only through early registration

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**ART\_SCUL 2810: Experimental Media I**

Ordering and structuring materials into compositional forms, using various media, traditional as well as new. Subject matter will vary each semester.

**Credit Hours:** 3

**Prerequisites:** permission of instructor

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**ART\_SCUL 2820: Beginning Welding And Casting**

This course is intended to foster critical thinking, creative problem solving, and cultural/visual literacy through the introduction of sculptural welding and metal casting techniques. Projects will address the sculptural methods of manipulation, addition, and substitution as well as the principles of three-dimensional design. Students will become conversant with MIG and gas welding as well as centrifugal and ceramic shell casting. The relationship of form and content will be discussed during class critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BA/BFA Art majors only through early registration

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**ART\_SCUL 3800: Intermediate Sculpture**

Continuation of ART\_SCUL 2800. This course is designed to allow the student to pursue self-initiated imagery and ideas through the manipulation of mass and volume in time/space. A wide range of materials and techniques are available including the following: substitution casting (resin or bronze), subtraction (stone or wood), manipulation (terra-cotta or plaster), addition (welding, mixed media or assemblage) and/or time (video or performance). The relationship of form and content will be discussed during class critiques.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 2800 or ART\_SCUL 2820

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**ART\_SCUL 3810: Experimental Media II**

Continuation of ART\_SCUL 2810.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 2810

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**ART\_SCUL 4800: Advanced Sculpture**

This course will build skills acquired in ART\_SCUL 3800. Includes welding, casting, carving and assemblage with emphasis on the development of a personal visual language. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 3800

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**ART\_SCUL 4810: Experimental Media III**

Continuation of ART\_SCUL 3810. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 3810

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**ART\_SCUL 4885: Problems in Sculpture**

Problems in Sculpture.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_SCUL 7800: Graduate Sculpture**

Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

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**ART\_SCUL 7810: Experimental Media IV**

Advanced study of compositional organization at the graduate level. May repeat to 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 4810

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**ART\_SCUL 7885: Problems in Sculpture**

**Credit Hour:** 1-3

**Prerequisites:** ART\_SCUL 7800 and departmental consent

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**ART\_SCUL 8800: Graduate Sculpture II**

Continuation of ART\_SCUL 7800. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 7800 or equivalent

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## Astronomy Courses

**ASTRON 1010: Introduction to Astronomy**

Survey of methods of astronomy; description of the solar system, stellar astronomy, structure of the galaxy and the universe. Three hours of lecture and one hour of lab per week (scheduled by the instructor). Satisfies physical science laboratory requirement. Laboratory section: Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 4

**Recommended:** MATH 1100 or MATH 1120 or equivalent

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**ASTRON 1020: Introduction to Laboratory Astronomy**

Laboratory supplement to Astronomy 1010. Satisfies physical science laboratory requirement. Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 2

**Recommended:** MATH 1100 or MATH 1120

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**ASTRON 3010: Introduction to Modern Astrophysics**

(same as PHYSCS 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4020: Astrophysical Techniques**

(same as PHYSCS 4020; cross-leveled with ASTRON 7020, PHYSCS 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4180: Solar System Science**

(same as PHYSCS 4180, GEOL 4180; cross-leveled with ASTRON 7180, PHYSCS 7180, GEOL 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220 or instructor's consent

**Recommended:** MATH 1700

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**ASTRON 4250: Stellar Astrophysics**

(same as PHYSCS 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**ASTRON 4350: Galactic Astronomy**

(same as PHYSCS 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3010 or instructor's consent

**Recommended:** PHYSCS 4140

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**ASTRON 4360: Extragalactic Astronomy**

(same as PHYSCS 4360; cross-leveled with ASTRON 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and

classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4460: Interstellar Medium**

(same as PHYSCS 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4550: Cosmochemistry**

(same as PHYSCS 4550; cross-leveled with ASTRON 7550, PHYSICS 7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220 or instructor's consent

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**ASTRON 4950: Undergraduate Research in Astronomy**

Special studies in astronomy; covers subjects not included in courses regularly offered.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ASTRON 4960: Senior Thesis in Astronomy**

Special studies for senior undergraduate students in astronomy. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research. Departmental consent required for repetition. Enrollment limited to students who have completed 3 credit hours of ASTRON 4950 or PHYSCS 4950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ASTRON 7020: Astrophysical Techniques**

(same as PHYSCS 7020; cross-leveled with ASTRON 4020, PHYSCS 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 7180: Solar System Science**

(same as PHYSCS 7180, GEOL 7180; cross-leveled with ASTRON 4180, PHYSCS 4180, GEOL 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**ASTRON 7360: Extragalactic Astronomy**

(same as PHYSCS 7360; cross-leveled with ASTRON 4360, PHYSICS 4360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 7550: Cosmochemistry**

(same as PHYSCS 7550; cross-leveled with ASTRON 4550, PHYSICS 4550). Chemistry of cosmic dust and molecules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220; instructor's consent

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**ASTRON 7750: Interstellar Medium**

(same as PHYSCS 7750; cross-leveled with ASTRON 4750, PHYSICS 4750). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760

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**ASTRON 8301: Topics in Astronomy and Astrophysics**

(same as PHYSCS 8301). Selected topics from solar system, stellar galactic and extragalactic astronomy and astrophysics. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ASTRON 8310: College Science Teaching**

(same as PHYSCS 8310, BIO\_SC 8724 and LTC 8724). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**ASTRON 8550: Stellar Structure and Evolution**

(same as PHYSCS 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** ASTRON 4250, PHYSCS 4800, or instructor's consent

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## Athletic Training Courses

**ATHTRN 1100: Athletic Training Skills I**

Introduction to athletic training skills. Clinical observation hours required. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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**ATHTRN 1200: Athletic Training Skills II**

Continuation of athletic training skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Pre-Athletic Training majors; Completion of ATHTRN 1100 with minimum grade of B-

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**ATHTRN 2001: Topics in Athletic Training**

Organized study of selected topics in Athletic Training. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-15

**Prerequisites:** Instructor's consent

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**ATHTRN 2100: Principles and Fundamentals of Athletic Training**

Introduces students to the common principles and fundamentals associated with the profession of athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors

---

**ATHTRN 2150: Athletic Training Practicum I**

The first in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; ATHTRN 1100, ATHTRN 1200, and ATHTRN 2100

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**ATHTRN 2250: Athletic Training Practicum II**

The second in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2150 with minimum grade of B-

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**ATHTRN 2500: Elementary Human Anatomy**

Analysis of the structure and function of cells, tissue, and organ systems. Emphasis is placed on the muscular, skeletal, and nervous systems as they relate to human movement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors only

---

**ATHTRN 2550: Examination of Cadaveric Human Anatomy**

Study of the human body utilizing cadaver specimens. Special emphasis will be placed upon the skeletal, muscular and nervous systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2500 with a minimum grade of C

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**ATHTRN 2600: Human Physiology**

Investigation into the structure, function, physiology, and biochemistry of the cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine, and reproductive systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2500 with a minimum grade of C

---

**ATHTRN 3100: Mental Health in Athletic Training**

Study of psychosocial strategies, mental health referral policies and clinical application to athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PSYCH 1000

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**ATHTRN 3150: Athletic Training Practicum III**

The third in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2250 with a minimum grade of B-

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**ATHTRN 3200: Therapeutic Modalities**

Study of therapeutic modalities utilized in the treatment and rehabilitation of athletic injuries. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2250 with a minimum grade of B-

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**ATHTRN 3250: Athletic Training Practicum IV**

The fourth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3150 with a minimum grade of B-

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**ATHTRN 3300: Injury Assessment I**

A systematic approach to injury evaluation of the lower extremity and spine. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2100 with a minimum grade of B- and ATHTRN 2500 and ATHTRN 2550 with a minimum grade of C

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**ATHTRN 3400: Injury Assessment II**

A systematic approach to injury evaluation of the upper extremity, spine and head. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3300 with a minimum grade of B-

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**ATHTRN 3500: Rehabilitation of Athletic Injuries**

Study of rehabilitation principles and techniques used to return active individuals to their sport/activity. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3200 with a minimum grade of B-

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**ATHTRN 3600: Administration of Athletic Training**

Examines the organizational and administrative aspects of Athletic Training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors

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**ATHTRN 3800: General Medical Conditions**

Examination of illness and disease found within the athletic population. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only, Completion of ATHTRN 3150 with a minimum grade of B-

---

**ATHTRN 4150: Athletic Training Practicum V**

The fifth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4250: Athletic Training Practicum VI**

The sixth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 4150 with a minimum grade of B-

---

**ATHTRN 4500: Nutrition for Athletic Performance and Rehabilitation**

Nutritional study examining how nutrition impacts sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PH\_THR 4420

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**ATHTRN 4970: Seminar in Athletic Training**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4970W: Seminar in Athletic Training - Writing Intensive**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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## Atmospheric Science Courses

**ATM\_SC 1050: Introductory Meteorology**

(same as GEOG 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

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**ATM\_SC 2100: Introduction to Atmospheric Science**

Physical process of the atmospheric and climate system will be related to day-to-day weather changes. Students will be introduced to the laws of motion and thermodynamics that govern motions in geophysical fluid. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1160 or concurrent enrollment in MATH 1500

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**ATM\_SC 2150: Natural Hazards**

A survey of natural hazards, including severe thunderstorms, tornadoes, flooding, tropical storms, ocean movements, earthquakes, tsunamis, volcanoes, asteroids, solar weather, managing risk and human impacts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or equivalent

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**ATM\_SC 2720: Weather Briefing**

Student participation in daily discussions of current weather patterns and forecasts and their applications to weather sensitive activities including aviation, agriculture and industry.

**Credit Hour:** 1

**Prerequisites:** ATM\_SC 1050

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**ATM\_SC 2792: Weather Communication**

Methods of surface and upper air weather observation. How such data are distributed to users in the meteorological community is also addressed.

**Credit Hour:** 1

**Prerequisites:** ATM\_SC 1050; sophomore standing

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**ATM\_SC 3000: Independent Study in Atmospheric Science**

Independent study of a topic dealing with meteorological theory or application of meteorological science to the solution of relevant problem.

**Credit Hour:** 1-3

**Prerequisites:** ATM\_SC 1050

**Recommended:** Upper level standing

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**ATM\_SC 3600: Climates of the World**

(same as GEOG 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or graduate standing

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**ATM\_SC 4001: Topics in Atmospheric Science**

Development of theory and applications for selected topics in atmospheric science.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**ATM\_SC 4110: Broadcast Meteorology I**

An introduction to broadcast meteorology including the business of media, use of meteorological data to produce a forecast, and television and radio presentation skills. Graded on A-F basis only.

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**Credit Hours:** 2

**Prerequisites:** ATM\_SC 1110, ATM\_SC 2720, or equivalents

**Corequisites:** ATM\_SC 4710. Restricted to Atmospheric Science majors or instructor's consent

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**ATM\_SC 4310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 7310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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**ATM\_SC 4320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 7320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 4350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 7350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 4400: Micrometeorology**

(cross-leveled with ATM\_SC 7400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4310 or PHYSCS 2760, MATH 2300

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**ATM\_SC 4500: Advanced Meteorological Observation and Instrumentation**

Automated weather observation and instrumentation used in networks of remote automated weather stations. Emphasis on electronic instrumentation, datalogger programming, data collection and data management, generating dynamic reports on the World Wide Web. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050

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**ATM\_SC 4510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 7510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1110, MATH 1500, junior standing or instructor's consent

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**ATM\_SC 4520: Environmental Biophysics**

(same as GEOG 4520; cross-leveled with ATM\_SC 7520, GEOG 7520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**ATM\_SC 4550: Atmospheric Physics**

(cross-leveled with ATM\_SC 7550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing. Recommended: 1 year of college Physics

**Credit Hours:** 3

**Prerequisites:** MATH 1700

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**ATM\_SC 4590: Radar Meteorology**

(cross-leveled with ATM\_SC 7590). Course concerns the theory and application of radar in meteorology. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1110, MATH 1700, PHYSCS 2750

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**ATM\_SC 4650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 7650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 4710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 7710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

**Recommended:** one physics course

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**ATM\_SC 4720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4720W: Synoptic Meteorology II - Writing Intensive**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4730: Advanced Forecasting Laboratory**

Advanced principles of weather forecasting will be addressed via online electronic modules and weekly laboratory exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720

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**ATM\_SC 4800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 7800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** senior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4949: Internship in Meteorology**

Practical professional work experience with professional or scientific meteorologists in off-campus work environment. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** junior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4950: Undergraduate Research in Atmospheric Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** STAT 1400, MATH 1500

**Recommended:** 10 hours of Atmospheric Science courses

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**ATM\_SC 4990: Daily Analysis and Forecast Interpretation**

A Capstone experience. In depth daily analysis and interpretation by students of the current and forecast states of the atmosphere. Discussions of implications to specific weather sensitive activities.

**Credit Hours:** 3

**Prerequisites:** senior standing and Atmospheric Science major

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**ATM\_SC 7001: Topics in Atmospheric Science**

Development of theory and applications for selected topics in atmospheric science.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ATM\_SC 7310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 4310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

---

**ATM\_SC 7320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 4320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 7350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 4350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 7400: Micrometeorology**

(cross-leveled with ATM\_SC 4400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050

---

**ATM\_SC 7510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 4510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features. Graduate student credit is dependent upon completion of additional advanced research assignments. Graded on A-F basis only.

**Credit Hours:** 3

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**ATM\_SC 7520: Environmental Biophysics**

(same as GEOG 7520; cross-leveled with ATM\_SC 4520, GEOG 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water, and gas.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus I

---

**ATM\_SC 7550: Atmospheric Physics**

(cross-leveled with ATM\_SC 4550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing.

**Credit Hours:** 3

**Prerequisites:** 1 year of college Physics and MATH 1700

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**ATM\_SC 7590: Radar Meteorology**

(cross-leveled with ATM\_SC 4590). Course concerns the theory and application of radar in meteorology. Graduate students will be required to conduct an independent research project using radar, in addition to the undergraduate requirements for the class. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSICS 2760

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**ATM\_SC 7650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 4650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 7710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 4710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites or Corequisites:** one physics course

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

---

**ATM\_SC 7720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 4720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

---

**ATM\_SC 7800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 4800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** Math through Calculus III

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**ATM\_SC 8001: Topics in Atmospheric Science**

Development of the theory with its application for selected topics in atmospheric science.

**Credit Hours:** 3

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**ATM\_SC 8085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 8090: Masters Research in Atmospheric Science**

Original investigation in atmospheric science in support of a master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 8400: Atmospheric General Circulation**

Comprehensive review of dynamical theories of general circulation with intensive discussion of current problems.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 8450: Tropical Meteorology**

Study of the synoptic and dynamic character of the atmosphere in the tropical regions, including an examination of the general circulation and tropical storms.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300; instructor's consent. Graded on A-F basis only

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**ATM\_SC 8500: Radiation in the Atmosphere**

Physics of solar and infrared radiative transfer in the atmosphere, including energy conversion effects, atmospheric optics, and photochemical processes.

**Credit Hours:** 3

**Prerequisites:** one year College Physics and MATH 1700

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**ATM\_SC 8550: Nowcasting**

Students will learn the science of nowcasting through the study of the various methods used and apply their knowledge in the design of the elements of a nowcast system and practical nowcasting exercises.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 8500, instructor's consent

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**ATM\_SC 8600: Advanced Climate Dynamics**

Study of global climate; application of large scale atmospheric dynamics; conservation of various forms of energy, climatic evaluation, large scale climatic modification.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320 and ATM\_SC 8400 or ATM\_SC 3600

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**ATM\_SC 9001: Topics in Atmospheric Science**

Development of the theory with its application for selected topics in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 9085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 9087: Seminar in Atmospheric Science**

Seminar in Atmospheric Science.

**Credit Hour:** 1-99

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**ATM\_SC 9090: Doctoral Research in Atmospheric Science**

Original investigation in atmospheric science in support of a doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 9300: Introduction to Chaos Theory**

Atmospheric predictability and related topics are examined as they relate to governing equations of motion and their non-linear solutions.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320, MATH 4100

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**ATM\_SC 9350: Advanced Dynamic Meteorology**

Application of perturbation dynamics, advanced dynamics, and numerical methods to study of atmospheric circulations.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 9590: Advanced Applications of Weather Radar**

This course will investigate quantitative uses of weather radar data that go beyond standard reflectivity and velocity image interpretation, particularly those that use new techniques such as dual-polarization. Students will develop methods to analyze and display meteorological radar data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** MATH 1700, PHYSCS 2760, INFOTC 1040 or equivalent, ATM\_SC 4590

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**ATM\_SC 9700: Advanced Synoptic Meteorology**

Detailed examination of vertical motions, their forcing, and how each is diagnosed (quasigeostrophic theory, the Trenberth approximation, Q-vectors). Current issues in synoptic meteorology and operational forecasting are discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720

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**ATM\_SC 9712: Convection and Lightning**

Cumulus convection and cloud physics topics that will facilitate a deeper understanding of cloud electrification and lightning production are studied. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720, MATH 2300; instructor's consent

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**ATM\_SC 9800: Numerical Weather Prediction**

Examination of finite difference and objective analysis techniques, basic physical concepts, and parameterization of physical processes. Experience with a range of models (1-D cloud to operational PE models) stressed.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Biochemistry Courses

**BIOCHM 1090: Introduction to Biochemistry**

Fundamental concepts in biochemistry and molecular biology: structure function relationships, reactivity, thermodynamics, gene expression. Professional skills for biomedical careers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1320

**Prerequisites:** MATH 1100 or MATH 1160 or MATH 1500 and Freshman or Sophomore standing

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**BIOCHM 1094: Introductory Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes, PCR and cloning. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 1090; Biochemistry majors only

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**BIOCHM 2110: The Living World: Molecular Scale**

Survey of modern biochemistry and biotechnology. Structure and function of DNA, proteins, lipids and carbohydrates. The role of biopolymers in life processes and everyday living is emphasized.

**Credit Hours:** 3

**Prerequisites:** for non-Biochemistry majors only

---

**BIOCHM 2112: Biotechnology in Society**

Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**Credit Hours:** 3

**Prerequisites:** for non-biochemistry majors only

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**BIOCHM 2480: Introduction to Macromolecular Structure and Function**

The function of biochemical macromolecules is directly related to their structure. The three-dimensional structures of proteins, nucleic acids, polysaccharides and membranes are each explored in the context of their functions and their microenvironments within living organisms. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** C- or higher in BIOCHM 1090; CHEM 2100

**Corequisites:** CHEM 2110

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**BIOCHM 2484: Macromolecular Techniques Laboratory**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** sophomore standing; restricted to Biochemistry majors only

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**BIOCHM 2484H: Macromolecular Techniques Laboratory - Honors**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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**BIOCHM 2484HW: Macromolecular Techniques Laboratory - Honors/ Writing Intensive**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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**BIOCHM 2950: Undergraduate Research in Biochemistry**

Research for students in which independent research is less than 50% of total. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 3630: General Biochemistry**

Survey of biochemistry; static/dynamic aspects of carbohydrates, lipids, proteins, nucleic acid. Discussion of metabolic pathways, energy production, and metabolic regulatory mechanism.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100

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**BIOCHM 4001: Topics in Biochemistry**

Experimental courses; highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-99

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**BIOCHM 4120: Medicinal Plant Science**

Presentation of core topics, including an overview of plant groups with medicinal properties, botanical nomenclature, important biochemical pathways, exposure to journals, texts, and online databases that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has an international flavor. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies will also be emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320

**Recommended:** BIO\_SC 1200 or BIO\_SC 1500 or BIOCHM 1090

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**BIOCHM 4270: Biochemistry**

(cross-leveled with BIOCHM 7270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 4272: Biochemistry**

(cross-leveled with BIOCHM 7272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and

metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** C- or higher in BIOCHM 4270

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**BIOCHM 4300: Physical Chemistry of Biological Systems**

To present fundamental principles of physical chemistry in the context of the structure and function of biological macromolecules. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** BIOCHM 4270

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**BIOCHM 4376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 7376). Employs the use of computer-based interactive molecular graphics and sequence analysis software to analyze the three dimensional structures of macromolecules.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 4385: Problems in Biochemistry**

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 4460: Cancer Biology**

(same as BIO\_SC 4460; cross-leveled with BIOCHM 7978, BIO\_SC 7978). Cancer, cell biology, genetics, biochemistry.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4272, BIO\_SC 2300 and BIO\_SC 2200

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**BIOCHM 4510: Single Molecule Biophysics**

(same as PHYSCS 4510; cross-leveled with BIOCHM 7510, PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOCHM 4940: Internship in Biochemistry**

Field-based learning experience combining study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about biochemistry in a practical context. The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**BIOCHM 4950: Advanced Undergraduate Research in Biochemistry**

Research credit for students doing an independent research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. Graded on A-F basis only.

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**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 4964: Industrial Internship with ABC Laboratories**

This 5-credit course is a school and field-based learning experience combining the study, observation, and employment with ABC Laboratories in Columbia, MO. The internship provides opportunities to apply skills, concepts and theories about biochemistry and analytical chemistry in a practical context. The purpose of the internship experience is to provide the intern with the opportunity to develop knowledge and skills deemed desirable for a career in the biotechnology industries. During the time indicated in this agreement for the internship experience, the intern is expected to become a productive employee of ABC Laboratories. This course will provide technical instruction on commonly used laboratory skills and instrumentation at the University of Missouri followed by technical instruction on software and instrumentation at ABC Laboratories. After the training period, the interns will have the opportunity to work at ABC Laboratories full time for the summer.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHEM 4272, CHEM 3200

**Prerequisites:** BIOCHM 1090, BIOCHM 2484, BIOCHM 4270

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**BIOCHM 4970: Senior Capstone in Biochemistry**

Problem-based course on fundamental concepts of biochemistry. Requires written and oral presentations. One of two capstone courses required for biochemistry majors. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Departmental consent required

**Recommended:** Corequisite of BIOCHM 4974

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**BIOCHM 4974: Biochemistry Laboratory**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4974W: Biochemistry Laboratory - Writing Intensive**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4996H: Honors Thesis Research in Biochemistry**

Laboratory research for honors students doing an honors thesis research project in their final two semesters. Enrollment limited to Honors eligible students with senior standing who have CAFNR honors approval. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 7085: Problems in Biochemistry**

Problems in Biochemistry.

**Credit Hour:** 1-6

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 7110: Maps in Medicine Summer Institute**

Lab/lecture course in which high school teachers gain knowledge of two innovative, inquiry-based programs, Mapping Health and Mapping Cell Fate, that focus on influenza and developmental biology and Missouri science standards for biology and health. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** departmental consent

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**BIOCHM 7270: Biochemistry**

(cross-leveled with BIOCHM 4270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 7272: Biochemistry**

(cross-leveled with BIOCHM 4272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7270

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**BIOCHM 7274: Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; radioisotope tracers in metabolism; isolation, purification and kinetics of enzymes.

**Credit Hours:** 5

**Corequisites:** concurrent enrollment in BIOCHM 7270

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**BIOCHM 7376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 4376). This course uses advanced computer graphics and computational techniques to analyze protein and nucleic acid sequences and their three-dimensional structures.

**Credit Hours:** 2

**Prerequisites:** CHEM 2110

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**BIOCHM 7510: Single Molecule Biophysics**

(same as PHYSCS 7510; cross-leveled with BIOCHM 4510, PHYSCS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOCHM 7978: Cancer Biology**

(same as BIO\_SC 7978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976

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**BIOCHM 8060: Ethical Conduct of Research**

(same as BIO\_SC 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIOCHM 8090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 8120: Advanced Medicinal Plant Science**

Presentation of core topics in pharmacognosy, including an overview of plant groups with medicinal properties, essentials of botanical nomenclature, Overview of pharmacological activities of plant-sourced products and evidence-based research, phytochemical variation and significance, important biochemical pathways, origins of secondary metabolites, some major groups of phytochemicals, observations on economic and social trends in the use of medicinal plant products in developed and developing countries, overview of modern technology, high throughput screening, bioinformatics. Considerable exposure to key articles in journals, based on internationally accepted text (Trease & Evans), exposure to online databases - all sources of information that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has considerable international flavor and directly applicable to medicinal flora world-wide. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies is also emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320 or BIOCHM 1090 and BIO\_SC 1200 or BIO\_SC 1500 or the equivalent of these courses for non-MU students

**Recommended:** A Freshman level course in the Life Sciences or General Botany will also be advantageous but not essential

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**BIOCHM 8240: Introduction to Graduate Biochemistry I**

Introduction to biochemistry for life science graduate students. Core course for Biochemistry students. Structures and interactions of biological macromolecules including thermodynamics, binding, enzyme action and biological membranes as well as techniques of analysis and structure determination.

**Credit Hours:** 4

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**Prerequisites:** Undergraduate organic chemistry plus undergraduate biochemistry or molecular biology, their equivalent or permission of instructor

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**BIOCHM 8260: Macromolecular Systems Integration**

To introduce graduate students to biochemistry at the graduate level with particular emphasis on genomics/gene expression and replication; proteomics/cell signaling and metabolism. Course graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIOCHM 8240

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**BIOCHM 8360: Nutritional Biochemistry of Carbohydrates**

(same as NUTRIT 8360 and NEP 8360). Current concepts with in-depth coverage of selected examples of key regulatory steps controlling carbohydrate metabolism; emphasizing molecular mechanisms. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272

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**BIOCHM 8362: Introduction to Plant Metabolism**

(same as PLNT\_S 8362 and BIO\_SC 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOCHM 8365: Introduction to Molecular Cell Biology**

(same as BIO\_SC 8365 and PLNT\_S 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOCHM 8390: Molecular Biology of Mineral Nutrition**

(same as NUTRIT 8390 and NEP 8390). Current concepts of metal ion transport, intracellular metal trafficking and metal-dependent regulation of gene expression. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272 and a 4000-level nutrition course

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**BIOCHM 8430: Physical Biochemistry**

Physical concepts underlying a variety of physical chemical methods as they apply to biochemical research.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272 and CHEM 3300

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**BIOCHM 8432: Enzymology and Metabolic Regulation**

A basic introduction to the study of enzymes and their role in intermediary metabolism. Topics include enzyme kinetics, mechanisms of enzymatic catalysis and control of metabolic pathways.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272

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**BIOCHM 8434: Signaling in Molecular Cell Biology**

The objective of this course is to provide important foundations in cellular signaling in the context of biochemistry and cell biology for first and second year graduate students. The course focuses on cell-to-cell communication and intracellular signaling via different classes of cell surface receptors using specific receptor paradigms from human, other animals, plants, yeast and E.coli. Primary literature will be used for in-class discussions and homework assignments to highlight key experiments and introduce students to relevant experimental techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 2300, BIOCHM 4270

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**BIOCHM 8438: Nutrient Regulation of Gene Expression**

(same as AN\_SCI 8438, NUTRIT 8438, and NEP 8438). Current concepts with in-depth coverage of several minerals that illustrate themes in molecular mineral nutrition. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272 and a 4000-level nutrition course

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**BIOCHM 8450: Rotation Research**

Introductory laboratory research. Graded on A-F basis only. Normally 1 hour per advisor per semester, two-1 hour sections can be taken per semester.

**Credit Hour:** 1-2

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**BIOCHM 9001: Topics in Biochemistry**

Experimental courses, highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-9

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**BIOCHM 9085: Problems in Biochemistry**

Problems in Biochemistry

**Credit Hour:** 1-6

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**BIOCHM 9087: Seminar in Biochemistry**

Review of current literature; individual presentation of research or classical science topics.

**Credit Hour:** 1

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**BIOCHM 9090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**BIOCHM 9430: Molecular Biology I**

(same as MICROB 9430). Detailed examination of current fundamental concepts of molecular genetics of bacteria, bacteriophages and yeast. Experimental approaches to analysis of the physical structures of genomic nucleic acids, the biochemistry and genetics of mutations, replication, gene transfer and gene expression will be examined in depth from reports in the current literature.

**Credit Hours:** 4

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**BIOCHM 9432: Molecular Biology II**

(same as MICROB and BIO\_SC 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

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**BIOCHM 9462: Hormone Action**

A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

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**BIOCHM 9466: Plant Biochemistry**

Emphasizes biochemistry unique to plants; biochemical events plants share with other organisms discussed, compared. Photosynthesis, metabolism, composition, compartmentation, regulation of biochemical events included.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270

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**BIOCHM 9468: Molecular Biology of Plant Growth and Development**

(same as BIO\_SC 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

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**BIOCHM 9470: Analytical Biochemistry--Chromatography**

Principles, experimental design, capabilities, limitations, and applications of the general field of chromatography of biologically important molecules. Eight (2-hour) lectures, eight (4-hour) labs. Four weeks.

**Credit Hours:** 2

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**BIOCHM 9472: Analytical Biochemistry--Mass Spectrometry**

Instrumentation, fragmentation mechanisms, interpretation of spectra, combined gas chromatography--mass spectrometry. Eight (2-hour) lectures, eight (4-hour) labs.

**Credit Hours:** 2

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## Biological Engineering Courses

### BIOL\_EN 1000: Introduction to Biological Engineering

For first semester engineering students. Develop appreciation for professional engineering. Students will participate with senior design students to conceptualize a case-study problem.

**Credit Hour:** 1-2

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### BIOL\_EN 2000: Professional Development in Engineering

A review of professional opportunities, registration, ethics, and societies.

**Credit Hour:** 1-2

**Prerequisites:** sophomore standing

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### BIOL\_EN 2080: Introduction to Programming for Engineers

This course teaches how to write scientific programs for analysis of data and simulation of physical phenomena using Matlab. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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### BIOL\_EN 2180: Engineering Analysis of Bioprocesses

Material and Energy Balances. Integrating principles of physics, chemistry and mathematics to analyze steady state and transient biological/biomedical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, CHEM 1320, PHYSCS 2750. Restricted to Biological Engineering students only

**Recommended:** BIOL\_EN 2080

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### BIOL\_EN 3001: Topics in Biological Engineering

Current and new technical developments in biological engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### BIOL\_EN 3050: Environmental Control for Biological Systems

Systems for controlling the physical environments (heat, moisture, light, contaminating organism, chemicals) for plant and animal systems including livestock, aquacultures, crops and agricultural products.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 and MATH 4100

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### BIOL\_EN 3070: Biological Fluid Mechanics

Basic principles of fluid mechanics applied to transport processes in biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750 and MATH 1700

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### BIOL\_EN 3075: Introduction to Materials Engineering

Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and fundamentals; intended for undergraduate engineering students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, ENGINR 1200

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**Corequisites:** One of the following BIOL\_EN 3180, CH\_ENG 3261, MAE 4231, MAE 4300, or instructor consent

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### BIOL\_EN 3170: Biomaterials

Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3

**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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### BIOL\_EN 3170W: Biomaterials - Writing Intensive

Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3

**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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### BIOL\_EN 3180: Heat and Mass Transfer in Biological Systems

Principles of heat and mass transfer and their applications in biomedical, bioenvironmental, and bioprocessing engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2300 or CH\_ENG 3261

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225

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### BIOL\_EN 4001: Topics in Biological Engineering

Current and new technical developments in biological engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### BIOL\_EN 4070: Bioelectricity

(cross-leveled with BIOL\_EN 7070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIOL\_EN 3180

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### BIOL\_EN 4080: Engineering Computation

(cross-leveled with BIOL\_EN 7080). An introduction to numerical methods relevant to biological engineering in the context of scientific computing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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### BIOL\_EN 4085: Problems in Biological Engineering

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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### BIOL\_EN 4150: Soil and Water Conservation Engineering

(same as CV\_ENG 4710; cross-leveled with BIOL\_EN 7150, CV\_ENG 7710). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200

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**BIOL\_EN 4160: Food Process Engineering**

(cross-leveled with BIOL\_EN 7160). Study of transport phenomena and unit operations in food processing systems. Emphasis on fluid flow and heat transfer in food processing, preservation processes, refrigeration, freezing, psychrometrics, and dehydration.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180

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**BIOL\_EN 4170: Biomaterials Interfaces of Implantable Devices**

(cross-leveled with BIOL\_EN 7170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170

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**BIOL\_EN 4231: Transport Phenomena in Materials Processing**

(same as MAE 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**BIOL\_EN 4250: Irrigation and Drainage Engineering**

(cross-leveled with BIOL\_EN 7250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 4260: Food Process Engineering II**

(cross-leveled with BIOL\_EN 7260). Continuing study of transport phenomena and unit operations in food processing systems. Emphasis on fluid food evaporation concentration food dehydration, contact equilibrium processes and mechanical separation processes.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 4160

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**BIOL\_EN 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as CH\_ENG 4270; cross-leveled with BIOL\_EN 7270, CH\_ENG 7270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**BIOL\_EN 4280: Survey of Bioengineering Techniques**

Laboratory techniques to train students in Bioelectricity, Biomechanics, Bioenvironment, Biomaterials, Biophotonics, Bioprocessing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**BIOL\_EN 4310: Feedback Control Systems**

(same as ECE 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 and junior/senior standing

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**BIOL\_EN 4315: Introduction to Bioprocess Engineering**

(same as CH\_ENG 4315; cross-leveled with BIOL\_EN 7315, CH\_ENG 7315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students)

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**BIOL\_EN 4316: Biomass Refinery Operations**

(same as CH\_ENG 4316; cross-leveled with BIOL\_EN 7316, CH\_ENG 7316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**BIOL\_EN 4350: Watershed Modeling Using GIS**

(same as CV\_ENG 4720; cross-leveled with BIOL\_EN 7350, CV\_ENG 7720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 4370: Orthopaedic Biomechanics**

(cross-leveled with BIOL\_EN 7370, V\_M\_S 7370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ENGINR 1200 and BIOL\_EN 3170

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**BIOL\_EN 4380: Applied Electronic Instrumentation**

(cross-leveled with BIOL\_EN 7380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems.

**Credit Hours:** 4

**Prerequisites:** BIOL\_EN 2080 and PHYSICS 2760

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**BIOL\_EN 4420: Introduction to Biomedical Imaging**

(same as PHYSCS 4420; cross-leveled with BIOL\_EN 7420, PHYSCS 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 4470: Biomolecular Engineering and Nanobiotechnology**

(cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

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**BIOL\_EN 4480: Physics and Chemistry of Materials**

(same as PHYSCS 4190, CHEM 4490, NU\_ENG 4319; cross-leveled with BIOL\_EN 7480, PHYSIC 7190, CHEM 7490, NU\_ENG 7319). Physics and Chemistry of Materials is a 3 credit hours undergraduate/graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid term and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Recommended:** PHYSCS 2760 or CHEM 1320 or equivalent

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**BIOL\_EN 4550: Design of Livestock Waste Management Systems**

(cross-leveled with BIOL\_EN 7550). Development and application of design criteria to the design of agricultural waste management facilities.

**Credit Hours:** 3

**Prerequisites:** CHEM 1310 and CV\_ENG 3700, MAE 3400 or instructor's consent

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**BIOL\_EN 4570: Fluorescent Imaging**

(cross-leveled with BIOL\_EN 7570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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**BIOL\_EN 4575: Computational Neuroscience**

(same as BIO\_SC 4580, ECE 4580; cross-leveled with BIOL\_EN 7575, BIO\_SC 7580, ECE 7580). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral sciences. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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**BIOL\_EN 4580: Mechanical Systems Engineering**

(cross-leveled with BIOL\_EN 7580). Fundamentals and applications of prime movers and power transmissions for the design of engineering systems.

**Credit Hours:** 3

**Corequisites:** ENGINR 2100 or BIOL\_EN 4380 or instructor's consent

**Recommended:** Thermodynamics course, Fluid Mechanics course

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**BIOL\_EN 4670: Photonics and Nanotechnologies in Optical Biosensors**

(cross-leveled with BIOL\_EN 7670). Latest applications of photonics and nanotechnologies in optical bio-chemical sensors will be reviewed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 4770: Biomedical Optics**

(cross-leveled with BIOL\_EN 7770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** BIOL\_EN 3180

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**BIOL\_EN 4870: Molecular and Cell Mechanics**

Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**BIOL\_EN 4940: Engineering Internship**

Problem course following prior approved work experience. Problem selected by internship company representative, faculty problem adviser and student. Supervised by faculty problem advisor and presented in engineering report form. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** advisor's consent

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**BIOL\_EN 4980: Biological Engineering Design**

Capstone design course for the Biological Engineering major. Design of biological system devices or processes.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**BIOL\_EN 4980W: Biological Engineering Design - Writing Intensive**

Capstone design course for the Biological Engineering major. Design of biological system devices or processes.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**BIOL\_EN 4990: Undergraduate Research in Biological Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**BIOL\_EN 4995: Undergraduate Honors Research in Biological Engineering**

Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** advisor's consent

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**BIOL\_EN 7001: Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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**BIOL\_EN 7070: Bioelectricity**

(cross-leveled with BIOL\_EN 4070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers. Prerequisites: PHYSCS 2760 and BIOL\_EN 3180 or instructor's consent

**Credit Hours:** 3

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**BIOL\_EN 7080: Engineering Computation**

(cross-leveled with BIOL\_EN 4080). An introduction to numerical methods relevant to biological engineering in the context of scientific computing.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 7150: Soil and Water Conservation Engineering**

(same as CV\_ENG 7710; cross-leveled with BIOL\_EN 4150, CV\_ENG 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200, or instructor's consent

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**BIOL\_EN 7160: Food Process Engineering**

(cross-level with BIOL\_EN 4160). Study of transport phenomena and unit operations in food processing systems. Emphasis on fluid flow and heat transfer in food processing, preservation processes, refrigeration, freezing, psychometrics, and dehydration.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180 or instructor's consent

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**BIOL\_EN 7170: Biomaterials Interfaces of Implantable Devices**

(cross-leveled with BIOL\_EN 4170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or instructor's consent

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**BIOL\_EN 7231: Transport Phenomena in Materials Processing**

(same as MAE 7231; cross-leveled with BIOL\_EN 4231, MAE 4231).

Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200, MAE 3400, MAE 4300 or equivalent; and MATH 4100

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**BIOL\_EN 7250: Irrigation and Drainage Engineering**

(cross-leveled with BIOL\_EN 4250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 7260: Food Process Engineering II**

(cross-leveled with BIOL\_EN 4260). Continuing study of transport phenomena and unit operations in food processing systems. Emphasis on fluid food evaporation concentration food dehydration, contact equilibrium processes and mechanical separation processes.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 7160 or instructor's consent

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**BIOL\_EN 7270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as CH\_ENG 7270; cross-leveled with BIOL\_EN 4270, CH\_ENG 4270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Prerequisites:** experience with Excel or instructor's consent

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**BIOL\_EN 7310: Feedback Control Systems**

(same as ECE 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 7315: Introduction to Bioprocess Engineering**

(same as CH\_ENG 7315; cross-leveled with BIOL\_EN 4315, CH\_ENG 4315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analysis proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for biological engineering students) or CH\_ENG 2225 (for chemical engineering students) or instructor's consent

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**BIOL\_EN 7316: Biomass Refinery Operation**

(same as CH\_ENG 7316; cross-leveled with BIOL\_EN 4316, CH\_ENG 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent



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**BIOL\_EN 7350: Watershed Modeling Using GIS**

(same as CV\_ENG 7720; cross-leveled with BIOL\_EN 4350, CV\_ENG 4720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 7370: Orthopaedic Biomechanics**

(same as V\_M\_S 7370; cross-leveled with BIOL\_EN 4370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200 and BIOL\_EN 3170, instructor's consent required

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**BIOL\_EN 7380: Applied Electronic Instrumentation**

(cross-leveled with BIOL\_EN 4380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems.

**Credit Hours:** 4

**Prerequisites:** BIOL\_EN 2080, PHYSCS 2760

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**BIOL\_EN 7420: Introduction to Biomedical Imaging**

(same as PHYSCS 7420; cross-leveled with BIOL\_EN 4420, PHYSCS 4420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 7470: Biomolecular Engineering and Nanobiotechnology**

(cross-leveled with BIOL\_EN 4470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 7480: Physics and Chemistry of Materials**

(same as PHYSCS 7190, NU\_ENG 7319, CHEM 7490; cross-leveled with BIOL\_EN 4480, PHYSCS 4190, NU\_ENG 4319, CHEM 7490). Physics and Chemistry of Materials is a 3 credit hours undergraduate/graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 / CHEM 1320 or equivalent/prior approval by instructor

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**BIOL\_EN 7550: Design of Livestock Waste Management Systems**

(cross-leveled with BIOL\_EN 4550). Development and application of design criteria to the design of agricultural waste management facilities.

**Credit Hours:** 3

**Prerequisites:** CHEM 1310 and CV\_ENG 3700, MAE 3400 or instructor's consent

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**BIOL\_EN 7570: Fluorescent Imaging**

(cross-leveled with BIOL\_EN 4570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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**BIOL\_EN 7575: Computational Neuroscience**

(same as BIO\_SC 7580, ECE 7580; cross-leveled with BIOL\_EN 4575, BIO\_SC 4580, ECE 4580). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral science. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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**BIOL\_EN 7580: Mechanical Systems Engineering**

(cross-leveled with BIOL\_EN 4580). Fundamentals and applications of prime movers and power transmissions for the design of engineering systems.

**Credit Hours:** 3

**Prerequisites:** Thermodynamics course, Fluid Mechanics course

**Corequisites:** ENGINR 2100 or BIOL\_EN 7380 or instructor's consent

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**BIOL\_EN 7670: Photonics and Nanotechnologies in Optical Biosensors**

(cross-leveled with BIOL\_EN 4670). Latest applications of photonics and nanotechnologies in optical biochemical sensors will be reviewed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 7770: Biomedical Optics**

(cross-leveled with BIOL\_EN 4770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIOL\_EN 3180; or instructor's consent

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**BIOL\_EN 8000: Scientific Discovery Leading to Life Science Innovations**

(same as MPP 8000). The goal of this course is to provide participants with a conceptual and practical understanding of how life science research is conducted in a modern research institution in the US and the pathways involved in translating fundamental discoveries into products and services that affect healthcare. We will cover the transitions

from initial discovery concepts to first-in-human studies, clinical trials, healthcare guidelines and policy to product development. We will provide an introduction to essential disciplines and interactions that enable scientific discoveries to move forward into novel device and drug therapies. Participants will come away with a very complete picture of how medical research happens, including: how it is funded; what is required to make discoveries and record and protect intellectual property that is created; how to advance innovations to clinical practice, how to navigate the regulatory and bioethical environment, and how discoveries reach practitioners and benefit patients. The Course is the first in a three course sequence leading to a Graduate Certificate in Life Science Innovation and Entrepreneurship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Must be Graduate Standing or receive certificate program director's approval

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**BIOL\_EN 8001: Advanced Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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**BIOL\_EN 8085: Problems in Biological Engineering**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**BIOL\_EN 8087: Seminar in Biological Engineering**

Recent investigations in biological engineering and related fields. Discussion of current literature; preparation and presentation of papers.

**Credit Hour:** 1

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**BIOL\_EN 8088: Advanced Seminar in Biological Engineering**

Student presentation and discussion of topical research. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** BIOL\_EN 8087 and BIOL\_EN 8402 or instructor's consent

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**BIOL\_EN 8100: Design and Development of Biomedical Innovations**

(same as ENGINR 8100). This course takes students through the process of brainstorming and working out a solution to a medical need, and then producing a product. Outputs may include the development of a physical prototype through interactions with the College of Engineering rapid prototype facility. The course is one of a three-course set leading to a Graduate Certificate in Translational Science and Entrepreneurship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Student must be enrolled in a graduate degree program and enrolled in a sequenced cohort group beginning with MPP 8000/BIOL\_EN 8000 then MPP 8100/BIOL\_EN 8100 then MANGMT 8200

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**BIOL\_EN 8150: Natural Systems for Wastewater Treatment**

Emphasis is on the design, management and biological performance of lagoons, overland flow systems and constructed wetland.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 7230 and BIOL\_EN 7150 or instructor's consent

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**BIOL\_EN 8170: Sensors and Biosensors**

The course covers basic principles of chemical and biological sensors, such as immobilization techniques, transducers (optical, electrical, etc.) and performance factors.

**Credit Hours:** 3

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**BIOL\_EN 8180: Numerical Methods in Engineering Research**

Numerical techniques and case studies in Biological Engineering. Topics include basic numerical methods, mathematical representation of data, matrix algebra, ordinary and partial differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 8230: Advanced Ceramic Materials**

(same as CH\_ENG 8230, MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 8250: Water Management Theory**

Advanced studies in erosion control, irrigation, and drainage. Water resources engineering.

**Credit Hours:** 3

**Prerequisites:** MATH 1500, Computer Engineering and Computer Science course, SOIL 4307 or SOIL 7307 and Soil Conservation course

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**BIOL\_EN 8270: Principles and Applications of Fluorescence**

Physical foundations of fluorescence, fluorophores, steady-state and lifetime measurements, and instrumentation. Applications in the life science from tissues staining to DNA probes. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 8280: Advanced Biological Transport Processes**

Principles of fluid flow, heat transfer, and mass transfer applied to (a) understanding of how the human body functions (from the cellular up to the system level) and (b) designing biomedical devices. An independent project/case-study of a relevant research topic also required.

**Credit Hours:** 3

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**BIOL\_EN 8360: Food Extrusion**

Engineering principles and applications of single and twin screw food cooking extrusion systems. Modeling, control and optimization of extrusion systems. Dough rheology.

**Credit Hours:** 2

**Prerequisites:** BIOL\_EN 7260

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**BIOL\_EN 8370: Materials Characterization Techniques**

Concepts and techniques in characterizing materials, including bulk and surface analyses. Techniques are presented in terms of use, sample requirements, and the engineering principles. Topics include: contact

angle measurement, XPS, SEM, TEM, STM, AFM, XRD, and thermal analyses.

**Credit Hours:** 3

**Prerequisites:** at least one undergraduate course in material science, engineer, or design

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**BIOL\_EN 8380: Modeling and Identification of Engineering Systems**

Generalized description of engineering systems, bond graph modeling, system identification techniques, and neural network approaches.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 8402: Research Methods**

(same as F\_S 8402). Review of literature; planning research projects; publication procedures.

**Credit Hours:** 2

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**BIOL\_EN 8470: Ultrasensitive Biodetection**

Multiplexing single-molecule, single-cell, nanobiotech analytical techniques to improve disease diagnosis, treatment, and understanding of biophenomena (membrane transport, gene expression, enzyme activities, cell communications). Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIOL\_EN 8570: Microscopic Imaging**

Advanced topics in microscopic imaging with focus on applications of molecular and cellular imaging using fluorescent microscopy.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 7570 or instructor's consent

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**BIOL\_EN 8670: Orthopaedic Failure Modes and Effect Analysis**

Engineering sciences will be leveraged provide a comprehensive study of failure modes and related effects for orthopaedic devices, orthopaedic tissue repair, and surgical interventions. Clinical case studies will be analyzed to introduce real world problems of orthopaedic failures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or ENGINR 1200, BIOL\_EN 4370 or BIOL\_EN 7370 or instructor consent

**Recommended:** For department majors

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**BIOL\_EN 8770: Photon Migration and Optical Imaging in Turbid Media**

The essential concepts and techniques in optical imaging in turbid media will be covered including both forward problems and inverse reconstruction theories. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BIOL\_EN 8870: Molecular and Cell Mechanics**

Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**BIOL\_EN 8990: Masters Thesis Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**BIOL\_EN 9990: Doctoral Dissertation Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Biological Sciences Courses

**BIO\_SC 1001: Topics in Biological Science - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

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**BIO\_SC 1002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**BIO\_SC 1010: General Principles and Concepts of Biology**

Emphasizes connections and applications to society and the human condition, science literacy, and critical thinking skills. A discussion of general principles and fundamental concepts of living things. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 3

**Recommended:** MATH 1100

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**BIO\_SC 1020: General Biology Laboratory**

Laboratory exercises dealing with representative organisms and methods of modern biological sciences. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1400 or BIO\_SC 1010 concurrently

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**BIO\_SC 1030: General Principles and Concepts of Biology with Laboratory**

Survey of general principles and basic concepts of life science, emphasizing applications to society and the human condition. Lectures address science literacy and critical thinking and laboratory exercises use representative organisms to complement lecture topics. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 5

**Recommended:** MATH 1100 or concurrent enrollment

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**BIO\_SC 1060: Basic Environmental Studies**

Considers the ecosystem, energy and biogeochemical cycles and population dynamics; relation of the environment to agriculture and technology, pollution, power and food production; politico-economic considerations; moral and ethical issues. For non-science majors.

**Credit Hours:** 3

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**BIO\_SC 1100: Introductory Zoology with Laboratory**

(same as F\_W 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**Credit Hours:** 5

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**BIO\_SC 1200: General Botany with Laboratory**

Introduction to study of plants. Emphasis on structure, growth, physiology, genetics and reproduction of plants.

**Credit Hours:** 5

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**BIO\_SC 1400: Evolution for Everyone**

This course will explore the application of evolutionary theory to modern human affairs. We will study the processes involved in evolution and investigate evolutionary interpretations of human social behavior (e.g., psychology, mate choice, economics, religion, and morality). No credit if student has received credit for BIO\_SC 2060 or BIO\_SC 4600.

**Credit Hours:** 3

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**BIO\_SC 1500: Introduction to Biological Systems with Laboratory**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hours:** 5

**Recommended:** MATH 1100 or sufficient ALEKS score

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**BIO\_SC 1500H: Introduction to Biological Systems with Laboratory Honors**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hour:** 3-5

**Prerequisites:** MATH 1100 and high school chemistry. Honors eligibility required

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**BIO\_SC 2001: Topics in Biological Sciences - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Recommended:** One course in Biology

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**BIO\_SC 2002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2002H: Topics in Biological Sciences- Biological/Physical/Mathematics - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2010: Undergraduate Seminar in Biological Sciences**

Discussion and critical evaluation of current topics in biological sciences for intermediate-level students. Some sections may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**BIO\_SC 2015: Biological Career Explorations**

Students will learn about career options and choices, construct career portfolios, and interact with current biological professionals. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent

**Recommended:** Sophomore standing

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**BIO\_SC 2020: How the Brain Works**

Basic structure and function of the brain; left and right brain studies; gender differences; learning and memory; brain disorders..

**Credit Hour:** 1

**Prerequisites:** C- or above in BIO\_SC 1010 or BIO\_SC 1500

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**BIO\_SC 2030: Life of the Cell**

This course will help students understand basic concepts of biomolecular structure, cell organization, cell membranes, energy and metabolism, cellular communication, and cell division. This course is intended for non-science majors and may not be used to satisfy requirements for either a major or a minor in biological sciences.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2060: Community Biology**

Principles of population biology, ecology, and evolution, including consideration of human impacts on biological communities and ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent. Not open to biology majors

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**BIO\_SC 2100: Infectious Diseases**

An introduction to the basic science of bacterial, viral, protozoan, fungal and helminth infections, including discussions of how illness has influenced or been affected by public policy and culture.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010. Not open to Biology Majors

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**BIO\_SC 2150: Genetic Diseases**

This course will discuss the biological basis for genetic diseases, including inherited diseases and non-inherited diseases such as cancer. The units will include an introduction providing necessary background information, as section studying the technology used to study genetic diseases and several units discussing specific diseases and their impact on history and society. This course is intended for non-science majors. Cannot be used to satisfy degree requirements for biology major or biology minor.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2200: General Genetics**

Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1500 and CHEM 1320 (or concurrent enrollment)

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**BIO\_SC 2300: Introduction to Cell Biology**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 2300H: Introduction to Cell Biology- Honors**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200. Honors eligibility required

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**BIO\_SC 2300HW: Introduction to Cell Biology - Honors/Writing Intensive**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200. Honors eligibility required

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**BIO\_SC 2600: Ornithology**

(same as F\_W 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab.

**Credit Hours:** 4

**Recommended:** 5 hours of Biological Sciences

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**BIO\_SC 2700: Ichthyology**

(same as F\_W 2700). A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours biology or equivalent

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**BIO\_SC 2940: Internship in Biological Science**

Work experience in a non-profit, for profit, or governmental organization relevant to the biological sciences. Intended for students doing internships in which independent research is less than 50% of the experience. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing, 12 hours of biological science and 2.70 GPA

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**BIO\_SC 2950: Directed Independent Research**

Participation in faculty research activities. May not be used to satisfy degree requirements for BA or BS in biological sciences or the minor in biological sciences.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**BIO\_SC 2960: Readings in Biological Science**

Supervised reading in biological literature. May be repeated up to six hours total credit. Selected sections of this course may be graded either on A-F or S/U basis only. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**BIO\_SC 2965H: Honors Readings in Biological Literature**

Selected readings in biological literature for Honors, in consultation with instructor. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** overall 3.3 GPA; instructor's consent. Honors eligibility required

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**BIO\_SC 3002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3002H: Topics in Biological Sciences- Biological/Physical/Mathematics - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3002W: Topics in Biological Sciences- Biological/Physical/Mathematics - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3010: Professional Skills**

This course will focus on application and interview skills for students interested in medical school. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

**Recommended:** junior standing; 3.4 GPA, and biological sciences majors

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**BIO\_SC 3050: Genetics and Society**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3050W: Genetics and Society - Writing Intensive**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3075: The Human Microbiome**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and "poop transplants" to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3075W: The Human Microbiome - Writing Intensive**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and "poop transplants" to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3210: Plant Systematics**

Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours of Biological Sciences

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**BIO\_SC 3250: Parasitology**

(same as BIOMED 3250). Parasitism is considered as a fundamental type of interspecies interaction. Principles of parasitism as they apply to animals are presented with emphasis on parasite morphology, biology

and host parasite relationships. Includes lab. Recommend: 8 hours of biology.

**Credit Hours:** 4

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**BIO\_SC 3260: Invertebrate Zoology**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3260W: Invertebrate Zoology - Writing Intensive**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3360: Herpetology**

The biology, ecology, taxonomy, and distribution of amphibians and reptiles. Some Saturday field trips.

**Credit Hours:** 4

**Recommended:** 8 hours Biological Sciences or equivalent

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**BIO\_SC 3400: Evolution and Ecology**

Introduction to principles of evolution and ecology. Topics include natural selection, adaptation, phylogenetic analysis, human evolution, population growth and regulation, population interactions, ecosystem ecology, and human impacts on ecological processes. No credit for this course if either BIO\_SC 3650 or BIO\_SC 4600 already completed; may not co-enroll in this course and BIO\_SC 4600.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3510: Biology of Fungi**

(same as PLNT\_S 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers. Includes lab.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**BIO\_SC 3650: General Ecology**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** 10 hours in Biology

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**BIO\_SC 3650W: General Ecology - Writing Intensive**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

**Prerequisites:** junior standing  
**Recommended:** 10 hours in Biology

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**BIO\_SC 3655: Tropical Ecology: Methods and Applications**  
Field study of tropical community; additional fee for transportation and accommodations required.

**Credit Hours:** 3  
**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4600 or BIO\_SC 4660

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**BIO\_SC 3660: Mammalogy**  
(same as F\_W 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States. Includes lab.

**Credit Hours:** 4  
**Recommended:** Junior Standing or instructor's consent

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**BIO\_SC 3700: Animal Physiology**  
Introduces concepts of vertebrate organ function and homeostatic control emphasizing mammalian physiology. Some comparisons to function in other vertebrates and strategies for coping with environmental stresses introduced. Includes lab.

**Credit Hours:** 5  
**Prerequisites:** BIO\_SC 2300

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**BIO\_SC 3710: Introductory Entomology**  
(same as PLNT\_S 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**BIO\_SC 3715: Insect Diversity**  
(same as PLNT\_S 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2  
**Prerequisites:** PLNT\_S 3710 (or BIO\_SC 3710) or concurrent registration

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**BIO\_SC 3750: General Microbiology**  
Principles of microbiology. Includes lab.

**Credit Hour:** 3-4  
**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300  
**Recommended:** grades in C range for prerequisites

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**BIO\_SC 3780: Genetics Laboratory**  
Experimental genetic studies of *Drosophila*, corn and microorganisms.

**Credit Hours:** 2  
**Prerequisites:** C range grade or better in BIO\_SC 2200 or instructor's consent

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**BIO\_SC 3790: Developmental Biology Laboratory**  
Laboratory studies of development in sea urchin, chicken and roundworm.

**Credit Hours:** 2  
**Prerequisites:** BIO\_SC 3800 or co-enrollment in BIO\_SC 3800

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**BIO\_SC 4002: Topics in Biological Science - Biological/Physical/Mathematics**  
Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3  
**Prerequisites:** senior standing

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**BIO\_SC 4085: Problems in Biological Sciences**  
Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3  
**Prerequisites:** instructor's consent  
**Recommended:** Junior Standing

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**BIO\_SC 4100: Limnology**  
(same as F\_W 4100; cross-leveled with BIO\_SC 7100, F\_W 7100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4  
**Prerequisites:** senior standing

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**BIO\_SC 4300: Analysis of Biological Macromolecules**  
(cross-leveled with BIO\_SC 7300). Theory/application of techniques used for characterization of proteins, nucleic acids; topics: sedimentation velocity; equilibrium; sucrose density gradients; electrophoresis; spectrophotometry.

**Credit Hours:** 3  
**Prerequisites:** BIO\_SC 2300 or BIOCHM 4270, and MATH 1500  
**Recommended:** one year Physics

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**BIO\_SC 4310: Physics in Cell and Developmental Biology**  
(same as PHYSICS 4310; cross-leveled with BIO\_SC 7310, PHYSICS 7310, MPP 7300). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3  
**Prerequisites:** PHYSICS 1220 or PHYSICS 2760 and BIO\_SC 2300, or instructor's consent

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**BIO\_SC 4320: Molecular Plant Physiology**  
(same as PLNT\_S 4320; cross-leveled with BIO\_SC 7320, PLNT\_S 7320). Modern physiology of higher plants using common cultivated plants as examples.

**Credit Hours:** 3  
**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and CHEM 1320

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**BIO\_SC 4328: Introductory Radiation Biology**

(same as NU\_ENG 4328, RADIOL 4328; cross-leveled with BIO\_SC 7328, NU\_ENG 7328, RADIOL 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 4400: Plant Anatomy**

(same as PLNT\_S 4400; cross-leveled with BIO\_SC 7400, PLNT\_S 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues, tissue systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500

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**BIO\_SC 4500: Neurobiology**

(cross-leveled with BIO\_SC 7500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neuroethology and developmental neurobiology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or instructor's consent

**Recommended:** BIO\_SC 3700

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**BIO\_SC 4560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 7560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500

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**BIO\_SC 4580: Computational Neuroscience**

(same as ECE 4580, BIOL\_EN 4575;; cross-leveled with BIO\_SC 7580, ECE 7580, BIOL\_EN 7575). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral science and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500; MATH 1500

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**BIO\_SC 4600: Evolution**

Surveys various processes in organic evolution and underlying genetic mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 4640: Behavioral Biology**

(cross-level with BIO\_SC 7640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla. May be taken with Laboratory for 4 credits.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 1500

**Recommended:** one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 4642: Animal Communication**

Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 4600

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**BIO\_SC 4660: Plant Population Biology**

(cross-leveled with BIO\_SC 7660). Covers the ecological and evolutionary processes that influence the distribution and abundance of plant species. Topics include evolution of life history schedules, gender evolution, population growth and demography, competition, herbivory, plant-pollinator interactions, clonal growth, and plant community structure. Includes lab.

**Credit Hours:** 4

**Recommended:** 2 courses in Biological Sciences

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**BIO\_SC 4670: Avian Ecology**

(cross-level with BIO\_SC 7670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2600 or BIO\_SC 3650

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**BIO\_SC 4950: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Overall GPA 2.75; 20 hours of Biological Sciences and/or Chemistry

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**BIO\_SC 4950H: Honors Research in Biology**

Individually directed field or laboratory research for upper-level Honors students, in consultation with a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** overall GPA 3.3; instructor's consent; biology or microbiology major. Honors eligibility required

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**BIO\_SC 4952: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3



**Prerequisites:** BIO\_SC 4950; overall GPA 2.75; instructor's consent

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**BIO\_SC 4952H: Honors Research in Biology**

Continuation of research program. Successful completion requires public presentation and leads to degree with Honors in biological sciences. May be repeated for credit for maximum of 6 hours. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950H; overall GPA 3.3; instructor's consent. Honors eligibility required

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**BIO\_SC 4960: Special Readings in Biological Sciences**

Independent readings and discussions of topics in biology selected in consultation with supervising faculty member. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** senior standing in Biological Sciences and instructor's consent

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**BIO\_SC 4970: Neurobiology Laboratory**

Laboratory experience with experimental neurobiology, with emphasis on neural networks, motor systems, and developmental neurobiology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or BIO\_SC 4500 or instructor's consent

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**BIO\_SC 4972: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4972W: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4974: Molecular Biology Laboratory**

Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research. Prerequisites: BIO\_SC 2200 or BIOCHM 4272 or

**Credit Hours:** 3

**Corequisites:** BIO\_SC 4976

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**BIO\_SC 4976: Molecular Biology**

(cross-leveled with BIO\_SC 7976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4978: Cancer Biology**

(same as BIOCHM 4978; cross-leveled with BIO\_SC 7978, BIOCHM 7978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

**Recommended:** BIO\_SC 4976 or BIOCHM 4270 and BIOCHM 4272

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**BIO\_SC 4980: Cellular Interactions in Health and Disease**

(cross-leveled with BIO\_SC 7980). The cell as a functional unit.

**Credit Hours:** 3

**Prerequisites:** 10 hours Biological Sciences and 5 hours Physics and 5 hours Organic Chemistry

**Recommended:** some background in Biochemistry and/or Molecular Biology

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**BIO\_SC 4982: Human Inherited Diseases**

(cross-leveled with BIO\_SC 7982). Analysis of the molecular and cellular mechanisms underlying inherited diseases in humans. Topics include genetics of sex determination, metabolic disorders, cancer, blood groups, transplantation, AIDS.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4982W: Human Inherited Diseases - Writing Intensive**

(cross-leveled with BIO\_SC 7982). Analysis of the molecular and cellular mechanisms underlying inherited diseases in humans. Topics include genetics of sex determination, metabolic disorders, cancer, blood groups, transplantation, AIDS.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4983: Molecular Ecology**

Application of molecular genetic techniques to topics in ecology and population biology such as sex ratios, dispersal, mating systems, biogeography and conservation genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 2200 and BIO\_SC 3650

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**BIO\_SC 4984: Mammalian Reproductive Biology**

Adult reproductive anatomy, physiology and behavior; gametogenesis and fertilization; placentation; sexual differentiation; parturition; maternal behavior and lactation; puberty; reproductive aging; reproductive ecology.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** 15 hours of Biological Sciences

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**BIO\_SC 4986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 7986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4988: Nerve Cells and Behavior**

The cellular basis of behavior. Molecular and cellular properties of nerve cells, as related to behavior, will be represented and discussed.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4990: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Includes lab.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** BIO\_SC 3700, or equivalent

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**BIO\_SC 4994: Senior Seminar**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 4994H: Senior Seminar - Honors**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994HW: Senior Seminar - Honors/Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994W: Senior Seminar - Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 7002: Topics in Biological Sciences**

Advanced topics not in regularly offered courses. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 7100: Limnology**

(same as F\_W 7100; cross-leveled with BIO\_SC 4100, F\_W 4100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Prerequisites:** graduate standing or BIO\_SC 3650

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**BIO\_SC 7300: Analysis of Biological Macromolecules**

(cross-leveled with BIO\_SC 4300) Theory/application of techniques used for characterization of proteins and nucleic acids. Topics include sedimentation velocity; equilibrium; sucrose density gradients; electrophoresis; spectrophotometry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300; BIOCHM 4270; MATH 1500; 1 year of physics

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**BIO\_SC 7310: Physics in Cell and Developmental Biology**

(same as PHYSICS 7310 and MPP 7300; cross-level with BIO\_SC 4310, PHYSICS 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent or PHYSICS 1220 or PHYSICS 2760 and BIO\_SC 2300

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**BIO\_SC 7320: Molecular Plant Physiology**

(same as PLNT\_S 7320; cross-leveled with BIO\_SC 4320, PLNT\_S 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and 5 hours Chemistry

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**BIO\_SC 7328: Introductory Radiation Biology**

(same as NU\_ENG 7328, RADIOL 7328, V\_M\_S 7328; cross-leveled with BIO\_SC 4328, NU\_ENG 4328, RADIOL 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 7350: Summer Institute in Biotechnology**

Development of experiments in molecular genetics for use in high school biology laboratories. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BIO\_SC 7374: Molecular Biology Laboratory**

Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIOCHM 4272 or concurrent registration in BIO\_SC 4976

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**BIO\_SC 7400: Plant Anatomy**

(same as PLNT\_S 7400; cross-leveled with BIO\_SC 4400, PLNT\_S 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**BIO\_SC 7490: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2300 and BIO\_SC 3700, or equivalent

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**BIO\_SC 7500: Neurobiology**

(cross-leveled with BIO\_SC 4500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuranatomy, neurothology and developmental biology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or BIO\_SC 3700

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**BIO\_SC 7560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 4560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500 or equivalent

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**BIO\_SC 7580: Computational Neuroscience**

(Same as BIOL\_EN 7575, ECE 7580; cross-leveled with BIO\_SC 4580, BIOL\_EN 4575, ECE 4580). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral sciences and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500, MATH 1500

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**BIO\_SC 7640: Behavioral Biology**

(cross-leveled with BIO\_SC 4640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 7660: Plant Population Biology**

(cross-leveled with BIO\_SC 4660). Covers the ecological and evolutionary processes that influence the distribution and abundance of plant species. Topics include evolution of life history schedules, gender evolution, population growth and demography, competition, herbivory, plant-pollinator interactions, clonal growth, and plant community structure.

**Credit Hours:** 4

**Prerequisites:** 2 courses in Biological Sciences

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**BIO\_SC 7670: Avian Ecology**

(cross-leveled with BIO\_SC 4670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2060 or BIO\_SC 3650; BIO\_SC 2600

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**BIO\_SC 7976: Molecular Biology**

(cross-leveled with BIO\_SC 4976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 7978: Cancer Biology**

(same as BIOCHM 7978; cross-leveled with BIO\_SC 4978, BIOCHM 4978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976 or equivalent

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**BIO\_SC 7980: Cellular Interactions in Health and Disease**

(cross-leveled with BIO\_SC 4980). Advanced discussion of topics in cell biology and genetics as they relate to health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BIO\_SC 7982: Human Inherited Diseases**

Advanced analysis of the molecular basis for genetic disorders in humans. Topics will include both Mendelian and complex traits with readings from the primary literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and instructor's consent

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**BIO\_SC 7986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 4986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700

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**BIO\_SC 7990: Non-thesis Research**

Independent research not leading to a thesis. Some sections may be offered on either A-F or S/U grading basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Advanced topics not in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8050: Professional Survival Skills**

Introduction to resources, facilities, and communication skills for professional careers in biological sciences. Topics include computer resources, accessing scientific literature, making slides and figures, grantsmanship, resume preparation, manuscript review, and research presentation.

**Credit Hours:** 2

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**BIO\_SC 8060: Ethical Conduct of Research**

(same as BIOCHM 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8070: Professional Communication Development**

The purpose of this course is to develop professional communication skills in students that are planning to attend (or are in their first year of) graduate training. Some sections may be offered with A-F or S/U grading option.

**Credit Hour:** 1-2

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**BIO\_SC 8080: Workshop in Area of Specialization**

Intensive course in the theory and methodology of biological investigation. Conducted by visiting scientists. Offered in one or more specialized sections. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** graduate standing or instructor's consent

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**BIO\_SC 8085: Problems in Biological Sciences**

Research not expected to terminate in thesis, or individual advanced study in special subjects.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8087: Seminar**

Current topics in the biological sciences. Open to all graduate students. Graded S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8090: Research in Biological Sciences**

Research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8187: Seminar in Areas of Specialization**

Offered each semester in one or more specialized sections followed by the topic title of the seminar. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8300: Advanced Plant Genetics**

Genetic approaches to molecular and biochemical studies in maize, wheat, and Arabidopsis.

**Credit Hours:** 3

**Prerequisites:** General Genetics and course in Cell Biology or Plant Physiology

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**BIO\_SC 8310: Fungal Genetics and Biology**

Introduction to fungal research, with an emphasis on genetics, biochemistry, cell and molecular biology, and pathogenicity of fungi. Graded A-F only.

**Credit Hours:** 3

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**BIO\_SC 8320: Developmental Genetics**

An overview of various developing systems amenable to classical and molecular genetic analysis. Specific developmental phenomena will be introduced in particular model systems, with an emphasis on experimental approaches used to address the underlying mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIOCHM 7270, BIOCHM 7272, or equivalent

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**BIO\_SC 8330: Stem Cell Biology**

A comparative approach to stem cell biology, with emphasis on embryonic, neural and bone marrow-derived stem cells in rodents and humans. Ethical considerations associated with the use of stem cells to study development and repair mechanisms will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300

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**BIO\_SC 8340: Advanced Microscopy Techniques**

Electron microscopy and modern light microscopy techniques including epifluorescence, confocal fluorescence microscopy, low light video microscopy, differential interference optics, and computerized image analysis.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4990 or BIO\_SC 8350 and instructor's consent

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**BIO\_SC 8350: Advanced Cell Biology**

Structure and function of membranes; cell ultrastructure; organellar function; cellular movement; microtubules; microfilaments; mitosis and meiosis.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300; instructor's consent

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**BIO\_SC 8362: Introduction to Plant Metabolism**

(same as PLNT\_S 8362, BIOCHM 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

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**Credit Hours:** 2

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**BIO\_SC 8365: Introduction to Molecular Cell Biology**

(same as BIOCHM 8365, PLNT\_S 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8370: Plant Developmental Biology**

Critical discussions of recent publications in plant development, with particular focus on developmental genetics.

**Credit Hours:** 3

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**BIO\_SC 8440: Integrative Neuroscience I**

(same as NEUROSCI 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8442: Integrative Neuroscience II**

(same as NEUROSCI 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8450: Developmental Neurobiology**

Principles of neural development. Development of neuron and nerve patterns, axon growth, synapses, and development of behavior.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500 or equivalent

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**BIO\_SC 8460: Advanced Cancer Biology**

A study of the molecular basis of cancer, including topics in tumor cell biology, interactions between cancer cells and normal cells, mechanisms of metastasis, and novel approaches to development of new chemotherapies.

**Credit Hours:** 3

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**BIO\_SC 8505: Introduction to Plant Stress Biology**

(same as PLNT\_S 8505). This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8520: Sensory Ecology**

A study of information exchange and acquisition in organisms, with an emphasis on communication, orientation, and predator detection. The course will also examine the effects of biotic and abiotic factors on sensory systems.

**Credit Hours:** 3

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**BIO\_SC 8600: Design of Ecological Experiments**

Principles of experimental design in the context of ecological, behavioral, and evolutionary research.

**Credit Hours:** 2

**Prerequisites:** STAT 1400

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**BIO\_SC 8610: Current Concepts in Conservation Biology**

Survey of current concepts in conservation biology literature. Discussions will provide students with an appreciation of the historical development of concepts, the interdisciplinary nature of conservation problems, and the research required for effective solutions.

**Credit Hours:** 2

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**BIO\_SC 8620: Phylogenetic Methods and Applications**

A review of principles for constructing and testing phylogenies followed by a survey of methods for inferring ancestral characteristics and adaptive features in living species.

**Credit Hours:** 4

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**BIO\_SC 8633: Molecular and Network Evolution**

(same as AN\_SCI 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIO\_SC 8650: Ecological and Evolutionary Genomics**

(same as PLNT\_S 8650). This course is designed to give a background in evolution and then explore an exciting new field: Ecological and evolutionary genomics. We will study genes that affect fitness and how whole genomes evolve. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8700: Ecological Genetics**

Population genetics and evolutionary theory, with emphasis on studies of natural populations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 3100 or BIO\_SC 3650, and STAT 1400 or equivalent

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**BIO\_SC 8720: Speciation**

Advanced discussion of species concepts and the processes of formation of species.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 4600

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**BIO\_SC 8724: College Science Teaching**

(same as LTC 8724, PHYSCS 8310, ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**BIO\_SC 8725: Science Outreach: Public Understanding of Science**

(same as AN\_SCI 8725, PHYSICS 8350, LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**BIO\_SC 8726: Integrating Science with Outreach**

(same as LTC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**BIO\_SC 8730: Advanced Community Ecology**

Detailed examination of new happenings in population and community ecology. Topics vary but will include species interactions, community structure, reproductive strategies.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or instructor's consent

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**BIO\_SC 8740: Plant/Animal Interactions**

Discussion and lectures on herbivory, pollination biology, and dynamics of fruit and seed dispersal from ecological and evolutionary perspectives.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4660 or equivalent

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**BIO\_SC 8982: Advances in Human Genetic Disorders**

Critical review of recent publications describing the molecular and cellular processes underlying genetic disorders in humans. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** BIO\_SC 4982 or concurrent enrollment in BIO\_SC 7982

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**BIO\_SC 9090: Research in Biological Sciences**

Research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 9432: Molecular Biology II**

(same as MICROB 9432, BIOCHM 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**BIO\_SC 9468: Molecular Biology of Plant Growth and Development**

(same as BIOCHM 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4976

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## Biomedical Sciences Courses

**BIOMED 1010: Biomedical Career Explorations**

An introduction to the variety of career possibilities within the growing field of biomedical sciences. Graded on S/U basis only.

**Credit Hour:** 1

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**BIOMED 2001: Topics in Veterinary Biomedical Science**

May be repeated 2 times for credit. Graded on A-F basis only.

**Prerequisites:** instructor's consent

**Credit Hour:** 1-99

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**BIOMED 2085: Problems in Biomedical Research**

Assignment of special Topics for Research training in biomedical research.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIOMED 2110: Biomedical Terminology**

Life science etymology (Greek for "true meaning", means the study of word derivation) taught by classroom presentation and discussion. The course organization is based primarily on common themes of Greek and Latin terms along with historical reasons for current usage. The application of these terms is for all biomedical sciences and life sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOMED 2111: Veterinary Medical Terminology**

Veterinary Medical Terminology is an extension of Biomedical Sciences 2110, Biomedical Terminology. The course organization is lecture, based primarily on domestic species and common themes of Greek and Latin terms. In addition, major veterinary medical eponyms, acronyms, and medical and surgical instruments are included. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110 or instructor's consent

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**BIOMED 2120: Essentials of Animal Handling and Physical Restraint**

Fundamentals of handling and physical restraint of domestic large and small animals, laboratory animals, and common non-domestic pets. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOMED 2140: Companion Animals**

(same as AN\_SCI 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs, cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**BIOMED 2210: Microbiology for the Health Sciences**

Introductory course for students in the applied health curricula. Presents biomolecules of life, enzyme interaction, physiology and structure of representative organisms. Emphasizes bacteria, viruses, fungi and protozoa of health significance. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** CHEM 1100 or equivalent and instructor's consent

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**BIOMED 2230: Animal Sanitation and Disease Prevention**

Preventative measures for diseases and parasites of farm animals.

**Credit Hours:** 3

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**BIOMED 2235: Domestic Animal Behavior**

An examination of the effects of domestication on the behavior of companion and food animal species. Comparisons to similar animals in feral or wild conditions will be made. The causes, development and potential treatments of abnormal behavior will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOMED 2420: Biology of Healthy Living**

(same as PH\_THR 2420 and NEP 2420). Biology of inactivity as a casual factor in chronic disease.

**Credit Hours:** 2

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**BIOMED 2940: Internship in Biomedical Sciences**

Supervised work experience to develop technical skills and enhance student knowledge in an area of biomedical science. Not intended for more than 50% independent research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** sophomore standing and instructor's consent

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**BIOMED 3000: Specialty Careers for Veterinary Technicians**

Specialty careers for veterinary technicians are jobs which required knowledge and skills beyond those needed in primary care clinical veterinary practice. This course will explore veterinary technician specialties, the education required, and the advantages of advanced academic training. Course graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AAS degree in veterinary technology or instructors consent required

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**BIOMED 3001: Topics in Biomedical Sciences**

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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**BIOMED 3085: Problems in Biomedical Science**

Assignment of special topics for research training in biomedical research.

**Credit Hour:** 1-99

**Prerequisites:** DVM degree and instructor's consent

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**BIOMED 3100: Biomedical Pathophysiology**

Pathophysiology is the study of changes in the body resulting from disease. This course requires knowledge of normal anatomy and physiology. A comparative approach is used involving both domestic animal and human examples. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 3200: Comparative Hematology**

Hematology is the study of blood cells in health and disease. Emphasis in this course is placed on the changes associated with disease. Transfusion medicine and coagulation disorders will also be included. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 3219: Elements of Comparative Anatomy**

This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos of dissected specimens are used to aid instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** five hours of biological science or zoology or equivalent or instructor's consent or an AAS degree in veterinary technology

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**BIOMED 3250: Parasitology**

(same as BIO\_SC 3250) Parasitism is considered as a fundamental type of interspecies interaction. Identifying characteristics, life cycle, and resulting disease caused by the common parasites of domestic animals, common laboratory animals, selected wildlife, and humans are described. Special emphasis is given to parasites that can be transmitted from animals to man.

**Credit Hours:** 3

**Prerequisites:** 8 hours of biology or instructor's consent

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**BIOMED 3300: Animal Welfare and Ethics**

An introductory examination of ethical issues related to animal welfare, including animal use for food, research, and companionship, plus contemporary issues affecting companion animals, farm animals, and horses. Topics related to animal pain and legal status will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**BIOMED 3310: Equine Health Topics**

An in-depth examination of equine disease and health topics that are pertinent to today's horse owner and veterinarian. The course will integrate horse management practices with disease recognition, control and prevention. Students will learn how to recognize problems and when to call a veterinarian. Emerging disease problems such as West Nile Virus will be examined as well as topics of continuing concern. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4977 or equivalent or instructor's consent

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**BIOMED 3320: Comparative Microscopic Anatomy**

The course will provide students with a background in the structure of body organs at the microscopic level. The material will emphasize structure-function relationship of cells and organs using material from diverse animal species, including human, that exemplify unique adaptations to environmental or physiological requirements.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or equivalent

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**BIOMED 3326: Comparative Pharmacology**

An introduction to terminology used in pharmacology. Mechanisms of drug administration, absorption, distribution, metabolism, and excretion are described. Treatment modalities in animals and humans are compared. Basics of drug actions and the medicolegal aspects of pharmacology are discussed.

**Credit Hours:** 3

**Prerequisites:** an AAS degree in veterinary technology or AN\_SCI 3254 or BIO\_SC 3700, or equivalent, or instructor's consent

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**BIOMED 4001: Topics in Biomedical Sciences**

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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**BIOMED 4010: Life Sciences Research: Models and Methods**

(cross-leveled with BIOMED 7010, V\_BSCI 7010). A review of basic laboratory animal and non-animal research models and procedures commonly used in the life sciences area in academia and drug/chemical industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Biology or Cell Biology; junior standing required

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**BIOMED 4100: Veterinary Clinical Chemistry**

(cross-leveled with V\_PBIO 7100). This course is designed to hone the skills of the practicing veterinary technician, veterinary student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.

**Credit Hours:** 3

**Prerequisites:** An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited programs; Undergraduate physiology on mammals (AN\_SCI 3254, BIO\_SC 3700, or equivalent)

**Recommended:** BIOMED 2110 and BIOMED 3200 or instructor's consent

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**BIOMED 4110: Veterinary Cytology**

(cross-leveled with V\_PBIO 7110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course

will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease. Prerequisites: An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association-accredited program, or instructor's consent

**Credit Hours:** 2

**Recommended:** BIOMED 3200 and BIOMED 2110

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**BIOMED 4120: Principles of Toxicology**

(cross-leveled with V\_PBIO 7120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** one year of college chemistry and biology, each or instructor's consent

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**BIOMED 4200: Veterinary Public Health and Community Practice**

Veterinary Public Health is the field of veterinary medicine that deals with food production and safety, zoonosis (animal to human) disease control, prevent and control of environmental contamination, and the role of animals in society. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructors consent

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**BIOMED 4210: Animal Issues in Disasters**

(cross-leveled with V\_PBIO 7210). This course describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** an AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4300: Clinical Veterinary Neurology**

Clinical veterinary neurology will review the neurologic examination, common neurologic diseases and techniques to properly care for the neurologic patient. The course organization is based primarily on neuroanatomic localization of disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS in Veterinary Technology or BIOMED 3219 and 3100 or instructor's consent; junior or senior standing

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**BIOMED 4320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with V\_BSCI 7320). This course will provide students with the knowledge and skills to assist in small animal medical emergency and critical care facilities.

**Credit Hours:** 3



**Prerequisites:** An AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4333: Veterinary Cell Biology**

(same as V\_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1500, or equivalent, 1 course in biochemistry or 4 credit hours in chemistry; or instructor's consent

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**BIOMED 4400: Veterinary Surgical Nursing**

Veterinary Surgical Nursing will enable the student to properly identify, care for, and maintain surgical equipment. The course will also prepare the student to learn surgical anatomy as well as the potential complications of common clinical setting surgeries. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOMED 2111, BIOMED 3219, and BIOMED 3100, or instructor's consent

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**BIOMED 4410: Small Animal Physical Rehabilitation**

This course will review the science of veterinary rehabilitation, assessment of rehabilitation patients, and the techniques used to treat these patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS degree in veterinary technology or BIOMED 2110 or HTH\_PR 2190 or equivalent, plus BIOMED 3219 or PTH\_AS 2201 or equivalent, or instructor's permission

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**BIOMED 4500: Equine Critical Care and Nursing**

This course provides advanced information for veterinary technicians, veterinary assistants, and pre-veterinary students wishing to enhance and focus their understanding of equine critical care and nursing concepts. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 2095 and AN\_SCI 3254 or BIO\_SC 3700 or equivalents, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 4510: Equine Clinical Anatomy: Forelimbs**

(cross-leveled with V\_BSCI 7510). Basic foundation in selected aspects of equine clinical anatomy from veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structures of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** five hours of biologic science or zoology, or equivalent, or instructor's consent, or an AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited program

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**BIOMED 4520: Equine Clinical Practice**

This course is an introduction to a common medical conditions of the horse. Emphasis will be placed on the presenting complaint and the veterinarians approach to diagnosis, treatment, and prognosis.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110, BIOMED 2111 and AN\_SCI 4977 or their equivalents, or an associate's degree in veterinary technology, or instructor's consent

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**BIOMED 4993: Internship in Veterinary Medical Technical Specialties**

Supervised work experience in the MU Veterinary Medical Teaching Hospital of affiliated veterinary medical specialty practices or in MU laboratory animal facilities to develop technical skills and knowledge relevant to becoming a specialist in veterinary medical technology. A written report and oral presentation are required. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** junior standing, an AAS degree from an AVMA accredited veterinary technical program or its equivalent, and instructor's consent

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**BIOMED 7010: Life Sciences Research: Models and Methods**

(same as V\_BSCI 7010; cross-leveled with BIOMED 4010). A review of basic laboratory animal and non-animal research models and procedures commonly used in the life sciences area in academia and drug/chemical industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Biology or Cell Biology

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**BIOMED 9090: Research - Biomedical Sciences**

Research hours for BMS doctoral students continuous enrollment. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIOMED 9434: Gonadal Function**

(same as AN\_SCI 9434). Survey of current and in-depth mechanisms involved in ovarian, testicular, and epididymal function. Emphasis will be given to comparative differences in gonadal functions among domestic animals.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314 or equivalent, a course in endocrinology, and biochemistry or cell biology

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## Black Studies Courses

**BL\_STU 1100: Introduction to Swahili and African Culture**

Introduction to Swahili and African Culture is a three credit hour course, which serves as a survey of an indigenous African language and the culture of East Africa. There are no prior requirements.

**Credit Hours:** 3

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**BL\_STU 1250: World Theatre Workshop**

(same as THEATR 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in

the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**BL\_STU 1335: Introduction to Soul and Country**

(same as MUSIC\_NM 1335). Examination of musical cultures signified by "soul" and "country". Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**BL\_STU 1410: African American History**

(same as HIST 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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**BL\_STU 1500: The Black Woman in America**

(same as WGST 1500). Review and critiques of a variety of materials about Black women from slavery to present. The course allows students to generate their own view about psychological, social and philosophical impact of the Black women's struggle on all women.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**BL\_STU 1705: Introduction to Black Studies in Culture**

Introduction to the concepts, terms, themes, and practices in the study of the African diaspora cultures, through readings in literature, music, and the arts that demonstrate concepts, terms, themes, and practices. Recommended for prospective Black Studies Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 1720: African-American Theatre History**

(same as THEATR 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**Credit Hours:** 3

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**BL\_STU 1790: History of Early Africa**

(same as HIST 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**BL\_STU 1800: History of Modern Africa**

(same as HIST 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**BL\_STU 1810: History of South Africa**

(same as HIST 1810). South African Society from the 16th century to the present with an emphasis on the last two centuries and the consolidation of the apartheid state. .

**Credit Hours:** 3

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**BL\_STU 2000: Black Studies**

An interdisciplinary introduction to the basic concepts and literature in the disciplines covered by African-American studies. The role of historical, political, social, and economic forces in shaping cultural expression will be stressed.

**Credit Hours:** 3

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**BL\_STU 2001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

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**BL\_STU 2003: Undergraduate Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2003W: Undergraduate Topics in Black Studies-Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 2005: Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history and culture. Specific content may vary from semester to semester and will be announced in advance.

**Credit Hours:** 3

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**BL\_STU 2150: African-American Cinema**

(same as THEATR 2150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

**Credit Hours:** 3

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**BL\_STU 2200: Social Inequalities**

(same as SOCIOL 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary

societies. Focus on dynamics by which privilege and inequality are structured.

**Credit Hours:** 3

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**BL\_STU 2210: The Black Americans**

(same as SOCIOL 2210.) Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, style of life, patterns of work and intergroup relations.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent or instructor's consent

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**BL\_STU 2303: Studies in Black Relationships**

This course examines constructions of Black American coupling and therefore, gender, race, sexuality, and class in the 20th and 21st centuries. Blackness has been and continues to be reconstructed via marriage, dating, and other forms of coupling. Emphasis will be placed on the role of socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 2310: Literature of the African Diaspora**

(Same as RM\_LAN 2310) A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas.

**Credit Hours:** 3

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**BL\_STU 2400: Introduction to African Diaspora Literature**

(same as ENGLISH 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**BL\_STU 2407: Introduction to African Diaspora Literature, 1603-17**

(same as ENGLISH 2407). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2408: Introduction to African Diaspora Literature, 1789-1890**

(same as ENGLISH 2408). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2409: Introduction to African Diaspora Literature, 1890-Present**

(same as ENGLISH 2409). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2410: African American Women in History**

(same as HIST 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**BL\_STU 2450: Themes in the Geography of Africa South of the Sahara**

(same as GEOG 2450). Major concepts of African geography in current and historical perspective. Case studies of major African countries.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or one introductory Geography course

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**BL\_STU 2500: Special Problems in Black Studies**

Research apprenticeship with faculty member, assisting a faculty member in the development and execution of a research project. May be repeated for a maximum of six hours.

**Credit Hour:** 1-99

**Recommended:** sophomore standing, instructor's consent

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**BL\_STU 2501: Undergraduate Topics in Black Studies**

Organized study of selected topics. Subjects and credit may vary from semester to semester. program consent for repetition.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**BL\_STU 2570: Black Religion**

A history of religion approach to the study of black religion which takes into consideration the unique past experiences of the African American community as it underwent the terror of forced migration, slavery, segregation, and discrimination.

**Credit Hours:** 3

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**BL\_STU 2601: Languages of Africa**

(same as ENGLISH 2601 and LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**BL\_STU 2610: Islam and Black America**

A historical survey of the origins, development and impact of the Black Islamic tradition.

**Credit Hours:** 3

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**BL\_STU 2715: Studies in Black Culture**

This course will survey selected forms of black cultural expression, from a range of U.S., Africa, and the African Diaspora cultures in various media including literature, music, film studies, as well as other related disciplines. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 2720: African-American Visual Culture**

(Same as AR\_H\_A 2720) This course introduces students to African-American art history, visual culture, and material culture in their cultural,

political, and historical contexts. Specific focuses may include the Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**BL\_STU 2904: Black Studies in Slavery and Freedom**

(same as HIST 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours:** 3

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**BL\_STU 2940: African Religions**

(same as REL\_ST 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 2975: Theoretical Traditions in Blacks Studies - Culture**

This course provides a broad understanding of the diverse theoretical traditions within the field of Black Studies, through a comparative examination of concepts, developments, and debates in humanities, including literature, languages, and music. Course graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 3001: Undergraduate Topics in Black Studies - General**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 3003: Undergraduate Topics in Black Studies - Behavioral Sciences**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004: Undergraduate Topics in Black Studies - Social Science**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004W: Undergraduate Topics in Black Studies - Social Science - Writing Intensive**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3005: Undergraduate Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent.

**Credit Hours:** 3

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**BL\_STU 3005H: Undergraduate Topics in Black Studies - Humanities - Honors**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 3100: African American Psychology**

(same as ESC\_PS 3100 and PSYCH 3880). The research, theories, and paradigms developed to understand the attitudes, behaviors, and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Recommended:** PSYCH 1000

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**BL\_STU 3200: Black Freedom Movement, 1955-1973**

(same as HIST 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours:** 3

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**BL\_STU 3230: Studies in Black Sexual Politics**

Course explores Black transnational politics of sex/sexuality and examines the theoretical, historical, and socio-cultural context that race, gender, and sexuality are used as analytical concepts. Students learn a transdisciplinary approach and apply this newly acquired information to analyze shifts in the field of Black sexuality studies. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** sophomore standing required

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**BL\_STU 3303: Black Athletes**

This course examines Black Athletes in the 20th and 21st centuries. Emphasis will be placed on how Blacks entered competitive athletics and the role of racism and power, socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction

through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 3400: Survey of African American Literature, Beginnings to 1900**

(same as ENGLSH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**BL\_STU 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as ENGLSH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**BL\_STU 3410: Survey of African American Literature, 1900-Present**

(same as ENGLSH 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**BL\_STU 3420: Periods and Genres in African Diaspora Literature**

(same as ENGLSH 3420). Topic (e.g. Harlem Renaissance, African Diaspora Poetry) Announced at time of registration. No more than 6 hours may be taken in the Periods and Genres in African Diaspora Literature series.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**BL\_STU 3427: Periods and Genres in African Diaspora Literature, 1603-1789**

(same as ENGLSH 3427). See BL\_STU 3420 for course description.

**Credit Hours:** 3

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**BL\_STU 3428: Periods and Genres in African Diaspora Literature, 1789-1890**

(same as ENGLSH 3428). See BL\_STU 3420 for course description.

**Credit Hours:** 3

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**BL\_STU 3429: Periods and Genres in African Diaspora Literature, 1890-Present**

(same as ENGLSH 3429). See BL\_STU 3420 for course description.

**Credit Hours:** 3

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**BL\_STU 3590: Religious Biography: Black Religion**

(same as HIST 3400). Studies black American religion through the biographies of representative and influential figures of the nineteenth and twentieth centuries, including Nat Turner, W.E.B Dubois, Marcus Garvey, M.L. King, and Malcolm X.

**Credit Hours:** 3

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**BL\_STU 3605: The History of Blacks in Germany**

(same as GERMAN 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, travelling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**BL\_STU 3624: Comparative Approaches to Black Studies in History**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3625: Comparative Approaches to Black Studies in Culture**

Comparative approach to the study of Black Diaspora cultures that focus on the theory, method, structure, and application of modes of cultural production within Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Course may be repeated for credit with consent of program.

**Credit Hours:** 3

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**BL\_STU 3670: History of Black Nationalism in the United States**

(same as HIST 3410). Examines the struggle of African Americans to construct autonomous institutions, to build all Black communities or to acquire an independent nation-state. We will study the ideology, structure, strategy and tactics.

**Credit Hours:** 3

**Prerequisites:** HIST 1410 or SOCIOL 2210

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**BL\_STU 3703: Themes in Black Society**

Examines various themes, issues, and perspectives in political science, psychology, sociology, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora. Recommended for Black Studies or Behavioral Science Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3705: Themes in Black Culture**

Examines various themes, issues and perspective in literature, music, the arts, and other related disciplines related to social and historical institutions

in the U.S., Africa, and the African Diaspora. Recommended for Black Studies Majors. Program consent required for repetition.

**Credit Hours:** 3

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**BL\_STU 3800: Women in African History**

(same as HIST 3800). Focuses on the varied and changing roles of women in sub-Saharan Africa from pre-colonial times to the present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**BL\_STU 3850: Gender, Hip Hop, and the Politics of Representation**

This class will examine gender in hip hop while exploring the intra- and interracial politics of representation among those of the hip hop generation.

**Credit Hours:** 3

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**BL\_STU 3977: Black Studies Methodologies**

Advanced research, writing, and application of knowledge and critical paradigms in Black Studies, through study of such topics as slavery, colonialism, urbanization and migration, environment, gender, race, identity, intellectual movements, cultural studies and popular culture. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 2975

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**BL\_STU 4000: Special Problems in Black Studies**

Independent investigation leading to a paper or a project.

**Credit Hour:** 1-99

**Prerequisites:** junior standing, instructor's consent

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**BL\_STU 4000W: Special Problems in Black Studies - Writing Intensive**

Independent investigation leading to a paper or a project.

**Credit Hour:** 1-99

**Prerequisites:** junior standing, instructor's consent

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**BL\_STU 4001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4001W: Undergraduate Topics in Black Studies-General - Writing Intensive**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4003: Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4005: Topics in Black Studies-Humanities**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4020: Studies in Black Feminist Thought**

(same as WGST 4020; cross-leveled with BL\_STU 7020, WGST 7020). Examines recent problems and critical debates within black feminist theory.

**Credit Hours:** 3

**Prerequisites:** WGST 2020

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**BL\_STU 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as HIST 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**BL\_STU 4130: African-American Politics**

(same as POL\_SC 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**BL\_STU 4181: Themes in Literature by Women**

(same as WGST 4181 and ENGLSH 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4210: African-American Religion**

(same as REL\_ST 4210). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4220: Religion in Afro-American Literature**

(same as REL\_ST 4220). Examination of Afro-American fiction, poetry and drama which present significant racial attitudes toward the Christian religion.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BL\_STU 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, WGST 4230, PEA\_ST 4230; cross-leveled with BL\_STU 7230, SOCIOL 7230, WGST 7230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332, BL\_STU 2200; SOCIOL 2200, WGST 1332 or WGST 2010

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**BL\_STU 4235: Social Perspectives on Gender and Emotion**

(same as SOCIOL 4235, WGST 4235; cross-leveled with BL\_STU 7235, SOCIOL 7235, WGST 7235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** WGST 1332 or WGST 1360; SOCIOL 1360 or SOCIOL 2300; BL\_STU 1332 or BL\_STU 2200; junior standing

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**BL\_STU 4270: African-Americans in the Twentieth Century**

(same as HIST 4270; cross-leveled with BL\_STU 7270, HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 4300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 4300; cross-leveled with BL\_STU 7300, H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4303: Race, Class, Gender and U.S. Social Policy**

Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including

the role federal, state and local government plays in creating and addressing these inequalities.

**Credit Hours:** 3

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**BL\_STU 4335: The Wire: Race, Urban Inequality, and the "Crisis" of the American City**

(same as HIST 4235; cross-leveled with BL\_STU 7335, HIST 7235). The HBO series "The Wire", a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, "The Wire" complicates understandings of the "urban crisis" through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 4352: Historical Studies in African Music**

(same as MUS\_H\_LI 4352). Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** Open to upper-level undergraduate students with instructor's consent

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**BL\_STU 4360: Working with Minority Youth**

(same as SOC\_WK 4360). Develops awareness and understanding of social/psychological/ cognitive realities influencing the behavior of black youth. Content draws upon theories, research, and practice skills relevant to understanding black youth. Minority groups included.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**BL\_STU 4380: Social Work Practice With Minorities: African-American Emphasis**

(same as SOC\_WK 4380). Provides students with an appreciation of the black experience in the United States on a knowledge and feeling level.

**Credit Hours:** 3

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**BL\_STU 4400: Studies in African Diaspora Literature**

(same as ENGLISH 4400; cross-leveled with BL\_STU 7400, ENGLISH 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4407: Studies in African Diaspora Literature, 1603 to 1789**

(same as ENGLISH 4407; cross-leveled with BL\_STU 7407, ENGLISH 7407). See BL\_STU 4400 for course description.

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**Credit Hours:** 3

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**BL\_STU 4408: Studies in African Diaspora Literature, 1789 to 1890**  
(same as ENGLISH 4408; cross-leveled BL\_STU 7408, ENGLISH 7408).  
See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4409: Studies in African Diaspora Literature, 1890 to Present**  
(same as ENGLISH 4409; cross-leveled with BL\_STU 7409, ENGLISH 7409). See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4410: Major Africana Diaspora Writers**  
(same as ENGLISH 4410; cross-leveled with BL\_STU 7410, ENGLISH 7410). An intensive study of selected writers of African Diaspora literature focusing on texts original in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**BL\_STU 4415: African Americans and American Justice**  
(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4415W: African Americans and American Justice - Writing Intensive**  
(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4417: Major African Diaspora Writers, 1603 to 1789**  
(same as ENGLISH 4417, BL\_STU 7417, ENGLISH 7417). See BL\_STU 4410 for course description.

**Credit Hours:** 3

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**BL\_STU 4418: Major African Diaspora Writers, 1789 to 1890**  
(same as ENGLISH 4418, BL\_STU 7418, ENGLISH 7418). See BL\_STU 4410 for course description.

**Credit Hours:** 3

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**BL\_STU 4419: Major African Diaspora Writers, 1890-Present**  
(same as ENGLISH 4419; cross-leveled with BL\_STU 7419, ENGLISH 7419). See BL\_STU 4410 for course description.

**Credit Hours:** 3

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**BL\_STU 4420: Africana Womanism**

(same as ENGLISH 4420; cross-leveled with BL\_STU 7420, ENGLISH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4480: Major African Diaspora Women Writers**  
(same as WGST 4480, ENGLISH 4480; cross-leveled with BL\_STU 7480, WGST 7480, ENGLISH 7480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for Black Studies 4180 and 4480.

**Credit Hours:** 3

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**BL\_STU 4487: Major African Diaspora Women Writers, 1603 to 1789**  
(same as WGST 4487, ENGLISH 4487; cross-leveled with BL\_STU 7487, WGST 7487, ENGLISH 7487). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 4488, ENGLISH 4488; cross-leveled with BL\_STU 7488, WGST 7488, ENGLISH 7488). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4489: Major African Diaspora Women Writers, 1890 to Present**  
(same as WGST 4489, ENGLISH 4489; cross-leveled with BL\_STU 7489, WGST 7489, ENGLISH 7489). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4500: Special Problems in Black Studies**  
Independent project or paper, not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BL\_STU 4530: Caribbean Women Writers**  
Examines representative works by female authors from the Caribbean; primarily the English speaking islands. The depiction of Caribbean women will be a major consideration, as well as the unique qualities of Caribbean literature.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BL\_STU 4640: African Politics**  
(same as POL\_SC 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**BL\_STU 4700: Race, Gender and Ethnicity in Higher Education**

Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**Credit Hours:** 3

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**BL\_STU 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and ENGLSH 4710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4720: Third World Politics**

(same as POL\_SC 4720). Comparative, interdisciplinary analysis of the politics of selected states in Southeast Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4804: Historical Studies of Black Women**

This course offers a comprehensive examination of the origins, developments, and productions of the specified time period with emphases on black women as creative artists, activists, performers, musicians, and writers.

**Credit Hours:** 3

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**BL\_STU 4875: Black Studies: Study Abroad-Humanities**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture, augment their "global competencies," and support their study and/or career development.

**Credit Hours:** 3

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**BL\_STU 4877: Black Studies Abroad**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their "global competencies" and course of study across the three Black Studies tracks-History, Culture and Society- as well as support their study and/or career development. Graded A-F basis only.

**Credit Hours:** 3

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**BL\_STU 4904: Historical and Contemporary Slavery**

(same as HIST 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**BL\_STU 4972: Undergrad. Seminar in Black Studies: History of Race in the U.S.**

Readings on problems in American history with reports and discussion on selected topics. Departmental consent for repetition up to a maximum of 6 hours.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4977: Black Studies Capstone**

This course is designed to permit students to integrate general and specialized knowledge within the three Black Studies tracks (History, Society, Culture) using an interdisciplinary approach. Topics vary according to instructor and core discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**BL\_STU 7004: Topics in Black Studies**

Organized study of selected topics in Black Studies. Subjects and earnable credit may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BL\_STU 7020: Studies in Black Feminist Thought**

(same as WGST 7020; cross-leveled with BL\_STU 4020 and WGST 4020). Examines recent problems and critical debates within black feminist theory.

**Credit Hours:** 3

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**BL\_STU 7230: Women, Development, and Globalization**

(same as SOCIOL 7230; cross-leveled with BL\_STU 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**BL\_STU 7235: Social Perspectives on Gender and Emotion**

(same as SOCIOL 7235 and WGST 7235; cross-leveled with BL\_STU 4235, SOCIOL 4235, WGST 4235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 7270: African-Americans in the Twentieth Century**

(same as HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 7300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

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**BL\_STU 7335: The Wire: Race, Urban Inequality, and the "Crisis" of the American City**

(same as HIST 7235; cross-leveled with HIST 4235, BL\_STU 4335). The HBO series "The Wire", a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, "The Wire" complicates understandings of the "urban crisis" through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 7400: Studies in African Diaspora Literature**

(same as ENGLSH 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

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**BL\_STU 7407: Studies in African Diaspora Literature, 1603 to 1789**

(same as ENGLSH 7407). See BL\_STU 7400 for course description.

**Credit Hours:** 3

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**BL\_STU 7408: Studies in African Diaspora Literature, 1789 to 1890**

(same as ENGLSH 7408). See BL\_STU 7400 for course description.

**Credit Hours:** 3

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**BL\_STU 7409: Studies in African Diaspora Literature, 1890 to Present**

(same as ENGLSH 7409). See BL\_STU 7400 for course description.

**Credit Hours:** 3

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**BL\_STU 7410: Major Africana Diaspora Writers**

(same as ENGLSH 7410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major Anglophone African Diaspora Writers series.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BL\_STU 7415: African Americans and American Justice**

(same as HIST 7415) This course provides opportunities to examine the judicial system and discuss selected court cases in which black men, women, or children were plaintiffs or defendants in local and national courts. Moreover, the readings will subject conventional wisdom about

black Americans and the legal system to scrutiny while allowing students to "witness" the mechanics of the courts and to assess long and short range social, economic, and political implications for Americans, black and white.

**Credit Hours:** 3

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**BL\_STU 7417: Major African Diaspora Writers, 1603 to 1789**

(same as ENGLSH 7417). See BL\_STU 7410 for course description.

**Credit Hours:** 3

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**BL\_STU 7418: Major Anglophone African Diaspora, 1789 to 1890**

(same as ENGLSH 7418). See BL\_STU 7410 for course description.

**Credit Hours:** 3

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**BL\_STU 7419: Major African Diaspora Writers, 1890 to Present**

(same as ENGLSH 7419). See BL\_STU 7410 for course description.

**Credit Hours:** 3

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**BL\_STU 7420: Africana Womanism**

(same as ENGLSH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 7460: Economic Characteristics of the African American Experience**

(same as HIST 4460). Examines how economic considerations have influenced African American history from the transatlantic slave trade to the present.

**Credit Hour:** 1

**Prerequisites:** junior standing or instructor's consent

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**BL\_STU 7480: Major African Diaspora Women Writers**

(same as WGST 7480 and ENGLSH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for Black Studies 7180 and 7480.

**Credit Hours:** 3

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**BL\_STU 7487: Major African Diaspora Women Writers, 1603 to 1789**

(same as WGST 7487 and ENGLSH 7487). See BL\_STU 7480 for course description.

**Credit Hours:** 3

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**BL\_STU 7488: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 7488 and ENGLSH 7488). See BL\_STU 7480 for course description.

**Credit Hours:** 3

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**BL\_STU 7489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 7488 and ENGLSH 7488). See BL\_STU 7480 for course description.

**Credit Hours:** 3

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**BL\_STU 7710: Themes in African Diaspora Folklore**

(same as ANTHRO 7160 and ENGLSH 7710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. ENGLSH 7700 and ENGLSH 7710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

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**BL\_STU 7810: African-American Religion**

(same as REL\_ST 7810). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

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**BL\_STU 7877: Black Studies Abroad**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their "global competencies" and course of study across the three Black Studies tracks - History, Culture, and Society - as well support their study and/or career development. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 8000: Independent Readings in Black Studies**

Readings on selected topics in Black Studies, with emphasis on the implications of the interdisciplinary and intersecting areas of History, Society, and Culture. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** Department Consent Required

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**BL\_STU 8277: Race, Ethnicity, and Transnational Inequalities**

(same as SOCIO 8277). This graduate seminar examines the global contest of our radicalized modern world system. How do people develop and give meaning to race/ethnicity in different regions? Focus on the construction of bodies Creole identities, gender, sexualities, citizenships and immigration. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 8400: Seminar in African Diaspora Literature**

(same as ENGLSH 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 8410: Seminar in African Diaspora Theory and Literature Criticism**

(same as ENGLSH 8410). Modern and contemporary African Diaspora criticism and theory including diverse approaches to literary and cultural studies. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 8415: Readings in African-American History**

(Same as HIST 8415). Readings on selected topics in African-American history from 1619 to the present, with emphasis on conflicting interpretations. May be repeated to a maximum of six hours.

**Credit Hours:** 3

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**BL\_STU 8416: Seminar in African-American History**

(same as HIST 8416). Directed research in selected topics in African-American history. May be repeated to a maximum of six hours.

**Credit Hours:** 3

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**BL\_STU 8510: Ecology, Conservation, and Environmental Justice**

(same as F\_W 8510). The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: One undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**BL\_STU 8901: Graduate Topics in Black Studies**

Graduate seminar arranged by topics or themes related to Black Studies. Graded on A-F basis only.

**Credit Hours:** 3

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## Business Administration Courses

**BUS\_AD\_0585: Placeholder for TCoB S.America Intersession study abroad program**

Place holder Course for required per-departure on campus information sessions. Zero credit and billing hours. No Term Finalization.

**Credit Hours:** 0

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**BUS\_AD\_0591: Bergamo Study Abroad Pre-departure required on-Campus Information Session (GRAD)**

Place holder Course for Pre-departure required on-Campus Information Session Zero credit and billing hours No Term Finalization

**Credit Hours:** 0

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**BUS\_AD\_0592: Alicante Study Abroad Pre-departure required on-Campus Information Session (GRAD)**

Place holder Course for Pre-departure required on-Campus Information Session Zero credit and billing hours No Term Finalization

**Credit Hours:** 0

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**BUS\_AD\_0593: Prague Study Abroad Pre-departure required on-Campus Information Session (GRAD)**

Place holder Course for Pre-departure required on-Campus Information Session Zero credit and billing hours No Term Finalization

**Credit Hours:** 0

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**BUS\_AD 1500: Foundations of Business and Professional Development Principles**

This course will provide students the opportunity to learn how to be successful in the Trulaske College of Business (TCoB) as they prepare for a career in business. Students will be led through an exploration of opportunities in our college as well as their personal strengths and how those strengths match with various business academic and career paths. Further, students will learn competencies that are necessary for both academic and professional success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

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**BUS\_AD 2500: Intermediate Professional Development Principles**

Introduction to Professional Development in Business, will provide students the opportunity to learn about professional interpersonal dynamics - understanding and working with others. Students will learn skills imperative to forming and nurturing professional relationships and will have the opportunity to practice these skills via field experience. Throughout the course, students will continue to develop the professional competencies necessary for career success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** 27 credit hours

**Corequisites:** BUS\_AD 1500

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**BUS\_AD 3500: Advanced Professional Development Principles**

Provides an introduction to professional competencies important for success as a business professional. Includes the assessment, communication and development of competencies valued by employers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Must be a BSBA or ACCT\_BSACC major

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**BUS\_AD 4500: Professional Development Program - Internship**

This course is designed to help students practice professional core competencies in the workplace. Students will secure a professional-level work experience and apply classroom knowledge and interpersonal skills. This course is a graduation requirement for students seeking the BSBA degree. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** BUS\_AD 3500; Restricted to Upper Level Business Majors who have had their internship approved by the Professional Development Program

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**BUS\_AD 7050: MBA Communications Practice**

Special laboratory instruction in oral and written communication skills with an emphasis on business communications.

**Credit Hour:** 1-3

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**BUS\_AD 7330: Business Law/Regulation**

Legal aspects of employment, administrative regulation, corporate and noncorporate ownership structures, and legal issues involving business transactions.

**Credit Hour:** 2-3

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**BUS\_AD 7340: Business Ethics and Leadership**

Case studies, discussion, and readings used to integrate critical thinking about ethical issues into business decision. Development and application of ethical decision making frameworks.

**Credit Hour:** 1-3

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**BUS\_AD 8001: Topics in Business Administration**

Selected topics in administration offered on experimental basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BUS\_AD 8010: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8020: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8030: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. Some sections may be graded A-F or S/U only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8500: Business Problem Analysis: Field Project**

Application of functional areas of business to real-world cases in business planning. Students will prepare and present business plan for an organization as a team project in a supervised experience.

**Credit Hour:** 1-3

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**BUS\_AD 8600: Business Consulting**

Students work in a team consulting capacity, with medium to large organizations, identifying and defining relatively complex and often ambiguous business problems such as needs assessment, quality management, systems management, policy/strategy formulation and similar areas.

**Credit Hour:** 2-3

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**BUS\_AD 8730: International Study Abroad**

Study abroad opportunities in one or more countries. Focuses on selected international business issues, cultural differences, and visiting

businesses on-site. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** consent required

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## Chemical Engineering Courses

### **CH\_ENG 1000: Introduction to Chemical Engineering**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320

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### **CH\_ENG 1000H: Introduction to Chemical Engineering - Honors**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320. Honors eligibility required

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### **CH\_ENG 1320: Chemistry and Chemical Technology I**

Covers fundamental principals of chemistry, gases, engineering materials, electrochemistry, and applications with instruction including numerical modeling. Graded on A/F basis only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 1500

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### **CH\_ENG 1330: Chemistry and Chemical Technology II**

Covers fundamentals principals of chemistry, gases, engineering materials, electrochemistry, and applications with instruction including numerical modeling. May be repeated for credit. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 1320 or CHEM 1320 and MATH 1500

**Corequisites:** MATH 1500

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### **CH\_ENG 2001: Advanced Experimental Course**

Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing

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### **CH\_ENG 2118: Introduction to Energy Technology and Sustainability**

An introductory course on energy technology and those resources and practices that allow for sustainable commercialization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing in engineering

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### **CH\_ENG 2225: Mass and Energy Balance**

Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSICS 2750, CHEM 2100

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### **CH\_ENG 2226: Engineering Process Computations and Laboratory**

Introduction to the effective use of computer software with emphasis on chemical engineering applications, which include solutions for systems of algebraic equations using matrix methods; solutions of ordinary differential equations and partial differential equations and visualization of those solutions; linear, multilinear, and nonlinear regression for data analysis; 2D and 3D plotting, symbolic calculations, process control simulations, and text processing.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 1700, CH\_ENG 2225

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### **CH\_ENG 3234: Principles of Chemical Engineering I**

Fluid flow, heat and mass transfer. A comprehensive treatment of the transport processes related to chemical engineering operations, with focus on both theory and applications.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CH\_ENG 2225

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### **CH\_ENG 3235: Principles of Chemical Engineering II**

Separation processes in chemical engineering, including: Evaporation, absorption, distillation, extraction, leaching, membrane separation, and drying.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234

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### **CH\_ENG 3243: Chemical Engineering Laboratory I**

Laboratory study of some principal unit operations of chemical engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 2226 and CH\_ENG 3235

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### **CH\_ENG 3243W: Chemical Engineering Laboratory I - Writing Intensive**

Laboratory study of some principal unit operations of chemical engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 2226 and CH\_ENG 3235

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### **CH\_ENG 3261: Chemical Engineering Thermodynamics I**

Study of thermodynamics, with particular reference to chemical engineering applications.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in CH\_ENG 2225

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### **CH\_ENG 3262: Chemical Engineering Thermodynamics II**

Chemical thermodynamics, with emphasis on mixtures. Multicomponent systems and phase diagrams; excess properties; chemical potential, fugacity, and activity; models of non-ideal mixtures; phase and surface equilibria; chemical reaction equilibria.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 2110

**Prerequisites:** CH\_ENG 3261, MATH 2300

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**CH\_ENG 3307: Chemical Process Safety and Professional Ethics**

A course focused on important technical fundamentals of chemical process safety and their application including professional ethics considerations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234, CH\_ENG 3261 or instructor's consent

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**CH\_ENG 4001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 4085: Problems in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4220: Hazardous Waste Management**

(same as CV\_ENG 4220; cross-leveled with CH\_ENG 7220, CV\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous waste, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CH\_ENG 4226: Engineering Research Calculations and Reporting**

(cross-leveled with CH\_ENG 7226). Application and analysis of engineering calculations in MS Excel, Matlab, and project-specific software including applications of calculus, experiential learning, and supervised research. Must have research advisor define at least one experiment and review at least one report. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 4270; cross-leveled with CH\_ENG 7270, BIOL\_EN 7270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**CH\_ENG 4285: Pollution Prevention**

Identify, analyze, and solve energy, water, and raw materials inefficiencies common to industrial processes and facilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320, ENGINR 2300 or CH\_ENG 3261, MATH 2300, and PHYSICS 2760

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**CH\_ENG 4306: Advanced Engineering Math**

(same as NU\_ENG 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 4311: Chemodynamics**

(cross-leveled with CH\_ENG 7311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4312: Air Pollution Control**

(cross-leveled with CH\_ENG 7312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4315: Introduction to Bioprocess Engineering**

(same as BIOL\_EN 4315; cross-leveled with CH\_ENG 7315, BIOL\_EN 7315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**CH\_ENG 4316: Biomass Refinery Operations**

(same as BIOL\_EN 4316; cross-leveled with CH\_ENG 7316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**CH\_ENG 4317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 7317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100

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**CH\_ENG 4318: Energy Technology and Sustainability**

An introductory course on energy technology, resources, practices, and common calculations used for energy analysis. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** at least one engineering thermodynamics course or a Physical Chemistry course or instructor's consent

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**CH\_ENG 4319: Introduction to Polymer Materials**

(cross-leveled with CH\_ENG 7319). An introduction to the structure and properties of polymers. Solution properties, molecular weight determination and rheological behavior are studied. Manufacturing and processing techniques are considered.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 and CHEM 2110

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**CH\_ENG 4321: Introduction to Ceramics**

(cross-leveled with CH\_ENG 7321). Introductory course in ceramics materials, crystal structure, processes and properties. The course content and level of presentation would allow an entry level engineering to be conversant with the terminology and concepts of ceramic science and engineering.

**Credit Hours:** 3

**Recommended:** Chemistry and Physics

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**CH\_ENG 4335: Transport Phenomena**

(cross-leveled with CH\_ENG 7335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235, and MATH 4100 or MATH 7100

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**CH\_ENG 4345: Special Reading in Chemical Engineering**

Individually supervised special reading leading to an engineering report.

**Credit Hour:** 2-5

**Prerequisites:** senior standing

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**CH\_ENG 4363: Chemical Reaction Engineering and Technology**

Reactor design and optimization; rate equations; thermal effects in reactor.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3262, or instructor's consent

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**CH\_ENG 4370: Process Control Methods and Laboratory**

State-space modeling, simulation, and experimental validation; stability analysis; feedback design and experimental studies; methods for disturbance rejection.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226

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**CH\_ENG 4385: Chemical Engineering Design I**

The course presents optimum design methods, cost estimation, material selection and other relevant areas for the design of chemical plants. In addition, chemical safety and risk assessment will be covered.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3235, CH\_ENG 3262, PHYSICS 2760, CHEM 2110

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**CH\_ENG 4464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 7464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 3310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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**CH\_ENG 4980: Process Synthesis and Design**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363, CH\_ENG 4385

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**CH\_ENG 4980W: Process Synthesis and Design - Writing Intensive**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363, CH\_ENG 4385

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**CH\_ENG 4990: Undergraduate Research in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4995: Undergraduate Research in Chemical Engineering - Honors**

Individual research for a senior thesis; research is supervised by the chemical engineering faculty. The thesis is to be defended before the departmental Honors committee.

**Credit Hour:** 3-6

**Prerequisites:** senior standing

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**CH\_ENG 7001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**CH\_ENG 7220: Hazardous Waste Management**

(same as CV\_ENG 7220; cross-leveled with CH\_ENG 4220, CV\_ENG 4220). Engineering principles involved in handling, collection transportation, processing and disposal of hazardous waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

---

**CH\_ENG 7226: Engineering Research Calculations and Reporting** (cross-leveled with CH\_ENG 4226). Application and analysis of engineering calculations in MS Excel, Matlab, and project-specific software including applications of calculus, experiential learning, and supervised research. Must have research advisor define at least one experiment and review at least one report. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

---

**CH\_ENG 7270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 7270; cross-leveled with CH\_ENG 4270, BIOL\_EN 4270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Prerequisites:** experience with Excel or instructor's consent

---

**CH\_ENG 7311: Chemodynamics**

(cross-leveled with CH\_ENG 4311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

---

**CH\_ENG 7312: Air Pollution Control**

(cross-leveled with CH\_ENG 4312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

---

**CH\_ENG 7315: Introduction to Bioprocess Engineering**

(same as BIOL\_EN 7315; cross-leveled with CH\_ENG 4315, BIOL\_EN 4315). This General introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analysis proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for biological engineering students) or CH\_ENG 2225 (for chemical engineering students) or instructor's consent

---

**CH\_ENG 7316: Biomass Refinery Operation**

(same as BIOL\_EN 7316; cross-leveled with CH\_ENG 4316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

---

**CH\_ENG 7317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 4317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how

plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100

---

**CH\_ENG 7319: Introduction to Polymer Materials**

(cross-leveled with CH\_ENG 7319). An introduction to the structure and properties of polymers. Solution properties, molecular weight determination and rheological behavior are studied. Manufacturing and processing techniques are considered.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 and CHEM 2110

---

**CH\_ENG 7321: Introduction to Ceramic Material**

(cross-leveled with CH\_ENG 4321). Introductory course in ceramics materials, crystal structure, processes and properties. The course content and level of presentation would allow an entry-level engineer to be conversant with the terminology and concepts of ceramics science and engineering.

**Credit Hours:** 3

**Recommended:** Chemistry and Physics

---

**CH\_ENG 7335: Transport Phenomena**

(cross-leveled with CH\_ENG 4335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235, and MATH 4100 or MATH 7100

---

**CH\_ENG 7464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 4464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 3310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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**CH\_ENG 7980: Synthesis and Design of Chemical Process**

(cross-leveled with CH\_ENG 4980). This is a heuristics-based design course intended to assist students in bringing together capabilities from previous course. An emphasis is placed on the creation process of design. Graded on A-F basis only. Prerequisites: CH\_ENG 4363, CH\_ENG 4385

**Credit Hours:** 3

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**CH\_ENG 8001: Advanced Topics in Chemical Engineering**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**CH\_ENG 8029: Advanced Plasma Processing**

Concepts and techniques in novel plasma processing: plasma characteristics, plasma sputtering, plasma enhanced chemical vapor deposition (PECVD), plasma etching, plasma treatment, plasma



fabrication of nano-structured materials and diamondlike films, biomedical applications.

**Credit Hours:** 3

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**CH\_ENG 8085: Problems in Chemical Engineering**

Supervised investigation in chemical engineering to be presented in the form of a report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**CH\_ENG 8087: Seminar in Chemical Engineering**

Reviews investigations and projects of importance in chemical engineering.

**Credit Hour:** 1

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**CH\_ENG 8230: Advanced Ceramic Materials**

(same as BIOL\_EN 8230 and MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**CH\_ENG 8320: Plasma Polymerization**

Fundamental aspects of polymer formation in plasma state: gas ionization, reaction kinetics, plasma characteristics and operational parameters of plasma reactors. Properties of plasma - synthesized ultrathin films and their utilization also discussed.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4319 or instructor's consent

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**CH\_ENG 8336: Advanced Heat and Momentum Transfer**

Advanced study of these transport phenomena.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235 or instructor's consent

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**CH\_ENG 8337: Advanced Mass Transfer**

Advanced study of mass transfer.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4336 or instructor's consent

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**CH\_ENG 8338: Analysis of Equilibrium Stage Processes**

Advanced study of stage processes.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3235 and CH\_ENG 3262

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**CH\_ENG 8429: Membranes and Membrane Processes**

Thermodynamics and mass transfer of membrane separation processes; Concentration-Driven Processes; Pressure-Driven Processes; Electromembrane Processes; Biological Membrane Processes; Membrane Polymers; Preparation of Membranes; Membrane Separation Application (potable and ultrapure water, effluent treatment, gas separations, electrochemistry, dialysis therapeutic, and other applications).

**Credit Hours:** 3

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**CH\_ENG 8451: Advanced Chemical Engineering Thermodynamics I**

Advanced thermodynamics; particular reference to its application to chemical engineering.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 or instructor's consent

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**CH\_ENG 8452: Advanced Chemical Engineering Thermodynamics II**

Introduction to the methods of statistical thermodynamics and statistical mechanics. The method of ensembles, Maxwell-Boltzmann statistics, the kinetic theory of gases, and theories of liquids. Applications of statistical mechanics to the prediction of physical and chemical properties such as rate coefficients, diffusion coefficients, and conductivities. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 8451 or instructor's consent

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**CH\_ENG 8463: Chemical Reaction Engineering Science**

Phenomenological behavior of catalysts. Theoretical interpretations for heterogeneous and homogeneous catalysts.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363

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**CH\_ENG 8471: Process Optimization Methods in Chemical Engineering**

Steady-state and unsteady-state optimization techniques applied to chemical processes.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226

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**CH\_ENG 8990: Research-Masters Thesis in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Masters candidate

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**CH\_ENG 9990: Research-Doctoral Dissertation in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only. candidate

**Credit Hour:** 1-99

**Prerequisites:** Ph.D

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## Chemistry Courses

**CHEM 1000: Introductory Chemistry**

Introductory course for students with no high school background in chemistry. Covers fundamental principles of scientific measurement, stoichiometry, solutions, basic atomic structure, gases. No credit if taken after CHEM 1100.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1100 or MATH 1120

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**CHEM 1100: Atoms and Molecules with Lab**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1310.

**Credit Hours:** 3

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**CHEM 1100H: Atoms and Molecules with Laboratory - Honors**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1310.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CHEM 1320: College Chemistry I**

First of two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

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**CHEM 1320H: College Chemistry I - Honors**

First of a two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent. Honors eligibility required

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**CHEM 1330: College Chemistry II**

Continuation of CHEM 1320. Covers intermolecular forces, solutions, kinetics, acid-base chemistry, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H

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**CHEM 1330H: College Chemistry II- Honors**

Continuation of CHEM 1320H. Covers equilibria, kinetics, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H. Honors eligibility required

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**CHEM 1500H: Honors Intensive General Chemistry with Lab - Honors**

A one-semester, intensive introduction to chemistry for honors-eligible students that takes the place of CHEM 1320, CHEM 1330. Four lectures and one 3-hour lab period per week. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** honors eligibility, college algebra and one year of high school chemistry or instructor's consent

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**CHEM 2030: Survey of Organic Chemistry**

One-semester introduction to structure and bonding, functional group chemistry, principles of reactivity, reaction mechanisms, the molecules of life.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in CHEM 1320 or CHEM 1320H or equivalent. Recommended CHEM 1330, or CHEM 1330 concurrently

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**CHEM 2100: Organic Chemistry I**

First course of a two-semester sequence. Structure and bonding; chemistry of hydrocarbons, alkyl halides, alcohols and ethers; reaction mechanisms; principles of reactivity and synthesis; IR and NMR spectroscopy. Only 1 hour credit if taken after CHEM 2030 or equivalent. Prerequisites: grade of C or better in CHEM 1320 or equivalent or CHEM 1330 concurrently,

**Credit Hours:** 3

**Recommended:** CHEM 1330

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**CHEM 2110: Organic Chemistry II**

Continuation of CHEM 2100. Aromatic hydrocarbons, carbonyls, amines; chemistry of carbanions; reactions of polar double bonds; nucleic acids, proteins, carbohydrates and fats.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in CHEM 2100 or equivalent, or departmental consent

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**CHEM 2130: Organic Laboratory I**

Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week.

**Credit Hours:** 2

**Recommended:** Concurrent enrollment in CHEM 2110 or CHEM 2030. No credit for students who have previous organic laboratory credit

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**CHEM 2140: Organic Laboratory II**

Continuation of CHEM 2130. Preparation and identification of organic compounds; application of instrumental techniques. 2 lab sessions, 1 recitation session per week.

**Credit Hours:** 2

**Prerequisites:** grade of C or better in CHEM 2110 and CHEM 2130 or equivalent

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**CHEM 2160H: Honors Organic Chemistry I - Honors**

First course of a two-semester sequence. Similar to CHEM 2100 but with increased depth and breadth; emphasis on preparing science students for research and professional careers. 3 lectures, 1 discussion session per week.

**Credit Hours:** 4

**Prerequisites:** honors eligibility, grade of B or better in CHEM 1320 or equivalent

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**CHEM 2170H: Honors Organic Chemistry II with Lab - Honors**

Continuation of CHEM 2160H; includes laboratory. Content and structure similar to CHEM 2110, but with increased depth and breadth.

**Credit Hours:** 5

**Prerequisites:** honors eligibility, grade of B or better in CHEM 2160H or instructor's permission

**CHEM 2190H: Honors Organic Chemistry Laboratory - Honors**

Preparation and identification of organic compounds; multistep syntheses; application of instrumental techniques, including NMR, FTIR, MS and HPLC. 2 lab sessions, 1 discussion session per week.

**Credit Hours:** 2

**Prerequisites:** honors eligibility, grade of C or better in CHEM 2170H or equivalent

**CHEM 2400: Fundamentals of Inorganic Chemistry with Lab**

A systematic introduction with laboratory to inorganic and organometallic compounds, reactions, and periodic properties.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in CHEM 1330

**CHEM 2950: Undergraduate Research in Chemistry**

A laboratory research project and/or preparation of compounds with a written final report. Cannot be substituted for other chemistry courses required for a B.S. or B.A. degree. No more than 6 hrs. total credit.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, 2.75 GPA and/or instructor's consent

**CHEM 3200: Quantitative Methods of Analysis with Lab**

Principles and practice of quantitative analysis, including the basic principles of modern instrumental methods.

**Credit Hours:** 4

**Prerequisites:** CHEM 1330 or CHEM 1500H

**CHEM 3300: Fundamentals of Physical Chemistry**

Survey of physical chemistry. Satisfies physical chemistry prerequisite for BIOCHM 8430.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, a course in organic chemistry; PHYSCS 1210 and PHYSCS 1220 or PHYSCS 2175, or PHYSCS 2176 concurrently

**CHEM 3310: Physical Chemistry I**

Lecture only. Topics include the kinetic theory of gases, chemical kinetics, thermodynamics and chemical equilibrium.

**Credit Hours:** 3

**Prerequisites:** one semester organic chemistry and PHYSCS 2175, PHYSCS 2176 and MATH 2300, or MATH 2300 concurrently

**CHEM 3330: Physical Chemistry II**

Continuation of CHEM 3310. Lecture only. Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**Credit Hours:** 3

**CHEM 3340: Physical Chemistry Laboratory**

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in CHEM 3200; CHEM 3330 or CHEM 3330 concurrently

**CHEM 3700: Undergraduate Seminar in Chemistry**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 or CHEM 1500H; CHEM 2100 or CHEM 2160H

**CHEM 3700W: Undergraduate Seminar in Chemistry - Writing Intensive**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 or CHEM 1500H; CHEM 2100 or CHEM 2160H

**CHEM 3800: Internship in Chemistry**

Cannot be substituted for other chemistry courses required for B.S. or B.A. degree.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

**CHEM 3940: Service-Learning in Chemistry**

A service-learning community outreach program affording chemistry students with an opportunity to enhance their problem-solving skills. May be repeated once for credit. Satisfies no specific chemistry degree requirements, nor Arts and Science general education requirements. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** departmental consent

**CHEM 4001: Topics in Chemistry - General**

Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

**CHEM 4003: Topics in Chemistry- Natural Science**

Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

**CHEM 4010: Advanced Chemistry Laboratory**

Advanced methods for the synthesis and characterization of organic, inorganic, and organometallic compounds.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400, CHEM 2140, or CHEM 2190H, CHEM 3200, CHEM 3330 (or CHEM 3330 corequisite)

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**CHEM 4050: Problems in Chemistry**

Individual study under the direction of a faculty member that supplements regular course work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 4160: Intermediate Organic Chemistry**

Stresses synthetic organic chemistry at an intermediate level.

**Credit Hours:** 3

**Prerequisites:** at least one year organic chemistry

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**CHEM 4170: Medicinal Chemistry**

Chemical mechanisms of drug action. Topics include drug metabolism and action, chemical toxicology and medicines, enzyme activity, and specific drug case studies.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110, or CHEM 2170H, CHEM 3300 or CHEM 3310 or instructor's consent

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**CHEM 4200: Instrumental Methods of Analysis with Lab**

(cross-leveled with CHEM 7200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 4280: Environmental Chemistry**

Surveys the chemistry of air and water environments; discusses the chemistry of waste treatment.

**Credit Hours:** 3

**Prerequisites:** 8 hours chemistry including organic and analytical

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**CHEM 4290: Environmental-Toxicological Chemistry**

In-depth study of the chemical aspects of current issues dealing with environmental pollutants and toxic chemical substances.

**Credit Hours:** 3

**Prerequisites:** CHEM 4280

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**CHEM 4400: Inorganic Chemistry**

(cross-leveled with CHEM 7400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** one semester Physical Chemistry, second semester concurrently

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**CHEM 4490: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, PHYSICS 4190 and BIOL\_EN 4480; cross-leveled with CHEM 7490, NU\_ENG 7319, PHYSICS 7190, BIOL\_EN 7480). Undergraduate/graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and CHEM 1320

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**CHEM 4600: Introduction to Radiochemistry with Lab**

(same as NU\_ENG 4391). Introduces application of radio-tracer techniques to chemical research.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 or CHEM 1500H; and one semester of physical chemistry, or instructor's consent

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**CHEM 4800: Chemistry Teaching Practicum**

Provides practical experience teaching introductory chemistry in discussion and laboratory settings. For students pursuing dual degrees in chemistry and secondary education. For students pursuing simultaneous dual degrees in chemistry and secondary education. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing; departmental consent required

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**CHEM 4950: Senior Research**

A laboratory research project with approved written goals and a final written report. It may be taken twice.

**Credit Hours:** 3

**Prerequisites:** a 2.75 GPA, departmental consent

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**CHEM 4990H: Senior Honors Research I**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, and approval of project outline. Honors eligibility required

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**CHEM 4991H: Senior Honors Research II**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, approval of project outline. Honors eligibility required

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**CHEM 7087: Seminar in Chemistry for Beginning Graduate Students**

Seminar in Chemistry for Beginning Graduate Students

**Credit Hour:** 1

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**CHEM 7200: Instrumental Methods of Analysis with Lab**

(cross-leveled with CHEM 4200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 7300: Intermediate Physical Chemistry**

Treatment of atomic and molecular, structure and spectroscopy based on quantum concepts. Designed to provide a broad base of knowledge in these fundamental areas to beginning graduate students in chemistry.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**CHEM 7400: Inorganic Chemistry**

(cross-leveled with CHEM 4400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** one semester Physical Chemistry, second semester concurrently

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**CHEM 7490: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480; cross-leveled with CHEM 4490, NU\_ENG 4319, PHYSCS 4190, BIOL\_EN 4480). Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

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**CHEM 8003: Topics in Chemistry - Natural Science**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8020: Introduction to X-ray Crystallography**

Designed for students in chemistry and related fields. Aimed at offering a practical understanding of single-crystal x-ray structural studies. Includes hands-on laboratory work (data collection and analysis).

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CHEM 8050: Non-Thesis Research in Chemistry**

Does not lead to dissertation.

**Credit Hour:** 1-99

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**CHEM 8085: Topics in Chemistry**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8087: Seminar in Chemistry**

Seminar in Chemistry

**Credit Hour:** 1

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**CHEM 8090: Thesis/Dissertation (pre-candidacy) Research in Chemistry**

Research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CHEM 8120: Physical Organic Chemistry I**

Bonding theory, physical methods, absorption spectroscopy, conformational analysis, mechanism of reactions.

**Credit Hours:** 3

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**CHEM 8130: Physical Organic Chemistry II**

Case studies and methods for determining organic reaction mechanisms.

**Credit Hours:** 3

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**CHEM 8150: Organic Reaction Mechanisms**

Organic reaction mechanisms are discussed within a framework of structure-reactivity relationships. Particular attention directed to the chemistry of reactive intermediates and the application of stereochemical and molecular orbital concepts.

**Credit Hours:** 3

**Prerequisites:** 1 year of Organic Chemistry and Physical Chemistry

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**CHEM 8160: Organic Spectroscopy**

Structural analysis of organic compounds involving problem solving using modern NMR, IR, UV-VIS, MS CD/ORD and other spectroscopic techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8170: Applications of the Reactions of Organic Chemistry**

**Credit Hours:** 3

**Prerequisites:** CHEM 8150

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**CHEM 8210: Analytical Measurement**

Fundamental and applied aspects of scientific measurements. Topics include: Statistics, signal-to-noise, frequency analysis, sources of noise, digital and analog filtering, time vs. frequency domain measurements, Fourier transformation, sampling, convolution/deconvolution, autocorrelation and cross-correlation. Directed toward entering graduate students.

**Credit Hours:** 3

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**CHEM 8230: Separations and Chromatography**

Classical and instrumental methods of separation: gas, paper, thin film, and column chromatography; ion exchange.

**Credit Hours:** 3

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**CHEM 8240: Mass Spectrometry**

This course will cover various aspects of modern mass spectrometry. Topics will include instrumentation, theory, uses and interfaces to mass spectrometry. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8250: Analytical Spectroscopy**

Selected topics dealing with recent advances in analytical chemistry.

**Credit Hours:** 3

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**CHEM 8260: Surface Analysis and Characterization**

Covers various aspects of modern methods of surface analysis and characterization. Topics include instrumentation, theory, and data reduction methods. Major sections include electron spectroscopy, microscopy, and vibrational spectroscopy as applied to surfaces. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8265: Fluorescence Spectroscopy**

Advanced analytical chemistry course that explores the fundamental principles and uses of modern fluorescence spectroscopy in biology, materials science, chemistry, physics and engineering. Special emphasis is placed on the methodologies used to obtain specific information about a particular chemical system. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8270: Advanced Analytical Chemistry**

Continuation of CHEM 8250.

**Credit Hours:** 3

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**CHEM 8280: Bioanalytical Chemistry**

This course is aimed at introducing students to the instrumental and theoretical principles by which biological molecules are measured in vivo and in vitro. The course explores how protein, DNA and metabolite structures and quantities are determined in the laboratory with an emphasis on understanding historical methods up through cutting edge approaches in each field. The theory of measurement techniques, separation techniques and related instrumentation are explored in the context of understanding the chemical equilibria that govern each instance. Students will leave this course with a broad understanding for how many biological molecules are measured and what the limitations of various techniques may be. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8285: Nanochemistry**

Covers various aspects of nanochemistry. Topics include synthesis and characterization of nonmaterial, nanotoxicity, and catalysis. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8300: Advanced Physical Chemistry**

Advanced Physical Chemistry

**Credit Hours:** 3

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**CHEM 8310: Quantum Chemistry**

Introduction to formal quantum mechanical theory, quantum measurement, simple model problems having exact solutions, angular momenta, approximation methods (perturbation theory, variation principle, WKB), and the structure of many-electron atoms.

**Credit Hours:** 3

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**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8320: Chemical Kinetics**

Factors affecting rates, orders and mechanisms of chemical reactions, with emphasis on current theories and experimental techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8330: Computational Chemistry**

Theory and application of modern computational techniques (molecular mechanics, ab initio and semiempirical molecular orbital methods) for predicting the structures, energies, and properties of molecules and molecular systems.

**Credit Hours:** 3

**Prerequisites:** CHEM 3300 or equivalent or instructor's consent

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**CHEM 8340: Statistical Mechanics**

Principles of statistical mechanics and their application to chemical systems; ensemble theory; condensed phases.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8350: Magnetic Resonance**

Basic principles of nuclear magnetic resonance (NMR) and electron spin resonance (ESR), nuclear spin relaxation, current experimental techniques and the application to studies of structures, dynamics and chemical analysis.

**Credit Hours:** 3

**Prerequisites:** One year of organic chemistry, CHEM 3300 or equivalent

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**CHEM 8400: Inorganic Mechanisms**

Experimental stoichiometry and rate law determination. Isotopic applications. Methods and results of fast reaction studies. Basic known inorganic mechanisms. Experimental methods of establishing mechanisms of reaction.

**Credit Hours:** 3

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**CHEM 8410: Chemistry of the Main Group Elements**

Descriptive inorganic chemistry of the main group elements. Textbook material extensively supplemented with information from the current chemical literature.

**Credit Hours:** 3

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**CHEM 8420: Supramolecular Chemistry**

The basics of supramolecular chemistry will be covered, including host-guest complexes, reorganization, complementarity, thermodynamic interactions, self assembly and biochemical, molecular device and crystal engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BS in Chemistry, Biochemistry or Chemical Engineering

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**CHEM 8430: Coordination Chemistry and Reactivity**

The chemistry of the transition elements (d-block) and their reactivity will be discussed, including bonding, coordination numbers, oxidation states, and reactivity (kinetics). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 4400 or equivalent; graduate standing in chemistry or instructor's consent

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**CHEM 8440: Inorganic Structural Methods**

Chemical bonding, application of group theory, spectroscopy; diffraction as applied to structure determination; structural implications of dipole moment and magnetic susceptibility measurements.

**Credit Hours:** 3

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**CHEM 8450: Organometallics**

Condensations effected by organometallics; dissolving metal reductions; sandwich compounds and related organotransition metal derivatives.

**Credit Hours:** 3

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**CHEM 8460: Solid State Chemistry**

An introduction to the unique aspects of extended solids. Crystal symmetry, group theory and their applications to crystallography. Bonding and electronic structure theories of metals and semiconductors. Cooperative magnetism and superconductivity. Defects and ionic conductivity. Preparative methods in solid state chemistry.

**Credit Hours:** 3

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**CHEM 8470: Actinide Chemistry**

The course covers the inorganic and organometallic chemistry of the actinides. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8480: Chemistry of Nanomaterials**

This course will cover several aspects of nanomaterials including synthesis and processing of small particles, as well as their characterization by crystallography, scanning tunneling microscopy magnetism, and other optical properties. Also studied will be the application of quantum confinement to the electronic and optical properties of nanomaterials and the development of photonic materials. The nanostructure of organic polymers, micelles, and the process of biomineralization to make organic-inorganic hybrid materials will also be discussed.

**Credit Hours:** 3

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**CHEM 8600: Radiochemistry and Detection with Lab**

An introductory course in the applications of radionuclides in chemistry. Topics include radioactive decay, interactions of radiation with matter, radioactive tracers, and nuclear methods of analysis. Directed towards entering graduate students.

**Credit Hours:** 3

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**CHEM 8610: Advanced Radiochemistry**

Reviews current advances in radiochemistry, hot atom chemistry, radiation chemistry, nuclear spectrometry.

**Credit Hours:** 3

**Prerequisites:** CHEM 8600 or equivalent

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**CHEM 8620: Nuclear Chemistry**

Designed for graduate students in chemistry and related fields. Studies nuclear reaction and nuclear properties.

**Credit Hours:** 3

**Prerequisites:** CHEM 3300, MATH 2300 or instructor's consent

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**CHEM 8630: Radiopharmaceutical Chemistry**

The radiotracer concept, history of nuclear medicine, radionuclide production, organic and inorganic chemistry of radiopharmaceutical chemistry, and applications will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** undergraduate organic and inorganic chemistry; graduate standing in chemistry or instructor's consent

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**CHEM 8640: Biological Radiochemistry**

Covers the interaction of radiation on biological material. The effects of radiation overdose is discussed along with the use of radiation in therapy. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 9090: Post-candidacy Dissertation Research in Chemistry**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Child Health Courses

**CH\_HTH 6000: Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

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**CH\_HTH 6010: Rural Child Health Clerkship**

Rural Child Health Clerkship

**Credit Hours:** 8

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**CH\_HTH 6020: Springfield Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6037: SCC Pediatric Intensive Care**

Student will learn the initial approach and daily management of children requiring care in the Pediatric Intensive Care Unit. Students will learn the evaluation of and the management of critically ill or injured children focusing on airway and pulmonary physiology, cardiac physiology,

neurological diseases, traumatic injuries, acute overdoses, endocrine emergencies, basic fluid management, and the medically complex child. Pharmacologic and nutritional management of the critically ill or injured child will also be reviewed.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Child Health clerkship. CH\_HTH 6000, 6010, 6020, or 6100

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**CH\_HTH 6100: Remediation Child Health Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** CH\_HTH 6000 Child Health Clerkship, received unsatisfactory grade

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**CH\_HTH 6221: Advanced Biomedical Science Medicine Problem Premature Infant**

Advanced Biomedical Science Medicine Problem Premature Infant

**Credit Hours:** 5

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**CH\_HTH 6223: ABS Child Health Research**

ABS Child Health Research

**Credit Hour:** 5-10

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**CH\_HTH 6225: ABS Child Health Research and Review**

ABS Child Health Research and Review

**Credit Hour:** 5-10

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**CH\_HTH 6425: Child Health Genetics**

Goals/Objectives: To develop an understanding of medical genetics, including genetic diagnosis, cytogenetics, metabolic genetic diseases, teratology, and the genetics literature, and computer databases.

CURRICULUM: During the block, each student will see patients in consultation and in the genetics clinics (general genetics, metabolic, PKU, autism, Down Syndrome, outreach) where they will work up the patients and prepare a report and discussion of the diagnosis or diagnostic differential. Each student will also prepare a literature review around a specific patient or problem. For interested students, cytogenetics or metabolic problems are available. Prerequisites: Child Health clerkship

**Credit Hours:** 5

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**CH\_HTH 6426: Child Health Infectious Disease**

Child Health Infectious Disease

**Credit Hours:** 5

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**CH\_HTH 6427: Pediatric Hematology/Oncology**

Pediatric Hematology/Oncology

**Credit Hours:** 5

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**CH\_HTH 6428: Pediatric Diabetes and Endocrinology**

Goals/Objectives: 1) To understand the pathophysiology of endocrine and metabolic diseases in childhood. 2) To understand the fundamentals of growth processes in infancy, childhood, and adolescence.

CURRICULUM: The Department of Child Health has a large patient care and research program for children with diabetes mellitus. In addition, the Department has a busy general endocrinology program. Thus, students on the elective can participate in the care of patients with a wide spectrum of endocrine and metabolic diseases. Students can carry out specific clinical or laboratory projects relating to specific aspects of either diabetes or endocrine disease, deepen their understanding of pathophysiology of disease and gain a better understanding of the impact of a chronic disorder on the child and his/her family.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6429: Developmental Pediatrics**

Developmental Pediatrics

**Credit Hours:** 5

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**CH\_HTH 6430: Pediatric Cardiology**

Goals/Objectives: Clinical and laboratory material is available to achieve the following objectives: 1) Develop skills in auscultation, resuscitation, treatment of congestive heart failure, and recognition of congenital heart disease in infants. 2) Adequate exposure to pediatric electrocardiography, echocardiography, cineangiography, and interpretation of cardiac catheterization data. 3) Proficiency in the management of postoperative cardio-vascular patients.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6431: Pediatric Pulmonology**

Goals/Objectives: To gain experience in the treatment of asthma, bronchopulmonary dysplasia, cystic fibrosis, sleep disorders, and other respiratory diseases and to learn about pulmonary function testing in children.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6432: Pediatric Gastroenterology**

Goals/Objectives: 1) Gain experience in GI diseases of children noting the difference and similarities with adult diseases. 2) To introduce the student to some of the most commonly encountered diagnoses in pediatrics and to its management. 3) To learn to focus on physical diagnosis skills. CURRICULUM: Preceptorship with a pediatric subspecialist for four weeks will include inpatient and outpatient service activities.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6433: Child Health Sports Medicine**

Child Health Sports Medicine

**Credit Hours:** 5

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**CH\_HTH 6434: Child Adolescent Medicine**

Goals/Objectives: To teach 4th year students the intricacies of care of the adolescent patient. Specifically, the rotation will address the adolescent interview, important considerations in the adolescent "check-up", and managing the varied problems in adolescents, from attention deficit disorder to eating disorders and gynecological issues. The student will leave the rotation with a better understanding of the care of adolescents. CURRICULUM: These objectives will be met in the following manner: 1) Student will actively participate in adolescent medicine clinic with both clinical attendings. He/she will be responsible for the initial evaluation of the patients in the clinic, will actively participate in clinical decision-making, and will be responsible for helping with patient write-ups and referral letters (at the discretion of the attending). The student will be expected to function on an extern level, following up on laboratory evaluations and checking in with patients seen, when needed. 2) The student will participate in the adolescent interview practice sessions with the interact teen theatre with the residents on the rotation. This process will help to improve interviewing skills with adolescents. 3) The student will be responsible for helping with any inpatient care, including consultations and/or admissions. 4) The student will be asked to identify particular areas of interest to be used as topics for interactive discussion with one of the attendings or for a short paper.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6435: Ped Renal and Rheumatology**

4th year elective for renal/rheumatology rotation, four weeks.

**Credit Hours:** 5

**Prerequisites:** 3rd year Pediatrics/Child Health or Internal Medicine rotation

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**CH\_HTH 6706: Internal Medicine Hematology and Medical Oncology Rural Elective**

The student will work as part of a team providing hands-on clinical services in a rural outpatient setting. Students will participate in daily morning report and other didactic sessions provided by the rotation site. Students will learn using a variety of evidence-based resources, direct observations and demonstration.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6002; restricted to medical students only

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**CH\_HTH 6725: Developmental Pediatrics - Rural**

Rural developmental pediatrics general elective.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6000; Restricted to fourth year medical students

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**CH\_HTH 6726: Child Health Rural Elective**

Students will enhance their knowledge about patient-centered care of children through active participation in a primarily outpatient clinical experience. Limited inpatient experience may be offered as well.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6000; restricted to medical students only

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**CH\_HTH 6825: General Child Health - Inpatient**

Goals/Objectives: To provide additional experience in general pediatrics in inpatient care. CURRICULUM: The student will function as a

member of the house staff team assuming many of the roles of the first year resident in patient care. This includes working up of patient's management plans, rounding, staffing, conferences, etc. Night coverage with supervision is included.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6826: General Child Health - Outpatient**

Goals/Objectives: To provide additional experience in general pediatrics in outpatient care. CURRICULUM: The student will function as a member of the healthcare team. This includes taking histories, performing physical exams, and working up patient management plans. This may require working evening clinic and Saturday clinic in addition to regular daytime clinics.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6827: Neonatology/Neonatal Intensive Care Unit**

Goals/Objectives: To gain experience: 1) in the evaluation, diagnosis, and management of sick newborns, and 2) in the performance of specialized procedures necessary for ICU care. CURRICULUM: The student will function as a first-year house officer, with his/her own neonatal ICU patients for initial work-up and management, under the supervision of the PL-2 or PL-3 and attending staff. (rotation at Columbia Regional Hospital)

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6828: Pediatric Intensive Care Unit**

Goals/Objectives: 1) To provide the student with the initial approach and management of children requiring care in the Pediatric Intensive Care Unit. 2) To provide the student with the basics of airway management in children. 3) To provide the student with an understanding of the preoperative assessment with preparation of pediatric patients. 4) To provide the student with an introduction to the perioperative management of common pediatric surgical problems. CURRICULUM: Students in this elective will spend time in both the Pediatric ICU and the operating rooms. They will be required to participate in daily rounds in the PICU and follow the medical/surgical patients admitted to the PICU.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6829: Pediatric Neurology**

Pediatric Neurology

**Credit Hours:** 5

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**CH\_HTH 6912: Introduction to Adolescent Medicine**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. In addition to learning and practicing primary care of adolescent patients the elective will present an in-depth experience of adolescent medicine as a subspecialty, including, but not limited to, conditions such as eating disorders, disorders of puberty and menstruation, obesity, ADHD, and substance abuse. Additional teaching methods used include a pre-post test, lectures, and readings relevant to

adolescent medicine. Completion of the Child Health Clerkship: CH\_HTH 6000 and CH\_HTH 6010.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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#### **CH\_HTH 6913: Introduction to Pediatric Endocrinology**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. The elective will present an in-depth experience of diabetes/endocrinology as a subspecialty, including, but not limited to, exposure to disorders in growth and puberty, obesity, abnormalities in thyroid function and managing blood glucose levels in patients with type 1 diabetes. Additional teaching methods used may include lectures and readings relevant to this subspecialty.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

**Recommended:** Completion of the Child Health Clerkship (CH\_HTH 6000 or CH\_HTH 6010) is suggested but not required

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## **Chinese Courses**

#### **CHINSE 1100: Elementary Chinese I**

For beginners with no prior knowledge of Chinese. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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#### **CHINSE 1200: Elementary Chinese II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in CHINSE 1100 or equivalent

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#### **CHINSE 2001: Undergraduate Topics in Chinese-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester.

**Credit Hour:** 1-3

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#### **CHINSE 2005: Undergraduate Topics in Chinese - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. No knowledge of Chinese required. No language credit.

**Credit Hour:** 1-3

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#### **CHINSE 2100: Everyday Spoken Chinese Level I**

Reinforces and extends ability to use Chinese language for spoken communication. Studies situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on MU campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200

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#### **CHINSE 2160: Intermediate Chinese I Conversation and Composition**

**Credit Hours:** 3

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**Prerequisites:** C- or better in CHINSE 1200 or equivalent

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#### **CHINSE 2310: Chinese Civilization I**

Survey of Chinese culture and arts. No knowledge of Chinese is required. No foreign language credit.

**Credit Hours:** 3

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#### **CHINSE 2330: Chinese Language and Culture**

Presents information about the development of Chinese language over time, the variety of dialects spoken in China, and around the world. Explores relationship between Chinese language and culture. Considers different genres of Chinese literature. Visits to sites significant to development of Chinese language and literature. Introduction to calligraphy and basic daily Chinese.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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#### **CHINSE 3001: Topics in Chinese - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing and instructor consent

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#### **CHINSE 3005: Topics in Chinese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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#### **CHINSE 3005H: Topics in Chinese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent, Honors eligibility required

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#### **CHINSE 3085: Problems in Chinese**

Supervised study in Chinese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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#### **CHINSE 3160: Intermediate Chinese II Conversation and Composition**

Continuation of CHINSE 2160. Introduces more complex grammatical constructions and extends ability to use those constructions for written and oral communication. Successful completion of course will enable students to communicate in Mandarin Chinese regarding everyday topics, with a vocabulary of just over 1900 words, and about 380 sentence patterns.

**Credit Hours:** 3

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**Prerequisites:** C- or higher in CHINSE 2160

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**CHINSE 3170: Everyday Spoken Chinese Level II**

For students who have completed 18 credits college-level Chinese. Reinforces and extends ability to use Chinese language for Spoken communication. Class-time spent studying situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on UMC campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 3160 or consent of instructor

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**CHINSE 3180: Advanced Chinese I**

Improves vocabulary, listening, spoken and written Chinese Skills. Discusses basic cultural ideas. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 3160, or equivalent

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**CHINSE 3300: Chinese Traditions and Global Integration**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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**CHINSE 3300H: Chinese Traditions and Global Integration - Honors**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required. Honors eligibility required

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**CHINSE 3310: Chinese Poetry**

This is an introductory course to Chinese poetry, both classical and contemporary, in English. It will explore issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 3320: Modern and Contemporary Chinese Fiction (in translation)**

Studies Chinese fiction from 1920s to 1990s. Preceded by a brief historical survey of Chinese literature. Analyzes works by authors like Lu Xun, Ba Jin, Lao She, Wang Meng and many others of the younger generation. Readings and lectures in English.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**CHINSE 3400: Negotiating Chinese Culture**

As political, business, religious, and personal encounters between Chinese and Americans increase, so also does the need for competence in negotiating these cross-cultural interactions. Whether hosting Chinese guests, visiting China for business or as a scholar, or simply trying to understand current events, a clear understanding of cultural differences and similarities can be quite valuable. Students will be introduced to multiple perspectives on American and Chinese cultural differences along with narratives of cross-cultural experiences. Course address issues related to American and Chinese cross-cultural communication in five spheres of interaction: political, religious, business, interpersonal, education. Through related readings, discussions, and structured conversations with Chinese, students will explore how this information and a deeper understanding of Chinese and American culture can be applied to more fruitful and positive cross-cultural interactions in multiple contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 3880: Contemporary Chinese Film**

(same as FILM\_S 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**Civil Engineering Courses**

**CV\_ENG 1000: Introduction to Civil Engineering**

Introduces various aspects of Civil Engineering practice. May be repeated one time for credit.

**Credit Hour:** 1

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**CV\_ENG 1001: Experimental Course**

For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**CV\_ENG 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**CV\_ENG 2080: Introduction to Dynamics**

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200

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**CV\_ENG 3001: Fundamental Topics in Civil Engineering**

Special engineering topics for undergraduate students.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 3010: Decision Methods for Civil Engineering Design**

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 1200

**Prerequisites:** grade of C- or better in ENGLISH 1000

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**CV\_ENG 3010W: Decision Methods for Civil Engineering Design - Writing Intensive**

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGLISH 1000

**Corequisites:** ENGINR 1200

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**CV\_ENG 3050: Introduction to Geographic Information Systems GIS**

(same as GEOG 3040) Introduces theory, concepts and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using GIS. Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CV\_ENG 3100: Fundamentals of Transportation Engineering**

Covers fundamentals of transportation engineering including geometric design, traffic engineering, pavements, and planning.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in ENGINR 1100

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**CV\_ENG 3200: Fundamentals of Environmental Engineering**

Fundamentals of water quality engineering and water resources, water and wastewater treatment, solid and hazardous and radioactive waste management, air pollution, environmental regulation, and environmental ethics.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in CHEM 1320 or equivalent

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**CV\_ENG 3250: Pollutant Fate and Transport**

(same as ENV\_SC 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and CHEM 1320; or instructor's permission

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**CV\_ENG 3300: Structural Analysis I**

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200

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**CV\_ENG 3300H: Structural Analysis I - Honors**

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200. Honors Eligibility required

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**CV\_ENG 3312: Reinforced Concrete Design**

Basic principles of reinforced concrete design. Design of beams for flexure and shear; design of short and slender columns. Prerequisites: CV\_ENG 3300;

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 3313: Structural Steel Design**

Basic principles of structural steel design. Design of beams, axially loaded members, columns, and bolted and welded connections.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3300 and CV\_ENG 3600

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**CV\_ENG 3400: Fundamentals of Geotechnical Engineering**

Detailed study of physical and mechanical properties of soil governing its behavior as an engineering material.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 2200 and GEOL 1150

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**CV\_ENG 3600: Civil Engineering Materials**

Introduces composition, structure, properties, behavior, and selection of civil engineering materials. Prerequisites: grade of C- or better in ENGINR 2200 or instructor's consent;

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

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**CV\_ENG 3700: Fluid Mechanics**

Statics and dynamics of fluids, principles of continuity, momentum and energy, pipe flow.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better PHYSICS 2750

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**CV\_ENG 3702: Hydrology**

Fundamental concepts of hydrology in engineering; quantitative estimation of stream-flow magnitude and frequency; and open channel flow considerations from stream-flow. Fluid Mechanics lab with lab reports.

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**Credit Hours:** 4

**Prerequisites:** grade of C- or better MATH 2300 and CV\_ENG 3200 and CV\_ENG 3700

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**CV\_ENG 4001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 4006: Digital Computer Applications in Engineering**

(cross-leveled with CV\_ENG 7006). Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation, and differential equations. Prerequisites: MATH 2300

**Credit Hours:** 3

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**CV\_ENG 4008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 7008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 4080: Advanced Surveying**

(cross-leveled with CV\_ENG 7080). Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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**CV\_ENG 4085: Problems in Civil and Environmental Engineering**

Directed investigation of civil engineering.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4100: Traffic Engineering**

(cross-leveled with CV\_ENG 7100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4102: Infrastructure Management**

(cross-leveled with CV\_ENG 7102). Civil infrastructure condition assessment, performance modeling, deterioration processes and models, maintenance and rehabilitation strategies, management techniques, data analysis, management systems, financing, case studies, emerging technologies.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4103: Planning and Geometric Design of Highways**

(cross-leveled with CV\_ENG 7103). Techniques of highway planning in rural and urban areas. Design of the visible elements of highways.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 7104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 4106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 7106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4108: Bicycle and Pedestrian Transportation**

(cross-leveled with CV\_ENG 7108). This course teaches how to integrate pedestrian and bicyclist accommodations into the planning and design of transportation facilities. Topics include bicyclist safety, accommodation at intersections, traffic calming techniques and facility design.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4120: Airport Engineering**

(cross-leveled with CV\_ENG 7120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010

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**CV\_ENG 4125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 7125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 4130: Transportation Safety**

(cross-leveled with CV\_ENG 7130) This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 4145: Civil and Environmental Engineering Legal Issues**  
(cross-leveled with CV\_ENG 7145). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 4155: Transportation Geography**  
(same as GEOG 4850; cross-leveled with CV\_ENG 7155; GEOG 7850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 4175: The Geospatial Science in National Security**  
(Same as GEOG 4130; cross-leveled with CV\_ENG 4175, GEOG 7130). This course explores the critical contribution of the geospatial sciences in the collection processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**CV\_ENG 4185: Location Analysis/Site Selection**  
(same as GEOG 4740; cross-leveled with CV\_ENG 7185; GEOG 7740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. Maybe be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 4190: Infrastructure Project Development**  
(cross-leveled with CV\_ENG 7190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only. Prerequisites: junior standing

**Credit Hours:** 3

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**CV\_ENG 4200: Remote Sensing of the Environment**  
(cross-leveled with CV\_ENG 7200). Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic, thermal multispectral and microwave systems, satellite remote sensing and digital image processing.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4210: Solid Waste Management**

(cross-leveled with CV\_ENG 7210). Engineering principles involved in generation, handling, collection, transport, processing, and disposal of solid wastes, resource recovery and reuse, legislation on solid wastes and groundwater contamination problems.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4220: Hazardous Waste Management**  
(same as CH\_ENG 4220; cross-leveled with CV\_ENG 7220, CH\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 4230: Introduction to Water Quality**  
(cross-leveled with CV\_ENG 7230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4232: Water and Wastewater Treatment Facilities**  
(cross-leveled with CV\_ENG 7232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 4240: Water Quality Analysis**  
(cross-leveled with CV\_ENG 7240). Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 4245: Environmental Chemistry for Engineers**  
(cross-leveled with CV\_ENG 7245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 or CV\_ENG 3200

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**CV\_ENG 4250: Environmental Regulatory Compliance**  
(cross-leveled with CV\_ENG 4250). Systems of water law; provisions of major federal environmental laws and regulations; development of regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 4260: Environmental Public Policy**

(cross-leveled with CV\_ENG 7260). Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law.

**Credit Hours:** 3

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**CV\_ENG 4270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 7270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**CV\_ENG 4290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 7290). Selection and use of wastewater and sludge treatment processes, disposal methods, sustainable wastewater treatment including anaerobic treatment of wastewater reuse.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3200. Instructor's consent required

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**CV\_ENG 4300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 7300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 4302: Prestressed/Advanced Reinforced Concrete**

Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3312

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**CV\_ENG 4310: Structural Design and Analysis**

(cross-leveled with CV\_ENG 4310). Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4300

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**CV\_ENG 4320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 7320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

**Prerequisites:** senior or graduate standing required

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**CV\_ENG 4330: Structural System Design**

(cross-leveled with CV\_ENG 7330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 7350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** senior standing; grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4360: Bridge Engineering**

(cross-leveled with CV\_ENG 7360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and Shear and Moment Envelopes. Design of Medium- and Short-Span Girder Bridges based on AASHTO LRFD specs.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 7404). This course provides an introduction to geotechnical aspects of earthquake engineering. Topics include: basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil liquefaction.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 4406: Geotechnics of Landfill Design**

(cross-leveled with CV\_ENG 7406). This course will focus on geotechnical and construction aspects in the analysis, design and construction of waste containment facilities (landfills) including expansions of existing facilities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 4410: Foundation Engineering**

(cross-leveled with CV\_ENG 7410). Subsurface exploration. Design of basic foundation structures, shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 7412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 7500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4600: Advanced Mechanics of Materials**

(same as MAE 4600; cross-leveled with CV\_ENG 7600 and MAE 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 4610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 7610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200 and PHYSCS 2760

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**CV\_ENG 4660: Vibration Analysis**

(same as MAE 4660; crossleveled with CV\_ENG 7660, MAE 7660). Vibration theory with application to mechanical systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 2080 and MATH 4100

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**CV\_ENG 4692: Introduction to Structural Dynamics**

Theory of structural response to dynamic loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 7700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700

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**CV\_ENG 4703: Applied Hydrology**

(cross-leveled with CV\_ENG 7703). Modern methods of applied hydrologic analysis and synthesis of hydrologic records.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700 and CV\_ENG 3702 or instructor's consent

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**CV\_ENG 4710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 4150; cross-leveled with CV\_ENG 7710, BIOL\_EN 7150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4720: Watershed Modeling Using GIS**

(same as BIOL\_EN 4350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4730: Hydraulic Design**

(cross-leveled with CV\_ENG 7730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 4792: Analysis of Water-Resource Systems**

(cross-leveled with CV\_ENG 7792). Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 4980: Civil Engineering Systems Design**

Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4980W: Civil Engineering Systems Design - Writing Intensive**

Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4990: Undergraduate Research in Civil and Environmental Engineering**

Independent investigation or project in Civil Engineering. May be repeated to 6 hours. Enrollment limited to seniors in Civil and Environmental Engineering.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4995: Research in Civil & Environmental Engineering- Undergraduate Honors**

Independent project, supervised by the honors advisor, to be presented as a formal written report.

**Credit Hour:** 1-3

**Prerequisites:** Civil Engineering students only



**Recommended:** participation in the Civil and Environmental Engineering Departmental Honors Program

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**CV\_ENG 7001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 7002: Analysis of Civil Engineering Decisions**

Formulates and analyzes probabilistic models of civil engineering systems and their environment. Elementary theory of decision making under uncertainty. Application to selected civil engineering problems.

**Credit Hours:** 3

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**CV\_ENG 7003: Optimization of Civil Engineering Systems**

Automated design techniques such as linear, nonlinear, and dynamic programming; gradient and random searching. Civil engineering applications emphasized throughout.

**Credit Hours:** 3

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**CV\_ENG 7004: Engineering Administration**

Cash flow analysis, financial analysis, managerial accounting and cost control, budgeting, organizational structure and behavior.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7006: Digital Computer Applications in Engineering**

(cross-leveled with CV\_ENG 4006). Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation, and differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**CV\_ENG 7007: Quality Management in Civil Engineering**

Quantitative and qualitative quality planning and analysis concepts, including statistical tools and total quality management techniques, control, measurement and assessment. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 4008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 7080: Advanced Surveying**

(cross-leveled with CV\_ENG 4080). Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 2090 and MATH 1500

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**CV\_ENG 7082: Property Boundary Location**

Principles of real property ownership, deeds, property boundary surveying, legal principles of original and retracement surveys Missouri statutes and regulations affecting surveying, GLO corner restoration and re-establishment.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1500 and CV\_ENG 2090

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**CV\_ENG 7100: Traffic Engineering**

(cross-leveled with CV\_ENG 4100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7102: Infrastructure Management**

(cross-leveled with CV\_ENG 4102). Civil infrastructure condition assessment, performance modeling, deterioration processes and models, maintenance and rehabilitation strategies, management techniques, data analysis, management systems, financing, case studies, emerging technologies.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7103: Planning and Geometric Design of Highways**

(cross-leveled with CV\_ENG 4103). Techniques of highway planning in rural and urban areas. Design of the visible elements of highways.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 4104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 7106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 4106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and its practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7108: Bicycle and Pedestrian Transportation**

(cross-leveled with CV\_ENG 4108). This course teaches how to integrate pedestrian and bicyclists accommodations into the planning and design of transportation facilities. Topics include, including pedestrian and bicyclist safety, accommodation at intersections, traffic calming techniques and facility design.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7109: Urban Development and Planning**

Introduction to planning processes; procedures and forces that shape urbanization.

**Credit Hours:** 3

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**CV\_ENG 7110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 3100

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**CV\_ENG 7120: Airport Engineering**

(cross-leveled with CV\_ENG 4120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 3010

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**CV\_ENG 7125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 4125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 7130: Transportation Safety**

(cross-leveled with CV\_ENG 4130). This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 7145: Civil and Environmental Engineering Legal Issues**

(cross-leveled with CV\_ENG 4125). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 7155: Transportation Geography**

(same as GEOG 7850; cross-leveled with CV\_ENG 4155, GEOG 4850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 7165: Geographic Information Systems I**

Introduces concepts of computer analysis of geographic data and emphasizes the techniques for handling geographic data. Application of computer-based GIS systems in coursework.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; GEOG 2840

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**CV\_ENG 7175: The Geospatial Sciences in National Security**

(Same as GEOG 7130; cross-leveled with CV\_ENG 4175, GEOG 4130). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 7185: Location Analysis/Site Selection**

(same as GEOG 7740; cross-leveled with CV\_ENG 4185, GEOG 4740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 7190: Infrastructure Project Development**

(cross-leveled with CV\_ENG 4190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7200: Remote Sensing of the Environment**

(cross-leveled with CV\_ENG 4200). Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic, thermal multispectral and microwave systems, satellite remote sensing and digital image processing.

**Credit Hours:** 3

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**CV\_ENG 7210: Solid Waste Management**

(cross-leveled with CV\_ENG 4210). Engineering principles involved in generation, handling, collection, transport, processing, and disposal of solid wastes, resource recovery and reuse, legislation on solid wastes and groundwater contamination problems.

**Credit Hours:** 3

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**CV\_ENG 7220: Hazardous Waste Management**

(same as CH\_ENG 7220; cross-leveled with CV\_ENG 4220, CH\_ENG 4220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 7230: Introduction to Water Quality**

(cross-leveled with CV\_ENG 4230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater..

**Credit Hours:** 3

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**CV\_ENG 7232: Water and Wastewater Treatment Facilities**

(cross-leveled with CV\_ENG 4232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 7240: Water Quality Analysis**

Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 7245: Environmental Chemistry for Engineers**

(cross-leveled with CV\_ENG 4245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7250: Environmental Regulatory Compliance**

(cross-leveled with CV\_ENG 4250). Systems of water law; provisions of major federal environmental laws and regulations; development or regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 7260: Environmental Public Policy**

(cross-leveled with CV\_ENG 4260). Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law. Graded on A-F basis.

**Credit Hours:** 3

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**CV\_ENG 7270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 4270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

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**CV\_ENG 7290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 4290). Selection and use of wastewater and sludge treatment processes, disposal methods, leading to rational design of overall wastewater treatment systems. Sustainable wastewater

treatment including advanced processes in nutrient removal, anaerobic treatment for wastewater reuse. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 4300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 7302: Prestressed/Advanced Reinforced Concrete**

(cross-leveled with CV\_ENG 4302). Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3312

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**CV\_ENG 7310: Structural Design and Analysis**

(cross-leveled with CV\_ENG 7310). Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4300

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**CV\_ENG 7320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 4320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

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**CV\_ENG 7330: Structural System Design**

(cross-leveled with CV\_ENG 4330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 4350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7360: Bridge Engineering**

(cross-leveled with CV\_ENG 4360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and shear and Moment Envelopes. Design of medium-and Sort-Span Girder Bridges based on AASHTO LRFD Specs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 4404). This course will provide an introduction to topics relating to geotechnical aspects of earthquake engineering. Topics to be covered include; basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil properties, site response analysis and soil liquefaction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 7406: Geotechnics of Landfill Design**

(cross-leveled with CV\_ENG 4406). This course will focus on geotechnical and construction aspects in the analysis, design and construction of waste containment facilities (landfills) including expansions of existing facilities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 7410: Foundation Engineering**

(cross-leveled with CV\_ENG 4410). Subsurface exploration. Design of basic foundation structures: shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400

---

**CV\_ENG 7412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 4412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade or C- or better in CV\_ENG 3400

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**CV\_ENG 7500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 4500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

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**CV\_ENG 7510: Construction Methods and Equipment**

Selection and use of construction equipment, planning construction operations, equipment economics and operations analyses.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7600: Advanced Mechanics of Materials**

(same as MAE 7600; cross-leveled with CV\_ENG 4600 and MAE 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 7610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 4610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, digital signals and basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 2200 and PHYSCS 2760

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**CV\_ENG 7660: Vibration Analysis**

(same as MAE 7660; cross-leveled with CV\_ENG 4660, MAE 4660). Vibration theory with application to mechanical systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 2080 and MATH 4100

---

**CV\_ENG 7692: Introduction to Structural Dynamics**

(cross-leveled with CV\_ENG 4692) Theory of structural response to dynamics loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 4700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** graduate standing and Grade of C- or better in CV\_ENG 3700

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**CV\_ENG 7702: Pipeline Engineering**

Theoretical and practical aspects of pipeline engineering including pipeline transport of natural gas and various solids such as coal, sand and solid wastes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 and MAE 3400

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**CV\_ENG 7703: Applied Hydrology**

(cross-leveled with CV\_ENG 4703). Modern methods of applied hydrologic analysis and synthesis of hydrologic records.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700 and CV\_ENG 3702, or instructor's consent

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**CV\_ENG 7710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 7150; cross-leveled with CV\_ENG 4710, BIOL\_EN 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3200 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7720: Watershed Modeling Using GIS**

(same as BIOL\_EN 7350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

---

**CV\_ENG 7730: Hydraulic Design**

(cross-leveled with CV\_ENG 4730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

---

**CV\_ENG 7792: Analysis of Water-Resource Systems**

(cross-leveled with CV\_ENG 4792). Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 8001: Advanced Topics in Civil Engineering**

New and current technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** CV\_ENG 4006 or equivalent

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**CV\_ENG 8002: Directed Reading In Civil Engineering**

Faculty supervised readings course.

**Credit Hour:** 1-3

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**CV\_ENG 8085: Problems in Civil Engineering**

Supervised investigation in civil engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**CV\_ENG 8087: Seminar in Civil Engineering**

Review of research in progress. Research techniques.

**Credit Hour:** 1

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**CV\_ENG 8100: Transportation Planning and Models**

Regional and metropolitan transportation studies; land use, traffic generation, distribution and assignment models.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or CV\_ENG 4003

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**CV\_ENG 8106: Advanced Intelligent Transportation Systems**

This course is intended to be an introductory course in Intelligent Transportation Systems (ITS). This course includes the background of ITS, current implementations, sample deployments, and practical issues and implications.

**Credit Hours:** 3

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**CV\_ENG 8110: Theory of Traffic Flow**

Scientific approach to study of traffic phenomena with emphasis on applications. Deterministic and stochastic models of traffic flow; optimization of intersection controls; computer simulation of traffic problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or instructor's consent

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**CV\_ENG 8120: Traffic Control Engineering**

Information retrieval and analysis of human and vehicular characteristics; roadway element; system control and optimization of highways, intersections; planning and design of new traffic facilities including ways, terminals.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100 or equivalent

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**CV\_ENG 8130: Land Use Planning**

Case study of site planning using systems analysis; feasibility for development or redevelopment; restraints imposed by political, social and economic conditions on land use activity as related to urban and regional relationships.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4106

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**CV\_ENG 8140: Highway Transportation**

Economics of transportation on highways. Comparison of vehicle operation costs. Project studies of highway problems in general.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4103 or equivalent

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**CV\_ENG 8150: Transportation Networks**

This course presents techniques used in equilibrium analysis of transportation networks. The details of traffic assignment algorithms will be discussed along with theory and practical algorithms.

**Credit Hours:** 3

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**CV\_ENG 8160: Advanced Research Methods in Transportation Engineering**

This course will cover advanced research methods used in transportation. A special focus will be on the state-of-art approaches in traffic engineering. Mathematical and analytical models will be reviewed in detail. This is a reading intensive course where students are expected to review research articles on various topics. The methods used in the articles and a critical review of the article findings will be discussed in an interactive manner in the class. Graded on A-F basis only.

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**Credit Hours:** 3

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**CV\_ENG 8187: Seminar in Transportation Engineering**

Review of research in progress in the area of transportation engineering.

**Credit Hour:** 1

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**CV\_ENG 8200: Water Quality Modeling**

Derivation and application of models for describing oxygen budget, nutrient exchange, and biological productivity in streams, lakes and estuaries.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 7230

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**CV\_ENG 8208: Finite Element Methods**

(same as MAE 8280). The concepts and fundamentals of the finite element method with applications to problems in solid and fluid mechanics.

**Credit Hours:** 3

**Prerequisites:** MAE 4280

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**CV\_ENG 8210: Groundwater Pollution Evaluation and Modeling**

Fundamentals of groundwater hydraulics and groundwater contamination. Use and development of computer models to simulate flow and pollutant transport.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700, MATH 4100, or instructor's consent

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**CV\_ENG 8215: Environmental Transport Phenomena**

Fundamental processes that control the transport of constituents substances in fluids, and the implications of these processes for a variety of important applications in natural and engineered systems.

**Credit Hours:** 3

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**CV\_ENG 8220: Advanced Hazardous Waste Treatment Processes**

Course includes some introductory materials about hazardous waste regulations followed by advanced treatment methods such as air stripping, soil-vapor extraction, chemical oxidation, membrane processes, in-situ and ex-situ biotreatment methods, solidification and thermal processes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4220

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**CV\_ENG 8225: Aquatic Chemistry**

Principles of chemical thermodynamics and equilibrium applied to processes in natural water and water and wastewater treatment systems. Emphasis on quantitative analyses of acid/base, complexation/dissociation, precipitation/dissolution, and reduction/oxidation reactions. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8230: Unit Process Laboratory**

Studies chemical and physical relationships as applied to unit processes of water and wastewater.

**Credit Hours:** 3

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**CV\_ENG 8240: Physiochemical Treatment Processes**

Fundamental principles, analysis and modeling of physical and chemical processes for water and wastewater treatment.

**Credit Hours:** 3

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**CV\_ENG 8245: Particles in the Environment**

This course is an introduction to interfacial and colloid science, with an emphasis on aqueous systems of natural colloids and engineered nanomaterials. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8250: Biochemical Treatment Processes**

Biochemical principles, kinetic models and energy considerations in the design of biological wastewater treatment processes.

**Credit Hours:** 3

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**CV\_ENG 8260: Environmental Biotechnology**

Major biochemical reactions relevant to environmental engineering. Theory and application of fundamental principles of attached and suspended microbial growth and process engineering for sanitary engineering and biodegradation.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8250 or instructor's consent

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**CV\_ENG 8270: Design of Water and Wastewater Treatment Facilities**

Development of design criteria and their application to the design of water and wastewater treatment facilities.

**Credit Hours:** 3

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**CV\_ENG 8280: Engineering Aspects of Water Quality**

Theoretical aspects of biological, chemical, physical processes; applications in water, wastewater, industrial-waste treatment processes, natural water systems; chemical equilibria, flow models; reaction kinetics on process design, pollutants.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or instructor's consent

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**CV\_ENG 8287: Seminar in Environmental Engineering**

Review of research in progress in the area of environmental engineering.

**Credit Hour:** 1

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**CV\_ENG 8290: Environmental Practicum**

Application of advanced analysis and design techniques to practical problems in environmental engineering. Collaborative group investigations that may include experimental and computer-aided studies. No more than 6 practicum hours may be applied toward the MS degree. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** graduate standing in Civil Engineering

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**CV\_ENG 8295: Environmental Regulatory Policy**

Discussion of the various policy aspects of environmental regulation: economic and non-economic impacts of degradation; risk assessment and management; distribution of environmental risks; regulatory tools; federal vs. state; disclosure; enforcement. Relation to environmental laws. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4250 or CV\_ENG 7250 or equivalent

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**CV\_ENG 8303: Behavior of Reinforced Concrete Members**

The design philosophy, constitutive laws, creep rate sensitivity and aging, shrinkage. Nonlinear response of reinforced concrete members. Deflection computation and control. Bond and anchorage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3312

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**CV\_ENG 8311: Nondestructive Evaluation Engineering**

This course will present the interaction of nondestructive evaluation (NDE) technologies and engineering decision-making. Theory and application NDE technologies will be presented in the context of the engineering analysis required to effectively utilize the technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, ENGINR 1200, MATH 4100

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**CV\_ENG 8312: Advanced Structural Analysis**

Current trends in structural analysis. Elastic analysis of curved beams, arches and suspensions. Finite element and nonlinear methods of analysis.

**Credit Hours:** 3

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**CV\_ENG 8313: Random Vibration**

Analysis of random vibrations including topics in stationary, ergodic and nonstationary random processes, with application to single-degree of freedom, discrete and continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4606

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**CV\_ENG 8314: Numerical Methods in Engineering**

Classification and numerical solution of engineering problems--ordinary and partial differential equations, algebraic equations. Includes initial, boundary, eigen- and characteristic-value problems. Prerequisites: MATH 4100

**Credit Hours:** 3

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**CV\_ENG 8320: Continuum Mechanics**

(same as MAE 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700, MATH 7100, ENGINR 2200

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**CV\_ENG 8322: Structural Analysis**

Classical and modern methods for elastic analysis. Influence line, Miller-Breslau principle. Introduction to force and displacement methods using matrix analysis. Application to continuous beams, grids, plane and space frames and trusses.

**Credit Hours:** 3

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**CV\_ENG 8330: Theory of Elasticity**

(same as MAE 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**CV\_ENG 8332: Design of Special Structures Systems**

Reviews current trends in design of structural systems and components. Critical evaluation of recent code modifications. Application to design of light gauge metal structures, lateral bracing systems, curved beams and panel systems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4310 or CV\_ENG 4330

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**CV\_ENG 8340: Theory of Plates and Shells**

(same as MAE 8340). Rectangular and circular plates. Variational methods in the analysis of plates and shells. Plates of unusual shape. Shear deformation effects. Large deformation analysis. Analysis of cylindrical shells.

**Credit Hours:** 3

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**CV\_ENG 8342: Space Mechanics**

Rigid body dynamics analysis of satellites, space vehicles. Trajectories, time of flight optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent, and MATH 4100

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**CV\_ENG 8350: Theory of Elastic Stability**

(Same as MAE 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**CV\_ENG 8360: Theory of Plasticity**

(same as MAE 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8330 or instructor's consent

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**CV\_ENG 8372: Reinforced Concrete Theory and Design**

Advanced design of reinforced concrete structures; review of standard codes and specifications and their influence.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350 or equivalent

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**CV\_ENG 8380: Nonlinear Mechanical Analysis**

Analysis of behavior of nonlinear mechanical systems. Nonlinear phenomena of importance in mechanical design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent and MATH 4100

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**CV\_ENG 8382: Dynamical Theory**

Engineering principles and application in mathematical expression of energy, force, inertia system.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent and MATH 4100

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**CV\_ENG 8387: Seminar in Structural Engineering**

Review of research in progress in the area of structural engineering.

**Credit Hour:** 1

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**CV\_ENG 8390: Advanced Topics Structural Analysis**

Computer implementation and application of finite element analysis. Material and geometric nonlinearities. Plastic analysis of structures. Code provisions for analysis of seismic and wind loadings.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350

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**CV\_ENG 8392: Dynamics of Structures**

(same as MAE 8392). Study of the dynamic behavior of structures. Analysis of equivalent lumped parameter systems for the design of structures in a dynamic environment.

**Credit Hours:** 3

**Prerequisites:** MAE 2600 and MATH 4100 or MATH 7100

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**CV\_ENG 8402: Advanced Shear Strength of Soils**

Theoretical soil mechanics as applied to solution of specific engineering problems.

**Credit Hours:** 3

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**CV\_ENG 8403: Consolidation and Settlement**

Settlement of soil, Theory of Consolidation, consolidation testing, settlements of earth fills and embankments, stress distribution in soils, elastic settlement, bearing capacity of shallow foundations, shallow foundations design.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400

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**CV\_ENG 8404: Seepage in Soils**

General principles that govern flow of water through soils and specific procedures for analysis and design of filtration and drainage media in geotechnical and geoenvironmental applications.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8406: Unsaturated Soil Mechanics**

Fundamental principles governing the strength, deformation, and fluid flow behavior of multiphase porous media. Includes specific procedures

for analyzing, measuring and modeling strength, hydraulic conductivity, and suction characteristics of unsaturated soil.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8407: Soil Behavior**

Detailed study of composition, fabric, and geotechnical and hydrologic properties of soils that consist partly or wholly of clay. Emphasizes physico-chemical factors governing volume change and shear strength. Expansive clay behavior is examined in detail.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8408: Soil Dynamics**

Cover topics relating to the response of soils to dynamic loading. Topics to be covered include: lab and field methods, cyclic soil models, foundation vibrations, and wave propagation through soil. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 and instructor's consent

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**CV\_ENG 8410: Advanced Foundation Engineering**

Foundation design beyond simple spread footings, special footings and beams on an elastic foundations, mat foundations, pile foundations - static capacity, lateral loads, bucklin, dynamic analysis load tests, pile groups, drilled piers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4410

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**CV\_ENG 8412: Stability and Performance of Earth Slopes**

Principles, mechanics and procedures for analyzing the stability of earth slopes and landfills under short-term, long-term, rapid drawdown, and earthquake conditions.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8413: Design and Analysis of Earth Retaining Structures**

General principals and specific procedures for analysis and design of earth retention systems including consideration of soil-structure interaction.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8420: Advanced Geotechnics**

Advanced study of specific geotechnical engineering topics. Topics may include: Environmental Geotechnics, Landfill Design, Geosynthetics, Laboratory Testing, and Case History. May be repeated for credit when topics vary.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8487: Seminar in Geotechnical Engineering**

Review of research in progress in the area of geotechnical engineering.

**Credit Hour:** 1



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**CV\_ENG 8510: Construction Engineering**

Selection and layout of construction plant. Design and construction of formwork, falsework, cofferdams, conveyors and other temporary structures used by contractors.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4510 or equivalent

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**CV\_ENG 8520: Construction Productivity**

Work improvement techniques in the construction industry reviewed and applied to local construction site. Construction safety influenced by supervisors and managers studied in detail. Declining productivity in the construction industry evaluated and solutions considered.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4500

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**CV\_ENG 8530: Construction Project Management**

Cost analysis, estimating techniques. Time, cost, and quality control of construction projects. Recording/analyzing construction effort. Applications of crew balance, process charts, time-lapse motion pictures, operations research, and preplanning techniques to construction operations. Construction safety.

**Credit Hours:** 3

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**CV\_ENG 8540: Construction Administration**

Organization, management, engineering, business, and legal problems in the construction industry. Purchasing, bonding, insurance, financing, labor relations, and contract administration.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4500

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**CV\_ENG 8610: Materials and Measurement**

About 25% of the course is devoted to the physical measurement of strain, force, displacement and motion. Remainder of course is devoted to advanced study of the behavior of steel and concrete with emphasis on brittle fracture in steel.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3600 or equivalent

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**CV\_ENG 8620: Advanced Dynamics**

(same as MAE 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 2080 and MATH 4100

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**CV\_ENG 8630: Vibrations of Distributed Parameter Systems**

(same as MAE 8630). Vibration analysis of strings, cables, bars, rods, shafts, beams, membranes, plates, circular rings, frames; free and forced oscillation; miscellaneous loading; various boundary conditions; effect of damping; energy methods; method of difference equations.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4660

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**CV\_ENG 8710: Advanced Hydraulic Engineering**

Unsteady flow in pipes and open channels is studied using the method of characteristics and finite difference equations. Hydraulic transient in pipe networks due to valve adjustments, pump startup and pump power failure are analyzed. Control of transient using surge tanks and air chambers is included.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3720

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**CV\_ENG 8720: Hydrotechnical Practicum**

Application of advanced analysis and design techniques to practical problems in hydrotechnical engineering. Collaborative group investigations that may include experimental and computer aided studies. No more than 6 practicum hours may be applied toward the MS degree. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** graduate standing in Civil Engineering

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**CV\_ENG 8730: Fundamentals of Fluid Mechanics**

Treatment of fundamental concepts and theories in fluid mechanics at a level suitable for beginning graduate students.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 8740: Hydrodynamics**

Special topics in potential theory and conformal mapping.

**Credit Hours:** 3

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**CV\_ENG 8750: Wind Engineering**

Study of wind effects on the safety of engineering structures, air pollution and building energy consumption, and the use of wind.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700

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**CV\_ENG 8990: Research-Masters Thesis in Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CV\_ENG 9001: Advanced Topics in Civil Engineering - PhD**

New and current technical developments in civil engineering. For PhD students.

**Credit Hour:** 1-4

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**CV\_ENG 9990: Research-Doctoral Dissertation Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Classical Humanities Courses

### **CL\_HUM 1050: Greek and Latin in English**

A survey of the influence of Greek and Latin upon English literary, scientific, technical, legal and medical vocabulary. Emphasis is upon building competency with complex English words while studying the cultural influence of the classical languages on modern vocabulary.

**Credit Hours:** 3

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### **CL\_HUM 1060: Classical Mythology**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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### **CL\_HUM 1060H: Classical Mythology - Honors**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **CL\_HUM 1060HW: Classical Mythology - Honors/Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **CL\_HUM 1060W: Classical Mythology - Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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### **CL\_HUM 2005: Topics in Classical Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

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### **CL\_HUM 2100: Greek Culture**

Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**Credit Hours:** 3

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### **CL\_HUM 2100H: Greek Culture - Honors**

Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **CL\_HUM 2200: Roman Culture**

Survey of Roman life and thought. Principal developments in literature, the arts, politics, religion, philosophy, and private life, and their influence on Western Civilization.

**Credit Hours:** 3

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### **CL\_HUM 2300: Greek Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Greek World.

**Credit Hours:** 3

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### **CL\_HUM 2300H: Greek Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Greek world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **CL\_HUM 2400: Roman Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Roman world.

**Credit Hours:** 3

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### **CL\_HUM 2500: The Origins of Music in the Ancient World**

Explores the use of music in the earliest historical societies, from the earliest evidence up to the fall of the Roman empire. Topics will include the history of musical instruments, the earliest scores, the development of music theory, the origins of melody, rhythm, and harmony, and the relationship between music, politics, and religion. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060; CL\_HUM 2100; CL\_HUM 2200

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### **CL\_HUM 2940: Service Learning in Classical Studies**

Students provide enrichment programming on the Ancient World at various Columbia Public School sites. Participants must be Classical Studies majors or minors. Graded on A/F basis only. Does not meet Arts and Science general education requirements.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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### **CL\_HUM 3000: Foreigners and Dangerous Women in Greek and Latin Literature**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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### **CL\_HUM 3000H: Foreigners and Dangerous Women in Greek and Latin Literature - Honors**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3000W: Foreigners and Dangerous Women in Greek and Latin Literature - Writing Intensive**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3005: Topics in Classical Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3005H: Topics in Classical Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3005W: Topics in Classical Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3025: Ancient Western Philosophy**

(same as PHIL 3000). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3050: Philosophy Before Socrates**

A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3050H: Philosophy Before Socrates - Honors**

A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3100: The Age of Pericles**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3100H: The Age of Pericles - Honors**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3150: The Age of Augustus**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3150H: The Age of Augustus - Honors**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3200: Power and Oratory in Ancient Greece**

Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3200H: Power and Oratory in Ancient Greece - Honors**

Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3225: Roman Comedy, Wit and Humor**

Study of works illustrating the comedy, wit and humor of the Romans: readings in comedies of Plautus and Terence, Catullus, Ovid's *Metamorphoses*, Petronius' *Satyricon*, Martial, Juvenal and Macrobius.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3250: Greek and Roman Epic**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3250H: Greek and Roman Epic - Honors**

A study of the major representatives of the ancient epic genre. Readings will include Homer's Iliad and Odyssey, Apollonius' Argonautica, Vergil's Aeneid.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3300: Greek Drama**

Reading and interpretation of Greek tragedies and comedies in translation.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3300H: Greek Drama - Honors**

Reading and interpretation of Greek tragedies and comedies in translation.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3350: Advanced Mythology**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3350H: Advanced Mythology - Honors**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3400: Murder and Mayhem: Images of Justice in Classical Antiquity**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3400H: Murder & Mayhem: Images of Justice in Classical Antiquity - Honors**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3400W: Murder and Mayhem: Images of Justice in Classical Antiquity - Writing Intensive**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3450: Greek and Roman Characters and Ideals**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3450H: Greek and Roman Characters and Ideals - Honors**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3550: War and Democracy in Late 5th c. BCE Athens**

(same as PEA\_ST 3550). Explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of relentless warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3600: The Ancient Novel**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3600H: The Ancient Novel - Honors**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3650: Paganism and Christianity**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3650H: Paganism and Christianity - Honors**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

---

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3650W: Paganism and Christianity - Writing Intensive**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3700: Women in the Ancient World**

Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3700H: Women in the Ancient World - Honors**

Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3750: Classics in a Cross-Cultural Context**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3750H: Classics in a Cross-Cultural Context - Honors**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3775: The Ancient World on Film**

(same as AR\_H\_A 3775 and FILM\_S 3775). This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3775W: The Ancient World on Film - Writing Intensive**

(same as AR\_H\_A 3775 and FILM\_S 3775). This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

---

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3800: Sports and Spectacles in Greco-Roman Antiquity**

Investigates athletic display in ancient Greek and Roman culture, from its earliest representations in Greek literature to the massive spectacles of the Roman empire, with an emphasis on the intersections between sport and spectacle and other areas of ancient cultural life.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 4005: Topics in Classical Humanities**

Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4100: Greece: From the Bronze Age to the Byzantine Empire**

Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Application required. Graded on A/F basis only.

**Credit Hours:** 6

**Recommended:** CL\_HUM 1060

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**CL\_HUM 4100H: Greece: From the Bronze Age to the Byzantine Empire - Honors**

Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Participants chosen by instructor. Graded on A/F basis only. Application required.

**Credit Hours:** 6

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 4500: Greek and Roman Religion**

(same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4500H: Greek and Roman Religion - Honors**

(same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4550: Literature and Culture of the Hellenistic Age**

(cross-leveled with CL\_HUM 7550). A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4550H: Literature and Culture of the Hellenistic Age - Honors**

A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4600: The Classical Tradition**

Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4600H: The Classical Tradition - Honors**

Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4600HW: The Classical Tradition - Honors/Writing Intensive**

Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4600W: The Classical Tradition - Writing Intensive**

Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4650: The World of Late Antiquity**

(cross-leveled with CL\_HUM 7650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4650H: The World of Late Antiquity - Honors**

A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4770: Oral Tradition**

(same as ENGLSH 4770). Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4770H: Oral Tradition - Honors**

(same as ENGLSH 4770). Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4800: Political Thought in Classical and Christian Antiquity**

(same as POL\_SC 4800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4970: Capstone in Classical Humanities**

Culminating course in the study of Greek and Roman literature and Classical Culture. Required for Classical Humanities majors in first term of senior year.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CL\_HUM 4970H: Capstone in Classical Humanities- Honors**

Culminating course in the study of Greek and Roman literature and Classical Culture. Required for Classical Humanities majors in first term of senior year.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

**Recommended:** for Classical Humanities double-majors

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**CL\_HUM 7005: Topics in Classical Humanities**

Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** any Classical Humanities 3000 level course or instructor's consent

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**CL\_HUM 7550: Literature and Culture of the Hellenistic Age**

(cross-leveled with CL\_HUM 7550). A survey of the literature and culture of the Hellenistic Age. Graded on A-F basis only.

**Credit Hours:** 3

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**CL\_HUM 7650: The World of Late Antiquity**

(cross-leveled with CL\_HUM 4650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

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## Classics Courses

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### CLASS 4100: History of the Greek and Latin Languages

(same as LINGST 4130; cross-leveled with CLASS 7100, LINGST 7130).  
Evolution of classical languages and their relationship to each other.

**Credit Hours:** 3

**Recommended:** GREEK 4300 and LATIN 4300

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### CLASS 4205: Topics in Classical Studies

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Recommended:** GREEK 2000 and LATIN 2000

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### CLASS 4300: Introduction to Text Criticism and Paleography

(cross-leveled with CLASS 7300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Recommended:** GREEK 2000 and LATIN 2000

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### CLASS 4400: Ancient Pastoral

(cross-leveled with CLASS 7400). Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus.

**Credit Hours:** 3

**Recommended:** GREEK 4300 and LATIN 4300

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### CLASS 4700: Advanced Study in the Teaching of the Classics

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### CLASS 4960: Special Readings in Classical Studies

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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### CLASS 4970: Capstone in Classical Languages

Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

**Recommended:** for double-majors

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### CLASS 4970H: Capstone in Classical Languages

Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year. Recommended for double-majors.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Honors eligibility required

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### CLASS 4995H: Honors Proseminar in Classical Studies

Limited to Honors undergraduates. To be taken in senior year. Integrated exploration of classical civilization. May repeat to 6 hours maximum.

**Credit Hour:** 3-6

**Prerequisites:** onors eligibility required

**Recommended:** Senior standing

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### CLASS 7000: Introduction to Graduate Study in Classics

Required of all first-year graduate students.

**Credit Hour:** 1

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### CLASS 7100: History of the Greek and Latin Languages

(same as LINGST 7130; cross-levelled with CLASS 4100, LINGST 4130).  
Evolution of classical languages and their relationship to each other.

**Credit Hours:** 3

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### CLASS 7205: Topics in Classical Studies

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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### CLASS 7300: Introduction to Text Criticism and Paleography

(cross-leveled with CLASS 4300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Prerequisites:** 2 years of Classical Languages or equivalent

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### CLASS 7400: Ancient Pastoral

(cross-leveled with CLASS 4400). Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus.

**Credit Hours:** 3

**Prerequisites:** 2 years each of Greek and Latin

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### CLASS 7700: Advanced Study in the Teaching of the Classics

**Credit Hours:** 3

**Prerequisites:** classroom teaching experience or chairman's consent

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### CLASS 7960: Special Readings in Classical Studies

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** graduate standing and classics/classical humanities; departmental consent; Greek--two years classical Greek or equivalent; Latin--two years Classical Latin or equivalent

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### CLASS 8085: Directed Readings in Classics

For graduate students to undertake special projects for graduate credit under the supervision of faculty.

**Credit Hours:** 3

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### CLASS 8090: Masters Research and Thesis in Classics

For graduate students studying for the MA and working on a thesis to receive credit for work directly related to the thesis. Graded S/U only.

**Credit Hours:** 3

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**CLASS 8440: Ancient/Medieval Topography**

(same as AR\_H\_A 8440). Descriptive and historical analysis of selected city or site. Subject varies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CLASS 9090: PhD Research and Thesis**

Individual research in preparation for writing thesis and/or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-8

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**CLASS 9187: Seminar in Classical Mythology**

Intensive study of classical mythology in origin, development, meaning and influence.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CLASS 9287: Seminar in the Hellenistic Age**

Seminar in the Hellenistic Age

**Credit Hour:** 3-6

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**CLASS 9387: Seminar in Ancient Rhetoric and Oratory**

Seminar in Ancient Rhetoric and Oratory

**Credit Hours:** 3

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**CLASS 9487: Seminar in Ancient Literary Criticism**

Principles and theories of ancient Greek and Latin literary criticism, as developed in significant works on the subject.

**Credit Hours:** 3

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**CLASS 9587: Greco-Roman Didactic**

Critical and comparative study of Greek and Latin didactic poetry with emphasis on major authors from Hesiod through the Augustan Age.

**Credit Hour:** 3-6

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**CLASS 9687: Seminar in Greco-Roman Religion**

Seminar in Greco-Roman Religion

**Credit Hours:** 3

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**CLASS 9787: Seminar in Greco-Roman Satire and Social Criticism**

Seminar in Greco-Roman Satire and Social Criticism

**Credit Hours:** 3

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**CLASS 9887: Seminar in the Age of the Antonines**

Seminar in the Age of the Antonines

**Credit Hour:** 3-6

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**Clinical & Diagnostic Sciences Courses****CDS 2190: Medical Terminology**

Medical terminology based on a word building system. This course is intended for students majoring in health professions, nursing and other helping professions, pre-med and biology.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CDS 3200: Essentials of Pathology**

Provides basic foundation for understanding etiology of disease with emphasis on systemic pathology for non-medical students.

**Credit Hours:** 2

**Recommended:** general biology and one course in either physiology or anatomy

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**CDS 3460: Cardiovascular and Pulmonary Diagnostic Applications I**

(same as RA\_SCI 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases.

Pathophysiology, diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**CDS 3460W: Cardiovascular and Pulmonary Diagnostic Applications I - Writing Intensive**

(same as RA\_SCI 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases.

Pathophysiology, diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**CDS 4001: Topics in Clinical and Diagnostic Science**

Organized study of selected topics in Clinical & Diagnostic Sciences. Topics may vary. Graded on A-F basis only.

**Credit Hour:** 1-99

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**CDS 4085: Problems in Clinical and Diagnostic Sciences**

Supervised investigation in an aspect of Clinical and Diagnostic Sciences usually culminating in a written report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**CDS 4328: Radiation Safety and Biology**

Regulations and procedures for safe uses of radiation to heighten student understanding of radiation physics, radiation biology, and radiation safety. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Junior standing

**Recommended:** One course in Biological Sciences and Physics/Chemistry

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**CDS 4440: Organization and Administration**

(same as RA\_SCI 4440 and RS\_THR 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**CDS 4460: Cardiovascular and Pulmonary Diagnostic Applications II**

Interdisciplinary study of cardiac dysrhythmias, MI, stroke. Application of current American Heart Association Advanced Cardiac Life Support (AHA ACLS) algorithms. Successful completion of this course fulfills AHA ACLS Provider requirements.

**Credit Hours:** 3

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**CDS 4480: Clinical Ethics**

Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

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**CDS 4480W: Clinical Ethics - Writing Intensive**

Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

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**CDS 4500: Emergency and Disaster Management in Healthcare**

This course will provide the student with an orientation the principles of disaster management in the community (both state and federal levels) and the acute care facility. Topics include biological agents, allocation of resources and ethical considerations.

**Credit Hour:** 1

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**CDS 4840: Asthma Education**

This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**CDS 4955: Introduction to Research**

(same as RS\_THR 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**Credit Hours:** 3

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**CDS 4955W: Introduction to Research - Writing Intensive**

(same as RS\_THR 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**Credit Hours:** 3

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**CDS 4985: Healthcare Organization and Leadership**

(same as HLTH\_SCI 4985). In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SC 2100; Senior standing

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**CDS 4985W: Healthcare Organization and Leadership - Writing Intensive**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**CDS 7025: CDS Electronic Communication and Informatics**

The course presents an overview of healthcare informatics pertaining to all clinical and diagnostic sciences (CDS) constituent programs and of medical informatics. The course introduces all possible electronic communication avenues and methods used in clinical and diagnostic sciences. It provides a comprehensive introduction to the applications of information systems in a range of healthcare environments including clinical and diagnostic sciences education, clinical research, and diverse clinical settings where students will be employed upon graduation. It includes extensive readings and critical discussions of relevant professional research literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7027: Techniques for Teaching CDS Courses Traditionally or Online**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course is designed to prepare CDS professionals to design, organize, conduct and evaluate professional educational offerings, including pre-professional didactic and clinical coursework, in-service trainings, and continuing professional education sessions conducted through traditional and/or online formats. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clinical, therapeutic and diagnostic imaging modalities, as well as the relationship between theoretical and practical aspects of teaching techniques specific to CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7110: Management Approaches in CDS**

Clinical and Diagnostic Sciences (CDS) is a multiple discipline program in allied health sciences and medical fields. This course is designed to prepare CDS professionals to effectively explore the variety of styles and effective approaches of management. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clear understanding of the strategic avenues required by the appropriate management methods that lead to a harmonic decorum of integration between multiple programs and departments in CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7112: Leadership Styles in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and apply effective leadership styles and methods in order to be efficient, dynamic, and successful leader. The course will guide the students in developing critical thinking and problem solving strategies necessary to expand their strategic leadership knowledge and skills to function in diverse environments of the CDS fields as integrated units or separately. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7113: Practical Multidiscipline Laboratory Organization in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and effectively apply practical organizational skills when dealing with multidisciplinary clinical laboratory settings. The course will guide the students to explore all available practical methods in order to construct an efficient, dynamic, and flowchart accessible laboratory within the CDS department and the fields. The outcome of this course will augment the student's abilities to develop critical thinking and problem solving strategies necessary to function in diverse laboratory environments within the CDS integrated fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7114: Organizational Design and Dynamics in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and conceptualize the most appropriate model of structure design of an organization as part of the CDS constituent fields and holistically integrated CDS organization as a whole. Students will learn and be instructed to understand the dynamics that occur within the CDS organizational design. The course will guide the students as they explore various examples available for designs of a CDS organization. The outcome of this course will enhance the student's abilities to develop critical thinking and problem solving strategies necessary to function in diverse clinical and diagnostic environments within the CDS integrated fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7116: Administration of Educational Programs in CDS**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course is designed to prepare CDS professionals to effectively administer and articulate with educational programs. The course will guide the student in developing critical thinking and problem solving strategies necessary to implement strategic plans, institute clinical affiliation agreements, establish thoughtful and consistent policies and procedures, evaluate student selection criteria and pursue accreditation for education programs in CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7118: Telecommunication and Reporting in CDS**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course will introduce and prepare CDS professionals to telecommunication avenues of interacting, transmitting, and mobilizing the data and pertinent information to the countless outlets of information distribution areas. The course will provide the professional student with the tools and means to understand how to report all the relevant data and information essential to the process to interact and disseminate significant events and results used within the CDS constituent programs. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clinical, therapeutic, and diagnostic imaging modalities in the process of telecommunication skills and reporting methods among all the CDS fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7840: Asthma Education**

This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**CDS 8001: Topics in Clinical and Diagnostic Sciences**

This course is designed to explore, through selected themes assigned by the instructor, advanced clinical and diagnostic sciences (CDS) topics in psychosocial, professional, educational, and technical areas. The organized study of a specific CDS topic will be conducted in a holistic manner. Graded on A-F basis only.

**Credit Hour:** 1-3

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**CDS 8050: Research in Clinical and Diagnostic Sciences**

This course is designed for the clinical and diagnostic sciences (CDS) programs' graduates and health science degree holders who wish to explore advanced opportunities in CDS through a research component and scientific investigations. It will allow the students to formulate appropriate reasons for pursuing a specific area of interest. The course will provide knowledge about research methodology in CDS, the operation of, and how to conduct a research in a CDS department and in a clinical setting. It will guide the student to develop appropriate research

qualities associated with the CDS constituent programs. The course guides the students in developing independent study and scientific investigation skills. The course does not lead to a thesis or dissertation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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#### **CDS 8085: Problems in Clinical and Diagnostic Sciences**

Clinical and Diagnostic Sciences (CDS) field is still an emerging profession in the medical field. This course is designed to provide a broad overview of multiple "problems" faced by CDS in the health care context. Through a variety of themes exploring theoretical and clinical aspects of the constituent professions, the course will guide the student in developing critical thinking and problem solving strategies necessary in the analysis of the controversial aspects of a chosen subject. Issues will include, but not limited to the role and function of CDS in health care in general and clinical and diagnostic imaging in special, the relationship between theoretical and practical aspects of the imaging modality and clinical aspects (fast pace of advancing technology versus slow pace of clinical application, education, literature of specialty, etc.), ethical and legal issues in the CDS constituent professions, problems faced by a clinical and diagnostic educational program, CDS graduates' role in diagnosis, education, management, and CDS clinical applications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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#### **CDS 8090: Research in Clinical and Diagnostic Sciences**

This course is designed for the clinical and diagnostic sciences (CDS) constituents programs and health science graduates who wish to explore through the methods of scientific research any area of interest in CDS fields. It leads to a thesis or dissertation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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#### **CDS 8920: Applied Research Methodologies in Clinical and Diagnostic Sciences**

Practical research application of clinical and diagnostic sciences (CDS) in a real time clinical environment: exploring the various methods of applied clinical research and how they relate to decision making, patient handling, technical applications, instrumentation and image processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BHS degree in CDS and or allied health professions, and Program and instructor's consent

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### **Clinical Laboratory Sciences Courses**

#### **CL\_L\_S 1000: Orientation to Clinical Laboratory Science**

The class is designed to give prospective Clinical Laboratory Science students clinical experience in the field of Clinical Laboratory Science. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** HLTH\_SCI 1000

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#### **CL\_L\_S 4407: Clinical Laboratory Operations**

This course provides a basic introduction to the theory, practical application, technical performance and evaluation of laboratory skills specific to the practice of clinical laboratory science. Laboratory safety; microscopy; pipetting; general laboratory equipment; quality control; mathematics; phlebotomy; pre-analytic, analytic and post-analytic processes, including specimen collection, processing and transport to maintain test result integrity, will be addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

---

#### **CL\_L\_S 4408: Introduction to Clinical Hematology**

This course introduces the theory, practical application, technical performance and evaluation of hematological and hemostasis procedures. Correlation of laboratory data with the diagnosis of erythrocyte, leukocyte and bleeding/clotting disorders will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4409: Introduction to Clinical Microbiology**

This course introduces the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. The course primarily focuses on bacteriology, but will include introductory coverage of parasitology, mycology and virology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4410: Introduction to Clinical Chemistry and Urinalysis**

This course introduces the theory, practical application, technical performance and evaluation of basic laboratory skills and methods in clinical chemistry and urinalysis. The course focuses on the correlation of laboratory data with the diagnosis of renal conditions, but will include introductory coverage of carbohydrate, liver and protein conditions, as well as enzymes. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4411: Introduction to Clinical Immunohematology**

This course introduces the theory, practical application, technical performance and evaluation of immunohematology procedures required to provide compatible blood components for transfusion. Methods for collection, processing, storage and transfusion of blood and blood components will be presented. Immunohematology procedures that assist in the diagnosis and management of hemolytic conditions will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4412: Clinical Laboratory Science Theory, Application and Correlation**

Application, evaluation and correlation of laboratory procedures used in the diagnosis and treatment of common disease states. Opportunities for building critical thinking, problem solving, and leadership skills

are provided in small group clinical case discussions. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4413: Clinical Endocrinology and Toxicology**

This course introduces the theory, practical application, and evaluation of clinical chemistry laboratory procedures. Correlation of clinical laboratory data with the diagnosis and treatment of endocrine disorders, toxicology disturbances and therapeutic drug monitoring is emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4414: Chemistry I**

Introduction to theory, practical application, technical performance and evaluation of clinical chemistry laboratory procedures.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A-F basis only

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**CL\_L\_S 4415: Chemistry II**

Advanced theory, practical application, technical performance and evaluation of clinical chemistry laboratory procedures. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4416: Clinical Hematology I**

Introduction to the theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on correlations of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4417: Clinical Hematology II**

Advanced theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on the correlation of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4418: Clinical Microbiology I**

Introduction to the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility

testing of infectious disease organisms in humans. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4419: Clinical Microbiology II**

Advanced theory, practical application, technical performance and evaluation procedures for isolation, identification and susceptibility testing of infectious disease in humans; bacteriology, mycology, parasitology, virology and serology and correlation of data with diagnosis and treatment. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4420: Clinical Immunology**

Theory, practical application, and evaluation of immunological components; principles and methods used to assess immunologically-related disorders, including hypersensitivity reactions, autoimmune, immunoproliferative and immunodeficiency disorders, tumors and transplantations. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4422: Immunohematology I**

Introduction to the theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. May be repeated for credit. Graded on A/F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental approval, accepted into the Medical Terminology Program

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**CL\_L\_S 4423: Immunohematology II**

Advanced theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4424: Phlebotomy**

Theory, practical application, technical performance and evaluation of procedures used in collecting, handling and processing blood specimens. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4426: Body Fluid Analysis**

Theory, practical application, technical performance and evaluation of procedures used in the analysis of urine and other body fluids, including

cerebrospinal, synovial, serous, seminal, amniotic and feces. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4442: Clinical Immunohematology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunohematology procedures and preparation of blood components. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4411 Introduction to Clinical Immunohematology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4443: Clinical Immunohematology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunohematology procedures and preparation of blood components. Course content will include new skills procedures, in addition to the skills and procedures presented in CL\_L\_S 4442 Clinical Immunohematology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4444: Clinical Core Laboratory Practicum**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures and the application of automation and automatic verification techniques, building on the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations, CL\_L\_S 4408 Introduction to Clinical Hematology and CL\_L\_S 4410 Introduction to Clinical Chemistry and Urinalysis. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4445: Clinical Core Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4444 Clinical Core Laboratory Practicum. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4448: Clinical Microbiology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4409 Introduction to Clinical Microbiology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4449: Clinical Microbiology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4448 Clinical Microbiology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4970: Clinical Laboratory Management I**

Theory, practical application and evaluation of laboratory management principles and associated models in communication, educational methodology, healthcare systems and financial resources. Opportunities for building critical thinking, problem-solving, and management/professional leadership skills are provided. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4980: Clinical Lab Management II**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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**CL\_L\_S 4980W: Clinical Lab Management II - Writing Intensive**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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## Communication Courses

**COMMUN 1200: Public Speaking**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

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**COMMUN 1200H: Public Speaking - Honors**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**COMMUN 2100: Media Communication in Society**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

**Prerequisites:** freshman, sophomore or junior standing only

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**COMMUN 2100H: Media Communication in Society - Honors**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

**Prerequisites:** freshman, sophomore or junior standing only. Honors eligibility required

---

**COMMUN 2200: Video Workshop: Mizzou Network**

A hands-on workshop; students will participate in all phases of video production (camera operations, directing, graphics, video replay, and live audio production and digital editing) in a variety of live sports Projects. There is no requirement of previous production experience or course work. Course may be repeated an additional two times for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** restricted to Communication majors

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**COMMUN 2315: Basic Audio Production and Performance**

Radio speaking in varied types of programs; console operations, tape editing, microphone techniques.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2701: Topics in Communication - General**

Topics in Communication - General.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2703: Topics in Communication - Behavioral Science**

Topics in Communication - Behavioral Science.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2705: Topics in Communication - Humanities/Fine Arts**

Topics in Communication - Humanities/Fine Arts.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 3050: Survey of Communication Studies**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3050W: Survey of Communication Studies - Writing Intensive**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

---

**COMMUN 3310: Message Design and Writing for the Media**

This course introduces students to writing for the media in various contexts including television, film and new media (e.g., websites and social media).

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100. May be restricted to Communication majors only during early registration

---

**COMMUN 3315: Advanced Audio Production**

The study and application of techniques applicable to radio, television, and multimedia production with an emphasis on digital audio workstation systems.

**Credit Hours:** 3

**Prerequisites:** COMMUN 2315. May be restricted to Communication majors only during early registration

---

**COMMUN 3390: Digital Production I**

Focus on building familiarity with video cameras, microphones, lighting, editing as well as the fundamentals of visual composition, (framing, camera angles, story boards, and ways to visualize information) and processes and procedures for producing and directing.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3395: Digital Production II**

Focus on advanced production work; more elaborate projects including digital shorts, music videos, and short documentaries; advanced editing, storyboards, and emphasis on developing narrative structure.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 or instructor's consent. May be restricted to Communication majors only during early registration

---

**COMMUN 3422: Communication Research Methods**

Focuses on writing and administering surveys, conducting field research, and designing experimental studies.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3441: Nonverbal Communication**

Analysis of form and content of nonverbal communication. Emphasis on role of nonverbal cues in interpersonal communication.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

---

**COMMUN 3460: Organizational Advocacy**

Theory and analysis of communication to promote organizational culture and image.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors during early registration

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**COMMUN 3470: Culture as Communication**

(same as ANTHRO 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3490: Mass Media Theory**

Survey of the theories of mass communication.

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100 or senior standing. May be restricted to Communication majors only during early registration

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**COMMUN 3525: Conflict and Communication**

Theory and analysis of communication in conflict situations across a variety of contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. May be restricted to Communication majors only during early registration

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**COMMUN 3561: Relational Communication**

Analysis of communication influences on relational identities and development.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3570: Performance of Literature**

(same as ENGLISH 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**COMMUN 3571: Group Decision Making Processes**

(same as PEA\_ST 3521). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3572: Argument and Advocacy**

Critical analysis and production of argument emphasizing evidence, reasoning, and refutation.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200. May be restricted to Communication majors only during early registration

---

**COMMUN 3575: Business and Professional Communication**

Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

---

**COMMUN 3580: Crisis Communication**

The theory and practice of corporate and political communication responses to crisis situations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

---

**COMMUN 3636: Contemporary Issues in Mass Communication**

Introduction to current issues and trends and relationship among the new technologies, policies, and potential impact on society.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 2100. May be restricted to Communication majors only during early registration

---

**COMMUN 3701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200 and COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3703: Topics in Communication-Behavioral Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 3705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

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**Prerequisites:** junior standing and instructor's consent. May be restricted to Communications majors only during early registration

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**COMMUN 3705H: Topics in Communication-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communications majors only during early registration. Honors eligibility required

---

**COMMUN 4395: Professional Seminar in Television Production**

Application of principles to advanced television production, direction.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4412: Gender, Language, and Communication**

(same as LINGST 4412, ANTHRO 4412; cross-leveled with COMMUN 7412, LINGST 7412, ANTHRO 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4415: Language and Discourse**

(same as LINGST 4415; cross-leveled with COMMUN 7415, LINGST 7415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4440: Ethical Issues in Communication**

(same as PEA\_ST 4440; cross-leveled with COMMUN 7440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4473: Political Communication**

(cross-leveled with COMMUN 7473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4474: Theory and Research in Persuasion**

(cross-leveled with COMMUN 7474). Studies the persuasive process, attitude formation, modification.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4476: Organizational Communication**

(cross-leveled with COMMUN 7476). Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

---

**COMMUN 4481: Principles of Rhetoric**

(cross-leveled with COMMUN 7481). Development of rhetoric from time of Corax with emphasis on Aristotle; derivation, application of standards for judging effectiveness in communication.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200, junior standing and departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4520: Family Communication**

(same as H\_D\_FS 4680; cross-leveled with COMMUN 7520, H\_D\_FS 7680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4530: Health Communication**

A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

---

**COMMUN 4618: Television Program Analysis and Criticism**

Development of critical viewing skills including analysis of program conventions, genres, and television aesthetics.

**Credit Hours:** 3

**Prerequisites:** junior standing. May be restricted to Communication Majors only during early registration

---

**COMMUN 4628: Children, Adolescents and the Media**

Focus on social scientific research concerning the mass media in the lives of children and adolescents. The course centers on media effects literature and controversies relevant to child and adolescent media users. Course involves readings, lectures, discussions of theories, concepts, methods, and finding. We will also consider social implication and personal choices in media use. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing required

---

**COMMUN 4638: New Technologies and Communication**

Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3



**Prerequisites:** junior standing or instructor's consent. May be restricted to Communication Majors only during early registration

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**COMMUN 4701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4703: Topics in Communication-Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4940: Internship**

Directed professional experience within and outside the University in communication-related fields or organizations. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Admission to department, junior standing, instructor's consent, 2.5 GPA

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**COMMUN 4950: Research Project**

Student contributes to a research project with approved goals and a final written report. As part of the project, student will read articles in the communication research literature. Project can be independent or in conjunction with a faculty research project. Course may be repeated once for credit. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** COMMUN 3050; junior standing and instructor's consent. Approval by a faculty member who will serve as project supervisor

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**COMMUN 4960: Directed Reading**

Independent reading, reports.

**Credit Hour:** 1-99

**Prerequisites:** junior standing or instructor's consent

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**COMMUN 4974: Senior Project**

Integration and adaptation of communication theories to an applied communication problem. Required for all majors.

**Credit Hours:** 3

**Prerequisites:** admission to department, senior standing, and departmental consent

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**COMMUN 4975: Visual Literacy**

Integration of theory and practice. The theoretical component of the class is grounded in the study of visual literacy and the practice component will focus on documentary filmmaking. May not be taken by graduate students. It is a capstone course for undergraduate students only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390, senior standing; Admission to the department

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**COMMUN 4996H: Honors in Communication**

Special work for Honors candidates in communication.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent. Honors eligibility required

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**COMMUN 4997: Honors in Communication**

Special work for Honors candidates in communication.

**Credit Hours:** 2

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**COMMUN 4997H: Honors in Communication**

Special work for Honors candidates in communication.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent. Honors eligibility required

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**COMMUN 7412: Gender, Language, and Communication**

(same as LINGST 7412, ANTHRO 7412; cross-leveled with COMMUN 4412, LINGST 4412, ANTHRO 4412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**COMMUN 7415: Language and Discourse**

(same as LINGST 7415; cross-leveled with COMMUN 4415, LINGST 4415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

**Prerequisites:** departmental consent

---

**COMMUN 7440: Ethical Issues in Communication**

(cross-leveled with COMMUN 4400, PEA\_ST 4440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** graduate standing or departmental consent

---

**COMMUN 7473: Political Communication**

(cross-leveled with COMMUN 4473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** graduate standing or departmental consent

---

**COMMUN 7474: Theory and Research in Persuasion**

(cross-leveled with COMMUN 4474). Studies the persuasive process, attitude formation, modification.

**Credit Hours:** 3

---

**Prerequisites:** COMMUN 3576 and departmental consent

---

**COMMUN 7476: Organizational Communication**

(cross-leveled with COMMUJN 4476). Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3571 or departmental consent

---

**COMMUN 7481: Principles of Rhetoric**

(cross-leveled with COMMUN 4481). Development of rhetoric from time of Corax with emphasis on Aristotle; derivation, application of standards for judging effectiveness in communication.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200, and departmental consent

---

**COMMUN 7520: Family Communication**

(same as H\_D\_FS 7680; cross-leveled with COMMUN 4520, H\_D\_FS 4680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

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**COMMUN 7530: Health Communication**

A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

---

**COMMUN 7618: Television Program Analysis and Criticism**

Development of critical viewing skills including analysis of program conventions, genres, and television aesthetics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**COMMUN 7638: New Technologies and Communication**

Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3

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**COMMUN 8001: Topics in Communication-General**

Study of selected topics in Communication. Topic and credit may vary semester to semester. Repeatable upon consent of department.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 8085: Problems**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8090: Master's Thesis Research in Communication**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**Prerequisites:** instructor's consent

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**COMMUN 8110: Introduction to Graduate Study in Communication**

Orientation to the field. Introduction to research methods. Production of research proposal. Emphasizes scholarly style of writing.

**Credit Hours:** 3

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**COMMUN 8120: Seminar in Quantitative Methods in Communication**

Quantitative methods of speech research.

**Credit Hours:** 3

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**COMMUN 8130: Topics in Qualitative Research Methods**

Examination of assumptions and techniques of qualitative methods adopting an interpretive framework for analyzing communication phenomena. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 8140: Content Analysis**

Methods of Content Analysis; including consideration of reliability, validity Computer content analysis, codebooks.

**Credit Hours:** 3

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**COMMUN 8150: Seminar in Media Criticism**

Examination and application of various critical methodologies to media texts.

**Credit Hours:** 3

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**COMMUN 8160: Rhetorical Criticism**

Principles, practice criticism (description, analysis, evaluation) of rhetorical artifacts.

**Credit Hours:** 3

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**COMMUN 8170: Seminar in Quantitative Methods in Communication II**

The focus of this course will be the study and practice of various multivariate statistical methods commonly used in communication research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 8120; instructor's consent required

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**COMMUN 8310: Seminar in Interpersonal Communication**

Examines theory and research concerning face-to-face dyadic interactions. Emphasis on context of interpersonal communication events and processes of interactional management.

**Credit Hours:** 3

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**COMMUN 8410: Seminar in Organizational Communication Theory**

Exploration of the theoretical foundations of interpersonal communication in the organization, groups and team development, leadership, organizational decision making, motivation and power, bureaucracy, new information technologies, organizational effectiveness and the change process.

**Credit Hours:** 3

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**COMMUN 8420: Seminar in Small Group Communication**

Identifies and analyzes theories and variables which explain, predict, and/or influence small group communication.

**Credit Hours:** 3

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**COMMUN 8510: Seminar in Mass Communication Theory**

This course will offer graduate students a broad overview of extant theories employed in the study of mass communication and mass media effects. The class will focus on theories of society, theories of media, and the relationships between mass communication and culture. It will also focus on theories of media structures, media organizations, media content, audiences, and media effects.

**Credit Hours:** 3

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**COMMUN 8610: Survey of Political Communication**

Survey of theory and research on political communication; emphasis on messages and audience responses to messages.

**Credit Hours:** 3

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**COMMUN 9050: Research**

Completes comprehensive exams and writes a literature review.

**Credit Hour:** 1-9

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**COMMUN 9090: Doctoral Dissertation Research in Communication**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 9170: Research Practicum**

Student conducts research under close supervision of faculty mentor. Goal: produce research report suitable for submission as convention paper, article, or book chapter. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** consent of mentor required; for advanced graduate students

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**COMMUN 9280: Seminar in Communication Theory**

Examines the nature of theory, the assumptions underlying theoretical approaches to communication, and surveys themes in contemporary communication theories.

**Credit Hours:** 3

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**COMMUN 9310: Seminar in Family Communication**

Examines research and theory of family communication; focus on family communication patterns and processes, emphasis on key conceptual, methodological and theoretical aspects of family communication scholarship and research on family forms, processes and outcomes. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 9330: Topics in Interpersonal Communication**

The course will review theory and research on topics related to the study of communication and interpersonal relationships. Subjects will rotate and include areas such as relational conflict, gender communication, nonverbal communication, intercultural communication, or interpersonal violence and communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 9430: Topics in Organizational Communication**

Examination of theory and research in selected areas of organizational communication. Topics vary by semester. Topics may include socialization, power, gender, emotions, and others. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 9460: Topics in Political Communication**

Examination of theory and research in selected areas of political communication. Topics vary by semester. Topics may include political polarization, political socialization, politics and the media, political advertising, politics and new media.

**Credit Hours:** 3

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**COMMUN 9520: Seminar in Mass Media Effects**

Explores current research in the processes and effects of mass communication. Readings pertain to the current social and psychological effects of media on viewers.

**Credit Hours:** 3

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**COMMUN 9530: Topics in Mass Communication**

Examination of theory and research in selected areas of media communication. Topics vary by semester. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 9610: Seminar in Disaster, Crisis, and Risk**

This course examines several lines of research from multiple disciplines that influence communication during disasters, crises, and emergencies. The course takes a phased approach to disasters, covers Federal government paradigms for disaster communication; crisis communication from an organizational and public relations perspective, risk perception, role of social media and emerging technologies in disasters, media coverage of disasters, and communication and recovery, resilience, and growth.

**Credit Hours:** 3

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**COMMUN 9620: Political Campaign Debates**

Theory and research on political campaign debates applied to analyses of candidate debates. Focus on primary and general presidential debates.

**Credit Hours:** 3

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**COMMUN 9630: Political Advertising**

Theory and research on political advertising applied to analyses of candidate advertisements. Focus on primary and general presidential television spots and web pages.

**Credit Hours:** 3

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**COMMUN 9720: Seminar in Theories of Rhetoric and Criticism**

Directed research on selected topics in rhetorical theory and criticism.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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## Communication Science And Disorders Courses

**C\_S\_D 1000: Introduction to Communication Science and Disorders**

Nature of communication and its development; types of speech, language and hearing disorders; professional preparation, settings, and work of speech-language pathologists and audiologists. Course graded on S/U basis only.

**Credit Hour:** 1

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**C\_S\_D 1050: Signed English**

Introduction to the English-based sign system, Signed English, a system that has been developed to bridge the gap between English and American Sign Language. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication, Science and Disorder majors only during Early Registration

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**C\_S\_D 1060: Human Language**

(same as ANTHRO 1060, LINGST 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**C\_S\_D 1100: American Sign Language I**

Introduction to American Sign Language (ASL). Development of basic expressive and receptive skills in ASL, the manual alphabet, numbers, and signed vocabulary. Includes an overview of ASL syntax and grammar. Course graded on A-F basis only.

**Credit Hours:** 5

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**C\_S\_D 1200: American Sign Language II**

This course is designed to increase students' understanding of American Sign Language. Students will increase their sign vocabulary, expressive and receptive skills, an understanding of ASL syntax and grammar. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** C\_S\_D 1100 or equivalent

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**C\_S\_D 2120: Survey of Communication Disorders**

Systematic survey of the disorders of speech, language and hearing.

**Credit Hours:** 3

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**C\_S\_D 2150: American Sign Language III**

This course expands on vocabulary and signing skills developed in ASL II. Includes review of ASL grammar and extensive discussions of ASL linguistic structure and Deaf culture. Class is conducted entirely in ASL. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C\_S\_D 1200 with minimum grade of C or instructor's consent

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**C\_S\_D 3010: American Phonetics**

(same as LINGST 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication Science and Disorders majors only

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**C\_S\_D 3020: Normal Language Development**

Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes; language sample analysis; relationship between spoken and written language.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 3020W: Normal Language Development - Writing Intensive**

Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes; language sample analysis; relationship between spoken and written language.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 3210: Anatomy and Physiology of the Speech Mechanism**

(same as LINGST 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 3220: Speech Acoustics**

(same as LINGST 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only or instructor's consent

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**C\_S\_D 3230: Hearing Science**

Introduction to the nature of sound and its measurement; anatomy and physiology of the auditory and vestibular systems; psychoacoustic methods and phenomena.

**Credit Hours:** 3

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**C\_S\_D 4001: Topics in Communication Science and Disorders**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with program consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**C\_S\_D 4020: Language Disorders in Children**

Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 4020W: Language Disorders in Children - Writing Intensive**

Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorder majors only

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**C\_S\_D 4030: Language Disorders of Adults**

Introduction to acquired adult language disorders. Review of neuroanatomy/physiology, etiology and symptomatology, with introduction to assessment and treatment procedures.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 4050: Clinical Applications of Sign Language**

(cross-leveled with C\_S\_D 7050). This course covers research, theory, and methods of using sign language to assist the communication of the Deaf, individuals with disabilities, and hearing learners. Use of sign language to improve literacy and classroom management will also be targeted. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

**Recommended:** C\_S\_D 1050 or C\_S\_D 1100 or equivalent

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**C\_S\_D 4210: Fluency Disorders**

Introduction to the nature, assessment, and treatment of fluency disorders. Emphasis on developmental stuttering.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4220: Voice Disorders**

Introduction to voice disorders in children and adults. Includes overview of perceptual and instrumental assessment procedures and selected treatment approaches.

**Credit Hour:** 1

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4320: Disorders of Phonology and Articulation**

Overview of disorders of use and production of speech sounds with an emphasis on developmental disorders. Introduction to assessment and treatment.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 4330: Introduction to Audiology**

Principles and techniques of audiological testing; etiologies of hearing impairment; current technologies in rehabilitation.

**Credit Hours:** 3

**Prerequisites:** C\_S\_D 3230; Communication Science and Disorders majors only or instructor's consent

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**C\_S\_D 4340: Aural Rehabilitation**

(cross-leveled with C\_S\_D 7340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 4430: Neurophysiology for Speech, Language, and Hearing**

(cross-leveled with C\_S\_D 7430). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

**Prerequisites:** Communications Science and Disorders majors only

---

**C\_S\_D 4810: Psycholinguistics**

(same as LINGST 4810; cross-leveled with C\_S\_D 7810, LINGST 7810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**C\_S\_D 4820: Speech Perception**

(same as LINGST 4820; cross-leveled with C\_S\_D 7820, LINGST 7820). Selected topics in the perceptual processing of speech sounds and spoken language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**C\_S\_D 4830: Individual Differences in Language Processing**

(cross-leveled with C\_S\_D 7830). Examination of the normal variations exhibited across individuals in the acquisition, use, and representation of language. Also considered are individual differences seen in second language learning, the aging process, and language disorders.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**C\_S\_D 4840: Language and Development in Infancy**

(cross-leveled with C\_S\_D 7840). Overview of theory and research on the foundations and development of language in infancy (0 to 2

years), with an emphasis on relevant, interrelated areas of development, individual differences, early recognition of delay, and assessment.

**Credit Hours:** 3

**Prerequisites:** senior standing required. Instructor's consent required

---

**C\_S\_D 4900: Clinical Observation in Communication Disorders**

Directed clinical observations designed to prepare the student for clinical practicum. Required for professional certification. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4945: Clinical Apprenticeship in Communication Disorders**

Supervised observation and clinical experience in speech-language pathology for undergraduates.

**Credit Hour:** 1-3

**Prerequisites:** senior standing and departmental consent. Communication Science and Disorders majors only

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**C\_S\_D 4950: Research Apprenticeship**

Research apprenticeship with a faculty member, assisting in the development and execution of research in communication processes and disorders. May be repeated to 6 hrs. maximum.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 4960: Directed Reading in Communication Science and Disorders**

Independent reading; reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 4990: Honors Thesis**

Individual honors thesis on a topic selected with a faculty advisor. Requires planning, conducting, and writing up a research project under the guidance of a faculty member. Successful completion of thesis and maintenance of 3.3 GPA, leads to degree with departmental honors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing; 3.3 GPA; 3.5 GPA in Communication Science and Disorders courses; instructor's consent. Restricted to Communication Science and Disorders students only

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**C\_S\_D 7001: Topics in Communication Science and Disorders**

Study of selected topics in speech pathology/audiology. Topic and credit may vary from semester to semester. May be repeated for credit with instructor and departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 7050: Clinical Applications of Sign Language**

(cross-leveled with C\_S\_D 4050). This course covers research, theory, and methods of using sign language to assist the communication of the Deaf, individuals with disabilities, and hearing learners. Use of sign

language to improve literacy and classroom management will also be targeted. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

**Recommended:** C\_S\_D 1050 or C\_S\_D 1100 or equivalent

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**C\_S\_D 7085: Problems in Communication Science and Disorders**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 7340: Aural Rehabilitation**

(cross-leveled with C\_S\_D 4340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 7430: Neurophysiology for Speech, Language, and Hearing**

(cross-leveled with C\_S\_D 4430). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors or instructor's consent

---

**C\_S\_D 7810: Psycholinguistics**

(same as LINGST 7810; cross-leveled with C\_S\_D 4810, LINGST 4810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**C\_S\_D 7820: Speech Perception**

(same as LINGST 7820; cross-leveled with C\_S\_D 4820, LINGST 4820). Selected topics in the perceptual processing of speech sounds and spoken language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**C\_S\_D 7830: Individual Differences in Language Processing**

(cross-leveled with C\_S\_D 7830). Examination of the normal variations exhibited across individuals in the acquisition, use, and representation of language. Also considered are individual differences seen in second language learning, the aging process, and language disorders.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**C\_S\_D 7840: Language and Development in Infancy**

(cross-leveled with C\_S\_D 4840). Overview of theory and research on the foundations and development of language in infancy (0 to 2 years), with an emphasis on relevant, interrelated areas of development, individual differences, early recognition of delay, and assessment.

**Credit Hours:** 3

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**C\_S\_D 8001: Topics in Communication Science and Disorders**

Study of selected topics in speech pathology/audiology. Topic and credit may vary from semester to semester. May be repeated for credit with instructor and departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, instructor's

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**C\_S\_D 8020: Developmental Language Disorders**

Nature, etiology, assessment and management of childhood language disorders.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8030: Acquired Language Disorders**

Etiology, symptomatology, assessment and rehabilitation of acquired neurogenic communication disorders in aphasia, traumatic brain injury, and dementia.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8050: Research in Communication Science and Disorders**

Independent research leading to a report but not to a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 8085: Problems in Communication Science and Disorders**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 8087: Seminar: Contemporary Topics in Speech-Language Pathology**

Advanced study involving critical literature review and research on selected topics in speech and language. May be repeated for up to 6 credits.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 8090: Research in Communication Science and Disorders**

Research leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. Graded on a S/U basis only

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**C\_S\_D 8200: Motor Speech Disorders**

Etiology, symptomatology, epidemiology, and prognosis of motor speech disorders resulting from acquired neurological damage. Emphasis on clinical assessment and rehabilitation procedures. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8210: Disorders of Fluency**

Identification and remediation of fluency disorders in children and adults.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8225: Voice Science and Voice Disorders**

Diagnosis and management of communicative disorders resulting from pathologies or misuse of the phonatory system. Includes experience with pertinent laboratory instrumentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to MHS CSD students; or with instructor's consent

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**C\_S\_D 8230: Dysphagia**

Etiology, symptomatology, and epidemiology of acquired and developmental swallowing disorders (dysphagia). Emphasis on instrumental and non-instrumental methods for assessing and treating dysphagia.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8240: Orofacial Anomalies**

Nature, causes, diagnosis, and treatment of disorders of communication associated with congenital orofacial anomalies. Emphasis on cleft palate.

**Credit Hour:** 1

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8250: Clinical Methods in Speech-Language Pathology**

An introduction to clinical procedures and evidence-based intervention methods relating to speech and language disorders. Topics include session design, data collection, measurement of progress, reporting of clinical results, and various treatment options. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8260: Diagnosis in Speech-Language Pathology**

General principles of diagnosis; specific diagnostic tools and procedures for various speech and language disorders.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8300: Neurological Bases of Speech and Language**

Structure and function of the human brain and nervous system including general organization, cranial nerves, basal ganglia, cerebellum, and descending motor pathways as related to the field of speech language pathology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

---

**C\_S\_D 8320: Speech Sound Disorders**

Principles of clinical assessment and treatment for speech sound disorders in children. Includes foundations in research on early speech sound acquisition, organic and developmental disorders, and treatment efficacy. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

---

**C\_S\_D 8420: Reading and Language Disabilities in School-Age Children**

Theories, research, and practice in reading development and disorders. Assessment and remediation of reading disabilities related to language disorders of various etiologies including developmental language disorders and head injury.

**Credit Hours:** 2

**Prerequisites:** C\_S\_D 4020 or C\_S\_D 8020

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**C\_S\_D 8430: Augmentative and Alternative Communication**

Students will learn the principles of AAC assessment, methods of intervention, and types of technology available for individuals unable to communicate fully through speech. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

---

**C\_S\_D 8500: Issues in Professional Practice**

Organizational, inter-professional, economic, legal, and ethical aspects of delivering speech, language, and hearing services. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

---

**C\_S\_D 8600: Clinical Language Analysis**

This course provides a theoretical framework for understanding the morphology, semantics, syntax, and pragmatics of English as well as practice in the analysis of typical and atypical language samples. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8935: Clinical Practice in Audiology**

Supervised practice in hearing screening, hearing conservation, and aural re/habilitation. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

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**C\_S\_D 8945: Clinical Practice in Speech-Language Pathology**

Supervised clinical practice in speech pathology for graduate students. May be repeated for credit.

**Credit Hour:** 1-10

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8960: Directed Reading in Communication Science and Disorders**

Independent reading; reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 9050: Research in Communication Science and Disorders**

Independent research leading to a report but not to a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 9087: Seminar: Contemporary Topics in Speech-Language Pathology**

Advanced study involving critical literature review and research on selected topics in speech and language. May be repeated for up to 6 credits.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 9090: Research in Communication Science and Disorders**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Computer Science Courses

**CMP\_SC 1000: Introduction to Computer Science**

This course introduces the Computer Science field, including the history of computers, career opportunities, and ethical/social issues. There will be lectures given by MU Computer Science faculty to discuss exciting fields as well as career advisement given by Computer Science industry representatives. Prerequisites: Restricted to freshman/sophomore students who are BS Computer Science, BS Information Technology and Undeclared Engineering or Pre-Engineering may enroll in the class without permission

**Credit Hour:** 1

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**CMP\_SC 1001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 1050: Algorithm Design and Programming I**

This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1100 or MATH 1160 or MATH 1500. May be restricted to Engineering majors only

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**CMP\_SC 2001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 2050: Algorithm Design and Programming II**

A study of fundamental techniques and algorithms for representing and manipulating data structures. Topics include data abstraction, recursion,



stacks, queues, linked lists, trees, efficient methods of sorting and searching, and Big-O analysis.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 1050. May be restricted to Engineering majors only

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#### **CMP\_SC 2111: Production Languages**

The study of the syntax, semantics, and applications of one programming language suitable for large scale scientific or commercial projects, such as FORTRAN, COBOL, PL/1, C, or ADA. May be taken more than once for credit.

**Credit Hour:** 1-3

**Prerequisites:** C- or higher in CMP\_SC 2050

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#### **CMP\_SC 2270: Introduction to Digital Logic**

Basic tools, methods and procedures to design combinational and sequential digital circuits and systems, including number systems, boolean algebra, logic minimization, adder design, memory elements, and finite state machine design.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 1050

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#### **CMP\_SC 2830: Introduction to the Internet, WWW and Multimedia Systems**

This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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#### **CMP\_SC 3001: Topics in Computer Science**

Current and new technical developments in computer science. May be repeated for 6 hours credit.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent. For juniors and seniors

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#### **CMP\_SC 3050: Advanced Algorithm Design**

This class surveys fundamental algorithms and data structures that have wide practical applicability, including search trees and graph algorithms. Emphasis is placed on techniques for efficient implementation and good software development methodologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 with a C or higher

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#### **CMP\_SC 3280: Computer Organization and Assembly Language**

Introduces computer architectures, programming concepts including parameter passing, I/O, interrupt handling, DMA, memory systems, cache, and virtual memory. Graded of A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2270 or ECE 1210

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#### **CMP\_SC 3330: Object Oriented Programming**

This course focuses on object-oriented programming concepts: abstraction, polymorphism, encapsulation, inheritance, interfaces, abstract classes, files, streams, and object serialization. Topics such as GUI and event-driven programming are also tackled.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 with a C or higher grade

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#### **CMP\_SC 3380: Database Applications and Information Systems**

Covers fundamental topics of database management systems (DBMS) and database-enabled applications. Topics include a brief history of secondary storage and databases, data modeling, introductory SQL, an overview of current database trends, and current popular database systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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#### **CMP\_SC 3530: UNIX Operating System**

Introduction to the UNIX operating system and its interfaces including the file system, shell, editors, pipes and filters, input/output system, shell programming, program development including C, and document preparation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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#### **CMP\_SC 3940: Internship in Computer Science**

Computer-related experience in business or industry jointly supervised by faculty and computer professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** CMP\_SC 2050

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#### **CMP\_SC 4001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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#### **CMP\_SC 4050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 7050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 2320

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#### **CMP\_SC 4060: String Algorithms**

(cross-leveled with CMP\_SC 7060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4050

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**CMP\_SC 4070: Numerical Methods for Science and Engineering**

(cross-leveled with CMP\_SC 7070). Introduces basic numerical methods widely used by computer scientists/engineers. Students will use the MATLAB platform to computationally solve problems, such as finding roots of nonlinear equations, solving systems of equations, fitting curves, solving ODEs, finding eigenvalues, etc. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and junior standing or instructor's consent

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**CMP\_SC 4080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 7080) This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210 and C- or higher in CMP\_SC 3050 or ECE 3220

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**CMP\_SC 4085: Problems in Computer Science**

Independent investigation or project in Computer Science. May be repeated to up 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** senior standing in Computer Science

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**CMP\_SC 4270: Computer Architecture I**

(cross-leveled with CMP\_SC 7270). Architectural features of high-performance computer systems including hierarchical and virtual memory, pipelining, vector processing and an introduction to multiple-processor systems.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2270 and CMP\_SC 2050

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**CMP\_SC 4280: Network Systems Architecture**

(same as ECE 4280; cross-leveled with CMP\_SC 7280, ECE 7280). The course covers network systems (interconnects and switch fabrics, network considerations) and relevant networking applications at the network, transport and application layer.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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**CMP\_SC 4320: Software Engineering I**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3380

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**CMP\_SC 4320W: Software Engineering I - Writing Intensive**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3380

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**CMP\_SC 4330: Object Oriented Design I**

(cross-leveled with CMP\_SC 7330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330

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**CMP\_SC 4350: Big Data Analytics**

(cross-leveled with CMP\_SC 7350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 and CMP\_SC 3380

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**CMP\_SC 4380: Database Management Systems I**

(cross-leveled with CMP\_SC 7380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3380

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**CMP\_SC 4410: Theory of Computation I**

(cross-leveled with CMP\_SC 7410). An introductory study of computation and formal languages by means of automata and related grammars. The

theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320

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**CMP\_SC 4430: Compilers I**

(cross-leveled with CMP\_SC 7430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for block structured languages, and run-time storage organization. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320, CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 4440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 7440). Malicious software or "malware" is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and teaches ethical issues surrounding computer security violations.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210

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**CMP\_SC 4450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 7450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 4460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 7460). Cryptography is an important technique used to achieve security goals in an untrusted and possibly adversarial environment. The goals of this course are: (1) to provide students with a solid background with basic cryptographic techniques and their applications, (2) to impart knowledge of standard cryptographic algorithms and (3) to foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 2320

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**CMP\_SC 4520: Operating Systems I**

(cross-leveled with CMP\_SC 7520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 1700

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**CMP\_SC 4530: Cloud Computing**

(cross-leveled with CMP\_SC 7530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 or instructor's consent

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**CMP\_SC 4610: Computer Graphics I**

(cross-leveled with CMP\_SC 7610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 1500 or C- or higher in CMP\_SC 3050 and MATH 1300 and MATH 1400

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**CMP\_SC 4620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 7620). This course introduces students to physically based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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**CMP\_SC 4650: Digital Image Processing**

(same as ECE 4655; cross-leveled with CMP\_SC 7650, ECE 7655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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**CMP\_SC 4670: Digital Image Compression**

(same as ECE 4675; cross-leveled with ECE 7675, CMP\_SC 7670). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 4720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 4720; cross-leveled with ECE 7720, CMP\_SC 7720)

This course provides foundations and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

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**CMP\_SC 4730: Building Intelligent Robots**

(same as ECE 4340; cross-leveled with CMP\_SC 7340, ECE 7340).

Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Prerequisites:** junior standing

**Recommended:** programming experience in one of the following programming languages - Basic, C, C++, or Java

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**CMP\_SC 4740: Interdisciplinary Introduction to NLP**

(same as LINGST 4740; cross-leveled with CMP\_SC 7740; LINGST 7740).

The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**CMP\_SC 4750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 7750). Introduction to the concepts and theories of intelligent systems. Various approaches to creating intelligent systems, including symbolic and computational approaches, insight into the philosophical debates important to understanding AI.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and junior standing

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**CMP\_SC 4770: Introduction to Computational Intelligence**

(same as ECE 4870; cross-leveled with CMP\_SC 7770, ECE 7870).

Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 4830: Science and Engineering of the World Wide Web**

(cross-leveled with CMP\_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

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**Prerequisites:** C- or higher in CMP\_SC 2830

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**CMP\_SC 4850: Computer Networks I**

(cross-leveled with CMP\_SC 7850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2270 or ECE 1210 and C- or higher in MATH 2320

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**CMP\_SC 4860: Network Security**

(cross-leveled with CMP\_SC 7860). Principles and practice of cryptography, network security, and computer system security. It includes symmetric and asymmetric cryptography, authentication, security applications such as secure email, IP security, Web security, and system security issues such as intruders, viruses, worms, Trojan horses, and firewalls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4850

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**CMP\_SC 4870: Wireless and Mobile Networks**

(cross-leveled with CMP\_SC 7870). Concepts and techniques in wireless and mobile networks: cellular concepts, wireless physical layer, wireless MAC protocol, mobility management, power management, wireless network security, wireless telecommunication system, wireless LAN, wireless ad hoc networking, wireless personal area network. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4850

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**CMP\_SC 4970: Senior Capstone Design I**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4970W: Senior Capstone Design I - Writing Intensive**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4980: Senior Capstone Design II**

Course entails completion of CMP\_SC 4970 design project. Design prototyping, testing, evaluation, presentation, and preparation of documentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4970

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**CMP\_SC 4990: Undergraduate Research in Computer Science**

Independent investigation or project in Computer Science. May be repeated to 6 hours.

**Credit Hour:** 0-6

**Prerequisites:** senior standing in Computer Science

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**CMP\_SC 4995: Undergraduate Research in Computer Science - Honors**

Independent investigation to be presented as an undergraduate honors thesis.

**Credit Hour:** 1-6

**Prerequisites:** honors student in Computer Science

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**CMP\_SC 7001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 7010: Computational Methods in Bioinformatics**

(same as INFOINST 7010) Introduces the fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis will be placed on the computational aspect of bioinformatics, including formulation of a biological problem in a computable problem, design of scoring functions and algorithms, confidence assessment of prediction results and software development.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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**CMP\_SC 7050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 4050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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**CMP\_SC 7060: String Algorithms**

(cross-leveled with CMP\_SC 4060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 7070: Numerical Methods for Science and Engineering**

(cross-leveled with CMP\_SC 4070). Introduces basic numerical methods widely used by computer scientists/engineers. Students will use the MATLAB platform to computationally solve problems, such as finding roots of nonlinear equations, solving systems of equations, fitting curves, solving ODEs, finding eigenvalues, etc. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 or instructor's consent

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**CMP\_SC 7080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 4080). This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280 or ECE 3210 and CMP\_SC 3050 or ECE 3220

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**CMP\_SC 7087: Seminar in Computer Science**

Reviews of recent investigations, projects of major importance.

**Credit Hour:** 1

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**CMP\_SC 7270: Computer Architecture I**

(cross-leveled with CMP\_SC 4270). Architectural features of high-performance computer systems including hierarchical and virtual memory, pipelining, vector processing and an introduction to multiple-processor systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2270 and CMP\_SC 2050

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**CMP\_SC 7280: Network Systems Architecture**

(same as ECE 7280; Cross-leveled with CMP\_SC 4280). The course covers network systems (interconnects and switch fabrics, network considerations) and relevant networking applications at the network, transport and application layer.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 or ECE 3200 and CMP\_SC 3280 or ECE 3210

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**CMP\_SC 7320: Software Engineering I**

(cross-leveled with CMP\_SC 4320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3380

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**CMP\_SC 7330: Object Oriented Design I**

(cross-leveled with CMP\_SC 4330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and

information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330

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#### **CMP\_SC 7350: Big Data Analytics**

(cross-leveled with CMP\_SC 4350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 3380

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#### **CMP\_SC 7380: Database Management Systems I**

(cross-leveled with CMP\_SC 4380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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#### **CMP\_SC 7410: Theory of Computation I**

(cross-leveled with CMP\_SC 4410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320

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#### **CMP\_SC 7430: Compilers I**

(cross-leveled with CMP\_SC 4430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for blockstructured languages, and run-time storage organization. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320 and CMP\_SC 3280 and CMP\_SC 4450

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#### **CMP\_SC 7440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 4440). Malicious software or "malware" is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches

program binary examination tools to detect malicious code; and ethical issues surround computer security violations.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280, ECE 3210 or equivalent

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#### **CMP\_SC 7450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 4450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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#### **CMP\_SC 7460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 4460). Cryptography is an important technique used to achieve security goals in an untrusted and (possibly) adversarial environment. The goals of this course are: (1) to provide students with a solid back-ground with basic cryptographic techniques and their applications, (2) impart knowledge of standard cryptographic algorithms and (3) foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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#### **CMP\_SC 7520: Operating Systems I**

(cross-leveled with CMP\_SC 4520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 1700

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#### **CMP\_SC 7530: Cloud Computing**

(cross-leveled with CMP\_SC 4530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 or instructor's consent

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#### **CMP\_SC 7610: Computer Graphics I**

(cross-leveled with CMP\_SC 4610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and either MATH 1500 or MATH 1300 and MATH 1400

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**CMP\_SC 7620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 4620). Introduces fundamental algorithms and techniques including interpolation, quaternions, rigid body dynamics, kinematics, particle systems, free form and dynamic deformations, spring and damper systems and computational natural phenomena simulation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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**CMP\_SC 7650: Digital Image Processing**

(same as ECE 7655; cross-leveled with CMP\_SC 4650, ECE 4655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, STAT 7710 or instructor's consent

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**CMP\_SC 7670: Digital Image Compression**

(same as ECE 7675; cross-leveled with CMP\_SC 4670, ECE 4675). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 7720; cross-level CMP 4720, ECE 4720). This course provides foundation knowledge and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

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**CMP\_SC 7730: Building Intelligent Robots**

(same as ECE 7340; cross-leveled with CMP\_SC 4730, ECE 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Prerequisites: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

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**CMP\_SC 7740: Interdisciplinary Introduction to Natural Language Processing**

(same as LINGST 7740; cross-leveled with CMP\_SC 4740; LINGST 4740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of text.

**Credit Hours:** 3

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**CMP\_SC 7750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 4750). Introduction to the concepts and theories of intelligent systems. Various approaches to creating intelligent systems, including symbolic and computational approaches, insight into the philosophical debates important to understanding AI.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050

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**CMP\_SC 7770: Introduction to Computational Intelligence**

(same as ECE 7870; cross-leveled with CMP\_SC 4770, ECE 4870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 7830: Science and Engineering of the World Wide Web**

(cross-leveled with CMP\_SC 4830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 2830

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**CMP\_SC 7850: Computer Networks I**

(cross-leveled with CMP\_SC 4850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2270 or ECE 1210 and MATH 2320

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**CMP\_SC 7860: Network Security**

Principles and practice of cryptography, network security, and computer system security. It includes symmetric and asymmetric cryptography, authentication, security applications such as secure email, IP security, Web security, and system security issues such as intruders, viruses, worms, Trojan horses, and firewalls.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7850 or CMP\_SC 4850

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**CMP\_SC 7870: Wireless and Mobile Networks**

(cross-leveled with CMP\_SC 4870). Concepts and techniques in wireless and mobile networks: cellular concepts, wireless physical layer, wireless MAC protocol, mobility management, power management, wireless network security, wireless telecommunication system, wireless LAN, wireless ad hoc networking, wireless personal area network. Prerequisites: CMP\_SC 7850 or CMP\_SC 4850

**Credit Hours:** 3

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**CMP\_SC 8001: Advanced Topics in Computer Science**

Topic may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

**Prerequisites:** varies by topic

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**CMP\_SC 8050: Design and Analysis of Algorithms II**

Techniques for the design and analysis of correct, efficient algorithms. Topics include graph, geometric, and algebraic/ numeric algorithms, NP-completeness, and parallel algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8060: Survey of Advanced Algorithm Techniques**

This class provides a survey of important algorithmic techniques, some of which are emerging right now, and show that they are much easier to understand than they first appear. The class will create a renewed appreciation for what makes Computer Science such a fun/interesting discipline.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8070: Computational Optimization Methods**

The course covers typical computational optimization methods widely used in many computing domains, such as data mining, machine learning and bioinformatics. The theoretical foundation of each optimization method is rigorously studied, followed by typical real-world applications. An active, problem-solving based teaching/learning format will be applied to help students develop various skills including research, teaching, reading, communication, algorithms, programming, team work, collaboration, leadership, planning, project management, and presentation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 or instructor's approval

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**CMP\_SC 8085: Problems in Computer Science**

Independent study project work with a professor in computer science.

**Credit Hour:** 1-4

**Prerequisites:** instructor consent

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**CMP\_SC 8090: Computational Geometry**

Studies fundamental geometric problems within the framework of analysis of algorithms: convex hull algorithms in the plane and in general dimension, Voronoi diagram construction and applications to the solution of proximity problems, intersection problems, and geometric searching problems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and MATH 2300, or instructor's consent

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**CMP\_SC 8110: Problem Solving in Bioinformatics**

(same as INFOINST 8010). The course covers a variety of bioinformatics research topics such as biological sequence comparison, protein structure prediction, protein and gene function prediction, and inference and modeling of biological networks. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8120: Structural Bioinformatics of Proteins, Complexes, System**

(same as INFOINST 8210). Main course objective is to provide an introduction to the state-of-the-art methods in structural bioinformatics. The course will cover the methods that are applied to a wide range of biomolecular objects from protein domains and small proteins to large biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

**Recommended:** CMP\_SC 4050 or CMP\_SC 7050

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**CMP\_SC 8130: Computational Genomics**

(same as INFOINST 8310). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8150: Integrative Methods in Bioinformatics**

(same as INFOINST 8150), Introduces the most popular experimental methods from the point of view of the information sources that can be used. Students will use data obtained directly from biological experiments and learn how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8160: Content Management in Biomedical Informatics**

(same as INFOINST 8860). This course introduces theory and techniques for content extraction, indexing, and retrieval of biomedical media databases. Topics include biomedical media databases, feature extraction methods, advanced database indexing structures, query methods, and result visualization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380, INFOINST 7010

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**CMP\_SC 8170: Computational Modeling of Molecular Structures**

This course uses a problem solving paradigm to investigate common principles, data structures, algorithms, challenges, and solutions in computationally modeling (constructing) 3D structures of proteins, RNAs, chromosomes, and genomes.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7010

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**CMP\_SC 8180: Machine Learning Methods for Biomedical Informatics**

(same as INFOINST 8880). Teaches statistical machine learning methods and applications in biomedical informatics. Covers theories of advanced statistical machine learning methods and how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.



**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or CMP\_SC 7005

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**CMP\_SC 8190: Computational Systems Biology**

(same as INFOINST 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**CMP\_SC 8270: Computer Architecture II**

Study of array processors, multiprocessors, multicomputers, and networked computing systems. Topics include architectures, interconnection networks, communication mechanisms, distributed memories and security. Introduction to parallel algorithm design.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4210 or ECE 4270

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**CMP\_SC 8320: Software Engineering II**

Further discussion of software development methodology.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4320

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**CMP\_SC 8330: Object Oriented Design II**

Software system design using classes and their properties of abstraction, inheritance, dynamic binding, and polymorphism. Focus on object-oriented design of systems such as windows, graphics systems, and operating system.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4330

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**CMP\_SC 8370: Data Mining and Knowledge Discovery**

Course topics include an introduction to fundamental concepts, data mining techniques from machine learning and pattern recognition areas, association rules, web mining, spatial mining, temporal mining, multimedia/multimodal database mining, and database mining, and geospatial information mining.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380

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**CMP\_SC 8380: Database Management Systems II**

Further study in the theory, design, organization and implementation of databases and database management systems. Topics include: high-dimensional database indexing, content-based retrieval from image and video databases, object-relational databases, object-oriented databases, and data mining.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380

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**CMP\_SC 8390: Information Indexing and Retrieval**

Theory and techniques for the modeling, indexing, and retrieval of text-based and multimedia databases. Topics include introduction to different

information retrieval models, retrieval evaluation, query languages, query operations, and indexing/searching methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and CMP\_SC 2110

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**CMP\_SC 8410: Theory of Computation II**

An advanced study of computational and formal languages by means of automata and related grammars. Turing machines, decidability, computability, computational complexity, language translation, and recent trends in automata theory.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7410

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**CMP\_SC 8430: Compilers II**

Further study of the compilation process. Compiler generation tools, parsing methods, code generation, data-flow analysis, code optimization, error handling, discussion of programming language features and their relationship to the compilation process.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7430

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**CMP\_SC 8440: Information Security: A Language-Based Approach**

This course focuses on language-based techniques for information flow security. Students will gain a solid background in information security, be encouraged to do further research and be exposed to important/promising trends in state-of-the-art computer security. Prerequisites: CMP\_SC 4450 or CMP\_SC 7450

**Credit Hours:** 3

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**CMP\_SC 8450: Formal Engineering Methods for Software and Security**

Designing scalable exhaustive methods to ensure reliability of computer systems is an important challenge in computer science as even simple errors can have serious socio-economic-political consequences. This challenge is the focus of the field of automated verification techniques which draws techniques from complexity theory, automata theory, programming languages and logic, and provides tools to ensure that the computer systems are reliable. Computer-assisted techniques for verifying hardware implementations are regularly employed in the industry, and are also being increasingly adopted in the software industry as the costs of software bugs and security flaws escalate. The goals of this course are: (1) to provide students with a solid background in the fundamental techniques used in this field, (2) to encourage further research in software and security verification, and (3) to introduce students to important upcoming trends in verifying security protocols. The students will get theoretical background as well as learn to use some standard tools in this field. Students will also explore topics of particular interest to them through the performance of a significant semester project.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4450 or CMP\_SC 7450 or CMP\_SC 4430 or CMP\_SC 7430 or instructor's consent. A reasonable level of mathematical maturity and significant programming experience is expected

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**CMP\_SC 8520: Operating Systems II**

Discusses concurrent processes, distributed/network operating systems; models of processor scheduling, memory management and resource allocation, performance measurement, evaluation and simulation methodology; queuing models; security and reliability.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4520

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**CMP\_SC 8610: Computer Graphics II**

Further study of computer graphics, focused on 3-D graphics, transformations, geometric and surface modeling, color models, visible surface determination, lighting and shading, standard graphics software (Phigs/OpenGL). Selected current topics in graphics such as visualization, animation and realism.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7610

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**CMP\_SC 8620: Physically Based Modeling and Animation II**

This course introduces students to physical based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

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**CMP\_SC 8630: Data Visualization**

Data visualization broadly covers transforming multidimensional and timevarying datasets to dynamic visual representations and encodings that facilitate exploratory data mining, knowledge discovery, improved understanding, summarization, structural modeling, collaboration and decision making using interactive methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610 or instructor's consent

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**CMP\_SC 8650: Advanced Image Processing**

(same as ECE 8855). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**CMP\_SC 8660: Multimedia Security**

This course offers a comprehensive coverage of the theoretical foundation of multimedia security technologies, including encryption, authentication, digital watermarking, key management, copy control, fingerprinting/tracing, digital media forensics, and biometrics, provides an in-depth study of the state-of-the-art digital rights management systems and the underlying security technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4670 or CMP\_SC 4650; instructor's consent

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**CMP\_SC 8670: Multimedia Communication**

Topics covered may include multimedia networking and network technologies as pertaining to multimedia communications; multimedia applications such as video conferencing, video-on-demand broadcasting, and web-based distance learning; wireless video and future generation wireless video communication systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4670 and CMP\_SC 4850 or instructor's consent

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**CMP\_SC 8680: 3-D Computer Vision**

This course introduces students to a central problem in computer vision - how to recover 3-D structure and motion from a collection of 2-D images, using techniques drawn mainly from linear algebra and matrix theory. The main focus is on developing a unified framework for studying the geometry of multiple images of a 3-D scene and reconstructing geometric models from those images. The course also covers relevant aspects of image formation, basic image processing, and feature extraction.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650

**Recommended:** Good knowledge of C or C++ programming, linear algebra and data structures

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**CMP\_SC 8690: Computer Vision**

(same as ECE 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**CMP\_SC 8725: Supervised Learning**

(same as ECE 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**CMP\_SC 8735: Unsupervised Learning**

(same as ECE 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**CMP\_SC 8740: Advanced Natural Language Processing**

What do Google, the New York Times, Facebook, Cerner, and other big companies know that you don't? Natural language processing.

This course considers open and compelling problems in contemporary research in the processing and analysis of text, focusing on both the underlying theory and its practical application. The goal is to help students understand the nature of these problems, the current approaches to them, the strengths and weaknesses of those approaches, and other possible ways forward.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4740 or CMP\_SC 7740

**Recommended:** CMP\_SC 2050; students should be facile in programming at least one high-level language. Good knowledge of univariate, parametric statistics

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### **CMP\_SC 8750: Artificial Intelligence II**

Further discussion of theories and techniques of artificial intelligence. Investigating state-of-the-art systems with capabilities to perceive, reason, learn and react intelligently to their environment.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4750 or CMP\_SC 7750 or instructor's consent

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### **CMP\_SC 8760: Pattern Recognition**

(same as ECE 8820). Decision functions, crisp and fuzzy clustering methods, statistical pattern recognition methods, Bayesian classifiers, error probabilities, estimation of density functions, perceptrons, least-mean-square algorithms, feature selection, dimensionality reduction and syntactic pattern recognition.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050, STAT 4710

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### **CMP\_SC 8770: Neural Networks**

(same as ECE 8890). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4870 or CMP\_SC 7870 or instructor's consent

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### **CMP\_SC 8780: Advanced Topics in Computational Intelligence**

(same as ECE 8875). This course is a continuation of ECE 7870/ CMP\_SC 7770 Introduction to Computational Intelligence in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770

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### **CMP\_SC 8790: Filtering, Tracking and Data Fusion**

This course will cover theory and applications of rigorous and efficient techniques for determining the state of an observed system from a series of imperfect observations or measurements. Specific topics to be covered include semidefinite matrix theory, the Kalman filter, the Unscented Transform, Covariance Intersection and related techniques. Applications of these techniques include head and hand tracking in virtual reality systems, robotics, and distributed information fusion.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, MATH 2300 or Linear Algebra or Matrix Theory

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### **CMP\_SC 8850: Computer Networks II**

In-depth analysis and evaluation of computer networking architectures, protocols and algorithms, network security, distributed database and computational networks, routing and congestion control, domains and internetworking.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7850

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### **CMP\_SC 8860: Parallel and Distributed Processing**

This course covers basic issues of parallel and distributed processing, including parallel and distributed architectures and models, parallel programming, and parallel algorithms and applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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### **CMP\_SC 8870: Modeling and Management of Uncertainty**

(same as ECE 8870). Theoretical and practical issues in the modeling and management of uncertainty. Topics include probabilistic uncertainty, belief theory and fuzzy set theory. Applications to computer vision, pattern recognition and expert systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770 or instructor's consent

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### **CMP\_SC 8880: Wireless Embedded Systems**

This course introduces wireless embedded systems and focuses on the nature of computation and communication needed to design large-scale, distributed, and wirelessly connected embedded systems. We will study emerging technology and standards by reading papers and doing projects on real systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and CMP\_SC 4850 or instructor's consent

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### **CMP\_SC 8980: Research Masters Project in Computer Science**

Investigation and research of a topic, not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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### **CMP\_SC 8990: Research-Masters Thesis Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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### **CMP\_SC 9001: Advanced Topics in Computer Science - PhD**

New and current technical developments in computer science. For PhD students.

**Credit Hour:** 1-4

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### **CMP\_SC 9990: Research-Doctoral Dissertation Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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## Data Science Courses

### **DATA\_SCI 7600: Introduction to Data Science and Analytics**

An introductory course in data science and analytics. The objective of the course is to give students a broad overview of the various aspects of data analytics such as accessing, cleansing, modeling, visualizing, and interpreting data. Students will perform hands-on learning of data analytic topics, using technologies such as Python, R, and open source analytic tools. Two Big Data cyberinfrastructure platforms will be introduced through case studies, allowing students to perform data analytical learning modules on modern cloud infrastructure and other relevant technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic programming experience and Basic database experience

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### **DATA\_SCI 7601: Introduction to Data Science**

This course is an introduction to the NGA Program of Study in Data Science (PSDS), the concentration areas, and the role of each concentration area in data science. Participants will learn how to receive, if desired, an accredited Graduate Certificate and/or a Master of Science degree in Data Science and Analytics from the University of Missouri. Participants will receive an introduction to software, tools, and resources to be utilized throughout the program. Participants will learn of systematic methodologies for data science projects and the data science pipeline through review of case studies. Graded on S/U basis only.

**Credit Hours:** 2

**Recommended:** Enrollment in NGA Training Program or instructor consent

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### **DATA\_SCI 7610: Python Programming Boot Camp**

This course teaches students how to program in Python, including use of auxiliary libraries various Python ecosystems. Students are introduced to the iPython notebooks from the SciPy ecosystem, as well Python's use across the spectrum of Data Science courses and topics. Many activities are focus on data ingestion, cleaning, manipulation, and restructuring (e.g., ETL). Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Enrollment in NGA Training Program or instructor consent

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### **DATA\_SCI 7620: Database Basics and SQL Boot Camp**

This course covers a core concepts to heterogeneous data management, including relational databases, NoSQL databases, and other data storage systems. The focus is on making students quickly productive in the use of multiple types of database management systems available on the market for data science work. This includes traditional relational databases, NOSQL databases and graph databases. This course is a 1 credit hour / 5 day course. This course is delivered in an asynchronous online mode. The instructor virtually kicks off the course on day-one, then four additional days over a two week period are used for self-paced, online activities using the JupyterHub learning environment. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Enrollment in NGA Training Program or instructor consent

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### **DATA\_SCI 7630: Introductory Probability and Statistics for Data Analytics**

This course explores the use of inferential and predictive statistics for data modeling and analytics. Single-variate and multivariate statistical concepts are discussed, as well as intermediate exposure to statistical modeling. Students learn to evaluate model effectiveness and conduct results driven model selection. Statistical and modeling techniques focus on high dimensional data analytics. Topics related to dimensionality reduction are also covered, such as principal component analysis and factor analysis. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Enrollment in NGA Training Program or instructor consent

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### **DATA\_SCI 7640: R Statistical Programming Boot Camp**

This course teaches students how to program in R, including use of auxiliary libraries in R focused on various statistical and visualization oriented techniques. Students are introduced to R's use across the spectrum of Data Science courses and topics. Many activities focus on the development of statistical tests, and the use of R for statistical exploration. This course teaches students how to program in R, including use of auxiliary libraries in R focused on various statistical and visualization oriented techniques. Students are introduced to R's use across the spectrum of Data Science courses and topics. Many activities focus on the development of statistical tests, and the use of R for statistical exploration. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Enrollment in NGA Training Program or instructor consent

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### **DATA\_SCI 8610: Statistical and Mathematical Foundations for Data Analytics**

An intermediate statistics class designed to build the mathematical foundation for students dealing with Big Data phenomena. Topics include discussions of probability, data sampling, data summarization, sampling distributions, statistical inference, statistical pattern analysis, hypothesis testing, regression, and nonparametric inference over multidimensional data collections. Students will engage in Big Data projects using various publicly available data sets and leveraging modern Data Science tools, techniques, and cyberinfrastructure. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic understanding of mathematical principles of vectors and matrices, and Basic course in probability and statistics

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### **DATA\_SCI 8612: Spatial and Geostatistical Analysis**

This course will provide a practical overview of key issues encountered when working with and analyzing spatial data as well as an overview of major spatial analysis approaches. Discussions and laboratory work will focus on implementation, analysis, and interpretive issues given constraining factors that commonly arise in practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 8614: Data Analytics from Applied Machine Learning**

This course leverages the foundations in statistics and modeling to teach applied concepts in machine learning. Participants will learn various classes of machine learning and modeling techniques, and gain an in-depth understanding how to select appropriate techniques for various data science tasks. Topics cover a spectrum from simple Bayesian modeling to more advanced algorithms such as support vector machines, decision trees/forests, and neural networks. Students learn to incorporate machine learning workflows into data-intensive analytical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 8620: Database and Analytics**

Covers the Fundamental concepts of current database systems and query methods with emphasis on relational model and non-relational techniques in Big Data environments. Topics include entity-relationship model, relational algebra, indexing, query optimization, normal forms, tuning, security, NoSQL, and data analytics skills in both relational and non-relational environments. Project work involves modern relational DBMS systems and NoSQL environments. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic understanding of mathematical principles of vectors and matrices, and Basic course in probability and statistics

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**DATA\_SCI 8630: Data Mining and Information Retrieval**

The course introduces the main concepts and techniques of data mining and information retrieval. It covers a variety of data mining topics and methods to extract hidden and predictive patterns from large data collections. Furthermore, theory and techniques for the modeling, indexing, and retrieval of relational, nonrelational, textbased and multimedia databases is covered. Topics include introduction to data mining process, mining frequent patterns, and pattern analysis, as well as different information retrieval models and evaluation, query languages and operations, and indexing/searching methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7600 and DATA\_SCI 8620

**Recommended:** Basic understanding of mathematical principles of vectors and matrices; Basic course in probability and statistics; Basic course in databases and data analytics

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**DATA\_SCI 8635: Cloud Computing for Data Analytics**

This course introduces students to cluster and cloud computing big data ecosystems. Topics include a survey of cloud computing platforms, architectures, and use-cases. Students will examine scaling data science techniques and algorithms using a variety of cluster and cloud paradigms, such as those built atop Hadoop (Map-Reduce) concepts, and others. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 8640: Big Data Security**

This course provides an overview of state-of-the-art topics in Big Data Security, looking at data collection (smartphones, sensors, the Web), data storage and processing (scalable relational databases, Hadoop, Spark, etc.), extracting structured data from unstructured data, systems issues (exploiting multicore, security). Securing sensitive data, personal data and behavioral data while ensuring a respect for privacy will be a focus point in the course Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7600 and DATA\_SCI 8620

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**DATA\_SCI 8650: Big Data Visualization**

Covers the Fundamental concepts of current visualization concepts and technologies. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7600 and DATA\_SCI 8620

**Recommended:** Basic understanding of mathematical principles of vectors and matrices; Basic course in probability and statistics; Basic course in databases and data analytics

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**DATA\_SCI 8654: Advanced Visualization and Communication I**

Covers the Fundamental concepts of current visualization concepts and technologies, adding in Infographic and Interactive Visualization Design. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics as they can be applied to combining art and technology to tell data stories. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 8656: Advanced Visualization and Communication II**

Covers the Fundamental concepts of current visualization concepts and technologies, adding in Infographic and Interactive Visualization Design. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics as they can be applied to combining art & technology to tell data stories. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 8660: Data and Information Ethics**

Introduces the ethics related to Big Data in industry, business, academia, and research settings. Students will learn the social, ethical, legal and policy issues that underpin the big data phenomenon. Discussions and

case studies will help guard against the repetition of known mistakes and inadequate preparation. The course content will follow the guidelines to be developed by the Council for Big Data, Ethics, and Society. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** DATA\_SCI 7600 and DATA\_SCI 8650

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#### **DATA\_SCI 8680: Big Data Analysis Case Study**

Using a case-study approach, students will engage in discussions on a variety of big data topics relevant to their emphasis area and the realm of Big Data. This course will help students generate ideas and prepare them for the Big Data Capstone. Course work will be performed in small teams, mentored by faculty and/or industry advisors. Teams will research, cultivate, curate, and leverage large data sets. Students will gain hands-on experience applying relevant data science and analytical technology and techniques to gain insight and information from these real-world data sets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8630, DATA\_SCI 8640, DATA\_SCI 8650

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#### **DATA\_SCI 8750: Parallel Computing for Data Science**

This course will provide in-depth treatment of the evolution of high performance, parallel computing architectures and how these architectures and computational ecosystems support data science. We will cover topics such as: parallel algorithms for numerical processing, parallel data search, and other parallel computing algorithms which facilitate advanced analytics. To reinforce lecture topics, learning activities will be completed using parallel computing techniques for modern multicore and multi-node systems. Parallel algorithms will be investigated, selected, and then developed for various scientific data analytics problems. Programming projects will be completed using Python and R, leveraging various parallel and distributed computing infrastructure such as AWS Elastic Map Reduce and Google Big Query. Students will research emerging parallel and scalable architectures for data analytics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8610, DATA\_SCI 8620

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## **Dermatology Courses**

#### **DERM 6233: ABS Dermatology Research**

ABS Dermatology Research

**Credit Hours:** 5

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#### **DERM 6235: ABS Dermatology Research and Review**

ABS Dermatology Research and Review

**Credit Hour:** 5-10

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#### **DERM 6450: Dermatology I**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology; Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist; Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians

because of their danger to life or risks to public health; Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases; Learn appropriate use of both systemic and topical dermatologic medications; Learn basic punch, shave, and excisional biopsy techniques; Become proficient in skin surveillance, especially early detection of skin cancer. Students are evaluated using a standard evaluation. The student's knowledge of subject matter is evaluated in the following settings: informal discussion during clinics, ward rounds, inpatient consultation rounds and scheduled conferences.

**Credit Hours:** 5

**Prerequisites:** Internal Medicine Clerkship

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#### **DERM 6750: Dermatology I - Rural**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer.

**Credit Hours:** 5

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#### **DERM 6856: Dermatology II**

This elective rotation is an expansion of the objective goals outlined for Dermatology I. The student is expected to expand the depth and breadth of his/her dermatology experiences and knowledge. Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer. As Dermatology II is an extension of the Dermatology I curriculum, Dermatology II students are expected to master the above objectives. In addition, they are expected to expand their clinical skills related to the diagnosis and treatment of dermatologic diseases and they will have increased responsibilities for patient education. It is expected that they will further their surgical skills including biopsies, simple excisions, and basic cryotherapy. They will also become proficient in basic laboratory procedures including KOH and scabies prep.

**Credit Hours:** 5

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#### **DERM 6910: Clinical Dermatology Elective**

The 2 week elective in Dermatology will allow students to participate in a wide breadth of general, pediatric, and surgical dermatology. Students will participate in clinics and in weekly didactic sessions. Students will

also complete the American Academy of Dermatology online student modules and the self-evaluation that is provided.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school. Must have completed at least 1 core clinical rotation

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## Diagnostic Medical Ultrasound Courses

### **DMU 1000: Introduction to Diagnostic Medical Ultrasound**

Introduction to the profession of diagnostic medical ultrasound. Imaging characteristics, educational requirements, professional trends. Observation opportunities. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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### **DMU 4001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students; program director's consent

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### **DMU 4001W: Topics in Diagnostic Medical Ultrasound - Writing Intensive**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students; program director's consent

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### **DMU 4085: Problems in Diagnostic Medical Ultrasound**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only; program director's consent

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### **DMU 4085W: Problems in Diagnostic Medical Ultrasound - Writing Intensive**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only; program director's consent

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### **DMU 4200: Principles of Diagnostic Medical Ultrasound**

Principles and history of ultrasound, ultrasound equipment, sonographic techniques, aspects of patient care.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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### **DMU 4234: Clinical Pathophysiology**

(cross-leveled with DMU 7234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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### **DMU 4234W: Clinical Pathophysiology - Writing Intensive**

Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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### **DMU 4309: Normal Ultrasound Clinical**

(cross-leveled with DMU 7309). Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** DMU 4312 and instructor's consent

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### **DMU 4311: Pathological Images of Ultrasound**

(cross-leveled with DMU 7311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** DMU 4200, DMU 4312 and instructor's consent

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### **DMU 4312: Sectional Anatomy**

(same as RA\_SCI 4110; cross-leveled with DMU 7312, RA\_SCI 7110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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### **DMU 4313: Ultrasound Physics**

(cross-leveled with DMU 7313), Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 or CHEM 1320, PHYSICS 1210, and departmental consent

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### **DMU 4314: Abdominal Ultrasound**

(cross-leveled with DMU 7314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311; instructor's consent

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### **DMU 4315: Ultrasound Instrumentation**

(cross-leveled with DMU 7315). Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** DMU 4200; instructor's consent

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**DMU 4318: Gynecology Ultrasound**

(cross-leveled with DMU 7318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311

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**DMU 4320: Obstetrics Ultrasound**

(cross-leveled with DMU 7320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311; instructor's consent

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**DMU 4322: Superficial Organs Ultrasound**

(cross-leveled with DMU 7322). Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311; instructor's consent

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**DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 7325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in Diagnostic Medical Ultrasound and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound

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**DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 7326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** DMU 4313 and DMU 4315; instructor's consent

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**DMU 4330: Vascular Ultrasound Lab**

(cross-leveled with DMU 7330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, and DMU 4326; instructor's consent

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**DMU 4332: Vascular Ultrasound**

(cross-leveled with DMU 7332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** DMU 4312, DMU 4311, DMU 4322, and DMU 4326

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**DMU 4338: Cardiac Ultrasound, Principles and Hemodynamics**

(cross-leveled with DMU 7338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DMU 4313 and DMU 4315; instructor's consent

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**DMU 4342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 7342). Provides principles of diagnostic adult cardiac ultrasound in relation to pathology, further presenting the practical aspects of scanning techniques, exam critique, patient care in relation to cardiac US exams. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** DMU 4313, DMU 4315 and DMU 4338; instructor's consent

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**DMU 4941: Ultrasound Clinical I**

(cross-leveled with DMU 7941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311

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**DMU 4943: Ultrasound Clinical III**

(cross-leveled with DMU 7943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** DMU 4993 and instructor's consent

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**DMU 4944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 7944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** DMU 4326 and instructor's consent

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**DMU 4945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 7945). Application of ultrasonography in real clinical settings for learning, practicing and decision making regarding, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 4313, DMU 4315, and DMU 4944. Instructor and Departmental permission required

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**DMU 4946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 7946). Further application of ultrasonography for continuation of learning, practicing and decision making, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6



**Prerequisites:** DMU 4313, DMU 4315, DMU 4338 and DMU 4945.  
Instructor and Departmental permission required

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**DMU 4993: Ultrasound Clinical II**

(cross-leveled with DMU 7993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** DMU 4941; instructor's consent

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**DMU 7200: Diagnostic Medical Ultrasound Principles and Patient Care**

Introduction diagnostic medical ultrasound principles including history, development, ultrasound physics - equipment fundamentals. Provides introduction to concepts of sonographic techniques, positioning, image critique, aspects of patient care and professional organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DMU 1000. Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7234: Clinical Pathophysiology**

(cross-leveled with DMU 4234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 7309: Normal Ultrasound Clinical**

(cross-leveled with DMU 4309). Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** DMU 7312, DMU 7313 and DMU 7315

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**DMU 7311: Pathological Images Ultrasound**

(cross-leveled with DMU 4311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** DMU 4200, DMU 7312 and DMU 7315; instructor's consent

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**DMU 7312: Sectional Anatomy**

(same as RA\_SCI 7110; cross-leveled with DMU 4312, RA\_SCI 4110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7313: Ultrasound Physics**

(cross-leveled with DMU 4313). Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 or CHEM 1320, PHYSICS 1210, and departmental consent

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**DMU 7314: Abdominal Ultrasound**

(cross-leveled with DMU 4314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311; instructor's consent

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**DMU 7315: Ultrasound Instrumentation**

(cross-leveled with DMU 4315). Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** DMU 4200; instructor's consent

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**DMU 7318: Gynecology Ultrasound**

(cross-leveled with DMU 4318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311

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**DMU 7320: Obstetrics Ultrasound**

(cross-leveled with DMU 4320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311; instructor's consent

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**DMU 7322: Superficial Organs Ultrasound**

(cross-leveled with DMU 4322). Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311

---

**DMU 7325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 4325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in DMU and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound majors

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**DMU 7326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 4326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on

ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** DMU 7313 and DMU 7315; instructor's consent

---

**DMU 7330: Vascular Ultrasound Lab**

(cross-leveled with DMU 4330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, and DMU 7326; instructor's consent

---

**DMU 7332: Vascular Ultrasound**

(cross-leveled with DMU 4332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** DMU 7312, DMU 7311, DMU 7322, and DMU 7326 or instructor's consent

---

**DMU 7338: Cardiac Ultrasound, Principles and Hemodynamics**

(cross-leveled with DMU 4338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DMU 7313, DMU 7315

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**DMU 7342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 4342). Study of adult cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 5

**Prerequisites:** DMU 7312, DMU 7313 and DMU 7315 and instructor's consent

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**DMU 7941: Ultrasound Clinical I**

(cross-leveled with DMU 4941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311

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**DMU 7943: Ultrasound Clinical III**

(cross-leveled with DMU 4943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** DMU 7993 and instructor's consent; Restricted to DMU students only

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**DMU 7944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 4944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** DMU 7326 and instructor's consent

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**DMU 7945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 4945). Application of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** DMU 7313 and DMU 7315

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**DMU 7946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 4946). Further enhancement of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** DMU 7945

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**DMU 7993: Ultrasound Clinical II**

(cross-leveled with DMU 4993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** DMU 7941. Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 8001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics. Topic may vary.

**Credit Hour:** 1-3

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8050: Research in Diagnostic Medical Ultrasound**

Research not leading to a thesis or dissertation. Graded on an A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8085: Problems in Diagnostic Medical Ultrasound**

Independent study of a special project involving clinical applications or research. Topic may vary.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8090: Research in Diagnostic Medical Ultrasound**

Research leading to a thesis or dissertation. Graded on an S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8346: Pediatric Cardiac Ultrasound**

Study of pediatric cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 4

**Prerequisites:** DMU 7342 and instructor's consent

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**DMU 8947: Applied Clinical Research & Practicum**

Clinical research application of cardiovascular & general ultrasound in clinical environment: clinical research, practicum, decision making, patient handling, and image processing. Graded on A-F basis only.

**Credit Hour:** 5-8

**Prerequisites:** DMU 7944, DMU 7946, instructor's consent

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## Digital Storytelling Courses

**DST 1800: Introduction to Film Studies**

(same as FILM\_S 1800, ENGLSH 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound, narrative, genre, and other elements. No credit for students who have completed FILM\_S 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and sophomores only or instructor's consent

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**DST 1880: Introduction to Digital Storytelling**

(same as ENGLSH 1880; FILM\_S 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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**DST 2001: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

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**DST 2005: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

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**DST 2860: Film Themes and Genres**

(same as ENGLSH 2860, FILM\_S 2860). Topics (e.g. film noir, African-American filmmakers, food and film, the western) announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1800 or FILM\_S 1800

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**Recommended:** ENGLSH 1000

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**DST 2880: Digital Storytelling Production I**

(same as ENGLSH 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST 1880/ENGLSH 1880 or consent of instructor

**Recommended:** ENGLSH 1000

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**DST 2885: Digital Storytelling Animation Production I**

(same as ENGLSH 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000

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**DST 3001: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST 3005: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST 3005H: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing. Honors eligibility required

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**DST 3005W: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST 3510: Think Global: Fundamentals of Globalization and Digital Technology**

(same as GERMAN 3510, JOURN 3510, PEA\_ST 2810, T\_A\_M 3010). This interdepartmental course serves as one of the core seminars

for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**DST 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, JOURN 3510H, PEA\_ST 2810H, T\_A\_M 3010H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**DST 3510W: Think Global: Fundamentals of Globalization and Digital Technology - Writing Intensive**

(same as GERMAN 3510W, JOURN 3510W, PEA\_ST 2810W, T\_A\_M 3010W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**DST 3855: Documentary Film**

(same as ENGLISH 3855, FILM\_S 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**DST 3860: Special Themes in Digital Storytelling**

Themes (e.g., Indigenous digital studies, folklore and the internet) announced at time of registration. No more than six hours may be taken in the Special Themes in Digital Storytelling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**DST 3880: Writing and Theory for Digital Media**

(same as ENGLISH 3880). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also

read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing or above; ENGLISH 1000 and DST 1880

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**DST 3880W: Writing and Theory for Digital Media - Writing Intensive**

(same as ENGLISH 3880). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing or above; ENGLISH 1000 and DST 1880

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**DST 3885: Audio Storytelling**

Students in this course explore the skills, methods and theoretical frameworks needed to produce audio for new media and to understand the relationship between audio and digital culture. Students will study and practice writing and producing for web-based and digital media platforms. Assignments emphasize the professional and creative possibilities of new media production with an emphasis on audio. In addition to the hands-on creation of audio for radio, podcast, as well as screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by producers and radio historians and theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST 1880/ENGLISH 1880 or consent of instructor

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**DST 3885W: Audio Storytelling - Writing Intensive**

Students in this course explore the skills, methods and theoretical frameworks needed to produce audio for new media and to understand the relationship between audio and digital culture. Students will study and practice writing and producing for web-based and digital media platforms. Assignments emphasize the professional and creative possibilities of new media production with an emphasis on audio. In addition to the hands-on creation of audio for radio, podcast, as well as screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by producers and radio historians and theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST 1880/ENGLISH 1880 or consent of instructor

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**DST 4001: Topics in Digital Storytelling**

Advanced study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST 4005: Topics in Digital Storytelling**

Advanced study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST 4805: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, PEA\_ST 4810, T\_A\_M 4810). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**DST 4810: Film Theory**

(same as ENGLISH 4810, FILM\_S 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, post colonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800; junior standing

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**DST 4840: Culture and Media**

(same as ENGLISH 4840, FILM\_S 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800; junior standing or instructor's consent required

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**DST 4880: Digital Storytelling Production II**

(same as ENGLISH 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro, and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000, DST 1880/ENGLISH 1880, and sophomore standing, or consent of instructor

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**DST 4885: Digital Storytelling Animation Production II**

Advanced instruction in various aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000, DST 1880/ENGLISH1880, and sophomore standing, or instructor's consent

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**DST 4930: Digital Storytelling Practicum**

This course provides an opportunity for experiential learning in digital storytelling practice. Students will receive hands-on training through an intensive master class. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**DST 4940: Digital Storytelling Internship**

Students work in an agency or institution using their digital storytelling skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program consent

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**DST 4955: Independent Research in Digital Storytelling**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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**DST 4970: Capstone Experience**

For students in their senior year who have completed the core requirements for the Digital Storytelling program, this course focuses on advanced studies in the field and a major project involving the processes of selection, research, and production or writing leading to its completion. May include a professional component. Graded on A-F basis only.

**Credit Hours:** 3

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## Economics Courses

**ECONOM 1000: General Economics**

One semester course covering similar material as covered in ECONOM 1014 and ECONOM 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Includes applications for Journalism students. Not open to students who have completed ECONOM 1014 or ECONOM 1024 and, ECONOM 1015 or AG\_EC 1041 and AG\_EC 1042. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Open only to pre-Journalism and Journalism majors; departmental consent required

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**ECONOM 1014: Principles of Microeconomics**

A basic examination of the economy at the individual consumer, firm and market level. Simple economic models used to analyze the workings of the economy. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, the importance of free trade, the markets response to economic shocks and the effect of government intervention. Not open to students who have completed ECONOM 1024, ECONOM 1051, or AG\_EC 1041.

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**Credit Hours:** 3

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**ECONOM 1015: Principles of Macroeconomics**

Macroeconomics generally refers to a collection of questions about how scarcity affects a collection of people interacting with one another. In this course, our focus is on understanding how scarcity affects welfare of a nation. Topics include Gross Domestic Product, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, and exchange rates. Not open to students who have completed ECONOM 1051 or AG\_EC 1042.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024

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**ECONOM 1024: Fundamentals of Microeconomics**

This course uses mathematical reasoning to provide an elementary quantitative introduction to fundamental concepts in microeconomics. It uses college algebra and simple geometric concepts to describe the behavior of economic units, such as consumers, firms and resource owners, and to depict their interaction through production and exchange in perfect and imperfect markets. Not open to students who have completed ECONOM 1014, ECONOM 1051, or AG\_EC 1041. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent with grade of C or better

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**ECONOM 1051H: General Economics - Honors**

One semester course covering similar material as covered in ECONOM 1014 and ECONOM 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Not open to students who have completed ECONOM 1014 or ECONOM 1024 and ECONOM 1015. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**ECONOM 2004: Undergraduate Topics in Economics - Social Science**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 3004: Topics in Economics - Social Science**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 3224: Introduction to International Economics**

A topical course which emphasizes the application of basic economic analysis to real and current international economic issues. Topics include free trade, protectionism, free trade areas, multilateral trade negotiations, trade and development, exchange rates, the International Monetary System, and economic integration.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 or ECONOM 1051

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**ECONOM 3229: Money, Banking and Financial Markets**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051, or AG ECON 1041 with a minimum grade of C-

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**ECONOM 3229H: Money, Banking and Financial Markets - Honors**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051. Honors eligibility required

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**ECONOM 3251: Theory of the Firm**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Topics include the economics of the firm in the context of partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition as well as game theory. No credit for students who have completed ECONOM 4351.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051) and MATH 1400, or equivalent. Not open to economics majors

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**ECONOM 3271: Introduction to Applied Econometric Practice**

Introduction to the use of regression analysis of economic data, including simple and multiple regression, dummy variables. Econometric problems considered include heteroscedasticity, autocorrelation, multicollinearity and simultaneous equation issues.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051H and STAT 2500

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**ECONOM 3323: Capitalism, Democracy and Society**

This is a one-credit seminar course for students interested in careers involving social science research and analysis; topics covered will be a selection of classic and contemporary debates in the social sciences.

**Credit Hour:** 1

**Prerequisites:** ECONOM 1014 and ECONOM 1015, or ECONOM 1051

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**ECONOM 3940: Internship**

Internship experience for students interested in economics. Supervised internship work with approval of Director of Undergraduate Studies and academic adviser. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 1014 or ECONOM 1051

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**ECONOM 3950: Practicum in Economics**

Practical experience in consulting, teaching or research guided by faculty advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** consent of Director of Undergraduate Studies and faculty advisor

**Recommended:** Grade of B or higher in ECONOM 4351 and ECONOM 4371

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**ECONOM 4004: Topics in Economics- Social Science**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4004W: Topics in Economics- Social Science - Writing Intensive**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4311: Labor Economics**

(cross-leveled with ECONOM 7311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4311W: Labor Economics - Writing Intensive**

Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315W: Public Economics - Writing Intensive**

Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4320: History of Economic Thought**

(cross-leveled with ECONOM 7320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051

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**ECONOM 4320W: History of Economic Thought**

Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051

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**ECONOM 4322: Economics of Regulation and Antitrust**

(cross-leveled with ECONOM 7322) Economic issues concerning the role of government regulation. The course examines the rationale for and effects of regulatory policies in public utilities, transportation, and communications industries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4325: The International Monetary System**

(cross-leveled with ECONOM 7325). Study of macroeconomic and monetary relationships between the U.S. and the world. Topics include balance of payments, foreign exchange rates, history of the international monetary system.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229

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**ECONOM 4326: Economics of International Trade**

(cross-leveled with ECONOM 7326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4329: The Banking System and the Money Market**

(cross-leveled with ECONOM 7329). Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051

---

**ECONOM 4329W: The Banking System and the Money Market - Writing Intensive**

Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051

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**ECONOM 4340: Introduction to Game Theory**

(cross-leveled with ECONOM 7340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments,

etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4345: Economics of Education**

(cross-leveled with ECONOM 7345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051), and STAT 2500 or equivalent

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**ECONOM 4345W: Economics of Education - Writing Intensive**

Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051), and STAT 2500 or equivalent

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**ECONOM 4351: Intermediate Microeconomics**

(cross-leveled with ECONOM 7351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051) and MATH 1400 or equivalent

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**ECONOM 4351H: Intermediate Microeconomics - Honors**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 or ECONOM 1051, and MATH 1400, or equivalent. Honors eligibility required

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**ECONOM 4353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 7353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051, and MATH 1400 or equivalent

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**ECONOM 4355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 7355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4355W: Industrial Organization and Competitive Strategy - Writing Intensive**

Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4357: Health Economics**

(cross-leveled with ECONOM 4357, PUB\_AF 4357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and STAT 2500, or equivalent

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**ECONOM 4357W: Health Economics - Writing Intensive**

Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and STAT 2500, or equivalent

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**ECONOM 4360: Economic Development**

(same as PEA\_ST 4360; cross-leveled with ECONOM 7360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229, and ECONOM 3251 or ECONOM 4351

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**ECONOM 4361: Comparative Economic Systems**

(cross-leveled with ECONOM 4361). Study of capitalism, market socialism, and central planning.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229, and ECONOM 3251 or ECONOM 4351

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**ECONOM 4367: Law and Economics**

(cross-leveled with ECONOM 7367I PUB\_AF 7367). This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351, and STAT 2500, or equivalent

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**ECONOM 4367W: Law and Economics - Writing Intensive**

This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351, and STAT 2500, or equivalent

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**ECONOM 4370: Quantitative Economics**

(cross-leveled with ECONOM 7370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or equivalent

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**ECONOM 4371: Introductory Econometrics**

(cross-leveled with ECONOM 7371). Study methods for quantitative analysis of economic data. Estimation techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351, and STAT 2500, or equivalent

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**ECONOM 4384: Structural Change in Economic History**

(cross-leveled with ECONOM 7384). Explores changes in the structure of the American economy from its earliest colonial beginnings. Structural change, an integral part of growth, is related to technical change, population growth and to the content and form of economic theory.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051

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**ECONOM 4385: Problems in Economics**

Development of a carefully considered research project under close supervision of a faculty member. Credit arranged by instructor.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4351, ECONOM 4371, and instructor's consent. Not open to non-majors

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**ECONOM 4775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 7775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4370 or instructor's consent

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**ECONOM 4940: Internship in Economics**

Internship experience for Economics majors. 40 hours of supervised internship work with approval of Director of Undergraduate Studies and academic advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** C or higher in ECONOM 4351 and ECONOM 4371; Declared economics majors who have a minimum overall CUM GPA of 2.75 and have junior or senior standing

**Recommended:** Students must have completed at least 15 credit hours at MU

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**ECONOM 4965: Independent Study in Economics**

Individual work, with conferences adjusted to needs of student.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4970: Senior Seminar in Economics**

Seminar for graduating seniors who are majoring in economics. Multiple writing assignments will emphasize synthesis of theoretical, empirical, and institutional economics. Not open to non-majors.

**Credit Hours:** 3

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**ECONOM 4971: Supplemental Senior Seminar in Economics**

Content description is the same as ECONOM 4970. Required for Economics honors students and double majors in Economics who take a capstone course in another major. No credit for students who have completed ECONOM 4970. Not open to non-majors. Graded on A-F basis only.

**Credit Hour:** 1

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**ECONOM 4995: Honors Thesis**

Not open to non-majors. Capstone course required for Economics honors students.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351

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**ECONOM 7001: Topics in Economics - General**

Study in applied or theoretical economics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ECONOM 7085: Problems in Economics**

Individual study in Economics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ECONOM 7311: Labor Economics**

(cross-leveled with ECONOM 4311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 7320: History of Economic Thought**

(cross-leveled with ECONOM 4320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015 or ECONOM 1051H

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**ECONOM 7322: Economics of Regulation and Antitrust**

(cross-leveled with ECONOM 4322). Economic issues concerning the role of government regulation. The course examines the rationale for and effects of regulatory policies in public utilities, transportation, and communications industries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7325: The International Monetary System**

(cross-leveled with ECONOM 4325). Study of macroeconomic and monetary relationships between the US and the world. Topics include balance of payments, foreign exchange rates, history of the international monetary system.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229

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**ECONOM 7326: Economics of International Trade**

(cross-leveled with ECONOM 4326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with LDC's and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructor's consent

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**ECONOM 7329: The Banking System and the Money Market**

(cross-leveled with ECONOM 4329) Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051

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**ECONOM 7332: Microeconomics for Managers**

(cross-leveled with ECONOM 4332). Microeconomic concepts presented at the intermediate level, graphic treatment with limited calculus, managerial issues presented at the MBA level. (Not open to economics majors).

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024, MATH 1300; permission required for MBA program

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**ECONOM 7340: Introduction to Game Theory**

(cross-leveled with ECONOM 4340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351 or instructor's consent

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**ECONOM 7345: Economics of Education**

(cross-leveled with ECONOM 4345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024, or ECONOM 1051H and ECONOM 4371 or equivalent

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**ECONOM 7351: Intermediate Microeconomics**

(cross-leveled with ECONOM 4351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051) and MATH 1400 or equivalent

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**ECONOM 7353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 4353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051 and MATH 1400 or equivalent

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**ECONOM 7355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 4355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power.

Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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#### **ECONOM 7357: Health Economics**

(same as PUB\_AF 7357; cross-leveled with ECONOM 4357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine; and examination of recent proposals and initiatives for health care reform.

**Credit Hours:** 3

**Prerequisites:** STAT 2500 and ECONOM 4351

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#### **ECONOM 7360: Economic Development**

(cross-leveled with ECONOM 4360, PEA\_ST 4360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229 and ECONOM 3251 or ECONOM 4351.; graduate standing required

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#### **ECONOM 7361: Comparative Economic Systems**

(cross-leveled with Econom 4361). Study of capitalism, market socialism, and central planning.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229 and ECONOM 3251 or ECONOM 4351

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#### **ECONOM 7367: Law and Economics**

(same as PUB\_AF 7367; cross-leveled with ECONOM 4367). This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomic, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime and the judiciary.

**Credit Hours:** 3

**Prerequisites:** [ECONOM 4351 or ECONOM 3251, and STAT 2500, or equivalent

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#### **ECONOM 7370: Quantitative Economics**

(cross-leveled with ECONOM 4370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or equivalent

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#### **ECONOM 7371: Introductory Econometrics**

(cross-leveled with ECONOM 4371). Study methods for quantitative analysis of economic data. Estimating techniques, tests of significance,

prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and STAT 2500 and MATH 1320 or instructor's consent

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#### **ECONOM 7384: Structural Change in Economic History**

(cross-leveled with ECONOM 4384). Explores changes in the structure of the American economy from its earliest colonial beginnings. Structural change, an integral part of growth, is related to technical change, population growth and to the content and form of economic theory.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051H or instructor's consent

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#### **ECONOM 7775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 4775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 7370 or instructor's consent

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#### **ECONOM 8001: Topics in Economics- General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **ECONOM 8085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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#### **ECONOM 8090: Research in Economics**

Thesis research for M.A. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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#### **ECONOM 8340: Game Theory**

Game theory is the study of strategic behavior by agents who perceive themselves as "large" relative to the market and who therefore consider the effect of their behavior on others. This course examines the rigorous theory of strategic interaction of rational agents. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. . Graded on A-F basis only

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#### **ECONOM 8370: Mathematics for Economics**

The aim of this course is to cover essential mathematics used in economics. Topics include introductory linear algebra, multivariate calculus, comparative statics analysis, unconstrained optimization, and equality constrained optimization. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent.  
Graded on A-F basis only

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**ECONOM 8413: Research Workshop I**

Required course for economics MA students. Combines instruction, student presentations, and seminar participation to introduce research methods and practice. A major research paper are required.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8453, and ECONOM 8472 or instructor's consent

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**ECONOM 8451: Microeconomic Theory**

MA-level course in microeconomic theory. The course relies extensively on calculus to survey theories of: rational behavior in consumption, production, and pricing decisions of households and firms; partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition; and general equilibrium and welfare.

**Credit Hours:** 3

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**ECONOM 8453: Macroeconomic Theory**

Basic models in macroeconomics will be covered with emphasis on assumptions and on how hypotheses can be tested. Course is an introductory survey for students intending to develop ability for research in macroeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4353 or equivalent; at least concurrent enrollment in ECONOM 8451. Instructor's consent required for non graduate level students

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**ECONOM 8470: Dynamic Optimization**

Topics to be covered include calculus of variations, optimal control theory, dynamic programming in discrete time variables, and economic modeling. The Eulless Equation, the Transversally Condition and the Bellman Equation will also be covered.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7370

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**ECONOM 8472: Econometric Methods I**

Familiarizes students with fundamental techniques found and used in applied economic research. Topics include: ordinary least squares, generalized least square, instrumental variables, maximum likelihood estimation, and generalized methods of moments.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or instructor's consent

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**ECONOM 8473: Applied Econometrics**

Topics include: nonlinear least squares, numerical optimization, maximum likelihood and basic panel data and time series methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7371 and MATH 7140 or equivalent, or instructor's consent

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**ECONOM 9001: Topics in Economics**

Selected current topics in economics.

**Credit Hours:** 3

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**ECONOM 9085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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**ECONOM 9090: Research in Economics**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECONOM 9411: Advanced Labor Economics I**

Analysis of the determination of wages and employment and the relation of trade unionism to the economy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9412: Advanced Labor Economics II**

Applications of contemporary analytical techniques to labor market topics chosen by the instructor.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9411 and ECONOM 9452 or instructor's consent

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**ECONOM 9413: Research Workshop II**

Introduces doctoral students to practices of preparing scholarly economic research by moving through the process of selecting a topic, identifying relevant literature, and communicating results. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 9452, ECONOM 9454 and ECONOM 9474; PhD standing

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**ECONOM 9415: Advanced Public Economics I**

Tax incidence and optimal taxation in static economies and issues of taxation in dynamic economies.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9416: Advanced Public Economics II**

Macroeconomic issues of government finance. Theoretical and empirical analysis of Ricardian equivalence.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9426: International Trade**

Pure theory of international trade and commercial policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9427: Topics in International Trade**

The course will cover recent research in International Trade and important issues related to the impact of trade on economic growth and development. Topics include the relationship between trade and growth, the impact of international trade on firms, households and economic growth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9430: Advanced Money and Banking**

The working and structure of institutional arrangements, welfare aspects of structural policies, operation of money and credit markets, and behavior of returns on assets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9431: Central Banking Policies**

Examines central banking procedures, policies and the role they play in maintaining economic stability. Special attention to connection of Federal Reserve System with money and capital markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9446: Advanced Empirical Methods**

Empirical and modeling techniques for evaluation of microeconomic policy questions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8472

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9447: Topics in Microeconomic Policy Analysis**

(same as PUB\_AF 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8472, ECONOM 9446

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9451: Advanced Microeconomic Theory I**

The theory of rational behavior and partial equilibrium in markets. Topics include consumer behavior, theory of the firm, decisions making under uncertainty, perfect competition, monopoly and monopsony, and imperfect competition. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent; PhD standing

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**ECONOM 9452: Advanced Microeconomic Theory II**

Survey of equilibrium theory and market failures in economics. Topics include the structure and modeling of games, and cooperative and non-cooperative equilibrium concepts.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent

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**ECONOM 9453: Advanced Macroeconomic Theory I**

Aggregate models of life-cycle microfoundations, of macroeconomics fluctuations and growth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent; PhD standing

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**ECONOM 9454: Advanced Macroeconomic Theory II**

Analyzes topics in income analysis, including capital theory and economic dynamics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9453 or instructor's consent

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**ECONOM 9455: Monopoly and Competition**

A survey of the theoretical and empirical literature on the organization of industries. Includes study of monopolized markets, competitive markets, and strategic interaction among firms in imperfectly competitive markets. Both the rationale and practice of anti-trust policy are studied.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 and ECONOM 9471 or instructor's consent

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**ECONOM 9457: Computational Economics**

Covers numerical and computational methods to solve economic models at the research frontier. Emphasis is on practical applications to prepare students for independent research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 and ECONOM 8453 and ECONOM 8472

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**ECONOM 9460: Development Economics**

Theories of economic development critically examined. Sources and consequences of growth processes analyzed in context of economic theory and historical occurrence.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 and ECONOM 8472

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**ECONOM 9471: Advanced Game Theory**

Presents core concepts in game theory and illustrates their uses with a range of applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9472: Econometric Theory I**

Analysis of linear regression models from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**ECONOM 9473: Econometric Theory II**

Analysis of nonlinear regression models and other essential econometric tools not covered in ECONOM 9472 from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9472 or instructor's consent

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**ECONOM 9474: Advanced Topics in Econometrics I**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically time series analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9476: Advanced Topics in Econometrics II**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically microeconometrics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9477: Advanced Topics in Econometrics III**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically the second semester of a two-semester time series sequence beginning with ECONOM 9474 or a two-semester microeconometrics sequence beginning with ECONOM 9476.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9480: Independent Readings for Ph.D. Comprehensive Examinations**

Independent Readings for Ph.D. Comprehensive Exam. Graded on S/U basis only.

**Credit Hour:** 1-6

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**ECONOM 9484: Economic History**

Techniques of the new economic history are explored in the context of European economic development.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451

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## Education Honors Courses

**EDUC\_H 3050H: Special Readings in Education Honors**

Directed study of literature and research reports in education.

**Credit Hour:** 1-4

**Prerequisites:** Honors eligibility required

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**EDUC\_H 3060H: Honors Seminar in Education Honors**

**Credit Hour:** 1-2

**Prerequisites:** Honors eligibility required

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**EDUC\_H 3070H: Special Practicum in Education Honors**

Directed practicum experience with students in educational settings.

**Credit Hour:** 1-4

**Prerequisites:** Honors eligibility required

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**EDUC\_H 3080H: Honors Research in Education Honors**

Joint research in education with a member of the education faculty.

**Credit Hour:** 1-4

**Prerequisites:** Honors eligibility required

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**EDUC\_H 4996H: Undergraduate Reading Honors**

This course is designed to introduce students to a variety of readings from a broad array of research, historical, contemporary and philosophical documents and writings. Selection of topics and additional readings are determined by the faculty instructor for the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4997H: Honors Undergraduate Seminar I**

This class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The culminating assignment for the class is a proposal for a research poster or presentation to be presented at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4998H: Honors Undergraduate Seminar II**

The class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The culminating assignment for the class is the production of a research poster or presentation at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; GPA of 3.5 or higher. Honors eligibility required

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**EDUC\_H 4999H: Honors Undergraduate Research Seminar**

This class will be offered over 2 academic semesters and will consist of a 1-2 credit hour lab each semester with a College of Education faculty member working on an undergraduate research project. This course is designed as part of the Honors sequence. Graded on A-F only. Corequisites: EDUC\_H 4997H and EDUC\_H 4998H

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent; Honors eligibility required

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## Educational Leadership and Policy Analysis Courses

**ED\_LPA 3100: Foundations of Education**

Focus on developing a theoretical and conceptual knowledge of leadership. In addition, skill building-exercises will take place through group case studies and role playing exercises allowing each student to identify and achieve methods for personal development.

**Credit Hour:** 1-3

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**ED\_LPA 4060: Inquiring into Schools, Community and Society II**  
(same as ED\_LPA 7060). Required 3 hour course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts.

**Credit Hours:** 3  
**Prerequisites:** LTC 2040

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**ED\_LPA 7060: Inquiring into Schools, Community and Society II**  
(same as ED\_LPA 4060). Required 3 hours course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts. Prerequisites: LTC 2040 and LTC 7040

**Credit Hours:** 3

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**ED\_LPA 7085: Problems in Educational Leadership and Policy Analysis**

Problems in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 7301: Topics in Educational Leadership and Policy Analysis**

Group study of topics in educational leadership, policy analysis, and higher and continuing education.

**Credit Hour:** 1-99

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**ED\_LPA 7458: Sociology of Education**

(same as SOCIOL 7410; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3  
**Prerequisites:** SOCIOL 1000 or equivalent

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**ED\_LPA 7822: College Teaching with Technology I**

Examines the use of educational technologies, both class room based (e.g., student response systems) and online (e.g., course management's systems), to assist in the dissemination of course resources and the facilitation of student interaction.

**Credit Hour:** 1

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**ED\_LPA 7823: College Teaching with Technology II**

Integrates learning technologies into the traditional framework of a face-to-face course by creating a course website and developing technical proficiency with relevant educational technologies.

**Credit Hour:** 1  
**Prerequisites:** College Teaching I or instructor's consent

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**ED\_LPA 8409: Learning, Curriculum and Assessment for School Leaders**

Addresses assessment, learning and curriculum and the integration of the instructional and assessment processes. Topics include authentic

assessment, curriculum alignment, cognition and learning, instructional approaches, and application of student learning theory to the curriculum.

**Credit Hours:** 3

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**ED\_LPA 8410: Learning Cultures**

Integrates the themes of building a common purpose to enhance school culture, empowering teachers and students, and diversity. Topics include importance of shared mission and vision, the use of group processes and collaboration, the intricacies of school culture, and ethical and moral leadership.

**Credit Hours:** 3

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**ED\_LPA 8411: Professional Development for Learning**

Focuses on the professional development and reflection on practice. Topics include organizational actions and personal responsibility, life-long learning, and public education in a democratic society.

**Credit Hours:** 3

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**ED\_LPA 8412: School Improvement**

This course addresses the topics of organizational management and personal inquiry. It covers issues such as organizational effectiveness, organizing for an effective school environment, legal and fiscal decision-making and responsibilities of school leaders, creating an environment where stakeholders acquire and utilized data to inform decisions and practice, and where action research methods are utilized to evaluate and inform practice.

**Credit Hours:** 3

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**ED\_LPA 8413: Internship**

The internship experience provides the opportunity for the student to assume a leadership role associated with instructional improvement. Graded on S/U basis only.

**Credit Hour:** 1-11

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**ED\_LPA 8414: Current Issues in Site-Level Leadership**

This course is designed to introduce students to the rigors of the principalship. Topics will include issues affecting beginning principals, school cultures, and the use of technology for communication and research.

**Credit Hours:** 3

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**ED\_LPA 8415: Leadership for Collaborative Cultures**

This course will instill an understanding of major components of purposeful, systemic change, interpersonal relationships, communication and organizational management. The development of an appreciation of diversity, equity, and democracy for all students will be an ongoing theme of the course.

**Credit Hours:** 3

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**ED\_LPA 8416: Foundations of School Leadership**

School leader knowledge of student learning theory and related instructional practices is the focus of this course. The problem-based learning format will include topics on school culture, leadership

communication, technology, and conflict resolution. Issues concerning professional relationships are also addressed.

**Credit Hours:** 3

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**ED\_LPA 8417: Site-Level Organization and Leadership**

Student will study state and national regulations that affect Missouri school policies. The student will develop a database on various legal issues. A study of middle level education will conclude with on-site evaluation of a local middle school.

**Credit Hours:** 3

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**ED\_LPA 8418: Supervision for Learning Environments**

Students are prepared to articulate, recognize, and support classroom practices that reflect the most current principles of learning. Effective instructional strategies that link this knowledge to practice will be entered into a computer database.

**Credit Hours:** 3

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**ED\_LPA 8419: Structures and Processes for Effective Schools**

Emphasis is placed on the Missouri Comprehensive Guidance Program and positive strategies for working with challenging students. A continuation of the study of state and national legal and policy issues will focus on special programs and services.

**Credit Hours:** 3

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**ED\_LPA 8420: Curriculum for Site-Level Leadership**

Student and program assessment are the primary topics for this course on curricular leadership. Class participants are engaged in the development of authentic experiences using technology to develop and apply the testing and assessment knowledge appropriate to school leaders.

**Credit Hours:** 3

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**ED\_LPA 8421: Action Research in School Leadership**

Databases on legal and policy issues are completed and merged into a single database and placed on the specialist program web site. Site and classroom level action research is investigated, concluding with an assessment of local action research efforts in area schools.

**Credit Hours:** 3

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**ED\_LPA 8422: Advanced Problems of Leadership Practice**

This pre-internship course is a study of team building, program assessment, and site-based management. Addressing problems through a comprehensive school improvement approach with practicing principal will serve to prepare the students for internship experiences.

**Credit Hours:** 3

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**ED\_LPA 8423: Advanced Leadership for Learning Environments**

Students will demonstrate their understanding of instructional improvement for all teachers and students by designing and defending a comprehensive strategy for instructional changes in a simulated school. The ongoing study of learning principles and effective instructional practices will be concluded.

**Credit Hours:** 3

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**ED\_LPA 8424: Education Politics and Policymaking**

This course examines the politics and policymaking process of education in the United States, paying particular attention to the influence of various institutions and actors at local, state, and federal levels. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8428: Curriculum Leadership**

A study of research, theory, and skills necessary for curriculum leadership in educational organizations. Course includes generic curriculum management processes, design trends, controversial issues multi-media, innovative instructional techniques, and program evaluation.

**Credit Hours:** 3

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**ED\_LPA 8430: School Law and Finance for Principal Leadership**

Designed to engage learners in examination of the legal (judicial and legislative) system, school law, and finance policies that govern public schools and their fiscal resources in the United States and the State of Missouri. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8431: Leadership for Data-Driven Change**

This course instructs school leaders on how to use data for school improvement. Students will: identify reliable sources of data; develop, implement, and monitor strategic School Improvement Plans using data; analyze data using technology; and describe evidence-based strategies that respond to data analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8432: Introduction to Improvement Systems in Education**

This course explores tools and techniques of comprehensive school improvement systems, including theoretical, historical, and empirical frameworks in the field. Intended for school administrators, board members, and teacher-leaders involved in school improvement.

**Credit Hours:** 3

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**ED\_LPA 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as LTC 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**ED\_LPA 8955: Discourse Analysis in Education**

(same as LTC 8955). This course introduces the theories and methods of discourse analysis, including conversation, critical discourse, and multimodal. Students will analyze the role of context and ethics, as they transcribe and analyze discourse, especially from analytical settings. Graded on A-F basis only.



**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**ED\_LPA 8957: Qualitative Methods in Educational Research I**  
(same as LTC 8957 and ESC\_PS 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9090: Research in Educational Leadership and Policy Analysis**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9095: Problems in Educational Leadership and Policy Analysis**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ED\_LPA 9400: Social Theory in Education**

Students will examine the relationship of society and education through a variety of theoretical perspectives and empirical studies. These theories deal with the relation of education to society as a whole, and the relation between education and the state. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9401: Educational Leadership**

Critical examination of key leadership theories and their application to various educational contexts. Includes consideration of research methods and designs appropriate for the study of leadership and the spectrum of lenses through which educational leadership is studied.

**Credit Hours:** 3

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**ED\_LPA 9402: Educational Policy Analysis**

Course centers on developing multiple understandings of the education policy making process. Theoretical constructs used to advance those understandings are eclectic in nature, drawing from the fields of political science, history, sociology and economics.

**Credit Hours:** 3

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**ED\_LPA 9403: Organizational Analysis**

Analysis of organizational characteristics and principles in educational organizations. Topics include: Organizational theories and models, organizational culture, communication, innovation, planning, leadership, power and influence, and external environment influences.

**Credit Hours:** 3

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**ED\_LPA 9404: Inquiry into Educational Leadership and Policy Analysis**

A critical overview of theory development, research paradigms, and research ethics in the department of Educational Leadership and Policy Analysis. Required for all ELPA Ph.D. students.

**Credit Hours:** 3

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**Recommended:** for students who have completed at least 2 semesters of coursework

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**ED\_LPA 9405: Seminar in Educational Leadership and Policy Analysis**

Seminar in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 9406: Seminar in Educational Administration**

Seminar in Educational Administration

**Credit Hour:** 1-99

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**ED\_LPA 9407: Seminar in Educational Policy**

Seminar in Educational Policy

**Credit Hour:** 1-99

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**ED\_LPA 9408: Seminar in Higher Education**

Seminar in Higher Education

**Credit Hour:** 1-99

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**ED\_LPA 9409: Introduction to Research Design**

This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on the epistemological and ontological issues that inform our choice of research methods. This course is intended for first year doctoral students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9424: Superintendent: Instructional Leadership**

Effective superintendents understand educational core knowledge of curriculum, instructional and assessment. They establish an exception for the use of best instructional practices for all students among both the educational and public communities. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9427: School Budget Development and Fiscal Management**

This course includes an overview of school finance programs of the 50 states, including special funds for exceptional children and compensatory education. Various aspects of planning, accounting, auditing, and reporting related to budget development and fiscal management are covered.

**Credit Hours:** 3

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**ED\_LPA 9429: Superintendent: Communication, Team Leadership**

Effective superintendents negotiate political and cultural challenges to lead diverse, socially-just school systems. Reflective practices that enhance competence in public board member, and district personnel relationships are essential skills. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9430: Superintendent: Fiscal, Legal Leadership**

Effective superintendents efficiently manage finances and ensure that rules, regulations, and policies adhere to statutory/case law. Fiscal and

legal practices ensure equity of educational experiences for all students. Open to all graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9437: Topics in Educational Leadership and Policy Analysis**

Topics in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 9439: Applying Higher Education Research to Practice**

This course introduces quantitative, qualitative, and mixed within a student affairs context. Students will become familiar with, and able to critique research. Course graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9440: Race, Gender, and Ethnicity in Higher Education**

(same as WGST 9440). Historical and current issues of race, gender, and ethnicity in colleges and universities in the U.S. Issues include: students, faculty, and staff experiences of diversity, access and equity, and salience of diversity in a higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9441: The Adult Learner**

The identification of learning, motivation and participation patterns among adults will be examined. Learning theories and adult development life-cycle and stage research data will be explored as well as their implications for practice.

**Credit Hours:** 3

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**ED\_LPA 9442: Curriculum Philosophy and Development in Higher Education**

A study of the philosophical foundations of postsecondary curricula, current trends and issues, and approaches to curriculum reforms and revisions.

**Credit Hours:** 3

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**ED\_LPA 9444: Program Planning in Higher Education**

Analysis of program planning and evaluation in higher education. Topics include: conceptualizations of program planning, situational analysis, needs assessment, priority setting, marketing and promotion, and program evaluation.

**Credit Hours:** 3

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**ED\_LPA 9445: College Student Development**

Emphasis on college student development theory and its application in student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9446: Student Affairs Administration**

History, philosophy, theory, and issues pertinent to student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9447: College Student Culture and Environment**

This course examines the characteristics and outcomes of American undergraduates, and the aspects of the college environment the differentially influence students. Topics include: theoretical models of students change, campus climate and cultures, learning communities, institutional differences, and conditions for success.

**Credit Hours:** 3

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**ED\_LPA 9448: College Teaching**

Designed to introduce students to theories and practices central to teaching in a higher education setting. Teaching related to institutional contexts and disciplines will be considered. Teaching and learning theories will be introduced.

**Credit Hours:** 3

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**ED\_LPA 9449: History of Higher Education in the United States**

A study of the transformation of the English college tradition to what higher education is currently in the United States. The emphasis is on how institutions of higher learning changed to meet the needs of the nation or failed to do so.

**Credit Hours:** 3

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**ED\_LPA 9450: Administration and Governance of Higher Education**

Principles of administration, academic culture and environment, and structures of governance of higher education will be explored.

**Credit Hours:** 3

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**ED\_LPA 9451: Higher Education Finance**

How students pay for college and how institutions finance their operations is explored through the lens of economics. Topics include: Theories of student access, tuition and financial aid policy, institutional costs and revenue patterns, and resource allocation models.

**Credit Hours:** 3

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**ED\_LPA 9452: Overview of Higher Education**

This course provides an overview of American Higher education. Emphasis is placed on how these institutions currently operate and what issues dominate current discussions of academe.

**Credit Hours:** 3

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**ED\_LPA 9453: Continuing Education for the Professions**

Comparative study of education for the professions. Examination of professions as occupations, approaches and goals of preparatory and continuing education, professionals as adult learners and influence of intra-profession issues and societal exchange on education.

**Credit Hours:** 3

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**ED\_LPA 9454: Introduction to Post-Secondary Law**

Examination of the legal structure within which higher education operates. Includes consideration of legal analysis of case law, institutional responsibilities under the law, and analysis of legal issues within postsecondary education.

**Credit Hours:** 3

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**ED\_LPA 9455: The Community College**

An overview of the community college. Topics include historical roots and development of the community college, organization and governance, finance, students, faculty, administrators, curriculum, social role, and recurring and emerging issues.

**Credit Hours:** 3

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**ED\_LPA 9456: The Professoriate**

Overview of faculty roles and work in U.S. colleges and universities. Explores institutional and disciplinary differences and seeks to prepare future faculty for academic life.

**Credit Hours:** 3

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**ED\_LPA 9457: Higher Education Policy**

An overview of current higher education policy issues facing governmental bodies and institutions. An emphasis is placed on investigating both the policy-making and policy-evaluation processes through multiple theoretical lenses. Specific topics explored include access, equity, and accountability within the higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9459: Comparative and International Education**

Theories, methods and issues in the field of comparative and international education. Topics cover PK-16 education and include globalization, centralization and decentralization, equity and equity, teaching and student learning, and social context of education.

**Credit Hours:** 3

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**ED\_LPA 9460: Philosophic Theory in Education**

Examines major ideological movements in modern education; their social antecedents and philosophic underpinnings.

**Credit Hours:** 3

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**ED\_LPA 9461: Ethics in Education**

Explores the ethical dimensions of work within and related to educational settings focusing on dilemmas that occur in professional practice, theories that inform thinking about ethical issues, and frameworks that guide ethical decision making.

**Credit Hours:** 3

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**ED\_LPA 9462: History of U.S. Education Policy**

Provides overview of major US education issues (primary K-12), explores analytic tools for studying history of education and introduces multiple ways of constructing the history of a particular movement reform or era in education.

**Credit Hours:** 3

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**ED\_LPA 9463: Politics of Education**

Focuses on politics of education in the United States, attending to the influence of various institutions and actors at local, state, and federal levels. Students will examine current reforms in PK-12 education and their impact on the future of education.

**Credit Hours:** 3

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**ED\_LPA 9464: Theory and Practice in Multicultural Education**

Designed to give educational professionals a better understanding of the theoretical foundations of multicultural education as well as current practices in this field.

**Credit Hours:** 3

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**ED\_LPA 9465: Policy Analysis Using Large Data Bases**

Intends to develop students' capacity to process national level large databases and to conduct policy-related research.

**Credit Hours:** 3

**Prerequisites:** an understanding of inferential statistics and experience with SPSS and SAS program

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**ED\_LPA 9469: Education Leadership Inquiry IV**

Developing and writing research proposals and conducting pilot studies. Knowledge and skills in writing the research report and sharing research with others.

**Credit Hour:** 1

**Prerequisites:** ED\_LPA 9471, ED\_LPA 9472 and ED\_LPA 9473. Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9470: Organizational Analysis for Educational Leadership**

Schools of organizational theory, six frames to analyze organizations and their underlying concepts, organizational change and leadership for change, and rationale for reframing organizations.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9471: Educational Leadership Inquiry I**

Introductory seminar on evaluating research using, APA Publication guidelines, writing scholarly publications, and using computer technology for literature searches.

**Credit Hours:** 2

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9472: Educational Leadership Inquiry II**

MU Graduate School policies related to doctoral research, use of multiple search sources, human subjects review process, and research ethics.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9473: Educational Leadership Inquiry III**

Knowledge and skills in applying planning procedures for development and implementation of future dissertation research.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9474: Professional Seminar I**

Focuses on diversity and ethics in educational leadership and educational organizations. Students learn about professional

development, professional practice, and professional service. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9475: Professional Seminar II**

Problem-based learning via the Internet to make decisions involving professional practice and problem solving. The UCEA Internet program, Information Environment for School Leader Preparation, is used. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9476: Leadership Theory and Practice**

An advanced study of leadership theories, concepts, and inquiry as applied to educational organizations. Explores power and authority in organizations, leader effectiveness, and organizational reform.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9477: Leadership Theory and Practice Application**

Focuses on building understanding of the conduct of leadership in organizations through application and extension of leadership theories in practice.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9478: Policy Analysis for Educational Leadership**

Analysis and investigation of educational policy utilizing various knowledge bases; organizational politics and culture's impact on policy processes; interpretation and application of policy-making activities.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. Program in Ed. Leadership

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#### **ED\_LPA 9479: Content and Context of Learning**

Students develop the knowledge and skills for examining designing, and implementing organizational, classroom, and training conditions that support quality learning experiences for learners.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9480: Team Building and Group Dynamics**

Stages of group development, team building and maintenance, team/group structures, team performance, problem-based learning as team process, and empowerment through development of self-managed teams.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9481: Internship in Educational Leadership and Policy Analysis**

Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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#### **ED\_LPA 9482: Quantitative Tools for Applied Research in Educational Leadership**

General introduction to quantitative methods of data analysis. Develop concepts of measurement, design, and analysis. The focus is on data driven decision making and using various quantitative methods to investigate problems of educational leadership practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. program in Educational Leadership can enroll

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#### **ED\_LPA 9483: Qualitative Tools for Applied Research in Educational Leadership**

Students will learn about a number of qualitative research designs that leaders can use to critically examine research questions in their practice. They will also learn to analyze educational issues and execute processes to effectively explore those issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the Statewide Cooperative Ed.D. Program in Educational Leadership

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#### **ED\_LPA 9484: Program Evaluation and Planning for Educational Leaders**

Participants develop thorough knowledge of theoretical underpinnings of selected approaches to program planning and evaluation and their necessary integration. Affords participants the opportunity to plan, conduct and deliver the results of a program evaluation to actual client. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. Program in Educational Leadership can enroll

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#### **ED\_LPA 9620: Qualitative Methods in Educational Research II**

(same as ESC\_PS 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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## **Educational, School and Counseling Psychology Courses**

#### **ESC\_PS 1901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

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**Credit Hour:** 1-3

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**ESC\_PS 2000: Experiencing Cultural Diversity in the United States**

The purpose of this course is to examine cultural diversity in U.S. Society, to increase self-awareness related to worldviews and beliefs about diversity issues, and to increase understanding of the intersections of multiple group identities. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 2010: Inquiry Into Learning I**

This course is designed to focus students on the central themes of learning and teaching. Emphasis will be placed on the interaction of theory, philosophy and practice as related to the field of education. Required for Phase II of the certification program.

**Credit Hours:** 3

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**ESC\_PS 2014: Inquiry into Learning I - Field Experience**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** departmental consent

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**ESC\_PS 2014H: Inquiry into Learning I - Field Experience - Honors**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

**Recommended:** Departmental consent

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**ESC\_PS 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center. Some sections may be graded on either A-F basis or S/U basis only.

**Credit Hour:** 1-3

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**ESC\_PS 2350: Transforming Stress: Heart Rate Variability Biofeedback**

This course will offer an in-depth opportunity to learn the philosophy and management of stress through a computer -based biofeedback system. Students will develop a personal practice, track their progress and learn skills in using this technology for a range of concerns.

**Credit Hour:** 1

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**ESC\_PS 2400: Learning and Instruction**

The nature of human learning processes with implications for instruction. Emphasis on bases of and readiness for learning, types of learning, memory forgetting and transfer, and related topics.

**Credit Hours:** 2

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**ESC\_PS 2500: Child Development**

The psychological, intellectual, social, and physical development of children.

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**Credit Hours:** 3

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**ESC\_PS 2700: Psychological Perspectives in Sport**

Survey of sport psychology literature with focus upon such topics as personality, positive and negative affect, cognitive and behavioral intervention, motivation, aggression, audience effects, team cohesion, team building, leadership, exercise, and multicultural issues.

**Credit Hours:** 3

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**ESC\_PS 2901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 3085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 3100: African-American Psychology**

(same as BL\_STU 3100 and PSYCH 3880). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 3200: Black Feminism**

This course outlines the basic principles and practices of Black feminism in the United States. Examination of the multiple systems of oppression on Black women's lives and Black women's collective actions against social structures will occur.

**Credit Hours:** 3

**Recommended:** PSYCH 1000 or instructor's consent

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**ESC\_PS 3901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 4087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 4115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning.

**Credit Hours:** 3

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**ESC\_PS 4120: Foundations of Counseling Psychology**

Survey of contemporary theories underlying individual feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology.

**Credit Hours:** 3

**Recommended:** departmental consent

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**ESC\_PS 4160: Developmental Aspects of Human Learning**

Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play, aggression, culture, and media.

**Credit Hours:** 3

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**ESC\_PS 4170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Recommended:** College Algebra or equivalent

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**ESC\_PS 4185: Health Behavior: Drug and Sexuality Education**

Psychological, social, and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**ESC\_PS 4200: Positive Psychology**

Using self-actualization and self-determination theory, the course builds on identifying personal strengths in people. An emphasis is placed on developing interventions that promote positive thinking. Some sections graded on either A-F or S/U basis only.

**Credit Hours:** 3

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**ESC\_PS 4460: Exploring Mental Health Issues in Schools**

This course is an introduction to the mental health challenges found in schools. It provides education professionals with the knowledge and basic skills to promote positive mental health practices in the schools.

**Credit Hours:** 3

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**ESC\_PS 4575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 7575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to upper level (junior/senior standing) students

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**ESC\_PS 4901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 4960: Readings in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 7000: Foundation of Teacher Prep I**

Designed for graduate students seeking teacher certification, this course addresses content and application in comprehensive classroom management, development, behavior management, and diversity. Field work is required and integrated with course content.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 7100: Theories and Applications of Educational Psychology**

An introduction into the ideas and purpose of Educational Psychology in human development, learning, assessment/measurement and education.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 7120: Foundations of Counseling Psychology**

Survey of contemporary theories underlying individual, feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ESC\_PS 7130: Parent Counseling and Consultation**

For personnel working with parents in professional settings. Examines current family needs and child-rearing practices. Basic skills in diagnosis, counseling, consultation, parent education are developed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120

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**ESC\_PS 7150: Interviewing and Counseling**

Study of beginning interviewing and counseling skills applied to helping relationships in human services professions. Emphasis placed on learning helping skills in small group format. Lab required.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 or PSYCH 1010

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**ESC\_PS 7160: Developmental Aspects of Human Learning**

Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play aggression, culture, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 7170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Algebra or equivalent

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**ESC\_PS 7180: Foundations of Rehabilitation**

The vocational and independent living rehabilitation system for disabled persons. Concept of disability, its social psychological implications, and techniques of preparing disabled persons for adult adjustment.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7185: Health Behaviors: Drug and Sexuality Education**

Psychological, social and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent or instructor's consent

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**ESC\_PS 7190: Alcohol Abuse and Rehabilitation I**

Covers historical perspective, definition and measurement of the problem, classifications and theories about the etiology of alcoholism.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120 or ESC\_PS 4180 or ESC\_PS 7180 or instructor's consent

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**ESC\_PS 7195: Sport and Applied Coaching Psychology**

Sport and Applied Coaching Psychology is a fusion of positive psychology and sport psychology. Positive psychology teaches coaches a healthy approach based in positive motivation and behavior modeling. Sport psychology helps coaches identify with the mental training of athletes and its role in delivering maximum performance. Course focus is on helping coaches maximize the potential of their athletes and teams, while also building upon their emotional and psychological wellbeing.

**Credit Hours:** 3

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**ESC\_PS 7200: Positive Psychology**

Positive psychology explores what is positive, creative, and fulfilling in human behavior. It is the scientific study of well-being and flourishing:

what people do right. This course will examine cornerstones and key concepts such as emotions, engagement, relationships, strengths, virtues, meaning, and purpose. Proven as a very effective application in the realms of organizations, governments, businesses, education, counseling, etc., it is best originally understood by applying it to oneself.

**Credit Hours:** 3

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**ESC\_PS 7220: Measurement of Cognitive Abilities**

Analysis of the function of psychological testing and a critical examination of various achievement, aptitude, and intelligence assessment instruments.

**Credit Hours:** 3

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**ESC\_PS 7260: Development of Character and Talent Strengths**

This course will explore the development and application of psychological strengths through the lens of positive psychology theory, research, and intervention. Lessons feature strengths topics including identification, leadership, flow and engagement, regulation, goal-setting and motivation. At the end of the course, students will be proficient in the languages of the StrengthsFinder and VIA Character Strengths assessments, exploration and development oriented activities, and basic facilitator techniques. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7270: Motivation and Positive Psychology**

This course is designed to give you a better understanding of your own motivation and the motivations of others. We will explore the whether, the what, the why, and the how of motivation through the study of Self-Determination, Self-Concordance and Goal Systems, as well as Attribution and Achievement goal theories. In addition to conceptual knowledge, it is our hope that you broaden your personal knowledge, such as gain new insights on how to set and select self-appropriate goals. Additionally, we will explore techniques and recommendations for motivating others towards better performance, learning, and development. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7280: Mindfulness, Meditation and Wellbeing**

This class explores both the historical roots and contemporary research related to mindfulness, meditation, and their impacts on wellbeing. Through readings, video presentations and applied practices students will expand their knowledge of meditation and Eastern influences on psychology. Students will also be encouraged to increase their personal awareness of the relationships between stress reduction, present moment and mind/ body awareness, and mindfulness practices. Students will be challenged to integrate a regular meditation practice into their daily routine and, through diverse readings, be introduced to cross-cultural perspectives on human health, psychology, and wellbeing. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7460: Foundations of School Mental Health**

Explores the history, foundations, and implementation of an expanded framework of school mental health focusing on collaborative and interdisciplinary approaches to supporting the wellness and school success of youth. Introduces professional working in or with schools

to the school mental health framework emphasizing a behavioral health continuum of care, links between mental health and academic performance, a comprehensive system of learning supports, and data-based decision-making.

**Credit Hours:** 3

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**ESC\_PS 7575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 4575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate students (Master's and PhD)

**Recommended:** Prior course work in education, human development, family studies, sociology, social work, or other child and youth-related programs is highly preferred

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**ESC\_PS 8000: Advanced Child Development**

Psychological development from birth to adolescence. Examines the influence of maturation and learning upon the acquisition of normal development tasks. Emphasizes the application of current research and theory with the school-age child.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 8010: Advanced Adolescent Development**

Analysis of normal adolescent psychological development, including the cognitive, affective, academic, physiological, moral and social parameters. Applications with typical adolescent problems are emphasized.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 8015: Child and Adolescent Development**

A comprehensive analysis of normal development across the lifespan with a primary focus on children and adolescents. Will investigate the cognitive, affective, academic, physical, moral and social/cultural/racial domains. Examples of atypical development will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent

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**ESC\_PS 8020: Overview of Research Methods**

Survey of research design and methods of data collection for masters, educational specialists, and doctoral students.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8030: Role and Function of the School Psychologist**

Introduction to major helping relationship approached in School Psychology, applied to various professional settings. History, current issues, trends, professional organizations, legal/ethical standards, discussed.

**Credit Hours:** 3

**Prerequisites:** enrollment in Educational School, and Counseling Psychology Program

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**ESC\_PS 8040: Counseling Methods and Practices**

Introduction to counseling microskills and techniques, with attention to case conceptualization, therapeutic alliance, and counseling process. Laboratory experience in demonstrating skills and the ability to form an effective counseling relationship is required.

**Credit Hours:** 3

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**ESC\_PS 8050: Marriage and Family Counseling**

Appropriate for students who work with couples and families in a professional setting. Examines major family and marriage theories and research, counseling, skill development communication, and marital/family enrichment.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040

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**ESC\_PS 8060: Lifespan Development**

A comprehensive analysis of normal development across the lifespan with a primary focus on children and adolescents. Will investigate the cognitive, affective, academic, physical, moral, social/cultural/racial, religious/spiritual and sexual domains. Examples of atypical development will be discussed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent. Consent of instructor required

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**ESC\_PS 8070: Ethical and Legal Issues in Psychological Practice**

Legal and ethical concepts and issues relevant to the practice of psychology and student personnel services.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120 or instructor's consent

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**ESC\_PS 8082: Foundations of Educational and Psychological Measurement**

Basic principles of educational and psychological measurement including test construction, validity, reliability, item analysis, and derived scores.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8087: Seminar in Educational, School, and Counseling Psychology**

Graded on A-F basis only.



**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8090: Master's Thesis in Educational, School, and Counseling Psychology**

Independent research leading to Master's Thesis. Graded on S/U basis only. Prerequisites: advisor's consent

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**Credit Hour:** 3-6

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**ESC\_PS 8095: Research in Educational, School, and Counseling Psychology**

Supervised research that is independent of master's thesis or doctoral dissertation. Graded on S/U basis only.

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**Credit Hour:** 1-6

**Prerequisites:** advisor's consent

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**ESC\_PS 8100: Psychological Assessment of Children and Adolescents: Cognitive Assessment**

Basic principles in intelligence theory and intermediate measurement concepts. Practice in administering, scoring, and interpretation of data from individually administered intelligence tests with school aged children and adolescents. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ESC\_PS 8110: Methods in Group Counseling**

Study of group counseling methods and techniques. Participation in a group is required.

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**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040, demonstrated knowledge of ethical principles and departmental consent

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**ESC\_PS 8120: Psychological Assessment of Children and Adolescents: Psychoeducational Assessment**

Practice in administering, scoring, and interpretation of data from academic achievement, nonverbal intelligence, memory, adaptive behavior, and perceptual/motor assessments with school-age youth and adolescents.

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**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100 and instructor's consent

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**ESC\_PS 8125: Professional Iss. in Sch. Psych. I: Hist., Trends & Ethical Pract.**

For first-year doctoral students in school psychology. History, current issues, trends, professional organizations, legal-ethical standards of doctoral level school psychology are discussed. The scientist-practitioner model and scientific reasoning process as they apply to both science and practice are reviewed.

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**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology program

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**ESC\_PS 8130: Psychological Assessment of Adults**

Students develop and practice skills in writing psychological reports with special emphasis on assessing psychological social-vocational functioning.

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**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100

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**ESC\_PS 8135: Foundations of Career Psychology**

Theoretical orientations to counseling for career development; nature and structure of work, education, and leisure; work and family issues; career concerns of special populations; use of career information in counseling.

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**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8140: Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment**

This course introduces behavior theory, behavioral and social-emotional assessment techniques (including observations, interviewing, rating scales, and projective techniques) and their link to relevant interventions, with a primary focus on school-age youth and adolescents.

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**Credit Hours:** 3

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**ESC\_PS 8145: Psychological Interventions with Children and Adolescents: Behavioral Intervention**

This course will emphasize behavioral theory, assessment, and intervention, including functional behavior assessment, positive behavior supports, and the conceptualization from an individual, systems, and public health perspective. Graded on A-F basis only

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**Credit Hours:** 3

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**ESC\_PS 8160: Psychological Interventions with Children and Adolescents: Educational Instruction**

This course investigates models of school instruction in both general and special education, and how instruction can be adapted for learners who exhibit a range of academic and psychological problems and disabling conditions.

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**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100, ESC\_PS 8120 and instructor's consent

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**ESC\_PS 8165: Psychological Interventions with Children and Adolescents: Evidence- Based Therapies**

An introduction to evidence-based child and adolescent psychotherapies, including individual and group interventions. Various aspects will be considered including assessment, diagnosis, and treatment planning. Graded on A-F basis only.

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**Credit Hours:** 3

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**ESC\_PS 8170: Career Resources in Business and Industry**

Personnel practices, occupational requirements, and career opportunities and resources in business and industry. Applications are emphasized through on-site visits and use of business-industry-labor personnel. Graded on S/U basis only.

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**Credit Hour:** 2-4

**Prerequisites:** ESC\_PS 8135 or instructor's consent

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**ESC\_PS 8180: Theory and Practice in Career Psychology**

Methods and programs for facilitating the career development of individuals over the life span. Organization and development of activities and programs for all ages emphasized.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8135

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**ESC\_PS 8185: Health Promotion**

An overview of the important concepts of health promotion. Emphasis on specific health-related problems and issues, health behavior change, and the design, development implementation, and evaluation of comprehensive health promotion programs.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent or instructor's consent

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**ESC\_PS 8195: Applied Positive Coaching**

Explores concepts of sport, coaching and positive psychology, particularly the interventions and applications designed to further develop a coach's philosophy, communication skills, understanding of motivation, leadership skills, and the coach's and athlete's well-being. Prerequisites: ESC\_PS 7195

**Credit Hours:** 3

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**ESC\_PS 8200: Applied Positive Psychology**

This course will require students to implement positive psychology concepts from the introductory course into their personal, professional, and/or social lives. We will also study specific ways in which these concepts and theories are being applied throughout various realms of well-being. Among the topics in this course are therapeutic lifestyles, goal-setting and attainment, self-care, meaning making, transformational leadership, influence and sustainable happiness theory. Prerequisites: ESC\_PS 7200

**Credit Hours:** 3

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**ESC\_PS 8210: Projective Assessment of Adults**

Assessment of personality functioning using projective and inferential testing procedures. Rudimentary skills in using the Rorschach method.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8000 or ESC\_PS 8100

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**ESC\_PS 8220: Vocational Assessment of Individuals with Disabilities**

This course is an overview of the philosophy of vocational assessment of individuals with disabilities. The course also emphasizes to positive integration of vocational assessment into the rehabilitation counseling process. Assessment practice included.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7180 and ESC\_PS 8082

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**ESC\_PS 8232: Foundations of Sport Performance**

Focuses on principles and methods to become an effective sport performance coach. Examines the development of athletes and education of basic sports nutrition, strength, and conditioning.

**Credit Hours:** 3

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**ESC\_PS 8240: Sport in America**

Sociological perspectives of sport in America. Attention given to the influence of society on sport as in institution, and the role of sport as an agent of social change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or PSYCH 1000

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**ESC\_PS 8250: School Psychology Practicum: Introduction to School Services**

This course is an intro practicum that exposes students to the organization and functions of schools. Students work with psychologists and other school personnel on academic and behavioral interventions to learn how schools serve children and their families. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 8255: Legal Aspects of Sport and Coaching**

Emphasis is to provide insight about how the law is applied in sport settings, the types of litigation involved, and the standard of care required. Fundamental terminology and concepts, and contemporary issues in sport law will be addressed.

**Credit Hours:** 3

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**ESC\_PS 8260: School Psychology Practicum: School-Based**

Level II School Psychology Practicum provides students with experience in school-based psychological service delivery. Students gain experience with psychoeducational assessment and diagnosis, intervention planning and delivery, consultation, and serving on multidisciplinary teams. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 8265: Administration of Athletic Programs**

Examines methods, principles, and roles of athletic administrators. Also, examines the job responsibilities and competencies required of sport leaders in athletic administration.

**Credit Hours:** 3

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**ESC\_PS 8270: Student-Athlete Wellbeing**

As a positive coach and career educator, your knowledge of student wellbeing is critical to support your students' physical, mental, and social health alongside their academic success and development beyond sport. Although our semester will focus largely on the most critical components of student welfare, we will also frame our study of student wellbeing using the tenets of Positive Psychology, a discipline that champions a strengths-based approach to guide positive behaviors associated with health and wellbeing. Health promotion theory will also guide our course of study as we examine: (a) individual student-athlete wellbeing with a focus on physical, mental, and social health (b) wellbeing in the context of student services provided by the school or organization, and (c) program evaluation methodology to identify strengths and opportunities for program improvement to enhance wellbeing and welfare for all student-athletes. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 7200 Positive Psychology

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**ESC\_PS 8280: Gender Issues in Sport**

Through a study of theory and applied practice, students will explore personal biases, understand intersecting identities and explore privilege and oppression at the individual, interpersonal, structural, and cultural level when considering gender awareness in sport.

**Credit Hours:** 3

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**ESC\_PS 8290: Multicultural Issues in Sport**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of athletic coaches working with diverse student populations. Activities and assignments are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings.

**Credit Hours:** 3

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**ESC\_PS 8300: Positive Leadership in Sport**

A Positive Leadership philosophy requires Positive Leadership delivery. Course is designed to prepare leaders to bridge content knowledge to practical application. Students will use core competencies learned throughout their program to develop their leadership approach.

**Credit Hours:** 3

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**ESC\_PS 8310: Colloquium in Educational Psychology**

A course that covers current topics in learning, development, and schooling. Topics include cognitive, affective, academic, physical, moral ethnic/cultural domains. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent required

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**ESC\_PS 8320: Advanced Human Learning**

A study of behavioral and cognitive theories of learning with an emphasis on those greatest utility for educators. Experimental evidence forming the theoretical base for educational practice is examined.

**Credit Hours:** 3

**Recommended:** ESC\_PS 2400 or ESC\_PS 7100

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**ESC\_PS 8330: Motivating At-Risk and Diverse Students**

This course examines motivational concepts that apply to students of all ages. The course is designed to help teachers design classrooms and assignments that would improve the motivation of students, especially at-risk students. The course pays special attention to issues of diversity relevant to motivation. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8340: Cultural Backgrounds and Learning**

The course explores the influence of culture on the process of learning. Topics and discussions will center on learning within the K-12 classroom. Readings and assignments are tailored to engage students in practical classroom applications of the information and discussions within the

course. At the conclusion of the course students will have a deep understanding of how culture shapes thinking, learning, behavior, and the classroom environment. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8350: Cognition, Learning and Instruction**

Examines the topics of memory and cognition as they apply to the process of learning and instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or instructor's consent

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**ESC\_PS 8355: Cognition and Emotion**

This course looks at human cognition and emotions and their influence on learning, self-control, motivation, executive processes, and behavior change. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8360: Advanced Counseling Theories and Interventions**

Contemporary theories and interventions of counseling. Advanced study of efficacious techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040 or ESC\_PS 8342

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**ESC\_PS 8380: Data-Driven Instructional Decisions**

This course explores the uses of assessments and evaluation techniques for practical applications within the classroom. Focus is on use of data gathering techniques to increase student academic performance and inform classroom instruction. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8400: Analysis of Research in Career Psychology**

Examination of career development theories, the research supporting the theories, and the practical application of these ideas in career counseling and career programs.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8135

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**ESC\_PS 8410: School Guidance Programs**

Provides knowledge and skills in the development and management of school guidance programs including program planning, structuring, implementing, and evaluating.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8415: Program Evaluation for School Counselors**

Program Evaluation is a graduate seminar intended to provide students with the skills needed to evaluate comprehensive guidance and counseling programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8425: Effects of Maltreatment on Child and Adolescent Development**

Course topics to be covered include 1) definitions of child maltreatment, 2) incidence and prevalence rates, 3) possible causes and consequences associated with child maltreatment, 4) treatment of survivors and perpetrators, and 5) prevention efforts. Important legal and ethical issues will be discussed, such as children's competence and eyewitness abilities, false allegations of abuse, mandated reporting, and investigative interviewing of children. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8430: Mental, Emotional, and Behavioral Disorders in Youth**

The course will include an overview of normal development and an investigation into specific deviations in intensity, frequency, and/or duration of normal development which impact the individual in his or her home, school, and community.

**Credit Hours:** 3

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**ESC\_PS 8435: Wellness Management for School Personnel**

The current climate in schools places considerable demands on teachers and other school personnel. Often, those working in schools find themselves under enormous stress and pressure. In this course, school personnel will examine a variety of topics related to both identifying and effectively dealing with these pressures. Topics include communication skills, dealing with challenging individuals in the school system, recognizing and effectively managing stress, and recognizing burnout and re-energizing. The course will provide an overview of the research on these topics, as well as numerous effective strategies to deal with these pressures. Students in the course will have opportunities to apply learned strategies to real-life situations in the schools. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8440: School Mental Health: Policy, Law and Ethics**

This course is designed to familiarize school-based professionals with policies, laws and ethics associated with children and youth and schools.

**Credit Hours:** 3

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**ESC\_PS 8445: Building Resiliency and Optimism in Youth**

Examines risk and resiliency processes during childhood and adolescence. Focuses on defining resilience; sources of risks and protective factors within families, schools, and communities; prevention programs targeting early, middle childhood and adolescence. Promotion of one's own resilience and well-being discussed. Special topics include strengths-based models of resiliency, resilience and family difficulties, violence and maltreatment, poverty, dropout, and school/community-based prevention and intervention.

**Credit Hours:** 3

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**ESC\_PS 8450: Diversity Issues in School Mental Health**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of school personnel working with diverse student populations.

**Credit Hours:** 3

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**ESC\_PS 8455: Bully and Youth Violence: Prevention and Reduction**

This course is a survey of current issues in bullying and youth violence with an emphasis on applications in the school environment. The course will present effective strategies for bullying and violence prevention within the school and in collaboration with the community at large. Students are encouraged to apply the course concepts to their work environment and develop tools for future practice in schools and other youth-serving settings. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8460: Communication and Collaboration with Children and Families**

This course will provide education professionals with the knowledge and basic skills to address common mental health issues through positive and solution focused communication and collaboration.

**Credit Hours:** 3

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**ESC\_PS 8465: Vital Issues in School Mental Health**

The course is highly individualized in that students, as a group, will choose the specific topics to be covered. Readings and assignments have three foci: 1) improve understanding of each issue within a broader context of public mental health policy, prevention, intervention, and maintenance; 2) deepen student knowledge of the topic from practice and research-based sources; and 3) enable students to deal more effectively with those issues within relevant settings. Topics may include, but are not limited to: school dropout, substance use, self-injury/cutting, relational aggression, management of extreme behaviors, homelessness, divorce/death, eating disorders, pregnancy, ADHD, and many others. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8470: Preventions and Interventions in School Mental Health**

This course explores the role that educators and school mental health professionals play in promoting, prevention and early intervention practices for mental, emotional, and behavioral disorders in youth and considers the basic steps for designing, implementing and evaluating evidence based interventions.

**Credit Hours:** 3

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**ESC\_PS 8475: Proactive Behavior Management**

This course provides a framework to a prevention-focused model of classroom support and behavior management. Prevention is less time-consuming in the long run and leads to more opportunities for learning and social engagement because discipline problems are not interfering with teaching. This course will include evidence based strategies to structure proactive learning environments that promote students' academic skills and competencies as well as their social and emotional development. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8490: Mental Health in Schools Capstone Paper**

Course focuses on writing a capstone integration paper that is intended to be a culminating experience. Allows students to reflect on the content of their course work, evaluate the knowledge and skills acquired,

and apply what they have learned into their professional practice.  
Prerequisites: instructor's consent

**Credit Hour:** 1

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**ESC\_PS 8500: Rehabilitation Counseling**

A study of the history and current status of rehabilitation counseling, and the role, theory, and practice of counseling in rehabilitation settings with persons with disabilities.

**Credit Hours:** 3

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**ESC\_PS 8510: Medical and Psychological Aspects of Disability**

Presentation of medical aspects of major disabilities and their effects upon social, vocational, personal, and economic adjustment. Study of basic restoration and accommodating services.

**Credit Hours:** 3

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**ESC\_PS 8515: Sport Psychology**

Current topics of research in sport psychology are examined. Topics include: sport personality, attention, activation and anxiety intervention, motivation, sport aggression, audience effects, team cohesion, leadership, and health psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8520: Job Acquisition for Individuals with Disabilities**

Techniques of job development, placement, job analyses of the individual's skill and abilities and the employer's needs, and how to build professional relationships with employers.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7180

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**ESC\_PS 8530: Developmental Psychopathology and Exceptionality**

An investigation into the presentation, diagnosis, and treatment of psychopathologies in individuals, emphasizing causal pathways, risks/resiliency, prevalence, incidence, and continuity/discontinuity of the disorders from research in the field of developmental psychopathology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8540: Theory and Practice in Feminist Therapy**

Theory, research, practice standards and current debates within feminist therapy. Includes both examination of topical areas in a seminar format and live observation of feminist therapy.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8940 or instructor's consent

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**ESC\_PS 8550: Diversity and Multiculturalism II - Practical Application**

This course is part two in the Multicultural Education Certificate series of online courses designed for students working in a broad range of professions, such as health care, social work, education, school counseling, administration, etc. Students will examine various topics on diversity and multiculturalism to enhance their personal and professional development. To this end, the milieu of this course will be a safe online

environment that is conducive to open dialogue, self-reflection, critical thinking, and questioning, and one in which students can actively engage in the learning process through affective and cognitive approaches. Postings, along with relevant readings and assignments, will be used as the primary tools and resources for this collective learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8555: African American Education - Historic and Current Issues**

Critical examination of the deculturalization of American educational system. Concepts of race, culture, and "post racial society" are juxtaposed with social and systemic trends impacting African American students both in and out of the classroom. Pedagogical strategies are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8560: Immigrant Issues in Education**

The purpose of this course is to increase the level of cross-cultural awareness, knowledge, and skills of school personnel working with students who are immigrants. It is designed to be practically and experientially oriented. Activities and assignments in the class are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings. The anticipated outcome includes improved skills in conceptualizing the unique needs of and responding with appropriate approaches to effectively assist students who are immigrants. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8565: Gay, Lesbian and Bisexual Issues in the Schools**

This online course seeks to expand your perspective, worldview, and knowledge of GLB individuals and in your work environments as well as an invitation to promote social justice to make positive changes for the benefit of GLB individuals. Individuals who identify as GLB face many unique experiences, challenges, and opportunities during their developmental life span including issues related to coming out, psychological well-being and mental health development, heterosexism and homophobia, stereotypes and myths, and sexual identity. These issues and more are discussed in the course. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8580: Social and Cultural Identity Development**

Graduate-level course designed to introduce students to: (a) the dominant social and cultural identity theories and paradigms; (b) how these theories have been operationalized and measured.

**Credit Hours:** 3

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**ESC\_PS 8585: Gender Issues in Counseling and Education**

Topics include conceptions of gender roles, measurement of gender-related constructs, gender role socialization process, high incidence

gender-related problems, and psychoeducational and counseling interventions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ESC\_PS 8590: Multicultural Counseling Competencies: Theory and Research**

This course will introduce students to the current status of multicultural counseling theories and research issues and help students to increase their knowledge of cultural differences in counseling and psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8640: Interviewing, Diagnosis, and Assessment**

Introduction to clinical, psychometric assessment, and diagnosis. Data-gathering methods include interviews and tests/inventories of intellectual functioning, abilities, personality, and interests. Students utilize psychological reports to inform assessment, diagnosis and treatment.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ESC\_PS 8082

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**ESC\_PS 8655: Item Response Theory**

Introduces modern scaling with Item Response Theory, and includes how it can be used to statistically specify information about latent variables and the stimuli (e.g., tests) used to represent them.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9640 and ESC\_PS 9650

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**ESC\_PS 8690: Educational Planning and Evaluation**

This course addresses major issues and models used in educational program planning and evaluation, including the appropriate use of various evaluation models and different types of data.

**Credit Hours:** 3

**Prerequisites:** departmental inquiry course, ESC\_PS 8830 and/or ESC\_PS 8957

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**ESC\_PS 8700: Life/Career Coaching and Development**

Designed to teach life and career coaching strategies with roots in career psychology and positive psychology. It provides the tools and knowledge on how to coach people to achieve their personal and professional goals.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8710: Meaning In Work**

Covers a broad look at meaning and vocation using theoretical and empirical frameworks. Also explores the influence of culture, environment, relationships and personal values on meaning development while providing a framework for working from a coaching/counseling standpoint to help others identify or develop meaningful vocations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8720: Community and Stewardship**

Examines the concepts of community and stewardship, explores the literal roots of the word (common-unity) and our ability to respond (responsibility) to and build our communities. Also explores the connections between altruism, personal well-being, and social stewardship.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8730: Positive Organizational Psychology**

Surveys the impact of positive organizational psychology research throughout professional organizations. Students will learn empirically defined elements of positive work environments and learn the building blocks associated with this field including: Appreciative Inquiry, the Abundance Approach, Strengths-Based Organizations, Positive Work Environments, and Employee Engagement and Satisfaction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8830: Quantitative Analysis in Educational Research I**

This is the first course in the sequence of statistical analysis methods. Topics covered in this course include statistical inference, simple regression, multiple regression, regression assumptions, regression with categorical predictors, model selection methods polynomial regression, and model validation.

**Credit Hours:** 3

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**ESC\_PS 8840: Quantitative Analysis in Educational Research II**

This is the second course in the sequence of statistical analysis methods. Topics extend those covered in Quantitative Analysis I and include hypothesis testing, ANOVA, ANCOVA, repeated measures design, random-effects ANOVA, introduction to logistic regression, polytomous and ordinal regression and linear mixed models (if time permits).

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 and ESC\_PS 8830

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**ESC\_PS 8850: Quantitative Foundations in Educational Research**

This course is designed to provide students the fundamental and necessary quantitative methods skills in educational research. Topics include one-way and factorial analysis of variance (ANOVA), analysis of covariance (ANCOVA), repeated measures ANOVA, random-effects ANOVA, simple linear regression, multiple regression, regression diagnostics, introduction to logistic regression, and statistical power analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170

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**ESC\_PS 8870: Public Health Psychology**

Study of applications of psychology to behavior, environment, and policy to promote health and prevent disease. The course gives particular attention to behavioral epidemiology and risk/resiliency factors associated with negative outcomes of childhood and adolescents.

**Credit Hours:** 3

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**ESC\_PS 8900: Topics in Education, School and Counseling Psychology**

Topics placeholder for upper division courses.

**Credit Hour:** 1-3

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**ESC\_PS 8940: Counseling Psychology Practicum**

Supervised practice of counseling in an approved counseling setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8135, and ESC\_PS 8640 and consent of counseling area faculty

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**ESC\_PS 8941: Practicum and Theory in Group Counseling I**

Supervised practice of group facilitation in an approved setting. Formal study of contemporary theories and advanced techniques is integrated with the practice of group facilitation. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** ESC\_PS 8110 and instructor's consent

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**ESC\_PS 8942: Practicum and Theory in Group Counseling II**

A continuation of Educational School, and Counseling Psychology 8200. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** ESC\_PS 8200 and instructor's consent

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**ESC\_PS 8943: Practicum in Multicultural Counseling Interventions**

Supervised practice of applied multicultural counseling interventions in a wide variety of approved community and university settings. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and either ESC\_PS 8570 or ESC\_PS 8590

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**ESC\_PS 8944: School Psychology Practicum**

Supervised practice of psychological assessment, intervention and remediation strategies. May be repeated. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 8945: Practicum in Marriage and Family Counseling**

Supervised practice in marriage and family counseling conducted in appropriate laboratories and agencies. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8342, ESC\_PS 8160 or ESC\_PS 8050 and departmental consent

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**ESC\_PS 8946: Rehabilitation Counseling Internship**

Field-based counseling internship in a community setting serving individuals with disabilities. 600 hour supervised experience designed to combine theoretical and applied program training aspects. Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8520, and ESC\_PS 8220

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**ESC\_PS 8947: Practicum in Student Development Programs**

Supervised practice in student personnel services in an approved agency. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8080

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**ESC\_PS 8948: Field Placement in Counseling/Supervision**

Students will conduct counseling and/or supervision in approved community agencies under the supervision of licensed practitioners. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** completion of 9 credit hours of ESC\_PS 8040, and consent of the Counseling Area Faculty

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**ESC\_PS 8950: Prevention Science Practicum: School and Family Centered Interventions**

Prevention Science Practicum is an advanced graduate level practicum intended to provide students with the theoretical and practice skills needed to provide effective prevention services to children and families across multiple contexts. An emphasis is placed on school and family centered supports that prevent emotional and behavior problems in children. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** instructor's consent required

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**ESC\_PS 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8960: Interdisciplinary Child and Family Practicum**

This class includes a focus on child/family services with a systems/interdisciplinary approach. Students provide services via a mentorship model (strong supervision initially moving toward autonomy). Services include evaluations, therapy, consultation, psychiatric cross-training, and others. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and instructor's consent

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**ESC\_PS 8980: Field Experience in Counseling**

Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** instructor's consent

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**ESC\_PS 8990: Career Development Theory for Women**

Consideration of the relevance of theories of career development for women, and their application to the counseling of women. Supervised clinical experience in the application of theories to counseling high school age women.

**Credit Hours:** 3

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**ESC\_PS 9000: Multicultural Issues in Counseling**

This course covers the research and theories of counseling racial/ethnic minorities and gays, lesbians, and bisexuals in the U.S. Examination of personal values and education about the interrelationship between race, class, gender, and sexuality are accomplished via structured activities.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8340

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**ESC\_PS 9010: Building Cross-Cultural Competencies: Taiwan Up Close**

The primary purpose of the course is to promote the development of cross-cultural knowledge, awareness, and skills for applied psychologists. The first part of the course occurs at MU in preparation for part two, a 10-day professional cultural immersion in Taiwan.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9000 preferred; instructor's consent

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**ESC\_PS 9020: Psychology of Crossing Cultural Borders**

The primary purpose of the course is to promote the development of cross-cultural knowledge, awareness, and skills for applied psychologists. Students acquire knowledge of psychological processes associated with crossing cultural borders, and translate that knowledge into practical applications. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9040: Cross-Cultural Issues in Counseling: International Focus**

This course focuses on developing students' awareness, knowledge, and skills in cross-national counseling and research in equipping the next generation of counseling psychologists' competencies related to the globalization trend of counseling psychology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9000

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**ESC\_PS 9050: Biofeedback in Psychological Practice**

Use of biofeedback in achieving voluntary self-regulation and control of stress related behaviors.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040 or ESC\_PS 8342 and instructor's consent

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**ESC\_PS 9087: Advisor's Seminar**

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**ESC\_PS 9090: Doctoral Dissertation Educational School & Counseling Psychology**

Independent research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**ESC\_PS 9091: Internship in Counseling Psychology**

Supervised experience in counseling psychology on half- or full-time basis in approved internship station. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9092: Internship in School Psychology**

Supervised practice in school psychology in an educational setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9093: Doctoral Internship in School Psychology**

Supervised practice in doctoral-level school psychology in an institutional or applied setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9100: Advanced Psychological Measurement and Assessment**

Introduction to the scientific and psychometric foundations of clinical assessment, including measurement theory, reliability, validity, and scale/test construction. Primary focus on the development and validation of evidence-based, psychometrically-sound assessment tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**ESC\_PS 9125: Professional Iss. in Sch. Psych. II: Rsrch. Design & Application**

For first-year doctoral students in school psychology. Includes study of research design and methodological issues in the field of school psychology.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology doctoral program

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**ESC\_PS 9126: Prevention Science Research Design and Analysis**

Prevention Science Research is a graduate seminar intended to provide students with the theoretical and empirical foundations of prevention science. In particular, students will learn how to conceptualize problems from a prevention science perspective and design and evaluate preventive interventions using advanced methodologies. Opportunities for community based participatory research including research design and analysis, papers and briefs, grantwriting, and community collaborations regarding prevention programming particularly pertaining to children's mental health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9250: School Psychology Practicum: Community-Based**

This course is an advanced practicum for students providing school psychology services in non-school settings. Students develop higher-level skills in the areas of case coordination, diagnostic decision-making, intervention, and systems change. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 9260: Policy Practicum in Professional Psychology**

Policy Practicum is an advanced practicum focused on macro level skills for shaping policy and systems-level intervention. Students work within agencies that establish policy for special education, mental health, and other education/psychology-related issues. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9300: Psychoanalytic Counseling**

A study of the contribution of classical and contemporary psychoanalysis to counseling theory, research and practice. Examination of theoretical and clinical material in a seminar format.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8342 and instructor's consent

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**ESC\_PS 9400: Theories and Practices in Supervision**

Instruction and practice in the supervision of psychological services conducted in appropriate laboratories and agencies. Sections titled Counseling Psychology are graded on S/U basis only. Sections titled School Psychology are on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8940 or ESC\_PS 8944 and instructor's consent

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**ESC\_PS 9445: College Student Development**

Emphasis on college student development theory and its application in student affairs work.

**Credit Hours:** 3

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**ESC\_PS 9446: Student Affairs Administration**

History, philosophy, theory, and issues pertinent to student affairs work.

**Credit Hours:** 3

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**ESC\_PS 9450: Motivation**

Investigates human motivation applied to performance in schools, athletics, and personal life. Topics include goals, attributions, self-efficacy, interest, cultural differences, and rewards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or equivalent

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**ESC\_PS 9460: Health Behavior Change Research**

(Same as NURSE 9460). Doctoral seminar focusing on theories, measurement, and methods for conducting health behavior change research. Prerequisites: NURSE 9120,

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410, or faculty consent

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**ESC\_PS 9530: Scientific Fdns of Counseling Psych I: Prof Iss &**

For first-year doctoral students in counseling psychology. This course focuses on the history of counseling psychology, in and scientific reasoning processes as they apply to both science and practice.

**Credit Hours:** 3

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**ESC\_PS 9540: Scientific Foundations of Counseling Psych II: Rsrch, Dsgn & Appl**

For first-year doctoral students in applied psychology. Includes study of research design and methodological issues in the field of counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530

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**ESC\_PS 9550: Scientific Writing in Counseling Psychology**

This course focuses on the technical skills needed for developing a scientific research proposal in counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530 and ESC\_PS 9540 and instructor's consent

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**ESC\_PS 9560: Psychological Consultation: Schools**

The individual psychological consultation process between the mental health professional and school personnel. Techniques, models, research roles, and responsibilities are discussed. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9570: Psychological Consultation: Organizations**

This course provides an introduction to the theory and practical skills required to effectively consult at the organizational level in a variety of settings and contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9610: Applied Sport Psychology**

Building upon the knowledge base of sport psychology, this course integrates and synthesizes student's understandings of the wide array of concepts and theories of the field into meaningful applications and strategies aimed at enhancing the sport experience of others. A case study approach will be employed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8515

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**ESC\_PS 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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**ESC\_PS 9640: Introduction to Theory of Educational Measurement**

Classical and modern test theory, including IRT, generalizability theory and test bias. Also covered are advanced strategies for investigating reliability and validity.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 and ESC\_PS 8082

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**ESC\_PS 9650: Application of Multivariate Analysis in Educational Research**

The focus of this course will be on applications of multivariate analysis in educational research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8830 and ESC\_PS 8840 or equivalent and instructor's consent

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**ESC\_PS 9710: Structural Equation Modeling**

Simultaneous analysis of relationships among variables. Topics included are path analysis, confirmatory factor analysis, hybrid models, and special types of structural models involving longitudinal data, multiple groups and analysis of means. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650

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**ESC\_PS 9720: Hierarchical Linear Modeling**

Hierarchical Linear Modeling (HLM), including multilevel and longitudinal approaches, in applied research settings for the social, educational psychological, and health-related sciences. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650; consent required

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**ESC\_PS 9900: Topics in Educational Leadership and Policy Analysis**

Topics placeholder for upper division courses.

**Credit Hour:** 1-3

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## Electrical And Computer Engineering Courses

**ECE 1000: Introduction to Electrical and Computer Engineering**

Introduction to the basic principles of electrical and computer engineering through hands-on activity. Course includes fundamentals of programming using Matlab, applied to electrical and computer engineering problems.

**Credit Hours:** 2

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**ECE 1001: Experimental Course**

For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ECE 1210: Introduction to Logic Systems**

Introduces basic tools, methods and procedures to design combinational and sequential digital circuits and systems. Topics include number systems, Boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ECE 2100: Circuit Theory I**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** A grade of C- or better in MATH 1700

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**ECE 3110: Electrical and Computer Engineering Projects**

Open-ended design projects which encourage innovative solutions to design and measurement problems. Students teams complete several projects from different areas. Both oral and written presentations emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3210 and ECE 3410 and a grade of C- or better in Stat 4710. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 3210: Microprocessor Engineering**

Introduction to microprocessor architectures and programming; memory, memory management and cache organizations, bus configurations and timing implications; parallel I/O and serial communication interfaces.

**Credit Hours:** 4

**Prerequisites:** A grade of C or better in ECE 1210 and CMP\_SC 1050

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**ECE 3220: Software Design in C and C++**

Software/Hardware development for embedded systems, including memory, I/O and interrupts; an overview of C and C++, class structures in object oriented programming; software development with UML and testing and debugging strategies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3210

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**ECE 3410: Electronic Circuits and Signals I**

Electron Devices, modeling and applications to basic electronic circuits, including RC amplifiers and power supplies.

**Credit Hours:** 4

**Corequisites:** ECE 3810

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**ECE 3510: Electromagnetic Fields**

Elements of vector analysis, transmission line theory, electrostatics, magnetostatics, time varying fields and plane waves. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in PHYSCS 2760

**Corequisites:** MATH 4100

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**ECE 3610: Semiconductors and Devices**

Crystal structure; quantum aspects of energy, radiation and matter; quantum mechanics and energy bands in solids; electronic and optical properties of semiconductors; p-n junctions and diodes; bipolar and field-effect transistors.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3510

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**ECE 3810: Circuit Theory II**

Impulse and step responses, RLC circuits, classical differential equations solutions, complex plane stability, frequency and Bode Analysis, Resonance, Laplace transforms, two-port networks, mutual inductance and transformers. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** A grade of C or better in ECE 2100

**Corequisites:** MATH 4100

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**ECE 3830: Signals and Linear Systems**

Transform Analysis of Signals and Linear Systems. Laplace transforms, z-transforms, Fourier series and transforms.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3810

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**ECE 4001: Topics in Electrical and Computer Engineering**

Current and new technical developments in electrical engineering.

**Credit Hour:** 3-4

**Prerequisites:** senior standing

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**ECE 4020: Energy Systems and Resources**

(same as NU\_ENG 4315; cross-leveled with ECE 7020, NU\_ENG 7315). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 4030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 4346; cross-leveled with ECE 7030, NU\_ENG 7346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300

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**ECE 4040: Introduction to Nuclear Physics**

(cross-leveled with ECE 7040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 4085: Problems in Electrical and Computer Engineering**

Analytical or experimental problems pertaining to electric circuits, machines, fields or electronics.

**Credit Hour:** 1-3

**Recommended:** 12 hours Electrical and Computer Engineering credit or instructor's consent

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**ECE 4220: Real Time Embedded Computing**

(cross-leveled with ECE 7220). Embedded systems development with real time constraints including RTOS, task management and synchronization, real time scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 4250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 7250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210

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**ECE 4270: Computer Organization**

(cross-leveled with ECE 7270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 and ECE 4220

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**ECE 4280: Network Systems Architecture**

(same as CMP\_SC 4280; cross-leveled with ECE 7280, CMP\_SC 7280). The course covers network systems interconnects and switch fabrics, network considerations: and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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**ECE 4310: Feedback Control Systems**

(same as BIOL\_EN 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 4320: Architectural Robotics**

(cross-leveled with ECE 7320). Architectural robotics has been defined as "intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act". This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** junior or senior standing

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**ECE 4330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 7330). Covers 1) mechatronic systems; 2) the mathematical tools used to model industrial and mobile robots; and 3) vision sensors, their underlying models and algorithms that allow us to control and interact with robots.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

**Recommended:** a C/C++ languages

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**ECE 4340: Building Intelligent Robots**

(same as CMP\_SC 4730; cross-leveled with ECE 7340, CMP\_SC 7740). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Recommended: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4350: Programmable Logic Controllers**

(cross-leveled with ECE 7350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4370: Automatic Control System Design**

(cross-leveled with ECE 7370). Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 4410: Power Electronics I**

(cross-leveled with ECE 7410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 4430: Electronic Circuits and Signals II**

(cross-leveled with ECE 7430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 4440: Power Systems Analysis**

(cross-leveled with ECE 7440). Selected topics related to modern power system analysis. Single and three-phase balanced power; Transformers

and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 4460: Energy and Machines**

(cross-leveled with ECE 7460). Theory and applications of electric machines. Performance analysis of AC Synchronous, Induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4465: Energy and Machines Lab**

Electrical safety, magnetic and poly-phase circuits, synchronous and induction machines laboratory.

**Credit Hour:** 1

**Prerequisites or Corequisites:** ECE 4460

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**ECE 4470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 7470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 4480: Test and Evaluation of Electrochemical Devices**

(cross-leveled with ECE 7480). This combined undergraduate/graduate introductory course will introduce the student to the testing and evaluation of electrochemical cells and batteries. Included with an introduction to battery technology is material emphasizing test safety and operational hazards. Graded on A-F basis only. Recommended: at least 3 college credit hours of chemistry,

**Credit Hours:** 3

**Prerequisites:** senior standing in Electrical Engineering or major with equivalent mathematical preparation

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**ECE 4510: Pulsed Power Engineering**

(cross-leveled with ECE 7510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4550: Introduction to Plasmas**

(same as NU\_ENG 4375; cross-leveled with ECE 7550, NU\_ENG 7375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4570: Lasers and Their Applications**

(same as NU\_ENG 4382; cross-leveled with ECE 7570, NU\_ENG 7382). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 classroom hours of laboratory work with lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and MATH 4110

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**ECE 4580: Computational Neuroscience**

(same as BIO\_SC 4580, BIOL\_EN 4575; cross-leveled with ECE 7580, BIO\_SC 7580, BIOL\_EN 7575). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 4610: Physical Electronics**

(cross-leveled with ECE 7610). Introduction to physical principles of semiconductors and semiconductor devices; gas, solid state, and semiconductors lasers; electro-optics; plasma physics and gaseous electronics; materials interaction with electric and magnetic fields.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4620: Introduction to BioMEMS**

(cross-leveled with ECE 7620). Study of BioMEMS devices and applications. Topics cover BioMEMS including overview of microfabrication techniques, common bioMEMS material, microfluidic principles, microfluidic devices, drug delivery, biomedical microdevices for neural implants, patch-clamping and single cell based analysis systems, microelectroporation, DNA microarrays, Polymerase Chain Reaction and biopolymers, chemical and gas sensors and biosensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 4630: Introduction to Optical Electronics**

(cross-leveled with ECE 7640). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4640: MEMS Laboratory**

(cross-leveled with ECE 7640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical Systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320, or ECE 2100

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**ECE 4650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4655: Digital image Processing**

(same as CMP\_SC 4650; cross-leveled with ECE 7655, CMP\_SC 7650). This course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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**ECE 4670: Microelectronic Fabrication**

(cross-leveled with ECE 7670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 4675: Digital Image Compression**

(same as CMP\_SC 4670; cross-leveled with ECE 7675, CMP\_SC 7670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**ECE 4690: Design and Simulation of VLSI Circuits**

(cross-leveled with ECE 7690). Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 4670

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**ECE 4710: Communications Systems**

(cross-leveled with ECE 7710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 4720: Introduction to Machine Learning and Pattern Recognition**

(Same as CMP\_SC 4720; cross-leveled with ECE 7720, CMP\_SC 7720)  
This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problems of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

---

**ECE 4730: Introduction to Wireless Communication System**

(cross-leveled with ECE 7730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 4830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 7830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 1210, ECE 3830

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**ECE 4870: Introduction to Computational Intelligence**

(same as CMP\_SC 4770; cross-leveled with ECE 7870, CMP\_SC 7770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 4880: Micro/Nano Systems**

(cross-leveled with ECE 7880). Micro/nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's consent

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**ECE 4930: Intermediate Electromagnetics**

(cross-leveled with ECE 7930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 7940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, various antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4950: Microwave Principles**

(cross-leveled with ECE 7950). Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3510 and ECE 3410

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**ECE 4970: Senior Capstone Design**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 4970W: Senior Capstone Design - WI**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 4980: Senior Capstone Design II**

(same as CMP\_SC 4980). Completion of ECE 4970 design project. Design prototyping, testing, evaluation and preparation of documentation. Lectures on ethics, professionalism, safety, economic consideration. Oral and written reports. Not for graduate credit.

**Credit Hours:** 2

**Prerequisites:** senior standing and ECE 4970

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**ECE 4990: Undergraduate Research in Electrical Computer Engineering**

Supervised independent study or project in electrical or computer engineering, culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** Undergraduate Program Director's consent

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**ECE 4995: Undergraduate Honors Research in Electrical Computer Engineering**

Independent investigation or project in electrical or computer engineering to be presented as an undergraduate honors thesis. Enrollment is limited to students participation in the Electrical and Computer Engineering Honors Program.

**Credit Hour:** 1-3

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**ECE 7001: Advanced Topics in Electrical and Computer Engineering**  
Current and new technical developments in electrical engineering.

**Credit Hour:** 3-4

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**ECE 7010: Digital Computer Applications in Engineering**

Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation and differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**ECE 7020: Energy Systems and Resources**

(same as NU\_ENG 7315; cross-leveled with ECE 4020, NU\_ENG 4315). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 7030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 7346; cross-leveled with ECE 4030, NU\_ENG 4346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** graduate ENGINR 1200, ENGINR 2300

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**ECE 7040: Introduction to Nuclear Physics**

(cross-leveled with ECE 4040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 7220: Real Time Embedded Computing**

(cross-level with ECE 4220). Embedded systems development with real time constraints including RTOS, task management and synchronization, realtime scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 7250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 4250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210

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**ECE 7270: Computer Organization**

(cross-leveled with ECE 4270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** ECE 3210

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**ECE 7280: Network Systems Architecture**

(same as CMP\_SC 7280; cross-leveled with ECE 4280, CMP\_SC 4280). The course covers network systems interconnects and switch fabrics, network considerations and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 or ECE 3200 and CMP\_SC 3280 or ECE 3210

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**ECE 7310: Feedback Control Systems**

(same as BIOL\_EN 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 7320: Architectural Robotics**

(cross-leveled with ECE 4320). Architectural robotics has been defined as "intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act". This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** ECE 4970 or equivalent

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**ECE 7330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 4330). Introduces robotics; robot system characteristics; robot motive power systems; geometric structure of robots; sensors and feedback; control applications and algorithms; data acquisition and output actuation function; robots and AI; microprocessor applications. Lecture and Laboratory. Recommended: a C/C++ Language course.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

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**ECE 7335: Nuclear Safeguards Science and Technology**

(same as NU\_ENG 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**ECE 7340: Building Intelligent Robots**

(same as CMP\_SC 7730; cross-leveled with ECE 4340, CMP\_SC 4730) Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Recommended:** some programming experience

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**ECE 7350: Programmable Logic Controllers**

(cross-leveled with ECE 4350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

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**ECE 7370: Automatic Control System Design**

(cross-leveled with ECE 4370). Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 7410: Power Electronics I**

(cross-leveled with ECE 4410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 7430: Electronic Circuits and Signals II**

(cross-leveled with ECE 4430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 7440: Power Systems Analysis**

(cross-leveled with ECE 4440). Selected Topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 7460: Energy and Machines**

(cross-leveled with ECE 4460). Theory and applications of electric machines. Performance analysis of AC synchronous induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 4470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 7480: Test and Evaluation of Electrochemical Devices**

(cross-leveled with ECE 4480). This combined undergraduate/graduate introductory course will introduce the student to the testing and evaluation of electrochemical cells and batteries. Included with an introduction to battery technology is material emphasizing test safety and operational hazards. Graded on A-F basis only. Recommended: at least 3 college credit hours of chemistry,

**Credit Hours:** 3

**Prerequisites:** graduate standing in Electrical Engineering or major with equivalent mathematical preparation

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**ECE 7510: Pulsed Power Engineering**

(cross-leveled with ECE 4510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7550: Introduction to Plasmas**

(same as NU\_ENG 7375; cross-leveled with ECE 4550, NU\_ENG 4375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930

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**ECE 7570: Lasers and Their Applications**

(same as NU\_ENG 7382; cross-leveled with ECE 4570, NU\_ENG 4382). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 classroom hours of laboratory work with lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and MATH 4110

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**ECE 7580: Computational Neuroscience**

(same as BIO\_SC 7580, BIOL\_EN 7575; cross-leveled with ECE 4580, BIO\_SC 4580, BIOL\_EN 4575). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 7610: Physical Electronics**

(cross-leveled with ECE 4610). Introduction to physical principles of semiconductors and semiconductor devices; gas, solid state, and semiconductor lasers; electro-optics; plasma physics and gaseous electronics; materials interaction with electric and magnetic fields.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7620: Introduction to BioMEMS**

(cross-leveled ECE 4620). BioMEMS materials, fabrication techniques, micro-fluidic principles and devices, drug delivery, biomedical micro-devices for neural implants, patch clamping and single cell based systems, micro-electroporation, DNA microarrays, Polymerase Chain Reaction, chemical/gas/bio-sensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 7630: Introduction to Optical Electronics**

(cross-leveled with ECE 4630). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7640: MEMS Laboratory**

(cross-leveled with ECE 4640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320 or ECE 2100; instructor's consent

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**ECE 7650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7655: Digital Image Processing**

(same as CMP\_SC 7650; cross-leveled with ECE 4655, CMP\_SC 4650). The course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 and CMP\_SC 2050 or instructor's consent

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**ECE 7670: Microelectronic Fabrication**

(cross-leveled with ECE 4670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 7675: Digital Image Compression**

(same as CMP\_SC 7670; cross-leveled with ECE 4675, CMP\_SC 4670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**ECE 7690: Design and Simulation of VLSI Circuits**

(cross-leveled with ECE 4690). Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 4670

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**ECE 7710: Communications Systems**

(cross-leveled with ECE 4710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 7720: Introduction to Machine Learning and Pattern Recognition**

(same as CMP\_SC 7720; cross-leveled with ECE 4720, CMP\_SC 4720). This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problem of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

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**ECE 7730: Introduction to Wireless Communication System**

(cross-leveled with ECE 4730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 7810: Multimedia Engineering and Technology**

(same as CMP\_SC 7810). Survey of multimedia applications. Capture, coding, storage, transmission, and software tools for developing productions involving text, graphics, images, animation, sound and video. Term projects. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 and ECE 3830

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**ECE 7830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 4830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 1210, ECE 3830

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**ECE 7870: Introduction to Computational Intelligence**

(same as CMP\_SC 7770; cross-leveled with ECE 4870, CMP\_SC 4770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 7880: Micro/Nano Systems**

(cross-leveled with ECE 4880). Micro/Nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's approval

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**ECE 7930: Intermediate Electromagnetics**

(cross-leveled with ECE 4930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 4940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, and various wire antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7950: Microwave Principles**

(cross-leveled with ECE 4950). Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3510 and ECE 3410

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**ECE 8001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering

**Credit Hours:** 3

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**ECE 8010: Supervised Study in Electrical Engineering**

Supervised individual study at the graduate level to be completed within the course of one semester in the form of a brief report. Graded on S/U basis only

**Credit Hour:** 1-3

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**ECE 8020: Superconductivity and its Applications**

(same as NU\_ENG 8450). Phenomenology and theory of superconductivity, cryogenic practice, metallurgy of superconducting elements, alloys and compounds. Present and prospective applications.

**Credit Hours:** 3

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**ECE 8085: Problems in Electrical and Computer Engineering**

Supervised investigation of an electrical engineering problem for an MS project. Study culminates in a project report. Graded on a S/U basis only.

**Credit Hour:** 2-5

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**ECE 8110: Preparing Advanced Professionals - I**

Discussions on a variety of topics: Pedagogy - latest from cognitive science and learning theory, effective teaching, how a university functions, engineering teaching and research; how leading industries perform research and the importance of soft skills, etc. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** restricted to graduate Engineering majors only

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**ECE 8120: Preparing Advanced Professionals - II**

Continues format of ECE 8110 with group discussions and seminars by experts on how to write an effective proposal, including a review of model proposals, model proposal reviews, and a 'hands-on' proposal writing followed by globalization and its effects on professionals. Graded on A-F only.

**Credit Hour:** 1

**Prerequisites:** graduate engineering majors only

---

**ECE 8250: Digital Hardware Systems Design**

Characteristics and parameters of various hardware subsystems including main memory, auxiliary memory, arithmetic units, card equipment, etc., and principles of organization into efficient system.

**Credit Hours:** 3

**Prerequisites:** ECE 4250

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**ECE 8260: Computer Networks**

Concepts and goals of computer networking, structure of computer networks, OSI model and layers, network control, analysis, design, and management, data communication techniques including fiber optics, WAN, MAN and LAN architectures and protocols, inter-networking, case studies, and hands-on studying the performance by analytic modeling and computer simulation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4270

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**ECE 8270: Parallel Computer Architecture**

The course covers parallel computer architecture (general purpose multi-core and many-core processors, shared and distributed memory systems, clusters). Emphasis will be given to both architectural and programmability aspects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4270 or ECE 7270, ECE 4220 or ECE 7220 or CMP\_SC 4250 or CMP\_SC 7250

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**ECE 8320: Nonlinear Systems**

Nonlinear systems including topics such as limit cycles, phase plane analysis, bifurcation, Lyapunov stability, input-output stability, passivity. Topics from control such as feedback linearization, sliding control, and Lyapunov redesign. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 8330: Neural Networks for Learning Control**

Neurocomputing techniques and structures for modeling, learning control, control stabilization, and optimization of performance over time.

**Credit Hours:** 3

**Prerequisites:** at least on 4000, 7000 or 8000- level control course

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**ECE 8340: Multivariable Control System Design**

This course will cover techniques in multivariable control system design and analysis, including LOG H-2 design, H- $\infty$  design, LTR, robust performance, and selected adaptive and learning control techniques for nonlinear control.

**Credit Hours:** 3

**Prerequisites:** ECE 8310 or acceptable equivalent

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**ECE 8350: Optimal Control Theory**

Analysis and design of dynamic systems using optimal control theory: parameter optimization, dynamic optimization, computational methods, differential games.

**Credit Hours:** 3

**Prerequisites:** ECE 8310

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**ECE 8360: Stochastic Optimal Estimation and Control**

Surveys random process theory; stochastic control and optimization; estimation and filtering based on Kalman-Bucy techniques; stochastic stability; adaptive and learning control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 8310

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**ECE 8370: Digital and Sample-Data Systems**

Introduces sampling and quantization, design of digital and sample-data systems, digital filters, adaptive sampling and quantization.

**Credit Hours:** 3

**Prerequisites:** ECE 8310 and STAT 4710

---

**ECE 8410: Power Electronics II**

Circuit concepts and analysis techniques for transistor switching regulators, thyristor choppers, transistor inverters, self-commutated thyristor invertors and cycloconverters.

**Credit Hours:** 3

**Prerequisites:** ECE 4410

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**ECE 8420: Power Electronic Drives**

Advanced study of DC and AC motor drives controlled by power electronic methods, including phase controlled rectifier, DC chopper, cycloconverter, variable frequency inverters.

**Credit Hours:** 3

**Prerequisites:** ECE 8410, ECE 8310

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**ECE 8430: Digital Electronics**

Electronic hardware aspects of digital systems. Includes state-of-the-art information on integrated-circuit logic devices and their applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4690

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**ECE 8510: Advanced Electromagnetics**

Advanced theoretical electromagnetic theory. Investigation of summation problems with general boundary conditions, time varying fields, and time harmonic currents. Basic applications and relationships in classical and relativistic physics.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

---

**ECE 8520: Direct Energy Conversion Technologies**

Study of direct energy conversion technology and research trends in this area. Topics include energy storage techniques (mechanical, chemical, thermal, inductive, capacitive), thermoelectric generators, photovoltaic generators, thermionic generators, magnetohydrodynamic generators, piezoelectric generators, wind generators, fuel cells. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8530: Advanced Photonics**

Concentrated study of optical system design, including integrated optics, semiconductor lasers, quantum wells, optical materials, and electro-optical effects used in modern optical systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4530

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**ECE 8540: Advanced Network Theory and Applications**

Advanced study of network theorems including compensation, reciprocity, duality, and maximum power. Theory and application of N-port parameters. Linear and non-linear network synthesis techniques. Analysis of ordinary and partial differential equations to develop electrical analogs for mechanical, pneumatic, thermal, hydraulic systems. Study of non-linear circuit analysis and modeling techniques. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8570: Theoretical Neuroscience I**

Properties of nerve cells including membrane potential, action potential, ion channel dynamics, GHK equation, dynamical properties of excitable membranes. Equilibria, stability, eigenvalues and phase portraits. Conductance based models, bifurcations, excitability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 8580: Theoretical Neuroscience II**

Neural encoding and decoding including firing rate and spike statistics, reverse correlation and visual receptive fields. Cellular and synaptic biophysics. Adaptation and learning including plasticity, classical conditioning, reinforcement learning and representational learning. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** ECE 8570

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**ECE 8610: Power Semiconductor Devices**

A study of the semiconductor devices used in switch-mode power converter circuits. Course surveys the field and discusses selected devices in depth.

**Credit Hours:** 3

**Prerequisites:** ECE 3610, ECE 4630 and ECE 4650

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**ECE 8620: Advanced Microelectromechanical Systems**

MEMS development cycle, overview of microfabrication, microsystem modeling, mechanical analysis, thermal analysis, transduction mechanism, case studies; Micromirror, accelerometers, pressure sensors, force sensors, RF MEMS switches, Infrared sensors, and Microsystem packaging.

**Credit Hours:** 3

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**ECE 8630: Numerical Analysis of Semiconductor Devices**

Basic equations of semiconductor device analysis, associated boundary conditions, and physical models; discretization schemes and numerical solution methods; application to one and two dimensional bipolar and

field effect device structures in thermal equilibrium and under DC steady State and transient operating conditions.

**Credit Hours:** 3

**Prerequisites:** ECE 4630 and ECE 4650

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**ECE 8640: Advanced Integrated Circuits**

Fundamentals of advanced integrated circuit design; diffusion, ion implantation and epitaxy; MOS and bipolar techniques; survey of current LSI design, fabrication and testing.

**Credit Hours:** 3

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**ECE 8650: Solid State Theory I**

Principles of quantum and wave mechanics as applied to solid state; Boltzman and Fermi statistics; energy band theory of crystals; electrons, holes in semiconductors. Current flow in P-N junctions, semiconductor devices.

**Credit Hours:** 3

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**ECE 8660: Solid State Theory II**

Fundamentals of crystallography; application of X-ray analysis to the study of crystallinity. Quantum mechanical solution for the wave function of an electron in a solid; concepts of reciprocal space.

**Credit Hours:** 3

**Prerequisites:** ECE 8650 or PHYSCS 8150

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**ECE 8680: Quantum Electronics**

Optical pumping of metastable quantum states, magnetic state inversion. Semiconductor junction electron injection. Optical cavities, induced emission and optical regeneration. Parametric amplification.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**ECE 8690: Computer Vision**

(same as CMP\_SC 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8695: Cognitive Computer Vision**

One of the more recent trends in computer vision research in the pursuit of human-like capability is the coupling of cognition and vision into cognitive computer vision. This course will emphasize the advanced topics in applying machine learning techniques in computer vision.

**Credit Hours:** 3

**Prerequisites:** ECE 4850 or ECE 7850 or CMP\_SC 4650 or CMP\_SC 7650 or consent of instructor

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**ECE 8720: Microwave and RF Design of Wireless Systems**

Introduces fundamentals of Microwave/RF design and analysis of modern wireless systems. Topics include the following: wireless system

components, receiver design, performance issues, noise, distortion, measurement techniques and computer-aided design techniques.

**Credit Hours:** 3

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**ECE 8725: Supervised Learning**

(same as CMP\_SC 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8730: Fundamentals of Radar Signal Processing**

Study of radar signal processing fundamentals. Topics include radar systems, signal models, sampling and quantization of radar signals, radar waveforms, Doppler processing, detection fundamentals, radar imaging.

**Credit Hours:** 3

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**ECE 8735: Unsupervised Learning**

(same as CMP\_SC 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8740: Digital Signal Processing in Remote Sensing**

Study of digital signal processing in remote sensing applications. Investigation of digital signal processing methods for visible, near infrared, thermal infrared, and microwave wavelength sensors.

**Credit Hours:** 3

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**ECE 8750: Digital Signal Processing in Telecommunications**

Applications of digital signal processing in telecommunication systems; oversampling and quantizations, Delta-Sigma modulation, linear predictive speech coding, adaptive filtering, echo canceller, adaptive receivers and equalizers for wireless communication, digital cellular, CDMA.

**Credit Hours:** 3

**Prerequisites:** ECE 4830 and ECE 4710

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**ECE 8770: Advanced Mobile Communication Systems**

Channel estimation and equalization, multi-user detection, diversity combining, multi-carrier and OFDM, Standards of 3G Wireless Communication Systems such as EDGE, CDMA 2000 and UMTS.

**Credit Hours:** 3

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**ECE 8780: State Variable Methods in Automatic Control**

(same as CH\_ENG 8780, MAE 8780, NU\_ENG 8408). State variables for continuous and discrete-time dynamic control systems; controllability and observability; optimal control of linear systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4370, ECE 4310, MAE 4703 or instructor's consent

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**ECE 8790: Digital Processing of SAR Data**

Study of digital processing of synthetic aperture radar (SAR) data. Topics cover SAR data fundamentals including concepts, signal processing, pulse compression, signal properties, processing algorithms, and image processing.

**Credit Hours:** 3

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**ECE 8800: Sensor Array and Statistical Signal Processing**

Introduce the basics on sensor array processing, signal detection and parameter estimation, with their applications in communications and signal processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 7830 and ECE 8860 or with instructor consent

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**ECE 8810: Advanced Digital Signal Processing**

Topics in digital signal analysis and filtering. Including hardware implementation, speech synthesis and recognition, multi-dimensional transforms, random-signal concepts, design methods and computer aids to analysis and design.

**Credit Hours:** 3

**Prerequisites:** ECE 4830

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**ECE 8820: Pattern Recognition**

(same as CMP\_SC 8760). Decision functions, crisp and fuzzy clustering methods, statistical pattern recognition methods, Bayesian classifiers, error probabilities, estimation of density functions, perceptrons, least-mean-square algorithms, feature selection, dimensionality reduction and syntactic pattern recognition.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050, STAT 4710

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**ECE 8830: Visual Signal Processing and Communications**

Threats visual digital signal processing and network communications covering both theory and application of coding, compression and communications via the web. Covers such standards as JPEG, MPEG-2 and MPEG-4 as well as motion detection. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 8840: Artificial Intelligence**

Concepts, theories, and models pertaining to neural nets, pattern recognition, learning systems, and programmed problem solving.

**Credit Hours:** 3

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**ECE 8850: Digital Image Processing**

Image processing methods for segmentation, object representation, scene description and scene interpretation.

**Credit Hours:** 3

**Prerequisites:** ECE 4850

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**ECE 8855: Advanced Image Processing**

(same as CMP\_SC 8650). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8860: Probability and Stochastic Processes for Engineers**

Introduction to probability, multidimensional complex (phasor) random variables and stochastic processes in electrical engineering.

**Credit Hours:** 3

**Prerequisites:** ECE 4830, ECE 4710, or ECE 8620

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**ECE 8870: Modeling and Management of Uncertainty**

(same as CMP\_SC 8870). Theoretical and practical issues in the modeling and management of uncertainty. Topics include probabilistic uncertainty, belief theory and fuzzy set theory. Applications to computer vision, pattern recognition and expert systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or instructor's consent

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**ECE 8875: Advanced Topics in Computational Intelligence**

(same as CMP\_SC 8780). This course is a continuation of ECE 7870 in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870

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**ECE 8880: System Modeling**

System performance requires the assessment of its delay and throughput. Markov theory provides the theoretical basis for such assessment. More general methods describe queues including open and closed queuing networks. Includes performance assessment of computer processors.

**Credit Hours:** 3

**Prerequisites:** STAT 4710

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**ECE 8890: Neural Networks**

(same as CMP\_SC 8770). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or instructor's consent

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**ECE 8910: High Frequency Transmission and Radiation**

Skin effect; theory of transmission lines, wave guides, resonators.

**Credit Hours:** 3

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**ECE 8920: Antennas**

Point and aperture sources; simple antennas; antenna array; data-processing antennas; and other broadband and directive antennas.

**Credit Hours:** 3

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**ECE 8990: Research-Master Thesis in Electrical and Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECE 9001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering

**Credit Hours:** 3

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**ECE 9990: Research-Doctoral Dissertation Electrical & Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Emergency Medicine Courses

**EMR\_ME 6034: SCC Emergency Medicine Selective**

This selective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care. The student will work 15-16 (~140 hours) rotating shifts in the Emergency Department. During that time, the student will have free access to all patient care activities. The student will assist with patient evaluations and procedures under the close supervision of the Emergency attending physicians, residents, or physician assistants. Specific time will be devoted to learning basic skills needed in emergency medicine. An orientation skills lab will be provided early in the rotation to cover suturing, splinting, etc. Teaching will be primarily a one-on-one exchange with the residents and PA's/Attendings. There are night shifts in this rotation.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of 5 of the 7 core clerkships. Three of the 5 must be the Surgery Clerkship, Internal Medicine Clerkship, and either the Pediatrics or Family Medicine Clerkship

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**EMR\_ME 6243: ABS Emergency Medicine Research**

ABS Emergency Medicine Research

**Credit Hour:** 5-10

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**EMR\_ME 6245: ABS Emergency Medicine Research and Review**

ABS Emergency Medicine Research and Review

**Credit Hour:** 5-10

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**EMR\_ME 6460: Emergency Medicine**

Emergency Medicine

**Credit Hours:** 5

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**EMR\_ME 6760: Emergency Medicine - Rural**

Emergency Medicine - Rural

**Credit Hours:** 5**EMR\_ME 6860: EMERGENCY MEDICINE**

Emergency Medicine

**Credit Hours:** 5**EMR\_ME 6919: Introduction to Emergency Medicine**

This elective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two years of medical school**EMR\_ME 6920: Introduction to Pediatric Emergency Medicine**

This elective is designed to offer an introductory experience in Pediatric Emergency Medicine (PEM) including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school

## Engineering Courses

**ENGINR 1000: Introduction to Engineering**

This course will help students identify a field of engineering that they will pursue during the remainder of their studies at MU. This objective will be achieved by exposing students to the history of our engineering disciplines, and by giving an overview of the individual departments within the college of engineering. Guest lecturers from industry will make presentations on what it's like to be an engineer. Other lectures will be given to help acclimate students to university life. Graded on A-F basis only.

**Credit Hour:** 1**ENGINR 1001: Experimental Course**

For freshman-level students. Content and number of credit of hours to be listed in Schedule of Courses.

**Credit Hour:** 3-99**ENGINR 1100: Engineering Graphics Fundamentals**

Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

**Credit Hours:** 2**Prerequisites or Corequisites:** MATH 1500**Prerequisites:** Restricted to Engineering Students only, or by departmental consent**ENGINR 1110: Solid Modeling for Engineering Design**

Introduction to 3D (three dimensional) modeling techniques using computer aided design software. Topics include model creation

techniques and advanced graphical presentation practices. Graded on A-F basis only.

**Credit Hour:** 1**Prerequisites:** ENGINR 1100 or instructor's consent. Restricted to Engineering Students Only or by departmental consent**ENGINR 1200: Statics and Elementary Strength of Materials**

Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

**Credit Hours:** 3**Prerequisites or Corequisites:** PHYSCS 2750. Restricted to Engineering Students only or with departmental consent**Prerequisites:** MATH 1500**ENGINR 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99**ENGINR 2001W: Experimental Course - Writing Intensive**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99**ENGINR 2010: Women in Engineering Leadership**

This is a course focused on women in leadership, leadership development and leadership in engineering. Through experiential learning, empowering examples, group discussion, written reflections, attendance at three conferences, one retreat and completion of two short papers and one major project, you will develop the self-knowledge and skills to practice leadership for a changing world, explore your own potential for leadership, explore the context for the practice of leadership and learn to make a difference through leadership. Beginning in August and working through May, you will work individually and in teams to produce a final project that shows how your own skills and knowledge about leadership can you help you use your passion and engineering degree to impact the world around you.

**Credit Hours:** 3**Recommended:** First Year Students (transfers, first time college, etc)**ENGINR 2100: Circuit Theory for Engineers**

DC circuit analysis, inductors and capacitors, first-order response, AC circuit analysis, single-phase AC power and three-phase, transformers.

**Credit Hours:** 3**Prerequisites:** MATH 1700. For Non-Electrical and Computer Engineering Majors. Restricted to Engineering Students only or with departmental consent**ENGINR 2100H: Circuit Theory for Engineers - Honors**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power.

**Credit Hours:** 3**Prerequisites:** MATH 1700. Honors eligibility required

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**ENGINR 2200: Intermediate Strength of Materials**

Elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2300: Engineering Thermodynamics**

(same as MAE 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2750. Restricted to Engineering Students Only or departmental consent

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**ENGINR 2500: A History of Modern Engineering**

This course will introduce the student to significant engineering events that have shaped the late modern-era from the French Revolution to the end of World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGINR 2500H: A History of Modern Engineering - Honors**

This course will introduce the student to significant engineering events that have shaped the late modern-era from the French Revolution to the end of the World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGINR 2600H: History of Human Spaceflight - Honors**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**ENGINR 2600HW: History of Human Spaceflight - Honors/ Writing Intensive**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**ENGINR 3000: Short Term Education Abroad**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 3000H: Short Term Education Abroad - Honors**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 4000: Study Abroad Technical Elective**

This course is designed to provide students with an international experience while also potentially fulfilling a required engineering technical elective course. Engineering technical electives are courses that are relevant or related to engineering from a broad range of fields including math and science as well as the various engineering departments. This course will be used as the umbrella course for all Engineering Technical Elective Study Abroad Opportunities and each course will provide a separate section number.

**Credit Hour:** 3-6

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**ENGINR 4085: Problems in Engineering**

Special design, experimental or analytical problems in engineering. May be repeated to 6 hours.

**Credit Hour:** 0-6

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**ENGINR 4890: Multi-disciplinary Senior Engineering Capstone Design**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 4890W: Multi-disciplinary Senior Engineering Capstone Design - Writing Intensive**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 8100: Design and Development of Biomedical Innovations**

(same as BIOL\_EN 8100). This course takes students through the process of brainstorming and working out a solution to a medical need, and then producing a product. Outputs may include the development of



a physical prototype through interactions with the College of Engineering rapid prototype facility. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in a graduate degree program

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## English Courses

### **ENGLISH 1000: Exposition and Argumentation**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

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### **ENGLISH 1000H: Honors Exposition English**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **ENGLISH 1060: Human Language**

(same as ANTHRO 1060, C\_S\_D 1060 and LINGST 1060). General introduction of various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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### **ENGLISH 1100: Reading Literature**

Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**Credit Hours:** 3

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### **ENGLISH 1106: Reading Literature, Beginnings to 1603**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1107: Reading Literature, 1603 to 1789**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1108: Reading Literature, 1789-1890**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1109: Reading Literature, 1890 to Present**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1160: Themes in Literature**

Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**Credit Hours:** 3

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### **ENGLISH 1166: Themes in Literature, Beginnings to 1603**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1167: Themes in Literature, 1603 to 1789**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1168: Themes in Literature, 1789 to 1890**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1169: Themes in Literature, 1890 to Present**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1200: Readings in British Literature**

Focuses on reading and interpreting selected texts in British literature. No more than six hours may be taken in Readings in British Literature Series.

**Credit Hours:** 3

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### **ENGLISH 1206: Readings in British Literature, Beginning to 1603**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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### **ENGLISH 1207: Readings in British Literature, 1603 to 1789**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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### **ENGLISH 1208: Readings in British Literature, 1789 to 1890**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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### **ENGLISH 1209: Readings in British Literature, 1890 to Present**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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### **ENGLISH 1210: Introduction to British Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 1210H: Introduction to British Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. This course is recommended for prospective majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

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**ENGLISH 1300: Readings in American Literature**

Focuses on reading and interpreting selected texts in American literature. No more than six hours may be taken in the Readings in American Literature series.

**Credit Hours:** 3

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**ENGLISH 1307: Readings in American Literature, 1603 to 1789**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1308: Readings in American Literature, 1789 to 1890**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1309: Readings in American Literature, 1890 to Present**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1310: Introduction to American Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrate such concepts, terms, and practices. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1310H: Introduction to American Literature - Honors**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrates such concepts, terms, and practices. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1510: Creative Writing: Introduction to Fiction**

Introduces basic narrative techniques, including writing original stories.

**Credit Hours:** 3

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**ENGLISH 1520: Creative Writing: Introduction to Nonfiction Prose**

Introduces the range and basic techniques of creative nonfiction, including composing original work in the genre.

**Credit Hours:** 3

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**ENGLISH 1530: Creative Writing: Introduction to Poetry**

Introduces basic poetic techniques, including writing original poems.

**Credit Hours:** 3

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**ENGLISH 1700: Introduction to Folklore Genres**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1700W: Introduction to Folklore Genres - Writing Intensive**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1800: Introduction to Film Studies**

(same as FILM\_S 1800, DST 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only or instructor's consent

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**ENGLISH 1880: Introduction to Digital Media Production**

(same as DST 1880; FILM\_S 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2000: Studies in English**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hour:** 1-3

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**ENGLISH 2000H: Studies in English - Honors**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**ENGLISH 2000W: Studies in English - Writing Intensive**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hour:** 1-3

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**ENGLISH 2005: Topics in English - Humanities**

Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

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**Credit Hours:** 3

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**ENGLISH 2006: Studies in English, Beginning to 1603**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2006W: Studies in English, Beginning to 1603 - Writing Intensive**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2007: Studies in English, 1603 to 1789**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2008: Studies in English, 1789 to 1890**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2009: Studies in English, 1890 to Present**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2010: Intermediate Composition**

Provides intensive guided practice in expository and persuasive writing.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2015H: Theory and Practice of Tutoring Writing Seminar - Honors**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2030: Professional Writing**

Introduction to the communication required in any professional field, including basic letters and resumes, reviews, reports, and electronic networking, culminating in an extensive report and a related oral presentation.

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**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100: Writing About Literature**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100H: Writing About Literature - Honors**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**ENGLISH 2140: Twentieth-Century Literature**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2140W: Twentieth-Century Literature - Writing Intensive**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150: Popular Literature**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150W: Popular Literature - Writing Intensive**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2155: Introduction to World Literatures**

Presents and puts into context works by writers from different nations or ethnic backgrounds; includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2156: Introduction to World Literatures, Beginnings to 1603**

See ENGLISH 2155 for course description.

**Credit Hours:** 3

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**ENGLISH 2157: Introduction to World Literatures, 1603 to 1789**

See ENGLISH 2155 for course description.

**Credit Hours:** 3

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**ENGLISH 2158: Introduction to World Literatures, 1789 to 1890**

See ENGLISH 2155 for course description.

**Credit Hours:** 3

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**ENGLISH 2159: Introduction to World Literatures, 1890 to Present**

Presents and puts into context works by writers from different nations or ethnic backgrounds, includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2160: Major Authors**

Focuses on the works of a single writer (e.g., Shakespeare) or set of writers (e.g., William Faulkner and Flannery O'Connor). Topic announced at time of registration. No more than six hours may be taken in the Major Authors series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2166: Major Authors, Beginning to 1603**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2167: Major Authors, 1603 TO 1789**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2168: Major Authors, 1789 to 1890**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2169: Major Authors, 1890 to Present**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2180: Introduction to Women's Literature**

(same as WGST 2180). A study of traditional and nontraditional literature written by women from the perspective of feminist themes—love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2186: Introduction to Women's Literature, Beginning to 1603**

(same as WGST 2186). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2187: Introduction to Women's Literature, 1603 to 1789**

(same as WGST 2187). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2188: Introduction to Women's Literature, 1789 to 1890**

(same as WGST 2188). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2189: Introduction to Women's Literature, 1890 to Present**

(same as WGST 2189). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2189W: Introduction to Women's Literature, 1890 to Present - Writing Intensive**

(same as WGST 2189). See ENGLISH 2180 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2200: Studies in British Literature**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

---

**ENGLISH 2200H: Studies in British Literature - Honors**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** ENGLISH 1000

---

**ENGLISH 2200W: Studies in British Literature - Writing Intensive**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2206: Studies in British Literature, Beginning to 1603**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2207: Studies in British Literature, 1603 to 1789**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2208: Studies in British Literature, 1789 to 1890**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2209: Studies in British Literature, 1890 to Present**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2209W: Studies in British Literature, 1890 to Present -**

**Writing Intensive**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2300: Studies in American Literature**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2300W: Studies in American Literature - Writing Intensive**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2306: Studies in American Literature, Beginning to 1603**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2307: Studies in American Literature, 1603 to 1789**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2308: Studies in American Literature, 1789-1890**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309: Studies in American Literature, 1890 to Present**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309W: Studies in American Literature, 1890 to Present -**

**Writing Intensive**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2400: Introduction to African Diaspora Literature**

(same as BL\_STU 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2407: Introduction to African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 2407). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2408: Introduction to African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 2408). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2409: Introduction to African Diaspora Literature, 1890 to Present**

(same as BL\_STU 2409). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2490: Introduction to Native Studies**

(same as PEA\_ST 2490). Introduction to the field of Native Studies. Topics include indigenous knowledge, culture change and continuity, history and misrepresentation, politics and political history, and global indigenous relationships. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2510: Creative Writing: Intermediate Fiction**

Provides intensive guided practice in the writing of short fiction.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1510 or equivalent

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**ENGLISH 2520: Creative Writing: Intermediate Nonfiction Prose**

Provides guided practice in the writing of creative nonfiction.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1520 or equivalent

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**ENGLISH 2530: Creative Writing: Intermediate Poetry**

Provides intensive guided practice in the writing of poetry.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1530 or equivalent

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**ENGLISH 2560: Beginning Playwriting**

(same as THEATR 2920). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours:** 3

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**ENGLISH 2601: Languages of Africa**

(same as BL\_STU 2601, LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**ENGLISH 2700: Introduction to Folklore Field Research**

(same as ANTHRO 2150). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2770: Introduction to Oral Literature**

An introduction to works of verbal art from living oral tradition (e.g. Native American and African-American) and to some of our most important literary works with roots in oral tradition (e.g., the Bible, the Iliad, and the Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2830: American Film History I, 1895-1950**

(same as FILM\_S 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH 1810 or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILM\_S 1800

**Recommended:** ENGLISH 1000

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**ENGLISH 2840: American Film History II, 1950-Present**

(same as FILM\_S 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH 1820 or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILM\_S 1800

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**ENGLISH 2860: Film Themes and Genres**

(same as FILM\_S 2860, DST 2860). Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in ENGLISH 2680.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2870: Film and Literature**

(same as FILM\_S 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2880: Digital Storytelling Production I**

(same as DST 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1880/DST 1880

**Recommended:** ENGLISH 1000

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**ENGLISH 2885: Digital Storytelling Animation Production I**

(same as DST 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2945: Service Learning in English**

Students perform volunteer service and complete course requirements, which may include class meetings and written and oral assignments. May be repeated with departmental consent. Graded on a S/U basis only. Does not meet A&S general education requirements.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENGLISH 3010: Advanced Composition**

An intensive writing workshop in which student essays and related texts receive close reading and analysis. Focus (e.g. The Essay, The Research Paper) announced at time of registration.

**Credit Hours:** 3

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**ENGLISH 3080: Sexuality and Gender Theory**

(same as [WGST] 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with department consent.

**Credit Hours:** 3

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**ENGLISH 3100: Introduction to Literary Theory**

Introduction to the range of theoretical approaches to the study of literature; intended as a broad survey of literary theory, whether from the Classical era onward or 20th century literary theory and beyond.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110: Special Themes in Literature**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110H: Special Themes in Literature - Honors**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000, Honors eligibility required

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**ENGLISH 3110W: Special Themes in Literature - Writing Intensive**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

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**Credit Hour:** 1-3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3116: Special Themes in Literature, Beginning to 1603**

See ENGLSH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLSH 3116W: Special Themes in Literature, Beginning to 1603 - Writing Intensive**

See ENGLSH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLSH 3117: Special Themes in Literature, 1603 to 1789**

See ENGLSH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLSH 3118: Special Themes in Literature, 1789 to 1890**

See ENGLSH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLSH 3118H: Special Themes in Literature, 1789 to 1890 - Honors**

See ENGLSH 3110H for course descriptions.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLSH 3119: Special Themes in Literature, 1890 to Present**

See ENGLSH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLSH 3170: World Dramatic Literature**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLSH 3170W: World Dramatic Literature - Writing Intensive**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLSH 3180: Survey of Women Writers**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLSH 3180H: Survey of Women Writers - Honors**

A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLSH 3180W: Survey of Women Writers - Writing Intensive**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLSH 3200: Survey of British Literature: Beginnings to 1784**

Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3210: Survey of British Literature: Romanticism to the Present**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3210W: Survey of British Literature: Romanticism to the Present - Writing Intensive**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3300: Survey of American Literature: Beginnings to 1865**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3300W: Survey of American Literature: Beginnings to 1865 - Writing Intensive**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3310: Survey of American Literature: 1865-Present**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLSH 3310W: Survey of American Literature: 1865-Present - Writing Intensive**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ENGLISH 3400: Survey of African American Literature, Beginnings to 1900**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3410: Survey of African American Literature, 1900-Present**

(same as BL\_STU 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3420: Periods and Genres in African Diaspora Literature**

(same as BL\_STU 3420). Topic (e.g. Harlem Renaissance African Diaspora Poetry) Announced at time of registration. No more than six hours may be taken in the Periods and Genres in African Diaspora Literature series.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3427: Periods and Genres in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 3427). See ENGLISH 3420 for course description.

**Credit Hours:** 3

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**ENGLISH 3428: Periods and Genres in African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 3428). See ENGLISH 3420 for course description.

**Credit Hours:** 3

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**ENGLISH 3429: Periods and Genres in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 3429). See ENGLISH 3420 for course description.

**Credit Hours:** 3

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**ENGLISH 3430: Introduction to African Diaspora Literary Theory**

(same as BL\_STU 3705). Introduction to the range of theoretical approaches to the study of African Diaspora literature, with particular attention to the diverse socio-political contexts that undergird range of literary, historical, and cultural theories; intended as a broad survey of African Diaspora literary theory, whether from the Slavery era onward or 20th century literary theory and beyond. May be repeated for credit with consent.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3490: Native Writing and Representation**

(same as PEA\_ST 3490). Survey of native writing and representation from the late eighteenth century to the present, encompassing a diverse range of tribes and forms. Material will be drawn from tribes inhabiting the North American continent, but global indigenous relationships will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 3560: Intermediate Playwriting**

(same as THEATR 3920). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2560

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**ENGLISH 3570: Performance of Literature**

(same as COMMUN 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3700: American Folklore**

(same as ANTHRO 3150). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research.

**Credit Hours:** 3

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**ENGLISH 3820: Major Directors**

(same as FILM\_S 3820, RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3850: Studies in Film History**

(same as FILM\_S 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3855: Documentary Film**

(same as FILM\_S 3855, DST 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3880: Writing and Theory for Digital Media**

(same as DST 3880). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for



new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3880W: Writing and Theory for Digital Media - Writing Intensive**

methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 4000: Advanced Studies in English**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4000W: Advanced Studies in English - Writing Intensive**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4004: Topics in English-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-99

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**ENGLISH 4040: Studies in Writing**

(cross-leveled with ENGLISH 7040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4040W: Studies in Writing - Writing Intensive**

A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews,

spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4045: Rhetorical Studies**

Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4050: Historical Survey of Rhetoric**

A survey of major works of rhetoric from Plato to the present day, with special attention to those works influencing English language rhetorics and theories of rhetoric.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ENGLISH 4060: Studies in Critical Theory**

Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4070: History of Criticism**

Surveys modern and contemporary theories of literary criticism: historical, archetypal, generic, formalist, phenomenological and interdisciplinary. Emphasizes key writers in each field.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100: Genres**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100H: Genres - Honors**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4100HW: Genres - Honors/Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4100W: Genres - Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4106: Genres, Beginning to 1603**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4107: Genres, 1603 to 1789**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4108: Genres, 1789 to 1890**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109: Genres, 1890 to Present**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109W: Genres, 1890 to Present - Writing Intensive**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4120: Ethnic Literature**

Explores in depth the literary traditions of one of America's minority ethnic cultures: Native American, African-American, Hispanic American, Asian American. No more than six hours may be taken in the Ethnic Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4127: Ethnic Literature, 1603 to 1789**

See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4128: Ethnic Literature, 1789 to 1890**

See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4129: Ethnic Literature, 1890 to Present**

See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4140: Modern Literature**

A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours:** 3

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**ENGLISH 4150: World Literatures**

Study of important works and writers from Asia, Africa, Europe, Latin America or the mid-East. Topics (e.g., Survey of World Literature, The Bible) announced at time of registration. No more than six hours may be taken in the World Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4156: World Literatures, Beginning to 1603**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4157: World Literatures, 1603 to 1789**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4158: World Literatures, 1789 to 1890**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4159: World Literatures, 1890 to Present**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4159W: World Literatures, 1890 to Present - Writing Intensive**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4160: Major Authors**

Intensive study of the work of a single writer (e.g., Milton) or set of writers (e.g., Whitman and Dickinson). Topic announced at time of registration. No more than six hours may be taken in the Major Author series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4166: Major Authors, Beginning to 1603**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4166W: Major Authors, Beginning to 1603 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167: Major Authors, 1603-1789**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167W: Major Authors, 1603-1789 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4168: Major Authors, 1789-1890**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169: Major Authors, 1890-Present**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169W: Major Authors, 1890-Present - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4170: Comparative Approaches to Literature**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4170W: Comparative Approaches to Literature - Writing Intensive**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4176: Comparative Approaches to Literature, Beginning to 1603**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4177: Comparative Approaches to Literature, 1609-1789**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4178: Comparative Approaches to Literature, 1789-1890**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4179: Comparative Approaches to Literature, 1890-Present**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4180: Major Women Writers**

(same as WGST 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours:** 3

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**ENGLISH 4181: Themes in Literature by Women**

(same as WGST 4181 and BL\_STU 4181). Examines works by a number of women writers with particular attention to their socio-political context. May repeated to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4186: Major Women Writers, Beginning to 1603**

(same as WGST 4186). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4187: Major Women Writers, 1603-1789**

(same as WGST 4187). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188: Major Women Writers, 1789-1890**

(same as WGST 4188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as WGST 4188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4189: Major Women Writers, 1890-Present**

(same as WGST 4189). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4200: Introduction to Old English**

(same as LINGST 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 7206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in

the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**ENGLISH 4210: Medieval Literature**

(cross-leveled with ENGLISH 7210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** Junior standing

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**ENGLISH 4220: Renaissance and Seventeenth Century Literature**

Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4226: Renaissance and Seventeenth Century Literature, Beginning to 1603**

See ENGLISH 4220 for course description.

**Credit Hours:** 3

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**ENGLISH 4227: Renaissance and Seventeenth Century Literature, 1603 to 1789**

See ENGLISH 4220 for course description.

**Credit Hours:** 3

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**ENGLISH 4240: Restoration and 18th-Century English Literature**

Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250: 19th-Century English Literature**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250W: 19th-Century English Literature - Writing Intensive**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260: 20th-Century British Literature**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260H: 20th-Century British Literature - Honors**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260HW: 20th-Century British Literature - Honors/Writing Intensive**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260W: 20th-Century British Literature - Writing Intensive**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4300: Early American Literature**

Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310: 19th-Century American Literature**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310W: 19th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320: 20th-Century American Literature**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320W: 20th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4400: Studies in African Diaspora Literature**

(same as BL\_STU 4400). Topics (e.g., African American Poetry, Africana Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in Africana Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4407: Studies in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 4407). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4408: Studies in African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 4408). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 4407). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4410: Major Africana Diaspora Writers**

(same as BL\_STU 4410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4417: Major African Diaspora Writers, 1603 to 1789**

(same as BL\_STU 4417). See ENGLISH 4410 for course description.

**Credit Hours:** 3

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**ENGLISH 4418: Major African Diaspora Writers, 1789-1890**

(same as BL\_STU 4418). See ENGLISH 4410 for course description.

**Credit Hours:** 3

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**ENGLISH 4419: Major African Diaspora Writers, 1890 to Present**

(same as BL\_STU 4419). See ENGLISH 4410 for course description.

**Credit Hours:** 3

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**ENGLISH 4420: Africana Womanism**

(same as BL\_STU 4420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4480: Major African Diaspora Women Writers**

(same as WGST 4480 and BL\_STU 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4480W: Major African Diaspora Women Writers - Writing Intensive**

(same as WGST 4480 and BL\_STU 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4487: Major African Diaspora Women Writers, 1603 to 1789**

(same as WGST 4487 and BL\_STU 4487). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 4488 and BL\_STU 4488). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 4489 and BL\_STU 4489). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4490: Studies in Native American and Indigenous Studies**

In-depth study of topics in Native American and Indigenous Studies, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**Credit Hours:** 3

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**ENGLISH 4510: Creative Writing: Advanced Fiction**

An intensive writing workshop in which student stories and related literary texts receive close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2510 or equivalent

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**ENGLISH 4510W: Creative Writing: Advanced Fiction - Writing Intensive**

An intensive writing workshop in which student stories and related literary texts receive close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2510 or equivalent

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**ENGLISH 4520: Creative Writing: Advanced Nonfiction Prose**

An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2520 or equivalent

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**ENGLISH 4520W: Creative Writing: Advanced Nonfiction Prose - Writing Intensive**

An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2520 or equivalent

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**ENGLISH 4530: Creative Writing: Advanced Poetry**

Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2530 or equivalent

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**ENGLISH 4530W: Creative Writing: Advanced Poetry - Writing Intensive**

Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2530 or equivalent

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**ENGLISH 4560: Advanced Playwriting: Problems**

(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 4560W: Advanced Playwriting: Problems - Writing Intensive**

(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 4570: Adaptation of Literature for the Stage**

(same as THEATR 4930; cross-leveled with ENGLISH 7570 and THEATR 7930). Explores adaptation principles and practices with literature not originally written for the stage. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 4600: Structure of American English**

(same as LINGST 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**ENGLISH 4610: History of the English Language**

(same as LINGST 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**ENGLISH 4620: Regional and Social Dialects of American English**

(same as LINGST 4620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Recommended:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 4630: Phonology**

(same as LINGST 4630). Survey of the sound patterns of English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600

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**ENGLISH 4640: Syntax**

(same as LINGST 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 or another comparable linguistics course

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**ENGLISH 4670: Field Methods in Linguistics**

(same as LINGST 4870 and ANTHRO 4870). Provides training in the methods of constructing a detailed linguistic description and analysis of wholly unfamiliar language, based on interviews with a native speaker. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

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**ENGLISH 4670W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870 and ANTHRO 4870). Provides training in the methods of constructing a detailed linguistic description and analysis of wholly unfamiliar language, based on interviews with a native speaker. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

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**ENGLISH 4700: Special Themes in Folklore**

(same as ANTHRO 4150). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and BL\_STU 4710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 4700 and ENGLISH 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4770: Oral Tradition**

(same as CL\_HUM 4770). Study of verbal art from living oral traditions (e.g., Native American and African American) and important literary works with roots in oral tradition (e.g., the Bible, the Iliad, the Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4780: Women's Folklore and Feminist Theory**

(same as WGST 4780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/ song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4810: Film Theory**

(same as FILM\_S 4810, DST 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4820: Studies in Film Genre**

(same as FILM\_S 4820). Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4840: Culture and Media**

(same as FILM\_S 4840, DST 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4880: Digital Storytelling Production II**

(same as DST 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro,

and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000, ENGLISH 1880/DST 1880, and sophomore standing, or consent of instructor

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**ENGLISH 4935: Adaptation of Literature for Film**

(same as FILM\_S 4935 and THEATR 4935; cross-leveled with ENGLISH 7580, FILM\_S 7935 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 4938: Advanced Screenwriting: Styles**

(same as THEATR 4938; cross-leveled with ENGLISH 7938, THEATR 7938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**ENGLISH 4940: Internship in English**

Students work in an agency or institution using their English-related skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Department consent

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**ENGLISH 4950: Internship in Publishing**

Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English must take the course two semesters in order to count three hours toward the completion of their program.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 4955: Independent Research in English**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and departmental consent

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**ENGLISH 4960: Special Readings in English**

Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-99

**Prerequisites:** Consent of instructor

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**ENGLISH 4970: Capstone Experience**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4970W: Capstone Experience - Writing Intensive**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4995: Senior Honors Thesis**

Independent research under direction of faculty. Second course of two part Honors Sequence.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4996

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**ENGLISH 4996: Honors Seminar in English**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 4996W: Honors Seminar in English - Writing Intensive**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 7004: Topics in English-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-99

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**ENGLISH 7040: Studies in Writing**

(cross-leveled with ENGLISH 4040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for students who may or may not have taken previous creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 7045: Rhetorical Studies**

Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

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**ENGLISH 7050: Historical Survey of Rhetoric**

A survey of major works of rhetoric from Plato to the present day, with special attention to those works influencing English language rhetoric's and theories of rhetoric.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 7060: Studies in Critical Theory**

Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 7070: History of Criticism**

Surveys modern and contemporary theories of literary criticism: historical, archetypal, generic, formalist, phenomenological and interdisciplinary. Emphasizes key writers in each field.

**Credit Hours:** 3

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**ENGLISH 7100: Genres**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

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**ENGLISH 7106: Genres, Beginning to 1603**

See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7107: Genres, 1603 to 1789**

See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7108: Genres, 1789 to 1890**

See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7109: Genres, 1890 to Present**

See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7120: Ethnic Literature**

Explores in depth the literary traditions of one of America's minority ethnic cultures: Native American, African-American, Hispanic American, Asian American. No more than six hours may be taken in the Ethnic Literature series.

**Credit Hours:** 3

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**ENGLISH 7127: Ethnic Literature, 1603 to 1789**

See ENGLISH 7120 for course description.

**Credit Hours:** 3



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**ENGLISH 7128: Ethnic Literature, 1789 to 1890**

See ENGLISH 7120 for course description.

**Credit Hours: 3**

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**ENGLISH 7129: Ethnic Literature, 1890 to Present**

See ENGLISH 7120 for course description.

**Credit Hours: 3**

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**ENGLISH 7140: Modern Literature**

A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours: 3**

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**ENGLISH 7150: World Literatures**

Study of important works and writers from Asia, Africa, Europe, Latin America or the mid-East. Topics (e.g., Survey of World Literature, The Bible) announced at time of registration. No more than six hours may be taken in the World Literatures series.

**Credit Hours: 3**

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**ENGLISH 7156: World Literatures, Beginning to 1603**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7157: World Literatures, 1603 to 1789**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7158: World Literatures, 1789 to 1890**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7159: World Literatures, 1890 to Present**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7160: Major Authors**

Intensive study of the work of a single writer (e.g., Milton) or set of writers (e.g., Whitman and Dickinson). Topic announced at time of registration. No more than six hours may be taken in the Major Authors series.

**Credit Hours: 3**

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**ENGLISH 7166: Major Authors, Beginning to 1603**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7167: Major Authors, 1603-1789**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7168: Major Authors, 1789-1890**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7169: Major Authors, 1890-Present**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7170: Comparative Approaches to Literature**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature Series.

**Credit Hours: 3**

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**ENGLISH 7176: Comparative Approaches to Literature, Beginning to 1603**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7177: Comparative Approaches to Literature, 1609-1789**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7178: Comparative Approaches to Literature, 1789-1890**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7179: Comparative Approaches to Literature, 1890-Present**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7180: Major Women Writers**

(same as WGST 7180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours: 3**

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**ENGLISH 7181: Themes in Literature by Women**

(same as WGST 7181). Examines works by a number of women writers with particular attention to their socio-political context. May repeat to six hours with department's consent.

**Credit Hours: 3**

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**ENGLISH 7186: Major Women Writers, Beginning to 1603**

(same as WGST 7186). See ENGLISH 7180 for course description.

**Credit Hours: 3**

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**ENGLISH 7187: Major Women Writers, 1603-1789**

(same as WGST 7187). See ENGLISH 7180 for course description.

**Credit Hours: 3**

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**ENGLISH 7188: Major Women Writers, 1789-1890**

(same as WGST 7188). See ENGLISH 7180 for course description.

**Credit Hours:** 3

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**ENGLISH 7189: Major Women Writers, 1890-Present**

(same as WGST 7189). See ENGLISH 7180 for course description.

**Credit Hours:** 3

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**ENGLISH 7200: Introduction to Old English**

(same as LINGST 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**ENGLISH 7206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 4206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7210: Medieval Literature**

(cross-leveled with ENGLISH 4210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7220: Renaissance and 17th-Century English Literature**

Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature series.

**Credit Hours:** 3

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**ENGLISH 7226: Renaissance and Seventeenth Century Literature, Beginning to 1603**

See ENGLISH 7220 for course description.

**Credit Hours:** 3

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**ENGLISH 7227: Renaissance and Seventeenth Century Literature, 1603-1789**

See ENGLISH 7220 for course description.

**Credit Hours:** 3

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**ENGLISH 7240: Restoration and 18th-Century English Literature**

Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7250: 19th-Century English Literature**

(cross-leveled with ENGLISH 4250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7260: 20th-Century British Literature**

(cross-leveled with ENGLISH 4260). Topics (e.g., Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7300: Early American Literature**

Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7310: 19th-Century American Literature**

(cross-leveled with ENGLISH 4310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7320: 20th-Century American Literature**

(cross-leveled with ENGLISH 4320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7400: Studies in African Diaspora Literature**

(same as BL\_STU 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

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**ENGLISH 7407: Studies in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 7407). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7408: Studies in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 7408). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7409: Studies in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 7407). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7410: Major African Diaspora Writers**

(same as BL\_STU 7410). An intensive study of selected writers of African Diaspora literature, focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series.

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**Credit Hours:** 3

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**ENGLISH 7417: Major African Diaspora Writers, 1603 to 1789**  
(same as BL\_STU 7417). See ENGLISH 7410 for course description.

**Credit Hours:** 3

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**ENGLISH 7418: Major African Diaspora Writers, 1789 to 1890**  
(same as BL\_STU 7418). See ENGLISH 7410 for course description.

**Credit Hours:** 3

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**ENGLISH 7419: Major African Diaspora Writers, 1890 to Present**  
(same as BL\_STU 7419). See ENGLISH 7410 for course description.

**Credit Hours:** 3

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**ENGLISH 7420: Africana Womanism**  
(same as BL\_STU 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent. May be repeated to six hours with departmental consent

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**ENGLISH 7480: Major African Diaspora Women Writers**  
(same as WGST 7480 and BL\_STU 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 7180 and ENGLISH 7480

**Credit Hours:** 3

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**ENGLISH 7487: Major African Diaspora Women Writers, 1603 to 1789**  
(same as WGST 7487 and BL\_STU 7487). See ENGLISH 7480 for course description.

**Credit Hours:** 3

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**ENGLISH 7488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 7488 and BL\_STU 7488). See ENGLISH 7480 for course description.

**Credit Hours:** 3

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**ENGLISH 7489: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 7489 and BL\_STU 7489). See ENGLISH 7480 for course description.

**Credit Hours:** 3

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**ENGLISH 7490: Native Studies**  
In-depth study of topics in Native writing and representation, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**Credit Hours:** 3

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**ENGLISH 7510: Creative Writing: Advanced Fiction**

An intensive writing workshop in which student stories and related literary texts receive close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2510 or equivalent

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**ENGLISH 7520: Creative Writing: Advanced Nonfiction Prose**

An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2520 or equivalent

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**ENGLISH 7530: Creative Writing: Advanced Poetry**

Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2530 or equivalent

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**ENGLISH 7560: Advanced Playwriting: Problems**

(same as THEATR 7920; cross-leveled with ENGLISH 4650 and THEATR 4920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 7570: Adaptation of Literature for the Stage**

(same as THEATR 7930; cross-leveled with ENGLISH 4570). Explores adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 7580: Adaptation of Literature for Film**

(same as FILM\_S 7935 and THEATR 7935; cross-leveled with ENGLISH 4935, FILM\_S 4935 and THEATR 4935). This upper division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 7600: Structure of American English**

(same as LINGST 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**ENGLISH 7610: History of the English Language**

(same as LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**ENGLISH 7620: Regional and Social Dialects of American English**  
(same as LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 7630: Phonology**

(same as LINGST 7630). Survey of the sound patterns of English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 or another introductory course in linguistics or phonetics

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**ENGLISH 7640: Syntax**

(same as LINGST 7640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 or another comparable linguistics course

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**ENGLISH 7670: Field Methods in Linguistics**

(same as LINGST 7870 and ANTHRO 7870). Provides training in the methods of constructing a detailed linguistic description and analysis of a wholly unfamiliar language, based on interviews with a native speaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LINGST 1060, LINGST 7600, LINGST 7630 and LINGST 7640

**Corequisites:** LINGST 7630 or LINGST 7640

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**ENGLISH 7700: Special Themes in Folklore**

(same as ANTHRO 7150). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7710: Themes in African Diaspora Folklore**

(same as ANTHRO 7160 and [BL\_STU 7710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 7700 and ENGLISH 7710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

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**ENGLISH 7770: Oral Tradition**

(same as CL\_HUM 4770). Study of verbal art from living oral traditions (e.g., Native American and African American) and important literary works with roots in oral tradition (e.g., the Bible, the Iliad the Odyssey, and Beowulf).

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 7780: Women's Folklore and Feminist Theory**

(same as WGST 7780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/ song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**ENGLISH 7810: Film Theory**

(same as FILM\_S 7810). This course explore contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 7840: Culture and Media**

(same as FILM\_S 7840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

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**ENGLISH 7938: Advanced Screenwriting: Styles**

(same as THEATR 7938; cross-leveled with ENGLISH 4938, THEATR 4938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

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**ENGLISH 7950: Internship in Publishing**

Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English must take the course two semesters in order to count three hours toward the completion of their program.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 8001: Topics in English-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

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**ENGLISH 8005: Introduction to Graduate Study**

Introduces entering MA and PhD students to the profession of English and the intellectual resources needed to complete their degrees successfully.

**Credit Hour:** 1

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**ENGLISH 8006: Professional Issues in English Studies**

Introduces advanced graduate students to issues relevant to their professional training, including entering the job market and preparing work for publication. May be repeated for credit.

**Credit Hour:** 1-3

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**ENGLISH 8010: Theory and Practice of Composition**

Current and historical theories of rhetoric and composition as applied to the teaching of college composition.

**Credit Hours:** 3

**Prerequisites:** department's consent

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**ENGLISH 8040: Seminar in Rhetoric and Composition**

Topics (e.g., The Institutionalization of Rhetoric, Writing Across the Curriculum) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8050: Contemporary Critical Approaches**

A survey of contemporary professional critical methods, such as formalism, poststructuralism, feminism, Marxism, new historicism, psychoanalysis, identity studies, and cultural studies.

**Credit Hours:** 3

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**ENGLISH 8060: Seminar in Criticism and Theory**

Principles and practices of selected critics. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8070: History of Criticism and Theory**

A survey of the history of literary criticism and theory. While comprehensive in scope, the course might focus on specific topics in the history of criticism, such as the dialectic between rhetoric and poetics, the rise of aesthetics, or the relation of art and culture to society. Figures studied will extend from early philosophers such as Plato and Aristotle, through eighteenth-century thinkers such as Kant and Johnson, up to present theorists such as Derrida and Butler.

**Credit Hours:** 3

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**ENGLISH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENGLISH 8095: Problems in English**

Individual work not leading to preparation of dissertation.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ENGLISH 8110: Forms**

Topics (e.g., The Epic, The Epistolary Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8200: Seminar in Old English Literature**

Topics in Old English or Anglo-Saxon literature, such as Beowulf, the Exeter Book poems, or the genres of elegy, Biblical narrative, or wisdom poetry. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4200 or equivalent

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**ENGLISH 8210: Seminar in Middle English Literature**

Topics (e.g., Medieval Drama, Chaucer) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8220: Seminar in Renaissance British Literature**

Topics (e.g., Tudor and Stuart Drama, Shakespearean Tragedy) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8230: Seminar in 17th-Century British Literature**

Topics (e.g., The Metaphysical Poets, Restoration Drama) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8240: Seminar in 18th-Century British Literature**

Topics (e.g., The 18th-Century Novel, Historical and Biographical Prose) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8250: Seminar in 19th-Century British Literature**

Topics (e.g., The Later Romantics, Victorian Poetry) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8260: Seminar in 20th-Century British Literature**

Topics (e.g., Chief Contemporary Poets, Modernism and the Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8300: Seminar in Early American Literature**

Topics (e.g., Religious and Philosophical Writings, The Revolutionary Period) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8310: Seminar in 19th Century American Literature**

Topics (e.g., The Transcendentalists, American Realism) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8320: Seminar in 20th-Century American Literature**

Topics (e.g., The African-American Novel, Chief Contemporary Poets) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8400: Seminar in African Diaspora Literature**

(same as BL\_STU 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 8410: Seminar in African Diaspora Theory and Literature Criticism**

(same as BL\_STU 8410). Modern and contemporary African Diaspora criticism and theory including the diverse approaches to literary and cultural studies. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 8510: Advanced Writing of Fiction**

Advanced fiction writing designed primarily for graduate students, with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and ENGLISH 4510

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**ENGLISH 8520: Advanced Writing of Nonfiction Prose**

Advanced workshop in nonfiction prose primarily for graduate students intending to produce professional quality work.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 8530: Advanced Writing of Poetry**

Advanced poetry writing designed primarily for graduate students with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and ENGLISH 4530

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**ENGLISH 8560: Graduate Seminar in Playwriting**

(same as THEATR 8920). Seminar in theory, practice, and pedagogy of playwriting, students a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**ENGLISH 8600: Seminar in the English Language**

(same as LINGST 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8700: Seminar in Folklore**

(same as ANTHRO 8157 and REL\_ST 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8770: Seminar in Oral Tradition**

Theoretical and interpretive perspectives on works of verbal art that have roots in oral tradition. Emphasis on the variety of approaches employed (performance theory oral theory, ethno-poetics, ethnography of speaking, comparative structural studies, etc.) May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 9090: Doctoral Dissertation Research**

Leads to preparation of dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

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## English Language Support Program Courses

**ELSP\_0100: Grammar and Composition I**

Grammar and Composition I. Graded S/U only.

**Credit Hours:** 3

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**ELSP\_0200: Reading and Vocabulary**

Reading and Vocabulary. Graded on S/U basis only.

**Credit Hours:** 3

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**ELSP\_0300: Grammar and Composition II**

Grammar and Composition II. Graded S/U Only.

**Credit Hours:** 3

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**ELSP\_0400: Oral Communication**

Oral Communication. Graded S/U Only.

**Credit Hours:** 3

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## Environmental Science Courses

**ENV\_SC 1001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 1100: Introduction to Environmental Science**

This class provides an opportunity to develop an understanding of environment, physical and social causes of environmental problems, their impacts, and strategies to manage these issues.

**Credit Hours:** 3

**Prerequisites:** Enrollment restricted to College of Agriculture, Food and Natural Resources undergraduates and students minoring in Environmental Science

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**ENV\_SC 2001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 2002: Topics in Environmental Science- Biological/ Physical/Mathematical**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**ENV\_SC 3001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 3085: Problems in Environmental Science**

Special individualized projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 3250: Pollutant Fate and Transport**

(same as CV\_ENG 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and CHEM 1320

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**ENV\_SC 3290: Soils and the Environment**

(same as SOIL 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLSH 1000. Recommended 3 hours of CHEM courses

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**ENV\_SC 3290W: Soils and the Environment - Writing Intensive**

(same as SOIL 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLSH 1000. Recommended 3 hours of CHEM courses

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**ENV\_SC 3330: Environmental Land Use Management**

An introduction to environmentally sustainable use and management of land.

**Credit Hours:** 3

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**ENV\_SC 3500: Pollutant Fate and Transport**

This course introduces students to concepts governing pollutant fate and transport in the environment, and it provides students with the quantitative tools necessary to estimate the fate and transport of pollutants in the environment.

**Credit Hours:** 3

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**Prerequisites:** ENV\_SC 1100 or SOIL 2100, and CHEM 1320

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**ENV\_SC 4001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4024: Foundations of Environmental Education**

(same as NAT\_R 4024; cross-leveled with NAT\_R 7024) This course provides a theoretical foundation to environmental education (EE).

The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**ENV\_SC 4085: Problems in Environmental Science**

Special individualized research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4305: Environmental Soil Physics**

(same as SOIL 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** PHYSCS 1210 or equivalent

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**ENV\_SC 4306: Environmental Soil Physics Laboratory**

(same as SOIL 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** ENV\_SC 4305

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**ENV\_SC 4312: Environmental Soil Microbiology**

(same as SOIL 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**ENV\_SC 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and GEOL 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

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**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**ENV\_SC 4320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100

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**ENV\_SC 4396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385

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**ENV\_SC 4940: Environmental Science Internship**

Supervised professional experience with an approved public or private organization. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENV\_SC 4950: Undergraduate Research in Environmental Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance. Prerequisites: ENV\_SC 1100, STAT 2530

**Credit Hour:** 1-4

**Recommended:** 9 hours of Environmental Science with at least 3 hours above the 3000-level

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**ENV\_SC 7001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 7085: Problems in Environmental Science**

Special individualized non-thesis research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 7305: Environmental Soil Physics**

(same as SOIL 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**ENV\_SC 7306: Environmental Soil Physics Laboratory**

(same as SOIL 7306). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes. Prerequisites or Corerequisites: SOIL 4305.

**Credit Hours:** 2

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**ENV\_SC 7312: Environmental Soil Microbiology**

(same as SOIL 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic degradation and bioremediation, soil quality and pathogen regulation in the environment. Nitrogen fixation, mycorrhizal processes are discussed.

**Credit Hours:** 3

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**ENV\_SC 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and GEOL 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330

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**ENV\_SC 7320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 7320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or equivalent

---

**ENV\_SC 7396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**ENV\_SC 8001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 8085: Problems in Environmental Science**

Special individualized non-thesis research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 8090: Masters Research in Environmental Science**

Original investigations in environmental science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10



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**ENV\_SC 8400: Solute Transport in the Vadose Zone**

(same as SOIL 8400). Transport of water and solutes in geomeia with emphasis on development of the equations of flow. Evaluation of analytical and numeral solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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**ENV\_SC 8500: Chemistry of the Vadose Zone**

(same as SOIL 8500). Chemical reactions occurring in geomeia with emphasis on understanding molecular scale processes occurring at the solid-water interface, aqueous geochemistry, and soil organic matter.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300 or instructor's consent

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**ENV\_SC 9001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 9085: Problems in Environmental Science**

Special individualized non-thesis research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 9087: Seminar in Environmental Science**

In-depth development of advanced aspects of environmental science through reviews of results of research in progress and current scientific publications.

**Credit Hour:** 1

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**ENV\_SC 9090: Doctoral Research in Environmental Science**

Original investigations in environmental science for presentation in a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-10

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**ENV\_SC 9407: Advanced Environmental Soil Physics**

(same as SOIL 9407). Transport of mass and energy through soil with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to differential equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** SOIL 7305, MATH 4100 or MATH 7100, or equivalent

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**ENV\_SC 9418: Advanced Environmental Soil Chemistry**

(same as SOIL 9418). Linking molecular-scale solution-phase and surface reactions with macroscopic chemical processes. Fundamentals of aqueous surface and colloid chemistry will be discussed.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300, and CHEM 3300

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## Environmental Studies Courses

**ENV\_ST 2070: Introduction to Ecological Economics**

(same as AG\_EC 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ENV\_ST 2101: Topics in Environmental Sciences**

Selected topics not in regularly offered courses.

**Credit Hour:** 1-3

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**ENV\_ST 2110: Environmental Sustainability**

Students will asses availability of key resources, estimate sustainable rates of use and develop plans for aligning current and sustainable rates of use using personal, business and government strategies. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and one introductory environmental course

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**ENV\_ST 2150: Directed Independent Study**

Working with Environmental Studies you will find and develop a research project or an internship with the university, a government agency, a business or a non-profit agency. The project will be directed towards solving an environmental problem.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENV\_ST 3000: Natural History of Missouri**

This class deals with the characteristics of natural ecological communities of Missouri and with the skills needed to observe, record and interpret those characteristics. Graded on A-F basis only. Prerequisites: MATH 1100 and ENGLISH 1000

**Credit Hours:** 2

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**ENV\_ST 4310: Topics in Environmental Studies**

This course covers topics not covered in regularly offered courses. Students are expected to combine skills, knowledge and perspectives from the natural and social science to analyze selected environmental problems.

**Credit Hour:** 1-3

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**ENV\_ST 4350: Modeling Environmental Problems**

This course covers modeling environmental problems as systems. Modeling incorporates rates of changes, feedback loops, short/long term signals, inertia, upstream causes, interventions, implementing interventions and unintended consequences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 9 hours natural science courses and junior standing

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**ENV\_ST 7350: Modeling Environmental Problems**

Course covers modeling environmental problems as systems. Modeling incorporates rates of change, feedback loops, short/long term signals, inertia, upstream causes, interventions, implementing interventions, unintended consequences and predicting outcomes of major shocks (oil prices, pandemics, climate change). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 9 hours natural science

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**Family And Community Medicine Courses****F\_C\_MD 6001: Family Medicine Clerkship**

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

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**F\_C\_MD 6011: Rural Family Medicine Clerkship**

Rural Family Medicine Clerkship

**Credit Hours:** 8

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**F\_C\_MD 6021: Springfield Family Medicine Clerkship**

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 6036: SCC Palliative Care Elective**

Students will learn a multidisciplinary approach to the care of the palliative care patient while working in a variety of clinical settings. This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each week students will work with palliative care physicians at either Cox or Mercy Palliative Care Service and/or a Hospice agency. Students will have the opportunity to see patients undergoing palliative care assessment and observe nursing staff and professional therapy staff in their work with patients and families. Students will participate in various palliative care-related conferences. Students will participate in inpatient palliative care services as well as outpatient palliative care clinics. The student will work with faculty in the Departments of Family and Community Medicine as well as Internal Medicine.

**Credit Hours:** 5

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**Prerequisites:** Successful completion of 5 of 7 core clerkships, one of which must be either Family Medicine or Internal Medicine. IN\_MED 6002, 6012, 6022, or 6102. F\_C\_MD 6001, 6011, 6021, or 6101

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**F\_C\_MD 6101: Remediation Family Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Family Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** F\_C\_MD 6001 Family Medicine Clerkship, received unsatisfactory grade

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**F\_C\_MD 6251: ABS Evidence Based Medicine**

ABS Evidence Based Medicine

**Credit Hours:** 5

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**F\_C\_MD 6253: ABS Family and Community Medicine Research**

ABS Family and Community Medicine Research

**Credit Hour:** 5-10

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**F\_C\_MD 6255: ABS Family and Community Medicine Research and Review**

ABS Family and Community Medicine Research and Review

**Credit Hours:** 5

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**F\_C\_MD 6475: Family Medicine Elective (FP Orientation)**

This elective is for Integrated Residents in the Department of Family and Community Medicine only. Two core clinical rotations are required, including Family Medicine Clerkship. During this one year longitudinal experience, Integrated Residents will work closely with senior residents and faculty members to enhance the knowledge and skills needed to care for patients in a comprehensive family medicine continuity clinic. Integrated Residents are required to attend orientation activities during 15A. Regular attendance to Wednesday departmental Grand Rounds and Tuesday afternoon Resident Seminars is also expected.

**Credit Hours:** 5

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**F\_C\_MD 6477: Family Medicine Elective Preceptorship**

May be available as a rural offsite elective: contact the MU-AHEC Coordinator. Goals/Objectives: During this elective the student works closely with a family physician in private practice. Students both observe the preceptor's patient encounters and take primary responsibility for several patients each day, discussing diagnosis and formulating management plans with supervision by the preceptor. The Preceptorship also provides opportunities not available elsewhere in the medical school curriculum, including seeing the patient's illness in its context, assessing a community's health care system, and learning about practice management. Evaluations: Evaluation of the student is based on the preceptor's evaluation and comments. Notes: Site must be pre-approved by the Course Director.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6479: Family and Community Medicine Research**

Family and Community Medicine Research

**Credit Hours:** 5

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**F\_C\_MD 6481: Clinical Nutrition**

Clinical Nutrition

**Credit Hours:** 5

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**F\_C\_MD 6483: Preventive/Community Medicine**

Preventive/Community Medicine

**Credit Hours:** 5

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**F\_C\_MD 6485: Geriatrics-Family and Community Medicine Elective**

Goals/Objectives: This is an outpatient experience in a variety of settings. Each week students will: 1. Work with Dr. David Cravens and other health care providers at Lenoir Village, Lenoir Manor, Lenoir Health Care and Maplewood Apartments. These all represent different levels and types of care available to elders. a. Students will develop an understanding of the available care and residential options that elders utilize. 2. Work with several geriatricians in the SAGE Clinic and/or Geriatrics Clinic at Green Meadows. a. Students will improve their understanding of care of elders in the outpatient setting. b. Students will also see patients undergoing geriatric assessment and thus develop a better understanding of the multidisciplinary approach to geriatric assessment. 3. Additional experiences may be arranged depending on the student's interests. 4. Participate in the various conferences related to geriatrics. Evaluations: Final evaluation will be determined by the attending physicians supervising the student during the block.

**Credit Hours:** 5

**Prerequisites:** Must have completed all core clerkships

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**F\_C\_MD 6486: Evidence Based Medical Writing in Family Medicine**

Student will co-author a draft of an evidence-based article under the supervision of FCM faculty with evidence-based writing experience. Before writing begins, students complete an evidence-based medicine curriculum using online modules. FCM integrated residents will also participate in a departmental editorial review session.

**Credit Hours:** 5

**Prerequisites:** restricted to 4th year medical students

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**F\_C\_MD 6487: Family and Community Medicine Palliative Care Elective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with terminal condition.

**Credit Hours:** 5

**Prerequisites:** F\_C\_MD 6001; restricted to 4th year medical students

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**F\_C\_MD 6775: Family Medicine Preceptorship - Rural**

Family Medicine Preceptorship - Rural

**Credit Hours:** 5

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**F\_C\_MD 6776: RURAL FAMILY MED ELECT**

Rural Family Medicine Elective

**Credit Hours:** 5

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**F\_C\_MD 6777: Rural Health Policy and Legislative Advocacy**

Elective content will focus on the intersection of rural medicine, health policy, and legislative advocacy. Course Goals: 1) To inform and educate students about rural health policy issues at the local, state, and national levels. 2) To train medical students to be informed advocates of rural health policy issues at the local, state, and national levels. To apply, medical students must complete the Rural Track Elective Application posted on the MU AHEC website <http://medicine.missouri.edu/ahec/rural-track-elective.html>. In the notes section of the application, the student must document a rationale for applying for this course. (Maximum length - 1 paragraph).

**Credit Hours:** 5

**Prerequisites:** M4 status. Applicants must complete either the Rural Track Summer Community Program or the Rural Track Clerkship Program prior to enrollment. Students will share first-hand experiences from rural track placement(s) with legislators to advocate for the MU Rural Track Pipeline Program and to influence rural health policy in Missouri

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**F\_C\_MD 6875: Family Medicine Onsite Externship**

Goals/Objectives: The student who is on the onsite track of the externship will be a member of the Family Practice Inpatient Team that is responsible for providing care to Family Practice patients in the hospital. The team consists of an attending, physician, two third-year residents, and two or three first-year residents. The student will be expected to function as a member of the team, attending rounds on a daily basis and assuming responsibility, under supervision, for the care of some of the patients. Each student will have 4-5 nights of call including weekend days. Students will be responsible for providing care, with supervision, to those patients admitted while they are on call. Students will also be expected to follow their patients after discharge, making home visits or nursing home visits and seeing them in follow-up at the clinic as indicated. Students will also have exposure to ambulatory family medicine. Each student will work closely in the clinic with one of the third-year residents assigned to the inpatient team. The student will attend each of the resident's clinics whether they are at Green Meadows, Fulton, or Fayette.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6876: Family Medicine Offsite Externship**

Several different types of experiences are available for the offsite track of the externship. Students have the opportunity to work at selected Indian Health Service sites that provide the appropriate mix of inpatient and outpatient experiences. A list of these IHS sites and the students' evaluations are available in the course office. These offer high volume and high levels of responsibility. Planning needs to begin early in the third year. Offsite externship experiences are also available in certain community-based family practices and in certain family practice residency programs. A list of pre-approved sites is available in the course office. All of the sites available for the offsite experience have been carefully selected by the faculty based on previous experiences of fourth-year students. These sites offer an appropriate level of patient care responsibility with supervision. Offsite practices need to be approved in advance by the course director and often require planning 6 to 12 months

in advance. Students considering offsite rotations will be expected to have a clear idea of how these experiences will offer unique advantages to their personal and professional development, and how they will meet the course criteria. Many offsite locations used in the past for the Family Medicine Clerkship will not satisfy the externship requirement. They still offer excellent experiences and could be taken as electives. Students on the offsite track will be evaluated with respect to their ability to collect, process, and analyze information, engage in clinical reasoning, and formulate appropriate diagnoses and treatment plans. Sites must be pre-approved by the Course director.

**Credit Hours:** 5

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**F\_C\_MD 6877: Rural Family Medicine Elective**

Rural Family Medicine Elective

**Credit Hours:** 5

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**F\_C\_MD 6878: Family Medicine Maternity Care-Advanced Selective**

Family Medicine Maternity Care-Advanced Selective

**Credit Hours:** 5

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**F\_C\_MD 6879: Palliative Care Selective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each day the student will work directly with palliative care physicians, as well as the rest of the multidisciplinary team, as part of the University Hospital Supportive and Palliative Care Service. They will also have the opportunity to work with a medical director of a local Hospice agency, who is a faculty member of the University of Missouri. Students will be expected to function as a member of the Palliative Care Team. Students will have the opportunity to actively participate in the assessment and care of patients under the direction of the Palliative Care Interdisciplinary team. Students will work alongside palliative care attending physicians, nursing staff, social workers, and pastoral care team members in their work with patients and families. Students will participate in various palliative care-related conferences including Interdisciplinary Team Meetings, didactics, patient remembrance and memorial services, self-care rounds, monthly team business meetings and the monthly Palliative Care hospital committee meeting. Additional experiences will include outpatient palliative care clinics at Ellis Fischel, bi-weekly community Hospice Interdisciplinary team meetings, patient home assessments and nursing visits with hospice staff, and completion of an oral presentation to the Palliative Care Team as part of their assessment and evidence of mastery of course objectives.

**Credit Hours:** 5

**Prerequisites:** Fourth year medical student. Must have completed 6 of the 7 core clerkships

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**F\_C\_MD 6928: Primary Care Sports Medicine Elective**

Students will work with a multi-disciplinary sports medicine team, providing hands on clinical services in an outpatient setting. Participants will gain experience working with primary care sports medicine physicians, orthopedic surgeons, physical therapists and cast technicians.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 6929: Rural Family Medicine Elective Two-Week**

The student will work with Callaway Physicians attending and resident physicians primarily in the clinic setting to experience primary care delivered in the rural setting. During this time the students will have opportunities to participate in patient care in the clinic, procedures including minor dermatologic procedures, colposcopy, splinting, OB non stress testing and fetal heart monitoring, cardiac treadmill stress testing, and other procedures as available. Rotation length is two weeks.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 7001: Topics in Family and Community Medicine**

Selected topics of interest related to family and community medicine.

**Credit Hours:** 3

**Prerequisites:** Understanding of research methods, statistics (basic) and graduate, post graduate or instructor' consent

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**F\_C\_MD 7300: Problems Community Health Medicine Practice**

Directed exploration of community health problems.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7310: The Health Care System**

Overview of health care system and relationship between its components. Focuses on changing nature of the system and issues confronting the future health care system.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7350: Special Readings in Community Health**

Extensive reading and critical analysis of classical and current studies in selected areas of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7400: Problems in Community Health**

Intensive study of an area of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7490: Research in Community Health**

Independent investigation of some problem in community health to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**F\_C\_MD 7492: Field Experience in Community Health Education**

Field practice in a selected community setting under faculty or other competent supervision .

**Credit Hour:** 1-99

**Prerequisites:** Restricted to students specializing in community health education; consent of community health education faculty

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**F\_C\_MD 7750: Physical Function and Older Adults**

(same as ARCHST 7640, HMI 7750, H\_D\_FS 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_C\_MD 7751: Psychosocial Function and Older Adults**

(same as ARCHSJ 7650, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A/F basis only.

**Credit Hours:** 3

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**F\_C\_MD 8330: Statistical Aspects of Public Health**

Classification and summarization of data used in public health practice and research. Probability, sampling, hypothesis testing. Correct and incorrect use of statistics in the literature.

**Credit Hours:** 3

**Corequisites:** concurrent registration in F\_C\_MD 8420 or instructor's consent

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**F\_C\_MD 8410: Principles and Practices in Medical Education**

An examination of the past and present influences on the education of physicians, the application of adult education principles and the future approaches to medical education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8411: Learning Strategies in Preclinical & Clinical Educ. of Physicians**

Examination of curricular strategies in preclinical and clinical education of medical students and graduate medical education. Emphasis will be placed on different types of instructional strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8420: Principles of Epidemiology**

Examines methods of study of disease frequency and distribution in populations. Utilizes small group discussions for understanding of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8421: Clinical Epidemiology/Evidence Based Medicine**

(same as V\_PBIO 8421). Advanced epidemiologic theory and methods in the study and control of infectious and noninfectious diseases.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8422: Clinical Research Methods I**

Principles of designing, implementing and reviewing research in the health sciences.

**Credit Hours:** 3

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**F\_C\_MD 8423: Clinical Research Methods II**

This is a continuation of the Clinical Research Methods I (CRM\_I) introductory course on the multi-method approach to clinical research. Similar to the previous course, it covers both quantitative and qualitative research methods, but includes advanced applications.

**Credit Hours:** 3

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**F\_C\_MD 8424: Comparative Effectiveness Research**

Advanced research class that presents a framework for analyzing observational studies and randomized trials for comparative effectiveness. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Two recent semester-length courses in statistics such as NURSE 8020 or STAT 2500 or above; Working knowledge of managing and analyzing data in SPSS or SAS; Research methods; or consent of instructor

**Recommended:** One semester of epidemiology is strongly recommended

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**F\_C\_MD 8425: Participatory Approaches for Health and Health Systems**

(same as NURSE 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**F\_C\_MD 8430: Applications of Evidence-Based Medicine I**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8431: Applications of Evidence-Based Medicine II**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8450: Research in Community Health**

Original research in community health not leading to a thesis but requiring a formal research report.

**Credit Hour:** 1-99

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**F\_C\_MD 8491: Field Experience in Family and Community Medicine**

Supervised teaching experience in the preclinical, clinical, and residency programs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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## Film Studies Courses

### **FILM\_S 1000: Introduction to Film for Non-Majors**

Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 1800. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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### **FILM\_S 1800: Introduction to Film Studies**

(same as ENGLSH 1800, DST 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and Sophomores only or instructor's consent

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### **FILM\_S 1880: Introduction to Digital Media Production**

(same as DST 1880; ENGLSH 1880). Introduction to concepts and skills for film making, video art, and digital storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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### **FILM\_S 2001: Topics in Film Studies-General**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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### **FILM\_S 2005: Topics in Film Studies- Humanities**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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### **FILM\_S 2010: The Philosophy of Film**

(same as PHIL 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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### **FILM\_S 2020: World Cinema for Non-Majors**

World Cinema introduces students to the history of international cinema. The course focuses on particular cinematic movements and national cinemas as case studies for trends and trajectories that also characterize the national and non-Hollywood cinemas not covered in the course. Examines the relationship of form and genre to individual national, or localized, cultural contexts. No credit for students who have completed FILM\_S 2820. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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### **FILM\_S 2160: Film Adaptation of Shakespeare - Non Majors**

This course serves as an introduction to the problems and complexities that arise when adapting William Shakespeare's plays to contemporary film. One basic task of the course is to develop students' ideas about adaptation, especially with reference to contemporary adaptation theory. This course hopes both to explain and discredit the value of "fidelity discourse," students should be liberated from the notion of "faithfulness" to the texts. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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### **FILM\_S 2540: Introduction to Film Management**

Film Production Management is a hands-on exploration of the roles of feature film executive producers, producers and unit production managers. Creating balanced budgets, hiring personnel, creating meaningful business relationships, and managing post-production responsibilities are investigated. The feature film budget will be examined in each phase of the production; creating a sales pitch for a film, and developing a detailed approach to distribution is explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800; sophomore standing or higher

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### **FILM\_S 2820: Trends in World Cinema**

(same as GERMAN 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing, ENGLSH 1800 or FILM\_S 1800

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### **FILM\_S 2830: American Film History I, 1895-1950**

(same as ENGLSH 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLSH or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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### **FILM\_S 2840: American Film History II, 1950-Present**

(same as ENGLSH 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLSH or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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### **FILM\_S 2850: Italian Cinema**

(same as ITAL 2850). A course which concentrates on the development of Italian Cinema, primarily since the Post-WWII era, and the ways in which it reflects major economic, social and political events occurring in Italy. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILM\_S 2860: Film Themes and Genres**

(same as ENGLSH 2860, DST 2860) Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 2680.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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**FILM\_S 2865: The Art of Soviet and Russian Cinema**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILM\_S 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILM\_S 2870: Film and Literature**

(same as ENGLSH 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded A-F basis only

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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**FILM\_S 3001: Topics in Film- General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 3005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 3005H: Topics in Film Studies - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing or instructor's consent. Honors eligibility required

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**FILM\_S 3005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 3490: Indian Cinema**

(same as S\_A\_ST 3490, AR\_H\_A 3790 and ANTHRO 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**FILM\_S 3530: Crafting Character and Story for Screen**

Analyze various script formats and apply different writing techniques and styles to create screenplays and teleplays. Work inside a creative critique environment to craft vivid storytelling and character elements while developing viable loglines and pitches for their stories. Screenwriting concepts include the three-act structure and the timing and placement of plot points. Graded on A-F basis only. May be restricted to Film Studies majors and minors during early registration

**Credit Hours:** 3

**Prerequisites:** . FILM\_S 1800 or ENGLSH 1800; sophomore standing or higher

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**FILM\_S 3540: Principles of Cinematography**

An exploration of the principles and techniques of cinematography that includes shot composition lighting styles, and storytelling, using the moving image. Students will examine historical and contemporary approaches to cinematography used in Hollywood, foreign and independent films. Analyzing cinematographic approaches of a wide range of work will help the students discriminate the quality of their own creative work. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800; Sophomore standing or higher. May be restricted to Film Studies majors and minors during early registration

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**FILM\_S 3550: Introduction to Field Production**

Provides a comprehensive overview of pre-production and production involved in the development of a film. Students will receive hands-on experience in lighting design, camera operation, grip and electrical, producing, directing, sound capture and design, and fundraising. Students will ultimately be responsible for the production of a commercially viable, competition grade short film at the end of the semester. Some outside class commitments are required.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800 and FILM\_S 3540

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**FILM\_S 3555: Directing for the Screen**

Directing for the Screen combines previous knowledge of the cinematic frame with the power of communication. This course focuses on developing the student's ability to effectively communicate to actors, cinematographers, and art departments, while also commanding a film crew and managing relationships with producers. Students develop

concise personal vision and aesthetics with respect to scripts, and will work directly with actors to achieve performances that suit the project.

**Credit Hours:** 3

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**FILM\_S 3560: Audio Engineering for the Screen**

This course is an intensive study of the techniques and science behind the use of audio in today's cinema. The course will focus on four major areas of study: sound in cinema, sound creation, sound manipulation, and environmental sound layering.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800, Sophomore standing. May be restricted to Film Studies majors and minors during early registration

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**FILM\_S 3775: The Ancient World on Film**

(Same as CL\_HUM 3775 and AR\_H\_A 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Prerequisites:** Prior 2000 level coursework in CL\_HUM, AR\_H\_A, or FILM\_S. Instructors consent required

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**FILM\_S 3780: Architecture in Film**

(same as AR\_H\_A 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**FILM\_S 3785: Art and Artists on Film**

(same as AR\_H\_A 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**FILM\_S 3820: Major Directors**

(same as ENGLSH 3820 and RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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**FILM\_S 3830: History of German Film**

(same as GERMAN 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3840: German Film After 1945**

(same as GERMAN 3840). Examines a selection of post-War films by German directors, as well as historical, literary, and theoretical texts.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing, or instructor's consent

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**FILM\_S 3845: Modern Israeli Film**

(same as HEBREW 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor required

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**FILM\_S 3850: Studies in Film History**

(same as ENGLSH 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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**FILM\_S 3855: Documentary Film**

(same as ENGLSH 3855; DST 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**FILM\_S 3861: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 3861.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or ENGLSH 1800 or FILM\_S 1800

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**FILM\_S 3865: The Holocaust on Screen**

(same as GERMAN 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILM\_S 3870: Russian Women and Film**

(same as RUSS 3870, WGST 3870) Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the



State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles).

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3875: Brazilian Cinema**

(same as PORT 3875). An introduction to Brazilian cinema, culture, and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; redefinition of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**FILM\_S 3880: Contemporary Chinese Film**

(same as CHINSE 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3885: Twenty-First Century South American Cinema**

(same as SPAN 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or ENGLSH 1000H

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**FILM\_S 3890: Russian and Soviet Film**

(same as RUSS 3890). Introduces three significant genres of Russian cinema: comedy, literary adaptations, and films that explore issues of identity and autobiography. Includes examples from different epochs. Considers Soviet and post-Soviet films. Russia and Russian culture. Course conducted in English; films have English subtitles.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3895: Korean Society Through Cinema**

(Same as KOREAN 3890). Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore Standing

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**FILM\_S 3930: Screenwriting for Television and Film**

(same as THEATR 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**FILM\_S 4001: Topics in Film-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 4005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILM\_S 4005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILM\_S 4030: Video Art and the Moving Image**

(same as ART\_GNRL 4030; cross-leveled with ART\_GNRL 7030). Video as a fine art form intersection sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Final Cut Pro demonstrating technical ability and aesthetic vision.

**Credit Hours:** 3

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**FILM\_S 4130: Advanced Character Voice and Dialogue**

Builds upon principles of story arc and screenwriting techniques, while providing an in-depth study of character psyche and unique voice. Students will master the skills necessary to create vibrant, memorable characters through the exploration and development of unique character traits, physical imagery development and distinctive voice. Students will analyze dialog traits of scripts and films of industry professionals, and will craft their own characters using industry standard technology, adhering to the principles of industry standard formatting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 3530, THEATR 3930, FILM\_S 3930, ENGLSH 2510, ENGLSH 2520 or ENGLSH 2530

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**FILM\_S 4370: Film Studies: The Intersection of Documentary Film and Journalism**

(same as JOURN 4370; cross-leveled with FILM\_S 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by

investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 4540: Advanced Cinematography**

Cinematography is an art based on control of light, motion, and the frame. Introduction to Cinematography gave students a basic understanding of the fundamental principles of cinematography. Advanced Cinematography builds upon these principles, placing students in a collaborative studio environment, focusing on application of advanced techniques and storytelling as an element of meaning within the frame. Students will utilize advanced camera systems, cinema grade lenses, and lab facilities to integrate contemporary post production techniques to alter their footage, creating highly stylized imagery.

**Credit Hours:** 4

**Prerequisites:** FILM\_S 1800 or ENGLISH 1800; FILM\_S 3540; sophomore standing or higher

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**FILM\_S 4550: Introduction to Post Production**

Introduction to the Post Production explores traditional and current audio and video post-production concepts, techniques and technology. Using non-linear editing and audio post-production software students develop techniques in video and audio editing, and investigate the post production concepts of color correction, audio mixing, and motion graphics. Using media encoding software, students examine exporting and compressing footage to a wide range of digital delivery formats. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLISH 1800; sophomore standing or higher

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**FILM\_S 4580: Production Practicum**

Provides an intensive, comprehensive experience in film production. Students will receive hands-on experience in lighting and set design, camera operation, grip/electrical and sound capture. The course pits students against a rigorous industry standard shooting schedule - long hours are to be expected each day. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 3540

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**FILM\_S 4810: Film Theory**

(same as ENGLISH 4810, DST 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH or FILM\_S 1800. Junior standing or above required

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**FILM\_S 4820: Studies in Film Genre**

(Same as ENGLISH 4820) Topics (e.g. The Western, film noir) announced at time of registration. No more than six hours may be taken toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800; Junior Standing or instructor's consent

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**FILM\_S 4840: Culture and Media**

(Same as ENGLISH 4840, DST 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800. Junior standing or instructor's consent required

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**FILM\_S 4860: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film., The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 4860.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 4880: Capstone Experience**

This course is for Film Studies students who have completed their concentration requirements. The main objective is to help students independently create and complete a capstone project. The project should allow you to conceptualize and enter professional life after commencement.

**Credit Hours:** 3

**Prerequisites:** Film Studies majors only. Consent of instructor required

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**FILM\_S 4935: Adaptation of Literature for Film**

(same as ENGLISH 4935 and THEATR 4935; cross-leveled with FILM\_S 7935, ENGLISH 7580 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**FILM\_S 4940: Internship**

This course is for Film Studies students who have the opportunity to work in an internship position in a related industry or at a government agency where they can gain valuable on the job experience and knowledge. The student must register for the Internship course in the semester in which the work takes place. Graded S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800. Must have at least 15 hours of Films Studies credit. Online courses do not count for the 15 hours of Film Credit

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**FILM\_S 4960: Special Readings in Film Studies**

Arranged. Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800.

Consent of instructor required. Restricted to Film Studies majors in their final year

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**FILM\_S 4963: Latin American Cinema (in Spanish)**

(same as SPAN 4960). Subject varies according to instructor.

**Credit Hour:** 2-3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**FILM\_S 4995: Senior Honors Thesis**

Independent honors research under direction of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Senior standing required, consent of instructor required, Honors eligibility required

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**FILM\_S 7001: Topics in Film Studies-General**

Topics in Film Studies-General

**Credit Hour:** 1-3

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**FILM\_S 7370: The Intersections of Documentary Film and Journalism**

(same as JOURN 7370). (cross-leveled with JOURN 4370 and FILM\_S 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 7810: Film Theory**

(same as ENGLISH 7810). This course explore contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 7840: Culture and Media**

(same as ENGLISH 7840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

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**FILM\_S 7935: Adaptation of Literature for Film**

(same as THEATR 7935 and ENGLISH 7580; cross-leveled with FILM\_S 4935, ENGLISH 4935 and THEATR 4935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**FILM\_S 7975: Distorted Picture: Post-War Cinema in a Police State**

(Same as RUSS 7975) Considers strategies and stylistic devices employed by East European & Soviet directors to produce artistically worthy films under censorship. Discusses how artists adapted methods, boldness of expression, thematic content, and technical sophistication. Attention paid to production techniques.

**Credit Hours:** 3

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**FILM\_S 8005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Finance Courses

**FINANC 1000: Principles of Finance**

Financing business, consumer, and government activity; stocks, bonds, real estate, and financial markets; risk; insurance; inflation; cash and income management; capital accumulation and appreciation.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 2000: Survey of Business Finance**

An overview of the global financial system, financial markets, financial institutions, and principles of financial management.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 3000: Corporate Finance**

Financial decision-making in a corporate environment. Time value of money, capital budgeting, cost of capital, working capital management and financial instruments issued by the firm.

**Credit Hours:** 3

**Prerequisites:** Completed 45 semester hours; Stat 2500 (or Stat 2200 and Stat 1200 or Stat 1300 or Stat 1400); Acctcy 2027 or Acctcy 2037 or Acctcy 2137H; Econom 1014 or Econom 1024; Econom 1015 or Econom 1051 or 1051H

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**FINANC 3300: Personal Risk Management and Insurance**

Teaches the importance of risk in personal endeavors and the intelligent handling of such risk. Life, health, auto, homeowner and liability risks are treated.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FINANC 4010: Financial Management**

Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4020: Investments**

Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4020H: Investments - Honors**

Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000. Honors eligibility required

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**FINANC 4030: Financial Intermediaries and Markets**

Functions of intermediaries in the aggregation and allocation of funds, creation and transfer of assets, and distribution of risks. Regulation of financial institutions; financial institutions as instruments of public policy.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000 and ECONOM 3229

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**FINANC 4110: Financial Management Policy**

Application of the concepts and tools of finance to cases in working capital management, capital budgeting analysis and capital structure decisions.

**Credit Hours:** 3

**Prerequisites:** FINANC 4010

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**FINANC 4120: Security Analysis**

Classifies and analyzes securities, markets, industries. Formulation of investment policy for institutions, aggressive personal investors.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4130: Management of Financial Institutions**

Operating principles of major financial intermediaries, including commercial banking, savings, insuring, lending and investing institutions. Analysis of cases; study of current problems. Some sections of the course may be graded on A-F or S/U graded basis only.

**Credit Hours:** 3

**Prerequisites:** FINANC 4030

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**FINANC 4185: Problems in Finance**

Independent study, reports on selected topics. Some sections of this course may be offered A-F only or S/U only.

**Credit Hour:** 1-99

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**FINANC 4201: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on an experimental basis. Some sections of this course may be offered A-F only or S/U only.

**Credit Hours:** 3

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**FINANC 4220: Portfolio Management**

Development and application of the principles of modern portfolio theory to financial assets. Analysis of the concepts of diversification, portfolio construction, portfolio revision, and use of types of financial assets in effective portfolio management.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4310: Financial Modeling and Databases**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4320: Financial Futures and Options**

A basic overview of financial futures and options markets. Topics include: theoretical pricing of financial futures contracts and stock options, institutional aspects of these markets, hedging, and speculative strategies.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4450: Financial Ethics and Professional Standards**

The course comprises an intensive study of the CFA Institute Code of Ethics and Standards of Professional Conduct and Global Investment Performance Standards. It also includes a review of corporate governance issues.

**Credit Hours:** 3

**Recommended:** FINANC 4010 or departmental consent

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**FINANC 4500: Principles of Real Estate**

Principle factors influencing land use, practices in real estate business.

**Credit Hours:** 3

**Recommended:** FINANC 3000

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**FINANC 4510: Real Estate Appraisal**

Procedures for valuing industrial, commercial, residential realty by market, income, replacement cost approaches. Case method, field investigations.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4520: Real Estate Finance and Investment**

Financing of residential, commercial, and industrial real estate and real estate development. Instruments, institutions, and markets; role of government agencies; investment qualities of real estate.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4530: Real Estate Portfolio Analysis and REITs**

Management of real estate portfolios and analysis of real estate investment trusts including financial statement analysis, cash flows, and valuation techniques.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4620: Investment Strategy of Warren Buffett**

Survey and application of the investment philosophy and valuation methods of Warren Buffett. Prerequisites: FINANC 3000;

**Credit Hours:** 3

**Corequisites:** FINANC 4020

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**FINANC 4630: Introduction to Risk Management and Insurance**

Basic principles of risk management and insurance focusing on operational risks faced by organizations. Covers terminology, sources, dimensions, characteristics, measurement, and assessment of risk along with design and implementation of techniques to mitigate and control risk.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINANC 2000 or FINANC 3000

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**FINANC 4632: Principles of Commercial Property and Liability Insurance**

The objective of this course is to examine the principles and key elements of commercial property and liability insurance. The primary emphasis will be on the property and liability loss exposures faced by organizations and the corresponding types of insurance for covering those loss exposures. This course qualifies students who make a "B" or better to receive credit for CPCU 552 Commercial Liability Risk Management and Insurance.

**Credit Hours:** 3

**Prerequisites:** FINANC 2000 or FINANC 3000 or FINANC 4630, or permission of the instructor

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**FINANC 4640: Enterprise Risk Management**

This course addresses the principles, concepts, key elements and applications of Enterprise Risk Management (ERM) to businesses and other organizations. The principal objective of this course is to prepare students to understand the principles of ERM and to be able to integrate sound risk management principles into their work.

**Credit Hours:** 3

**Prerequisites:** FINANC 4630, or permission of instructor

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**FINANC 4710: Topics in International Finance**

Available during study abroad session. Emphasis is on international corporate governance, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4720: International Finance**

Application of domestic corporate finance to the international arena. Emphasis on international capital budgeting, working capital management, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination.

**Credit Hours:** 3

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**FINANC 4820: Investment Fund Management**

Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated once for credit for a total of six credits.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000, FINANC 4120 or FINANC 4620, instructor's consent required each enrollment

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**FINANC 4830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 7830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**FINANC 4840: Angel Capital Education Program**

(cross-leveled with FINANC 7840). In depth understanding of investing in start up enterprises, including structuring investment deals, doing due diligence, and monitoring of prior investments. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 4940: Professional Finance Internship**

Provides students experience with financial activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and the complete written assignments detailed in the plan.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000, College of Business students with a finance concentration or international business students with a finance emphasis, and instructor's consent

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**FINANC 7010: Financial Management**

Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7020: Investments**

Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7201: Special Topics in Finance**

Selected topics in Finance, insurance, or real estate. Offered on an experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 7210: Microeconomics for Business**

Examination of how the behavior of consumers and the business decisions of firms affect supply, demand, and the resulting prices of goods and services in the market.

**Credit Hour:** 1-3

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**FINANC 7220: Economics for Managers**

Applies the concepts and tools of economics to management issues and problems.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7210 or equivalent

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**FINANC 7410: Managerial Finance I**

Introduction to financial management including the time value of money capital budgeting techniques, risk measurement, and the valuation of financial securities.

**Credit Hour:** 1-3

**Prerequisites:** ACCTCY 7310

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**FINANC 7420: Managerial Finance II**

Continuation of the study of financial management with focus on the risk-return tradeoff, capital structure, corporate layout polices, long-term financing, elementary options pricing, and mergers and acquisitions.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7410

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**FINANC 7440: Managerial Finance**

Analyzes financial information relative to acquisition, management of assets; costs of alternative financial contracts; effect of mix of outstanding securities on entity's cost of capital; interaction between funding/ investment decisions.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 7310 or departmental consent

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**FINANC 7620: Investment Strategy of Warren Buffett**

Survey and application of the investment philosophy and valuation methods of Warren Buffett.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440

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**FINANC 7820: Investment Fund Management**

(cross-leveled with FINANC 4820). Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated 1 time for credit.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440; instructor's consent

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**FINANC 7830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 4830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 7840: Angel Capital Education Program**

(cross-leveled with FINANC 4840). In depth understanding of investing in start up enterprises, including structuring investment deals, doing due diligence, and monitoring of prior investments. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 8001: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 8010: Multicultural and Global Finance Study Abroad**

International topical issues in finance including cultural difference, corporate governance, differential approaches to regulation across countries, and cross-risk. Includes a study abroad component with on-site visits to businesses and other organizations. May be repeated as venues change.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8012: International Financial Markets**

International capital, foreign exchange, money markets, and financial institutions including exchange rates, instruments and securities, and multinational risk exposure. May include a study-abroad component with on-site visits to businesses and other organizations. May be repeated as venues change. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8070: Security Markets and Investments**

Valuation of securities including stocks, bonds, options and futures; risk-return analysis of financial assets.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440 or equivalent

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**FINANC 8085: Problems in Finance**

For independent investigation and analysis, graduate students select topics suggested by the foregoing undergraduate courses.

**Credit Hour:** 1-3

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**FINANC 8090: Master's Thesis Research**

Advanced research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent required

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**FINANC 8310: Financial Databases and Analysis**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FINANC 8312: Financial Modeling**

Financial modeling using Excel spreadsheet design and VBA programming. Includes alternative computational methods, simulation and the use of information retrieved from financial databases. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8310

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**FINANC 8320: Financial Markets**

Operation and structure of money markets and capital markets, including markets for stocks, bonds and derivatives securities. Study of the securities that trade in those markets including characteristics, valuation and diversification.

**Credit Hour:** 1-3

**Prerequisites:** BUS\_AD 7440

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**FINANC 8330: Investment Policy and Portfolio Management**

Study of investment policies and the effects of risk and diversification on investment management including measurement of risk, identification of investment policy, and construction and maintenance of investment portfolios. Prerequisites: FINANC 8320

**Credit Hour:** 1-3

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**FINANC 8340: Derivative Financial Securities**

Comprehensive overview of derivative securities including financial futures and options, swaps, and financial engineering. Major topics: institutional aspects of these markets, advanced pricing models, pricing relationships among derivative securities, and risk shifting.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8070

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**FINANC 8350: Financial Statement Analysis I**

An introduction to financial statement analysis with emphasis on interpretation and understanding of the balance sheet income statement, and statement of cash flows.

**Credit Hour:** 1-3

**Prerequisites:** ACCTCY 7310

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**FINANC 8352: Financial Statement Analysis II**

Analysis of company financial statements and related accounting information with emphasis on investors' decisions to invest in the company.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8350

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**FINANC 8360: Equity Securities Analysis**

Theory and application of models and methods for valuing common stocks.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8370: Fixed-Income Securities Analysis**

Markets for fixed-income securities and theory and application of models for valuing bonds and other fixed-income securities. Prerequisites: FINANC 7420

**Credit Hour:** 1-3

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**FINANC 8380: Investment Banking**

Topics in investment banking including types of offerings and securities, analysis of comparable companies and transactions, valuation methods, and hedge funds and private equity. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANCE 7420 or equivalent

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**FINANC 8410: Advanced Financial Management**

Examination of the modern theory of finance. Capital budgeting capital structure, dividend theory and valuation.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8420: Working Capital Management**

Financial planning and short-term financial management; integration of quantitative techniques, microeconomics, and financial decisions; analysis of decisions about profit planning, financial forecasting, accounts receivable, cash management, and financial short-term assets.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8410

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**FINANC 8430: Capital Budgeting**

An investigation of long-term financial decisions. Topics include capital budgeting, leasing, long-term financing. Extensive use of cases.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8410

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**FINANC 8440: Financing Multinational Business**

Study of foreign exchange markets, currency derivatives, global capital budgeting, and international financial decision strategy. Some sections of this course may be offered on an A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8450: Ethics and Standards of Financial Practice**

Study of financial ethics with particular focus on standards of practice for investment performance standards. Recommended for students planning to take the CFA exam. Prerequisites: FINANC 7420

**Credit Hour:** 1-3

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**FINANC 8460: Mergers and Acquisitions**

Analysis of merger and acquisition transactions. Includes methods of financing, valuation and deal structure, hostile takeovers and restructuring.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8510: Management of Financial Institutions**

Study and analysis of policies, goals, practices and organizational changes in the management of financial institutions and intermediaries.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8520: Real Estate Investment I**

Analysis of real estate as an investment including forecasting net operating income and cap rates, risk analysis estimation of return on investment, and syndication.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7420

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**FINANC 8522: Real Estate Investment II**

A continuation of FINANC 8520. Advanced risk analysis, syndication, and renovation and disposition of investment property including case analyses. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8520

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**FINANC 8530: Real Estate Portfolio Analysis**

Portfolio analysis applied to real estate investment including diversification, portfolio theory, and management of real estate portfolios including real estate investment trusts (REITs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7420

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**FINANC 8540: Real Estate Finance**

Instruments and methods of financing real estate including fixed and variable rate mortgages, the mortgage loan underwriting process, financing investment property, and alternative financing methods. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8550: Real Estate Valuation I**

Valuation and appraisal methods for real estate. Includes cost, comparable sales, and income capitalization approaches. Credit may not be earned for both FINANC 7510 and FINANC 8550. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8552: Real Estate Valuation II**

A continuation of FINANC 8550. Focus is on advanced methods and the use of case analyses. Credit may not be earned for both FINANC 7510 and FINANC 8552. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8550

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**FINANC 8560: Real Estate Securities Analysis**

Analysis of real estate securities including in-depth financial statement analysis and valuation of real estate investment trusts (REITs) and real estate operating companies (REOCs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8530 or instructor's consent

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**FINANC 8570: Real Estate Development**

Developing real estate properties. Topics include organizational forms, land development, construction, and environmental issues. Includes issues specific to residential, office, industrial, and retail properties. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8620: Investment Strategy of Warren Buffett**

This course is designed to familiarize students with the investment philosophy of Warren Buffett. Buffett's criteria for evaluating potential acquisitions and investments will be analyzed in detail.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8630: Corporate Risk Management**

Principles of identifying, analyzing, assessing, and managing operational risks faced by large organizations. Sources, dimensions, and qualities of risk as well as development and implementation of methods to avoid, control, or transfer risk.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** FINANC 7420

**Recommended:** Undergraduate Business degree with major/emphasis/minor in Finance, Accounting or Economics

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**FINANC 8632: Corporate Insurance and Alternative Financing Mechanisms**

Basis and techniques for insuring hazard and operational risks encountered by large organizations. Analysis of insurance policies, determination of optimal limits and retentions, and assessment of alternative risk financing methods.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8630

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**FINANC 9001: Advanced Topics in Finance**

Selected topics in finance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9090: Research in Finance**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**FINANC 9100: Seminar in Corporate Finance**

Advanced theory, investigation of current research in financial management.

**Credit Hours:** 3

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**FINANC 9101: Topics Seminar in Finance**

Reading and critical evaluation of selected current finance literature and research. Departmental consent. May be repeated. Graded on S/U basis only. students only

**Credit Hour:** 1-3

**Prerequisites:** Ph.D

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**FINANC 9200: Research in Corporate Finance**

Advanced topics in corporate finance.

**Credit Hours:** 3

**Prerequisites:** Finance [FINANC] 9100

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**FINANC 9300: Financial Economics**

Utility analysis, efficient frontier mathematics, asset pricing and related topics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9400: Seminar in Investment Analysis**

Develops integrated theory and analytic techniques for evaluating investment potential of financial instruments. Emphasizes corporate securities. Selected cases and readings.

**Credit Hours:** 3

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**Fisheries And Wildlife Courses****F\_W 1002: Topics in Fisheries and Wildlife**

Organized study of selected topics intended primarily for lower-level students in Fisheries and Wildlife Sciences.

**Credit Hour:** 1-99

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**F\_W 1012: Introduction to Captive Wild Animal Management**

(same as AN\_SCI 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 1100: Introductory Zoology with Laboratory**

(same as BIO\_SC 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**Credit Hours:** 5

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**F\_W 2002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics**

Organized study of selected topics. Intended for lower division Fisheries and Wildlife students. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**F\_W 2500: Introduction to Genetics and Evolution for Conservation**

Basic principles and processes of genetics and evolution and their importance for management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** NAT\_R 1070, BIO\_SC 1500, CHEM 1310, and MATH 1100

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**F\_W 2600: Ornithology**

(same as BIO\_SC 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab.

**Credit Hours:** 4

**Recommended:** 5 hours Biological Sciences

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**F\_W 2700: Ichthyology**

(same as BIO\_SC 2700). A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment.

**Credit Hours:** 4

**Recommended:** 8 hours Biological Sciences

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**F\_W 2900: Principles of Wildlife Management**

Expose students to the principles of wildlife management with emphasis on current issues faced by wildlife researchers and managers in the field. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** NAT\_R 1070 and one other course in biological or environmental science; sophomore standing or higher

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**F\_W 3002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics**

Organized study of selected topics. Intended for upper division students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**F\_W 3085: Problems in Fisheries and Wildlife**

Individual problems studies to supplement regularly organized undergraduate courses in Fisheries and Wildlife. Proposal for problems study must be arranged by student and supervising faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 3090: International Studies in Conservation**

International study abroad that enhances and expands conservation knowledge and experience. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** 12 hours biological science and/or conservation-related coursework. Restricted to Fisheries and Wildlife majors only

**Recommended:** 12 hours biological science and/or conservation-related coursework. Must complete a Study Abroad Proposal prior to attending the course

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**F\_W 3200: Aquaculture**

This course aims to develop an understanding of key aspects of the practice of fish culture, an awareness of aquatic species being cultured worldwide, and an appreciation of why aquaculture is expanding so rapidly on a global basis and the emerging environmental concerns associated with aquaculture growth. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 3300: Wildlife Damage Management**

To explore wildlife damage conflicts involving human health and safety, agricultural resources, economics and natural resources. The course studies damage caused by wildlife species and methods to alleviate damage. Covers wildlife diseases, human dimensions and wildlife policies. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 3350: Wildlife Damage Management Lab**

To explore wildlife damage management techniques in a field setting. To gain knowledge in assessing wildlife damage and the responsible species and determine the best approach to reduce that damage. Graded on A-F basis only. Prerequisites or

**Credit Hour:** 1

**Corequisites:** F\_W 3300

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**F\_W 3400: Water Quality and Natural Resource Management**

Introduction to broad aspects of water quality science, management and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology.

**Credit Hours:** 3

**Recommended:** CHEM 1000 or CHEM 1320 and ENV SC 1100 or NAT\_R 1070

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**F\_W 3500: Wildlife Conservation in British Cities**

Five week study abroad course focusing on approaches to wildlife conservation in London, Birmingham, Manchester, Liverpool and Edinburgh. Students will learn how managers blend ecology, conservation, and participatory approaches to management to conserve species in a human dominated landscape. Hands on involvement with conservation projects included.

**Credit Hour:** 3-6

**Recommended:** NAT\_R 1060 or NAT\_R 1070, and Management course in SNR

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**F\_W 3600: Introduction to Conservation Biology**

Introduction to principles of conservation biology. Application of ecological concepts and conservation biology principles to management of endangered species, biodiversity and threatened ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 3660: Mammalogy**

(same as BIO\_SC 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States.

**Credit Hours:** 4

**Recommended:** junior standing

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**F\_W 3700: Animal Behavior**

Behavior allows animals to react promptly to environmental changes, and is how they interact with others and their surroundings. Because behaving is central to an animal's life, knowing about behavior is fundamental to understanding animal ecology and to conservation efforts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** F\_W 1100

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**F\_W 3900: Ecology of Fishes**

This course considers fishes' interactions with their environments in relation to survival, growth and population processes. The course is for mid- to upper-level undergraduates interested in fisheries science, management and fish conservation. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** STAT 2530 or STAT 1400; BIO\_SC 1500 or F\_W 1100; sophomore standing

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**F\_W 4002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics**

Organized study of selected topics intended primarily for senior-level students in Fisheries and Wildlife Sciences.

**Credit Hour:** 1-99

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**F\_W 4100: Limnology**

(same as BIO\_SC 4100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.). Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Recommended:** senior standing or BIO\_SC 3650

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**F\_W 4200: Urban Wildlife Conservation**

Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4200W: Urban Wildlife Conservation - Writing Intensive**

Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Recommended:** One 3000-level or above professional Fisheries and Wildlife management or techniques course

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**F\_W 4300: Fisheries Management**

Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650 and STAT 2530

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**F\_W 4400: Techniques for Fisheries Management and Conservation**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110 and F\_W 2700 or F\_W 4300

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**F\_W 4400W: Techniques for Fisheries Management and Conservation - Writing Intensive**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110 and F\_W 2700 or F\_W 4300

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**F\_W 4500: Animal Population Dynamics and Management**

Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species.

**Credit Hours:** 3

**Prerequisites:** MATH 1400, STAT and BIO\_SC 3650

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**F\_W 4600: Ecosystem Management**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650

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**F\_W 4600W: Ecosystem Management - Writing Intensive**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650

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**F\_W 4650: Wildlife Management Planning**

Students will be exposed to various wildlife planning tools. Student teams will develop wildlife management plans with strategic and operational

components for current conservation issues in Missouri. Plans will be critiqued by peers and outside professionals. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and senior standing

**Recommended:** F\_W 2900

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**F\_W 4700: Wildlife Research and Management Evaluation Methods**

Techniques for conducting wildlife research and evaluating wildlife management practices.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 or F\_W 2900 or STAT

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**F\_W 4700W: Wildlife Research and Management Evaluation Methods - Writing Intensive**

Techniques for conducting wildlife research and evaluating wildlife management practices.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 or F\_W 2900 or STAT

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**F\_W 4800: Environmental Toxicology**

Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and F\_W 3400

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**F\_W 4810: Wildlife Disease Ecology**

An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4880: Waterfowl Ecology and Management**

Ecology and management of North American waterfowl and their habitats. Laboratory exercises focus on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 4910: Senior Seminar in Captive Wild Animal Management**

(same as AN\_SCI 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012; junior or senior standing

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**F\_W 4940: Fisheries and Wildlife Internship**

Supervised professional experience with an approval public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Fisheries and Wildlife majors only

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**F\_W 4950: Undergraduate Research in Fisheries and Wildlife**

Individually directed field or laboratory research for students under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 4960: Special Readings in Fisheries and Wildlife**

Critical review of current literature and research in fisheries and wildlife sciences. Project must be arranged by student and faculty supervisor prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** supervising faculty member's consent required

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**F\_W 7002: Graduate Topics in Fisheries and Wildlife**

Organized study of selected topics intended primarily for graduate students in Fisheries and Wildlife Sciences. Graded on A-F basis only.

**Credit Hour:** 1-99

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**F\_W 7100: Limnology**

(same as BIO\_SC 7100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 3650

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**F\_W 7200: Urban Wildlife Conservation**

Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Corequisites:** BIO SC 3650 or instructor's consent

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**F\_W 7220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Prerequisites:** One 3000-level or above professional management or techniques course or instructor consent

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**F\_W 7300: Fisheries Management**

Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and STAT 2530

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**F\_W 7400: Techniques for Fisheries Management and Conservation**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of

techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110 and F\_W 2700 or F\_W 4300

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**F\_W 7500: Animal Population Dynamics and Management**

Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1400, BIO\_SC 3650, Statistics

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**F\_W 7600: Ecosystem Management**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, social-economic, and institutional factors that influence natural resource management agencies. Graded on A-F basis only.

**Credit Hours:** 4

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**F\_W 7700: Wildlife Research and Management Techniques**

Research and Management methods for wildlife populations and habitats.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110. One-week pre-semester field session required

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**F\_W 7800: Environmental Toxicology**

Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and F\_W 3400 or instructor's consent

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**F\_W 7810: Wildlife Disease Ecology**

An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_W 7880: Waterfowl Ecology and Management**

Ecology and Management of North American waterfowl and their habitats. Laboratory exercises focuses on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 8001: Topics in Fisheries and Wildlife**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_W 8050: Non-Thesis Research in Fisheries and Wildlife**

Independent research not leading to a thesis.

**Credit Hour:** 1-99

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**F\_W 8085: Graduate Problems in Fisheries and Wildlife**

Individualized problems studies to supplement regularly organized graduate courses in Fisheries and Wildlife.

**Credit Hour:** 1-5

**Prerequisites:** consent of supervising faculty member

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**F\_W 8087: Masters Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

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**F\_W 8090: Masters Thesis Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**F\_W 8300: Professional Development and Communications**

Intended to foster professional growth and development of graduate students. The course will present a rigorous introduction to professionalism, ethics, career development, and professional communications skills and techniques. Graded on A-F basis only.

**Credit Hour:** 1-3

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**F\_W 8440: Fish Ecology**

Advanced study of the interactions between fish and their environment. Topics include behavioral, physiological, population and community ecology of fishes, with emphasis on development and application of ecological theory in fishery management.

**Credit Hours:** 3

**Prerequisites:** F\_W 2700, F\_W 4100, BIO\_SC 3650 or equivalent

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**F\_W 8450: Advanced Limnology**

Physical, chemical and biological processes of lakes and streams emphasizing biological production, water quality and modern problems. Field, laboratory techniques in limnology research.

**Credit Hours:** 3

**Prerequisites:** F\_W 4100, BIO\_SC 3650, BIO\_SC 3510 or equivalent

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**F\_W 8460: Wetland Ecology**

A survey of the wetlands of North America; emphasis on nutrient dynamics, habitat structure, management, legislation and regulations, and man's impacts.

**Credit Hours:** 3

**Prerequisites:** F\_W 4100, BIO\_SC 3650 and instructor's consent

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**F\_W 8470: Fish Bioenergetics: Concepts and Applications**

Key concepts of fish bioenergetics are treated by readings, discussions of articles and lectures by the instructor. Concepts are applied through modeling. Novel applications, shortcomings and benefits of bioenergetics models are treated. The course applies to graduate students seeking careers in fisheries management, aquatic ecology, fish conservation and aquaculture. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**F\_W 8510: Ecology, Conservation, and Environmental Justice**

The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: one undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**F\_W 8520: Stream Ecology**

Ecological principles applied to flowing waters. Emphasis on ecological processes within algal, invertebrate and fish communities. The influence of geomorphic processes, hydrologic principles and physical-chemical factors on the biota.

**Credit Hours:** 3

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**F\_W 8530: Quantitative Fish and Wildlife Assessment**

Methods to assess space use patterns, animal abundance and population status are drawn into quantitative framework for making inferences to wild populations. Practical application and limitations of techniques are emphasized through analysis and interpretation of field data.

**Credit Hours:** 4

**Prerequisites:** NAT\_R 3110 or equivalent

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**F\_W 8540: Wildlife Nutritional Ecology**

A comprehensive and comparative treatment of vertebrates interact with their environment to satisfy nutrient and energy requirements. Emphasis on nutrient requirements, food processing, bioenergetics and foraging strategies.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or instructor's consent

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**F\_W 8550: Advanced Waterfowl Ecology**

Advance studies of waterfowl ecology. Emphasis on mating systems, foraging ecology, energetics, and post-breeding and wintering ecology.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600, F\_W 3800 and BIO\_SC 3650 or instructor's consent

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**F\_W 8620: Vertebrate Behavioral Ecology**

In-depth study of the behavioral adaptations of vertebrates. Topics include reproductive strategies, mate selection, parental care, predator avoidance, habitat selection, foraging strategies and spacing patterns.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4640 and BIO\_SC 3650 or equivalents

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**F\_W 9087: PhD Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

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**F\_W 9090: Ph. D. Dissertation Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Food Science Courses

**F\_S 1010: Introduction to Viticulture and Enology**

This course will give a general overview of growing grapes (viticulture) and winemaking (enology) with an emphasis on Missouri wines and wineries. This course is the first course in a sequence of courses in the viticulture and enology track of the food science degree program.

**Credit Hour:** 1

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**F\_S 1030: Food Science and Nutrition**

Basic principles of science and technology as applied to the problem of providing safe, nutritious, and desirable food for man.

**Credit Hours:** 3

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**F\_S 2114: Live Animal and Meat Evaluation**

(same as AN\_SCI 2114). The composition and quality meat produced from food animals is the driving component of livestock economic value. This course will teach the principles and procedures involved in evaluation, grading, selection, and economic value of meat animals and poultry and the carcasses they produce. This course is an excellent introduction and (or) prerequisite for all livestock production courses and will provide a baseline of information for students interested in livestock or meat judging.

**Credit Hours:** 3

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**F\_S 2131: Dairy Products Evaluation**

(same as AN\_SCI 2131). Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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**F\_S 2172: Elements of Food Microbiology**

Introductory microbiology course stressing basic principles as related to foods.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing. Restricted to Food Science Students during Early Registration

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**F\_S 2195: Grapes and Wines of the World**

(same as PLNT\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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**F\_S 2199: Seminar in Professional Development**

Readings and discussion related to professional development for the industry.

**Credit Hour:** 1

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**F\_S 3190: Study Abroad: International Meat, Dairy and Enology**

(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Prerequisites: instructor's consent

**Credit Hours:** 3

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**F\_S 3190H: Study Abroad: International Meat, Dairy and Enology - Honors**

(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Enrollment is limited to Honors eligible students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_S 3210: Kitchen Chemistry**

This course is targeted at current Food Science, Hospitality Management, Nutrition or Biochemistry students who wish to study the application of scientific principles to the practice of cooking. This on-line summer class assumes students have access to a working kitchen. Video cooking projects are submitted weekly. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or higher

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**F\_S 3214: Principles of Meat Science**

(same as AN\_SCI 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biological Sciences

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**F\_S 3231: Principles of Dairy Foods Science**

(same as AN\_SCI 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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**F\_S 3240: Principles of Viticulture I**

(same as PLNT\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only. Prerequisites: F\_S 1010 and one of the following: F\_S 2195 or PLNT\_S 2195 or PLNT\_S 2100 or SOIL 2100 or PLNT\_S 2110 or PLNT\_S 2125.

**Credit Hours:** 4

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**F\_S 3250: Physical Principles for Food Processing**

Introduction to basic engineering concepts used to process raw materials: Energy balance, Pipe flow, Viscosity, Heat exchange, Refrigeration.

**Credit Hours:** 3

**Recommended:** one calculus course and one physics course

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**F\_S 3385: Problems in Food Science**

Supervised study in a specialized phase of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4199: Food Industry Senior Seminar**

The course explores the structure and the various branches of the food industry. Emphasis is placed on industry trends and the manufacture of specific selected food products and their ingredients. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** F\_S 1030 or equivalent, F\_S 2199 or equivalent; junior or senior standing

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**F\_S 4301: Topics in Food Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4310: Food Chemistry and Analysis**

(cross-leveled with F\_S 7310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Recommended:** 5 hours Chemistry or Biochemistry

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**F\_S 4311: Investigation of Food Properties**

(cross-leveled with F\_S 7311). Study of the chemical and physical properties of foods and the interaction of food components.

**Credit Hours:** 3

**Recommended:** F\_S 4310 or equivalent, or instructor's consent

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**F\_S 4315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 7315)The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4315W: Food Chemistry and Analysis Laboratory - Writing Intensive**

(cross-leveled with F\_S 7315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4330: Principles of Food Processing**

(same as AG\_S\_M 4330; cross-leveled with F\_S 7330, AG\_S\_M 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy, material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 and AG\_S\_M 1040 or PHYSCS 1210

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**F\_S 4331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 7331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** F\_S 3231 or equivalent

**Recommended:** one Chemistry course

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**F\_S 4340: Principles of Viticulture II**

(same as PLNT\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**F\_S 4344: Processing Muscle Foods**

(same as AN\_SCI 4344; cross-leveled with F\_S 7344, AN\_SCI 7344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Recommended:** One Chemistry course

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**F\_S 4345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1020 or BIO\_SC 1030

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**F\_S 4354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 4354; F\_S 7354, AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects

of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or F\_S 3214 or instructor's consent

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**F\_S 4370: Food Microbiology**

(cross-leveled with F\_S 7370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172

**Recommended:** one Biochemistry course

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**F\_S 4375: Food Microbiology Laboratory**

(cross-leveled with F\_S 7375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites or Corequisites:** F\_S 4370

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**F\_S 4380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 7380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 4385: Problems in Food Science**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4390: Optimization and Management of Food and Agricultural Systems**

(same as AG\_S\_M 4390, HSP\_MGMT 4390; cross-leveled with F\_S 7390; AG\_S\_M 7390, HSP\_MGMT 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**F\_S 4440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 7440). The theoretical and practical basics needed by enologists/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or concurrent, or instructors consent

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**F\_S 4441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 7441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 4440

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or instructor's consent

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**F\_S 4940: Field Training**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**F\_S 4941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** one Food Science course

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**F\_S 4970: Food Product Development**

(cross-leveled with F\_S 7970). Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4970W: Food Product Development - Writing Intensive**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4980: Food Quality Assurance**

(cross-leveled with F\_S 7360). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or instructor's consent

**Recommended:** 9 credit hours of food science

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**F\_S 7310: Food Chemistry and Analysis**

(cross-leveled with F\_S 4310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Prerequisites:** 5 hours Chemistry or Biochemistry

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**F\_S 7311: Investigation of Food Properties**

(cross-leveled with F\_S 4311). Study of the chemical and physical properties of foods and the interaction of food components. Lecture.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or F\_S 7310 or equivalent, or instructor's consent

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**F\_S 7315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 4315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or concurrent enrollment

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**F\_S 7330: Principles of Food Processing**

(same as AG\_S\_M 7330; cross-leveled with F\_S 4330, AG\_S\_M 4330). Basic principles of food processing, with emphasis on blanching, pasteurization, commercial sterilization, refrigeration, freezing, concentration, dehydration and packing. Impacts of processing on product quality are evaluated.

**Credit Hours:** 4

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**F\_S 7331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 4331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course and F\_S 3231 or equivalent

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**F\_S 7344: Processing Muscle Foods**

(same as AN\_SCI 7344; cross-leveled with F\_S 4344, AN\_SCI 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

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**F\_S 7345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_S 7354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 7354; cross-leveled with F\_S 4354, AN\_SCI 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or F\_S 3214 or instructor's consent

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**F\_S 7360: Food Quality Assurance**

(cross-leveled with F\_S 4980). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

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**F\_S 7370: Food Microbiology**

(cross-leveled with F\_S 4370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172 and one Biochemistry course or concurrent enrollment

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**F\_S 7375: Food Microbiology Laboratory**

(cross-leveled with F\_S 4375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites:** F\_S 4370 or concurrent enrollment

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**F\_S 7380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 4380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 7390: Optimization and Management of Food and Agriculture Systems**

(same as AG\_S\_M 7390, HSP\_MGMT 7390; cross-leveled with F\_S 4390, AG\_S\_M 4390, HSP\_MGMT 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_S 7440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 4440). The theoretical and practical basics needed by enologist/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 5 hours inorganic chemistry and organic chemistry or concurrent, or instructor's consent

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**F\_S 7441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 4441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 5 credit hours inorganic chemistry and organic chemistry and F\_S 4440 or instructor's consent

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**F\_S 7941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** One Food Science course and instructor's consent

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**F\_S 7970: Food Product Development**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000, and instructor's consent

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**F\_S 8050: Non-Thesis Research in Food Science**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students Only

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**F\_S 8085: Problems in Food Science**

Individual studies include a minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students only

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**F\_S 8087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications. Prerequisites: Masters standing

**Credit Hour:** 1

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**F\_S 8090: Research in Food Science**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students Only

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**F\_S 8253: Strategic Human Resource Management in Hospitality**

This course is designed to help graduate students pursuing a managerial position in the Hospitality Industry to understand the value and the competitive advantage that strategic human resource management provide.

**Credit Hours:** 3

**Prerequisites:** HSP MGMT 4253 or equivalent and instructors consent

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**F\_S 8263: Service Operations Management: Revenue Management**

This course offers an opportunity for students to learn the theory, concepts, and knowledge applied in service operations management. Students will find them useful in trying to cope with the dilemmas faced by operating managers in the hospitality industry. Especially, the course focuses on revenue management.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3153 or instructor's consent

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**F\_S 8273: Advanced Hospitality Marketing**

This course provides students with an advanced-level view of marketing strategies in the hospitality. The course encompasses analytical readings on segmentation and positioning, relationship marketing, marketing-mix development, and other strategic approaches applicable to hospitality industries.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 4273 or equivalent and instructors consent

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**F\_S 8401: Topics in Food Science**

Specialized topics in the area of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_S 8402: Research Methods in Food Science**

(same as BIOL\_EN 8402). Introduction to research. Defining research problems, developing hypotheses, searching scientific literature, designing experiments, presenting data, writing scientific papers and theses, making oral presentations.

**Credit Hours:** 2

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**F\_S 8404: Advanced Food Microbiology and Biotechnology**

Covers basic principles in biotechnology and applied food microbiology, including current topics of interest in food biotechnology. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8405: Advanced Microbiology of Foods**

Principles of microbial physiology, taxonomy, analytical methods applied to study of microorganisms added to foods and those causing food spoilage or food-borne illness. Roles of microorganisms in manufacture/distribution of foods.

**Credit Hours:** 3

**Prerequisites:** F\_S 4370 or equivalent

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**F\_S 8410: Food Chemistry II**

Study of chemical content of food, emphasizing aspects that exist uniquely in food.

**Credit Hours:** 4

**Prerequisites:** F\_S 4310 or equivalent

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**F\_S 8414: Meat Quality**

(same as AN\_SCI 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 or equivalent

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**F\_S 8419: Field Training in Food Science**

Internships and/or field experiences under supervision.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_S 8424: Meat Investigations**

(same as AN\_SCI 8424). Discussion of literature, special reports, assigned readings, techniques, interpretation of results.

**Credit Hours:** 3

**Prerequisites:** F\_S 4344 and F\_S 4310 or equivalent

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**F\_S 8440: Functional Foods and Nutraceuticals**

Principles and challenges involved in developing foods with health benefits beyond basic nutrition; efficacy, safety, regulatory and marketing aspects of functional foods and nutraceutical; current controversies and evidence of therapeutic properties of functional foods and Dietary supplements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 3630 or equivalent and F\_S 4310 or equivalent, or instructor's consent

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**F\_S 8460: Food Biopolymers**

Study of physical, chemical, and functional properties of food biopolymers and their applications in food and other industries. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Organic chemistry and food chemistry

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**F\_S 9085: Problems in Food Science**

Individual studies includes minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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**F\_S 9087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications. Prerequisites: PhD standing

**Credit Hour:** 1

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**F\_S 9090: Research in Foods Science**

Original investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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**F\_S 9402: Advanced Research Methods in Food and Hospitality Systems**

This course provides doctoral students with introduction and review of research methods available for use in the study of food science, hospitality management and agricultural system management. Hence, the emphasis of this course is on empirical studies in the field, and will examine research conducted by scholars in the academic area. This course assists as baseline preparation for graduate students' continuing work in the graduate program. Specifically, the course provides students with knowledge and research experience in regard to 1) research fundamentals and backgrounds, 2) types of research, and 3) data analysis.

**Credit Hours:** 3

**Prerequisites:** Introductory research method course or statistics course; instructor's consent required

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**F\_S 9460: Advanced Food Quality Assurance**

Analyzes concepts of integrating laws, TQM and statistical process control into HACCP and ISO systems required for the quality of the global food industry.

**Credit Hours:** 3

**Prerequisites:** F\_S 4980 or equivalent and one Statistics course

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**F\_S 9470: Advanced Food Technology**

To understand the physical and chemical changes that occur during the processing and storage of food; study the quality and safety issues of foods and learn traditional and recent advances in food science and technology.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310, or equivalent or instructor's consent

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## Forestry Courses

**FOREST 1102: Topics in Forestry - Biological/Physical/Mathematical**

Organized study of selected topics in forestry. Intended for undergraduate students.

**Credit Hour:** 1-3

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**FOREST 1104: Topics in Forestry - Social Science**

Organized study of selected topics in forestry. Intended for undergraduate students.

**Credit Hour:** 1-3

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**FOREST 2151: Dendrology**

An introduction to the biology of trees, emphasizing identification in the field, taxonomy, ecology, geographic distribution and economic significance of forest species.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or PLNT\_S 2120 and PLNT\_S 3130

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**FOREST 2540: Forest Hydrology Field Studies**

Introduction to forest hydrology, watershed management, water quantity and quality, climate and biophysical relationships.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2541, FOREST 2542, FOREST 2543, FOREST 2544 and FOREST 2545

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**FOREST 2541: Forest Utilization**

Field studies of logging and milling of timber.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2542, FOREST 2543, FOREST 2544 and FOREST 2545

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**FOREST 2542: Forest Measurement and Inventory**

Field measurement of standing trees including diameter, height and age. Estimation of forest timber resources using a variety of sampling schemes and techniques. Introduction to Arcview and growth models.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2543, FOREST 2544 and FOREST 2545

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**FOREST 2543: Forest Ecology Field Studies**

Field studies of vegetation, soils, habitats and ecological units. Application of ecological principles of natural resource management and understanding of natural and managed forested communities with an emphasis on southeastern Missouri.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2544 and FOREST 2545

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**FOREST 2544: Introduction to Silviculture and Management**

Management objectives and stand prescriptions, regeneration and intermediate silvicultural treatments, management on private and federal forest lands, tree evaluation and timber marking.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2545

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**FOREST 2545: Forest Management Planning**

Preparation and presentation of a written forest management plan using material and data developed in prerequisite courses.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2544 concurrently

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**FOREST 3201: Topics in Forestry**

Organized study of selected topics. Intended primarily for undergraduate Forestry students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 3207: Forest Fire Control and Use**

Fundamentals of all phases of fire protection. Objectives and techniques in use of fire.

**Credit Hours:** 2

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**FOREST 3212: Forest Health and Protection**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3212W: Forest Health and Protection - Writing Intensive**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3217: Fire and Society**

A study of the relationship between society (humans) and fire. What kind of role does fire play in day-to-day life? How has fire influenced our behavior since Day 1? How do we view fire today?

**Credit Hours:** 2

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**FOREST 3240: Wood Technology**

Structure and identification of commercial woods. Relation of growth to physical and chemical properties of wood.

**Credit Hours:** 3

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**FOREST 3290: Urban Forestry**

The culture and management of trees in urban areas, including ownership patterns, species composition, growth environment, amenities provided and evaluation. One-day field trip required.

**Credit Hours:** 2

**Prerequisites:** FOREST 2151 or PLNT\_S 2210

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**FOREST 3300: Problems in Forestry**

Problems in Forestry

**Credit Hour:** 1-99

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**FOREST 3350: Special Readings in Forestry**

Critical review of current literature and research in forestry, fisheries and wildlife, and methods of presenting research results.

**Credit Hour:** 1-99

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**FOREST 4301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division students. Subjects and credit may vary from semester to semester.

**Credit Hours:** 3

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**FOREST 4320: Forest Ecology**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** Senior standing only. Recommended FOREST 2151

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**FOREST 4320W: Forest Ecology - Writing Intensive**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** Senior standing only. Recommended FOREST 2151

---

**FOREST 4330: Practice of Silviculture**

Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 3

**Prerequisites:** FOREST 4320; Senior standing only

---

**FOREST 4340: Tree Physiology**

Lectures on physical and chemical phenomena involved in the functions and activities of trees.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 2110, BIO\_SC 1200, CHEM 1100; or instructor's consent

---

**FOREST 4350: Forest Economics**

Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1042 or AG\_EC 2070

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**FOREST 4360: Photogrammetry, Inventory and Models**

Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

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**FOREST 4365: Logging Systems: Operations and Analyses**

A systems approach to timber harvesting from acquisition through engineering to log transport. Regional aspects and influences will be considered.

**Credit Hours:** 3

**Prerequisites:** FOREST 2540 and FOREST 2541

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**FOREST 4370: Wildland Fire Management**

Management, administration, and organization of wildland and prescribed fires and other natural and man-made disasters. Emphasis placed on organizational arrangements of incidents rather than on either strategy or tactics.

**Credit Hours:** 3

**Prerequisites:** FOREST 3207

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**FOREST 4375: Forest Stand Dynamics**

Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest

growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

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**FOREST 4380: Forest Resource Management**

Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350; Senior Standing only

---

**FOREST 4385: Agroforestry I: Theory, Practice and Adoption**

Understand biophysical, ecological, social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**FOREST 4387: Agroforestry Economics and Policy**

This course focuses on economic principles applied to the adoption and management of agroforestry practices at both the micro and macro scale. This includes cost and benefits analysis of ecosystem services and marketing of goods and services from agroforestry. More specifically, this course emphasizes both market and nonmarket valuation of managed tree and crop/livestock interactions; investment alternatives related to economics and natural resources; and decision making with relation to financial principles, environmental principles, and social principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385, AG\_EC 1041 or permission of instructor

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**FOREST 4390: Watershed Management and Water Quality**

(cross-leveled with FOREST 7390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; Senior standing only

---

**FOREST 4940: Forestry Internship**

Supervised professional experience with an approved public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent required

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**FOREST 4950: Forestry Undergraduate Research**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing, STAT 2530

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**FOREST 4960: Special Readings in Forestry**

Individualized study on particular topic in forestry. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing required

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**FOREST 4994: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent Required

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**FOREST 4995: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FOREST 7301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division and graduate students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 7320: Forest Ecology**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** FOREST 2151 or BIO\_SC 3210 or instructor's consent

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**FOREST 7330: Practice of Silviculture**

Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 3

**Prerequisites:** FOREST 4320

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**FOREST 7340: Tree Physiology**

Lectures on physical and chemical phenomena involved in the functions and activities of trees.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 2110; BIO\_SC 1200; CHEM 1100; or instructor's consent

---

**FOREST 7350: Forest Economics**

Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** Mathematics requirement completed; AG\_EC 1041, or AG\_EC 3080

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**FOREST 7360: Photogrammetry, Inventory and Models**

Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

---

**FOREST 7365: Logging Systems: Operations and Analysis**

A systems approach to timber harvesting from acquisition through engineering to log transport. Regional aspects and influences will be considered.

**Credit Hours:** 3

**Prerequisites:** FOREST 2543 and FOREST 2544

---

**FOREST 7370: Wildland Fire Management**

Management, administration, and organization of wildland and prescribed fires and other natural and man-made disasters. Emphasis placed on organizational arrangements of incidents rather than on either strategy or tactics.

**Credit Hours:** 3

**Prerequisites:** FOREST 3207 or equivalent

---

**FOREST 7375: Forest Stand Dynamics**

Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

---

**FOREST 7380: Forest Resource Management**

Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350

---

**FOREST 7385: Agroforestry I: Theory, Practice and Adoption**

Understand biophysical, ecological social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

---

**FOREST 7390: Watershed Management and Water Quality**

(cross-leveled with FOREST 4390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or instructor's consent

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**FOREST 8050: Research in Forestry**

Original research not leading to preparation of dissertation.

**Credit Hour:** 1-99

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**FOREST 8090: Masters Thesis Research in Forestry**

Original investigation for presentation in a M.S. thesis. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**FOREST 8385: Ecological Principles of Agroforestry**

The course prepares students to develop an understanding of the complexity of agroforestry. Students will critically analyze classical and contemporary ecological theories and apply them in designing agroforestry practices to solve complex production and environmental issues. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**FOREST 8390: Physical Hydrology**

Students will obtain an understanding of hydrologic processes in terms of the occurrence, distribution and movement of water spanning the atmosphere and lithosphere. Students will have an opportunity to develop an understanding of physical processes governing mass and energy flux in wildland and anthropogenic systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**FOREST 8401: Topics in Forestry**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FOREST 8430: Applied Silviculture**

Ecological and economic factors affecting application of silviculture in each of eighteen forest regions in United States.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

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**FOREST 8450: Forest Soils**

Physical, chemical and biological properties of forest soils in relation to tree growth.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

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**FOREST 8460: Advanced Forest Ecology**

Lecture/discussion based course emphasizing contemporary and classic ecological studies and concepts in the context of current forest ecology issues and research. Prerequisites: undergraduate ecology course

**Credit Hours:** 3

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**FOREST 8490: Advanced Forest Management**

Modern quantitative methods to facilitate decision-making in harvest scheduling and regulation, land use allocation, and production planning in natural resource management.

**Credit Hours:** 3

**Prerequisites:** FOREST 4380

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**FOREST 8515: Advanced Forest Biometrics**

An introduction to the topics and philosophy of ecological modeling. The course will guide students through the process of developing a conceptual model, formalizing the model, formulating, parameterizing, and running the model as well as analyzing the results.

**Credit Hours:** 3

**Prerequisites:** STAT 7070 or instructor's consent

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**FOREST 8520: Social Forestry**

Issues with using forestry as an international development tool; planning, implementing and evaluating farm and community forestry projects.

**Credit Hours:** 3

**Prerequisites:** FOREST 4350, or AG\_EC 3270, or equivalent and instructor's consent

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**FOREST 8530: Ecosystem Management: The Human Dimension**

Overview of cultural, social, political and economic dimensions of natural resource problems and issues from an ecologically grounded management perspective.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4353 or equivalent

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**FOREST 8540: Tree Growth-Quality Relationships**

Response of tree growth (wood formation) to such environmental influences fertilization, moisture, nutrient supply, wounding pruning, etc.

**Credit Hours:** 3

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**FOREST 8620: Plant-Water Relations**

Absorption, translocation, utilization and loss of water by plants . Biophysics of water movement in the soil-plant-atmosphere continuum. Effects of water deficits on physiological processes.

**Credit Hours:** 3

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**FOREST 8625: Plant-Water Relations Laboratory**

Introduction to techniques and instrumentation used in studies of plant-water relations.

**Credit Hours:** 2

**Corequisites:** FOREST 8620

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**FOREST 9087: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs. Graded on S/U basis only.

**Credit Hour:** 1

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**FOREST 9090: Dissertation Research in Forestry**

Original investigation for presentation in a doctoral dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**FOREST 9410: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs.

**Credit Hour:** 1

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## French Courses

### **FRENCH 1100: Elementary French I**

An introductory course for students who wish to begin their study of French. It teaches the four skills--listening, speaking, reading, and writing. The class meets four days a week and one day in the lab. Classtime is used to practice the structures and vocabulary.

**Credit Hours:** 4

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### **FRENCH 1100H: Elementary French I - Honors**

This course designed for Honors students with 2-3 years of high school French focuses on the four skills, speaking, listening, reading and writing, and offers enriched cultural opportunities in and out of the classroom, such as movies, guest lectures, art exhibits, and plays. Students practice those skills, using authentic materials in real-life situations. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 2 years high school French; Honors eligibility required

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### **FRENCH 1200: Elementary French II**

The second course of the beginning language sequence is the continuation of FRENCH 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course. NO credit for both FRENCH 1200 and FRENCH 1250.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in FRENCH 1100 or equivalent

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### **FRENCH 1250: Accelerated Beginning French**

Course is designed for students who have taken more than two years of High School French. It offers a reinforcement of the beginning concepts of the French language and the many cultures it encompasses. Course allows students to further develop all language skills. NO credit for both FRENCH 1200 and FRENCH 1250.

**Credit Hours:** 5

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### **FRENCH 2001: Undergraduate Topics in French-General**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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### **FRENCH 2004: Undergraduate Topics in French-Social Science**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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### **FRENCH 2005: Undergraduate Topics in French-Humanities/Fine Arts**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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### **FRENCH 2005H: Undergraduate Topics in French-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better. Honors eligibility required

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### **FRENCH 2100: Elementary French III**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in FRENCH 1200 or FRENCH 1250, or their equivalent courses

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### **FRENCH 2100H: Elementary French III - Honors**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in FRENCH 1200 or FRENCH 1250, or their equivalent courses. Honors eligibility required

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### **FRENCH 2160: Intermediate French Composition and Conversation**

A course designed to develop the ability to speak, read, and write in French via the reading of French short stories and/or a short novel. Grammar review.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2100

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### **FRENCH 2310: French Civilization**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### **FRENCH 2310W: French Civilization - Writing Intensive**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### **FRENCH 2320: French Literature and Thought in English Translation I**

This course examines how the masterworks of French literature, from the Middle Ages to the eighteenth century, have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**FRENCH 2330: French Literature in Translation II**

This course examines how the masterworks of French literature of the nineteenth and twentieth centuries have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**FRENCH 2350: New World Francophone Literature in Translation**

A survey of literature written by Caribbean writers of French expression. Writers include M. Conde, P. Chamoiseau, A. Césaire, E. Glissant, S. Bart-Schwartz, R. Depestre and G. Etienne.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FRENCH 2370: French Women Writers (in translation)**

Survey of texts and contributions of French women writers from the medieval period to the 20th century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 3001: Topics in French-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3005: Topics in French-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. Prerequisites: sophomore standing

**Credit Hour:** 1-3

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**FRENCH 3005H: Topics in French-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition. Honors eligibility required

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**FRENCH 3160: Advanced French Composition and Conversation I**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3180: Les Fondations de la Civilisation Française**

Overview of French civilization from its origins to French Revolution. Studies will examine key cultural objects from art, literature, and popular culture as well as political and historical movements that have shaped

development of French civilization. Ideal for students interested in engaging with issues, debates, and problems that helped to define the nascent French state.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3280: Commercial French**

Composition and Conversation course based on materials related to the French business world. Acquisition of business-related vocabulary. Introduction to French business operations and correspondence.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3410: Introduction to Literary Analysis**

Will acquaint students with vocabulary required for analysis of literary texts. Along with the traditional French method of poetry explication, students will learn to analyze the major literary genres (poetry, theatre, prose).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**FRENCH 3420: Introduction to French Literature I**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3420W: Introduction to French Literature I - Writing Intensive**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3430: Introduction to French Literature II**

Study of selected masterpieces of French literature of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3430W: Introduction to French Literature II - Writing Intensive**

Study of selected masterpieces of French literature of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3440: Francophone Literature of North America**

A survey course of Francophone literature of New France, Louisiana territory and the French West Indies from its beginnings in the

seventeenth century to the late twentieth century. Selected novels, poems and plays will be studied in their historical and social context.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, cultural and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 4004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** junior standing, departmental consent for repetition

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**FRENCH 4070: Intensive Beginning French**

Rapid acquisition of a reading knowledge of French. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FRENCH 4120: Foreign Language Teaching Methodology**

(same as SPAN 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**FRENCH 4130: Stylistics**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4130W: Stylistics - Writing Intensive**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4410: French Medieval Literature**

Survey of representative works from the principal literary genres of the Middle Ages: epic (La Chanson de Roland), courtly romance (Chretien de Troyes), chantefable (Aucassin et Nicolette), short story (lai, fabliau), theatre, and lyric poetry.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4420: French Renaissance**

Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4430: Seventeenth-Century French Literature**

(cross-leveled with FRENCH 7430). Survey of major writers of the seventeenth century. The principal currents of the century as well as the Baroque and the classical movements are discussed. Authors include Corneille, Moliere, Racine, Descartes, Pascal, La Bruyere, La Rochefoucauld, and Madame de Lafayette.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 7440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclous, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4450: Nineteenth-Century French Literature**

(cross-leveled with FRENCH 7450). Selected readings from poetry and theatre with an emphasis on the various manifestations of Romanticism throughout the century. Works by Lamartine, Hugo, Vigny, Musset, Gautier, Nerval, Baudelaire, Verlaine, and Mallarme are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4460: Twentieth-Century French Novel**

(cross-leveled with FRENCH 7460). The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century. (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4470: Introduction to the Contemporary French Theatre**

Survey of twentieth-century French drama. Students read plays by Claudel, Giraudoux, Sartre, Anouilh, Beckett, Ionesco, Genet, and others. Strong emphasis is played on class discussions. Written analyses of two plays are assigned, and there is an hourly exam and a final.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4480: Introduction to Modern French Poetry**

Introduction to major currents of French poetry from beginning of the 19th century to the present. Students will write explications of poems, present oral analyses and will be tested on poetic terms and poetic content/styles of various poems and poets.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 7490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4510: African Francophone Literature**

Course introduces contemporary African Literature to students via readings and detailed analysis of literary texts by Francophone African writers.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4710: History of the French Language**

(same as LINGST 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external social, political, and historical factors that have affected the development of French, followed by a diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4720: Structure of Modern French**

(same as LINGST 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new

social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 3420 and FRENCH 3430 and departmental consent

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**FRENCH 4980: Special Themes in French**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4980H: Special Themes in French - Honors**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430. Honors eligibility required

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**FRENCH 4993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 4993H: The Capstone Experience in French - Honors**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking,

writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**FRENCH 4996: Honors Reading in French**

Directed readings in area of honors thesis.

**Credit Hour:** 1

**Prerequisites:** admission to departmental Honors program

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**FRENCH 7004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**FRENCH 7110: Advanced oral French for Teachers**

Advanced speaking practice primarily for teachers with emphasis on pronunciation, syntactical accuracy and vocabulary expansion. May not be used toward Arts and Science Major. May be repeated for a maximum of 12 hours credit.

**Credit Hour:** 1-99

**Prerequisites:** FRENCH 3160 or equivalent

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**FRENCH 7120: Foreign Language Teaching Methodology**

(same as SPAN 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

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**FRENCH 7130: Stylistics**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280 and FRENCH 3420 or FRENCH 3430

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**FRENCH 7410: French Medieval Literature**

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7420: French Renaissance**

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7430: Seventeenth-Century French Literature**

(cross-leveled with FRENCH 4430). Survey of major writers of the seventeenth century. The principal currents of the century as well as the Baroque and the classical movements are discussed. Authors include Corneille, Moliere, Racine, Descartes, Pascal, La Bruyere, La Rochefoucauld, and Madame de Lafayette.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 4440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7450: Nineteenth-Century French Literature**

(cross-leveled with FRENCH 4450). Selected readings from poetry and theatre with an emphasis on the various manifestations of Romanticism throughout the century. Works by Lamartine, Hugo, Vigny, Musset, Gautier, Nerval, Baudelaire, Verlaine, and Mallarme are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7460: Twentieth-Century French Novel**

(cross-leveled with FRENCH 4460). The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century. (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7470: Introduction to the Contemporary French Theatre**

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

---

**FRENCH 7480: Introduction to Modern French Poetry**

Introduction to major currents of French poetry from beginning of the 19th century to the present. Students will write explications of poems, present oral analyses and will be tested on poetic terms and poetic content/styles of various poems and poets.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 4490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7510: African Francophone Literature**

Course introduces contemporary African Literature to students via readings and detailed analysis of literary texts by Francophone African writers.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7710: History of the French Language**

(same as LINGST 7710). Required of M.A. candidates.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7720: Structure of Modern French**

(same as LINGST 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 7820: Blogging the World: The Web in Cultural Context**

(same as RUSS 7820 and GERMAN 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context. Working in cross-disciplinary teams, students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold: students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concepts of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

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**FRENCH 7960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**FRENCH 7980: Special Themes in French**

Subject varies according to instructor.

**Credit Hours:** 3

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**FRENCH 7993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 8080: Readings in French**

Independent readings in preparation for MA or MALT comprehensive examination in French. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FRENCH 8085: Problems in French**

Problems in French.

**Credit Hour:** 1-99

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**FRENCH 8087: Seminar in French**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**FRENCH 8090: Research in French**

Leads to preparation of MA or MALT thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**FRENCH 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**FRENCH 8411: Old French**

Old French.

**Credit Hours:** 3

**Recommended:** FRENCH 4710 or FRENCH 7710 and some knowledge of Latin

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**FRENCH 8412: Studies in French Medieval Literature**

Studies in French Medieval Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4410 or FRENCH 7710

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**FRENCH 8416: Studies in the French Renaissance**

Studies in the French Renaissance.

**Credit Hours:** 3

**Recommended:** FRENCH 4420 or FRENCH 7420

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**FRENCH 8417: Studies in Seventeenth-Century French Literature**

Studies in Seventeenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4430 or FRENCH 7430

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**FRENCH 8418: Studies in Eighteenth-Century French Literature**

Studies in Eighteenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4440 or FRENCH 7440

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**FRENCH 8419: Studies in Nineteenth-Century French Literature**

Studies in Nineteenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4450 or FRENCH 7450; or FRENCH 4490 or FRENCH 7490

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**FRENCH 8420: Studies in Twentieth-Century French Literature**

Studies in Twentieth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4460 or FRENCH 7460, FRENCH 4470 or FRENCH 7470 or FRENCH 4480 or FRENCH 7480

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**FRENCH 9080: Readings in French**

Independent readings in preparation for the PhD comprehensive examination in French.

**Credit Hour:** 3-6

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**FRENCH 9090: Research in French**

Leads to preparation of PhD dissertation in French. Graded on S/U basis only.

**Credit Hour:** 1-99

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**General Human Environmental Sciences Courses**

**GN\_HES 1100: Introduction to Human Environmental Sciences**

Introduction to Human Environmental Sciences

**Credit Hour:** 1

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**General Studies Courses**

**G\_STDY 3301: Topics in General Studies**

Experimental and/or interdisciplinary. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

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**G\_STDY 4940: Internship in General Studies**

Internship limited to students pursuing the Bachelor of General Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

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**G\_STDY 4950: Special Project in General Studies**

With advisor's approval, student works with a faculty member on a major reading, research, or creative project, usually of interdisciplinary nature.

**Credit Hour:** 1-6

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**G\_STDY 4960: Readings in General Studies**

Independent readings with supervisory faculty member. May be repeated to a maximum of six hours.

**Credit Hour:** 1-6

**Prerequisites:** Open only to General Studies majors

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**G\_STDY 4970: Directed Readings in General Studies**

Independent readings with supervisory faculty member; this course serves as the student's capstone experience.

**Credit Hour:** 1-6

**Prerequisites:** Open only to General Studies majors only

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**G\_STDY 4971: Internship in General Studies**

Internship experience which serves as the student's capstone experience. Program advisor must approve internship. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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**Geography Courses**

**GEOG 1050: Introductory Meteorology**

(same as ATM\_SC 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

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**GEOG 1100: Regions and Nations of the World I**

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

**Credit Hours:** 3

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**GEOG 1100H: Regions and Nations of the World I - Honors**

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 1200: Regions and Nations of the World II**

Introductory analysis for general education. Regional character, spatial relationships, problems of environment and development of the former Soviet Union, Pacific World, South and East Asia, Africa and Middle East. Organized around basic concepts in the field of geography. May be taken independently of GEOG 1100.

**Credit Hours:** 3

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**GEOG 1205H: Regions and Nations General Honors**

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 1550: Introduction to the Humanized Earth**

Examines human culture as a geographical element; the power of culture and human institutions in human-environmental interaction and the creation of agriculture, folk culture, popular culture, cities, and a broad range of cultural landscapes.

**Credit Hours:** 3

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**GEOG 1600: Climate Change: Science and Public Policy**

This course will explore the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. We will examine the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing

public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only

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**GEOG 1800: Digital Earth: Introduction to the Geospatial Technologies**

Introduction to technologies used to map a changing world, with an emphasis on digital mapping explorations of human and environmental interactions on Earth. Course includes lab and fieldwork to introduce geographic information data collection and analysis techniques. Graded on A/F basis only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Freshman and sophomore standing or instructor's consent

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**GEOG 1840: Global Environmental Change**

Course uses a geographic framework to study patterns and processes related to global environmental change. Topics include environmental reconstruction, water resources, human-environment interactions, glaciers, fire, and climate.

**Credit Hours:** 3

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**GEOG 1900: Our Dynamic Planet in Film**

This course focuses on using documentary films (e.g., Planet Earth) as a medium for studying how global environmental change is impacting all spheres of our dynamic planet. To ensure a more complete understanding of course material, films are supplemented with active lectures and discussions of assigned readings from both periodicals and peer-reviewed literature that emphasize key points illustrated in the films. In doing so, this course synthesizes material from numerous fields of study that fall under the burgeoning umbrella field of global change ecology. This synthetic approach is used to highlight the formidable linkages on Earth between the non-living and living, thus permitting students to gain an appreciation and holistic understanding of how global environmental change is impacting Earth processes responsible for creating both our current landscapes and the remarkable diversity of life that inhabit them.

**Credit Hours:** 3

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**GEOG 2010: Exploring Geography**

We are all explorers. As children, we grew up testing the boundaries of our known worlds and trying to understand what was beyond. Geography gives us the means to formalize this impulse to explore the world around us, both local and distant. It allows us to make sense of the ways in which space and relationships between objects drives much of human, social, and environmental interaction. In this course, we will illustrate some of the principle ways in which Geographers investigate, explain, and map meaning, pushing the boundaries of what we know as individuals and society. Using a combination of discussion and field exercises, students will be asked to engage with a number of critical societal issues that have geographical elements at their core. Examples include the Geography of crime, imagining place, the city of the future, environmental change, terrorism, human trafficking, drones, and sustainability.

**Credit Hour:** 1

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**GEOG 2120: United States and Canada**

Intensive examination of selected areas and distributions. Regional systems, problems and planning.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GEOG 2130: Geography of Missouri**

Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100

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**GEOG 2210: Geography of Europe**

Survey of Europe's lands and peoples; emphasis on historical areal relationships as reflected in Europe's changing economic and political organization.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GEOG 2260: Geography of East Asia**

Cultural, physical and economic geography of China, Japan, and Korea, with emphasis on China. Landscape analysis, determination of regional identities, and study of political forces evident in the development of the contemporary scene are stressed.

**Credit Hours:** 3

**Prerequisites:** GEOG 1200

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**GEOG 2270: Geography of Asia**

(same as S\_A\_ST 2270). An introductory survey of the geography of Asia from India through Southeast Asia to China and Japan, emphasizing factors contributing to cultural similarities and variations, conflicts of interest, and current development.

**Credit Hours:** 3

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**GEOG 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, SOCIOL 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280W, SOCIOL 2280W). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2340: South America**

Physical environment and culture in the regional development of South America.

**Credit Hours:** 3

**Prerequisites:** one course in Geography or instructor's consent

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**GEOG 2450: Themes in the Geography of Africa South of the Sahara** (same as BL\_STU 2450). Major concepts of African geography in current and historical perspective. Case studies of major African countries.

**Credit Hours:** 3

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**GEOG 2580: Geography of Cemeteries**

Cemeteries have a discernible spatial and temporal pattern providing a foundation for geographical study. Migration, demographics, spatial analysis and basic mapping skills will be used to investigate cemeteries and their pattern.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only

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**GEOG 2610: Climate, Landforms and Vegetation: Introduction to Physical Geography**

Examination of the interacting natural systems that comprise the Earth's physical environment, including the atmosphere, biosphere, and landforms. Focus on relating fundamental physical, chemical and ecological processes to the global geographic patterns they produce.

**Credit Hours:** 3

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**GEOG 2660: Environmental Geography**

Historical perspectives on the human agency in transforming the earth, with emphasis on international environmental problems. Topics include basic biogeography; environmental impacts of population growth, underdevelopment and overdevelopment; and new approaches to management of global resources.

**Credit Hours:** 3

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**GEOG 2710: Economic Geography**

Geographical location and organization of world's major economic activities. Emphasizes agricultural and industrial patterns, commodity flows, transport networks, geographical principles of market and industrial location, internal spatial organization of cities, land-use models, geographic aspects of economics growth.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 2720: The City**

Study of cities: origin, development, distribution; social, economic, and demographic significance. Consideration of theories of structure, urban hierarchies, and land use planning.

**Credit Hours:** 3

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**GEOG 2904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 2904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 3040: Introduction to Geographic Information Systems GIS**

(same as CV\_ENG 3050). Introduces theory, concepts and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using GIS. Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GEOG 3140: Mexico, Central America, and the Caribbean**

Physical environment and culture in the regional development of Mexico, Central America, and the Caribbean.

**Credit Hours:** 3

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**GEOG 3260: Southeast Asia**

(same as S\_A\_ST 3260). Physical, cultural, historical and regional geography of Southeast Asia, with an introduction to East Asian geography. Emphasizes the problems of tradition and development.

**Credit Hours:** 3

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**GEOG 3270: Geography of the Middle East**

Cultural, physical and historical geography of Middle East, with emphasis on cultural adaptations to environments and conflicts over the resources.

**Credit Hours:** 3

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**GEOG 3280: Geography of South Asia**

(same as S\_A\_ST 3280). Topical and regional analysis of India, Pakistan, Sri Lanka. Historical development of distinctive cultural regions. Relations with neighboring areas. Impact of Westernization on economic activities, settlements, population.

**Credit Hours:** 3

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**GEOG 3290: Geography of Russia and the Newly Independent States of Eurasia**

Geographic analysis of social, economic and political issues confronting Russia and the NIS, including environmental problems, economic interdependence and prospects for regional economic development, population change and migration, inter-ethnic relations and ethno-territorial conflict.

**Credit Hours:** 3

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**GEOG 3385: Special Problems in Geography**

Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3



**Prerequisites:** instructor's consent

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**GEOG 3450: Geography of Africa**

Major concepts of African geography in current and historical perspective.

**Credit Hours:** 3

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**GEOG 3496: Digital Indigenous Studies**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**GEOG 3496H: Digital Indigenous Studies - Honors**

(same as PEA\_ST 3496H). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 3496W: Digital Indigenous Studies - Writing Intensive**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and

theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**GEOG 3510: Historical Geography of North America**

Analysis of selected geographical patterns and themes in the continent's past. Focus is explicitly geographical, stressing extensive use of maps and recent scholarly work by historical geographers.

**Credit Hours:** 3

**Prerequisites:** junior standing, or instructor's consent

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**GEOG 3540: Geographies of Sexualities**

(Same as WGST 3540) This class will explore the relationship of sexuality and space. The class will focus on the ways that sexuality creates particular spaces, and the ways that sexuality and space shape one another in the midst of nation, gender, religion, race, class, and generation.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required

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**GEOG 3560: Native American Geographies**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**Credit Hours:** 3

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**GEOG 3560W: Native American Geographies - Writing Intensive**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**Credit Hours:** 3

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**GEOG 3600: Climates of the World**

(same as ATM\_SC 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** GEOG 1050 or equivalent or graduate standing

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**GEOG 3610: Physical Geography of the United States**

Study of natural regions of the United States by integrating topics from landforms, geology, climate, soils, vegetation, resources, and land use.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610

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**GEOG 3630: Earth Surface Systems**

Systematic study of landforms geomorphic processes governing them. Provides a foundation for the theoretical, technical, and practical understanding of environmental systems.

**Credit Hours:** 3

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**GEOG 3740: Geography and Planning**

Emphasis on geographic techniques for gathering and generating environmental information for planners. Principles of land use planning will be applied to selected regions.

**Credit Hour:** 1-3

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**GEOG 3760: Geography of the World's Religions**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3760W: Geography of the World's Religions - Writing Intensive**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3780: World Political Geography: Patterns and Processes**

(same as PEA\_ST 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

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**GEOG 3800: Geography of Travel and Tourism**

This course examines the fundamentals of the geography of tourism and travel in both foreign and domestic contexts. During the past few decades, tourism has been a fast growing industry around the world, although tourism can easily be negatively influenced by terrorism, natural disasters, and economic downturns. During the semester we'll look at several common types of tourism and focus on the positive and negative impacts of tourism upon local cultures, the environment, and economic development. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 3830: Remote Sensing**

Introduction to the principles of remote sensing of the environment. Digital imagery from spacecraft, conventional and high-altitude aerial photography, thermal imaging, and microwave remote sensing.

**Credit Hours:** 3

**Recommended:** GEOG 2840

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**GEOG 3840: Cartography**

Principles of computer-assisted cartography. Automated cartographic display. "Hands on" experience with computer-mapping software and hardware systems. Role of computers in map design. Digital encoding of geographic data.

**Credit Hours:** 3

**Prerequisites:** GEOG 2840

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**GEOG 3904: Topics in Geography - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated up to 6 hours credit with departmental consent.

**Credit Hour:** 1-12

**Prerequisites:** sophomore standing

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**GEOG 4130: The Geospatial Sciences in National Security**

(Same as CV\_ENG 4175). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior standing or above required

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**GEOG 4390: Special Readings in Geography**

Independent readings selected in consultation with supervisory faculty member. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 4520: Environmental Biophysics**

(same as ATM\_SC 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**GEOG 4550: Selected Themes in Cultural Geography**

Case studies in the patterns and processes of human-environmental interactions. Study of the cultural forces responsible for the continual transformation of the earth's cultural landscapes.

**Credit Hours:** 3

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**GEOG 4560: Resources and Indigenous Peoples**

This is a survey of indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic

development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

**Prerequisites:** Junior standing required

---

**GEOG 4620: Biogeography: Global Patterns of Life**

Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Recommended:** GEOG 2610

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**GEOG 4630: River and Stream Dynamics**

Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 and GEOG 3630, or instructor's consent

---

**GEOG 4710: Spatial Analysis in Geography**

Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data. Math Reasoning Proficiency Course

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

---

**GEOG 4720: Seminar in Geography Education**

Study and research on fundamental themes in geography. Integration of these themes into regional and systematic approaches to the teaching of geography. Enrollment is restricted to students pursuing or considering careers in teaching.

**Credit Hours:** 3

**Prerequisites:** junior standing and instructor's consent

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**GEOG 4740: Location Analysis and Site Selection**

(same as CV\_ENG 4185). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 4770: Migration and Immigration**

Explores demographic, economic, and social issues surrounding immigration and migration. The course focuses on the global labor migration system, immigration to the United States, and internal migration within the US, as well as the linkages between these systems.

**Credit Hours:** 3

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**GEOG 4780: Selected Themes in Political Geography**

Study of basic writing, dominant geographers, case studies, bibliographies and development of research methods.

**Credit Hours:** 3

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**GEOG 4790: Geographic Information Systems for the Social Sciences**

Designed for social science students interested in learning about the tools available in GIS for linking to and analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

**Prerequisites:** juniors and seniors only

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**GEOG 4810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 4385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, or instructor's consent

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**GEOG 4850: Transportation Geography**

(same as CV\_ENG 4155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**GEOG 4860: Advanced Remote Sensing**

Advanced remote sensing to provide digital image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land use/land cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 4904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental Consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** junior standing

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**GEOG 4904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental Consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** junior standing

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**GEOG 4940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 7940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems

technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or instructor's permission

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**GEOG 4945: Internship in Applied Geography and Cartography**

Regularized individual work experience with local, regional, state or national agencies, with guidance and readings supplied by faculty coordinator. May repeat to maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent required

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**GEOG 4990: Senior Seminar in Geography**

A seminar in selected themes in Geography. Class will focus on research, writing, presenting, and discussing themes in contemporary geography. Required of all majors prior to graduation.

**Credit Hours:** 3

**Prerequisites:** 5 courses in geography or instructor's consent

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**GEOG 4996H: Honors in Geography**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4996HW: Honors in Geography - Honors/Writing Intensive**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4997H: Honors in Geography**

Special work for Honors candidates in geography.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 7130: The Geospatial Sciences in National Security**

(Same as CV\_ENG 7175). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior standing or above required; instructor's consent

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**GEOG 7520: Meteorology of the Biosphere**

(same as ATM\_SC 7520). Energy balance and mass transfer microenvironment of plants and animals. Effects of weather events on plants and animal production discussed.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 1400 or equivalent; one year of college physics; or instructor's consent

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**GEOG 7550: Selected Themes in Cultural Geography**

Case studies in the patterns and processes of human-environmental interactions. Study of the cultural forces responsible for the continual transformation of the earth's cultural landscapes.

**Credit Hours:** 3

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**GEOG 7560: Resources and Indigenous Peoples**

This is a survey of indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

---

**GEOG 7620: Biogeography: Global Patterns of Life**

Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 or instructor's consent

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**GEOG 7630: River and Stream Dynamics**

Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 and GEOG 3630, or instructor's consent

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**GEOG 7710: Spatial Analysis in Geography**

Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**GEOG 7720: Seminar in Geography Education**

Study and research on fundamental themes in geography. Integration of these themes into regional and systematic approaches to the teaching of geography. Enrollment is restricted to students pursuing or considering careers in teaching.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 7740: Location Analysis and Site Selection**

(Same as CV\_ENG 7185). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 7770: Migration and Immigration**

As fertility and mortality decline to record low levels, immigration and migration have become the primary components of population change. Changes brought on by immigration to a country and the internal redistribution of population via migration pose challenges to governments, economic development, social and cultural relations, and environmental sustainability. This course explores issues surrounding immigration and migration. Beginning with the demographic overview of

immigration, it focuses on the challenges faced by immigrant, sending, and receiving nations in the global migration system. The second part of the course focuses on the array of issues surrounding immigration to the United States, including the socio-economic adaptation of immigrants, the economic and cultural impacts of immigration, and illegal immigration. The third part of the course focuses on internal migration within migration within the US, discussing topics such as migration to the Sunbelt, Great Plains depopulation, poverty migration, migration to the suburbs, and migration's impact on community. Linkages between domestic migration and immigration will also be explored.

**Credit Hours:** 3

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**GEOG 7780: Selected Themes in Political Geography**

Study of basic writing, dominant geographers, case studies, bibliographies and development of research methods.

**Credit Hours:** 3

---

**GEOG 7790: Geographic Information Systems for the Social Sciences**

Designed for social science students interested in learning about the tools available in GIS for linking to an analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

---

**GEOG 7810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 7385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**GEOG 7840: Geographic Information Systems I**

Introductory study of theory, concepts and techniques related to basic analysis, creation and processing of geographic and spatial data using Geographic Information Systems (GIS). Independent learning and computer-based laboratory exercises supplement theoretical lectures and discussion.

**Credit Hours:** 3

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**GEOG 7850: Transportation Geography**

(same as CV\_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

---

**GEOG 7860: Advanced Remote Sensing**

Advanced remote sensing to provide digital image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis,

image classification and land use/land cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 7904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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**GEOG 7940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 4940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 7840 or instructor's consent

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**GEOG 8080: Research in Geography**

Research not leading to thesis. May be repeated to a maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**GEOG 8085: Special Investigations in Geography**

Advanced studies to meet the needs of the individual student. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8090: Research in Geography**

Research leading to a thesis. May be repeated to a maximum of 8 hours. Graded on S/U basis only.

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8100: Seminar in World Regional Geography I**

Problems in the teaching of world regional geography on college level.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GEOG 8120: Seminar in the Geography of Anglo-America**

Readings and research on problems in the geography of the United States and Canada.

**Credit Hour:** 1-3

**Prerequisites:** restricted to graduate Geography majors or instructor's consent

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**GEOG 8200: Seminar in World Regional Geography II**

Continuation of course GEOG 8100.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GEOG 8270: Seminar in the Geography of the Middle East**

Advanced readings and analysis of topics in the geography of the Middle East.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 8710: Seminar**

May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**GEOG 8750: Research Design**

Application of scientific methods in geographic research. Critical evaluation of current geographical methodology.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate geography majors graduate or instructor's consent

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**GEOG 8760: Geographic Thought**

Discussion of the historic roots of the discipline, especially the ideas, theories and underlying philosophies that have defined Geography in the past century and a half. Students will also explore the philosophical and theoretical ideas that shape the way geographers approach the study of the world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 8815: Landscape Ecology and GIS Analysis II**

(same as NAT\_R 8395). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4365 or NAT\_R 7385 and FOREST 4302 or FOREST 7302 or equivalent and basic statistics course or instructor's consent

**Recommended:** GEOG 4810 or GEOG 7810

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**GEOG 8820: Field Geography**

Techniques of geographical investigation in the field.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Geography majors or instructor's consent

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**GEOG 8840: Seminar: Applied Remote Sensing**

Applied project in remote sensing. Data selection, image processing, land use and land cover change, and quantitative biophysical information extraction from remotely sensed data.

**Credit Hours:** 3

**Prerequisites:** GEOG 4830 or instructor's consent

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**GEOG 8902: Topics in Geography-Biological/Physical/Mathematical**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Geology Courses

**GEOL 1050: Planet Earth**

An introduction to Earth Science. Topics include: evidence for continental drift and plate tectonics, causes and prediction of natural hazards, the scale of geological time.

**Credit Hours:** 3

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**GEOL 1100: Principles of Geology with Laboratory**

Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip. For the Mizzou Online sections, there will not be required lectures, lab, and field trip.

**Credit Hours:** 4

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**GEOL 1100H: Principles of Geology with Laboratory - Honors**

Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**GEOL 1150: Physical Geology for Scientists and Engineers**

Introduction to physical geology and basic earth processes with a focus on applications and societal relevance. In addition to basic geologic processes, basic physical principles will illustrate the interactions between geology and engineering

**Credit Hours:** 4

**Corequisites:** MATH 1500

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**GEOL 1200: Environmental Geology with Laboratory**

The interaction between geologic processes and human society. Topics include mineral, water, and energy resources, volcanic hazards, earthquakes, landslides, floods, coastal erosion, pollution problems and environmental management.

**Credit Hours:** 4

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**GEOL 1250: The World's Oceans**

An interdisciplinary introduction to oceanography. Topics include: geologic evolution of ocean basins, properties of seawater, ocean circulation (waves, tides, and currents), marine ecosystems, instability of beaches and coastlines, coastal development and engineering.

**Credit Hours:** 3

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**GEOL 1400: Themes in Geology**

5-week course organized around a central theme or topic, up to 3 different sections can be taken for credit.

**Credit Hour:** 1

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**GEOL 2100: Independent Study in Geology**

Directed Library research in geological topics, under the supervision of faculty sponsor. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GEOL 2110: Introduction to Soil Science with Laboratory**

(same as SOIL 2110). Introduction to Soil Science with emphasis placed on physical, biological, and chemical properties and applications to land use, plant growth, and environmental problems with laboratory application of these concepts.

**Credit Hours:** 5

**Prerequisites:** CHEM 1320

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**GEOL 2120H: Faults and Earthquakes: Past, Present, and Future**

Seminar in science and societal ramifications of earthquakes. Geologic background includes causes, behavior, and distribution of faults. Student-led discussions cover historical disasters, economic, political, psychological, and cultural perspectives.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Honors eligibility

---

**GEOL 2150: The Age of the Dinosaurs**

Study of the evolution of dinosaurs during the Mesozoic Era. New information on dinosaur life habits, food resources, dispersal by plate tectonics, and theories of extinction will be covered.

**Credit Hours:** 3

**Prerequisites:** 1000-level science course

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**GEOL 2160H: Volcanoes and the Human Environment - Honors**

(same as GN\_HON 2450H). This course gives students an understanding of how volcanoes work, how they are studied, and how they have impacted human cultures. Students will gain appreciation of volcanology as a broad scientific discipline within geology and the role that science plays in public policy. Graded on A/F basis only.

**Credit Hours:** 3

**Recommended:** Honors eligibility required

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**GEOL 2200: Oceanography**

Topics include: history and methods of marine research, properties of seawater, ocean circulation, biological productivity and zonation, origin and classification of marine sediments, character of major coastal and open-ocean environments, economic resources and environmental hazards. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or equivalent

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**GEOL 2220H: Honors Seminar: Headline Topics in the Geological Science**

Seminar organized around a central theme that is the focus of intense ongoing research and public debate.

**Credit Hours:** 3

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**Prerequisites:** ENGLISH 1000

**Recommended:** Honors eligibility

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**GEOL 2300: Earth Systems and Global Change**

Study of the earth as a whole, taking into account the many interwoven components of the geosphere, hydrosphere, atmosphere and biosphere.

**Credit Hours:** 3

**Recommended:** 1000-level Science course

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**GEOL 2350: Historical Geology**

Summary of principles and techniques used in reconstructing Earth's history. Survey of major events that have affected Earth and its inhabitants. Review of geologic history of North America.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and ENGLISH 1000

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**GEOL 2360: Historical Geology Laboratory**

A laboratory course designed to improve understanding of Earth History by examination of maps and mineral, rock, sediment and fossil samples.

**Credit Hour:** 1

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

**Corequisites:** GEOL 2350

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**GEOL 2400: Surficial Earth Processes and Products with Laboratory**

Semiquantitative analysis of geologic processes that shape the earth's surface. Includes topics in sedimentation and geomorphology.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and MATH 1100

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**GEOL 2450: Global Water Cycle**

Study of environmental geochemical factors controlling the composition of natural waters, and sources of water's constituents (natural or human-produced). Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** 1000-level science course

---

**GEOL 2500: Regional Geology Field Trip**

Field based study of a particular geologic region, including classroom preparation prior to the field trip. The trip will last 7-10 days, either during Spring Break or immediately after finals week. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 2600: Mineral and Energy Resources of the Earth**

This course examines the geology of Earth's major mineral and energy resources--their origin, distribution, and characteristics--and societal implications of their use and abundance. Major topics: fossil fuels, nuclear energy, base & precious metals, non-metallic minerals, water.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 3085: Problems in Geological Sciences**

Problems in Geological Sciences.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**GEOL 3110: Geology of Missouri**

The physical, historical, and environmental geology of Missouri are described, discussed and interpreted.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and either GEOL 1100 or GEOL 1200

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**GEOL 3115: Geology of Missouri Laboratory**

A field based and laboratory based course that uses standard geological techniques to interpret the rock record of Boone County and Missouri.

**Credit Hour:** 1

**Corequisites:** GEOL 3110

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**GEOL 3200: Rocks and Rock-Forming Minerals: Identification, Occurrence and Origin**

Introduction to the classification, occurrence, and origin of rocks and rock-forming minerals.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1200 and CHEM 1310

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**GEOL 3210: Rocks and Rock-Forming Minerals Laboratory**

Identification of rock-forming minerals and rocks in hand specimen by their physical properties.

**Credit Hour:** 1

**Corequisites:** GEOL 3200

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**GEOL 3250: Mineralogy**

Introduction to crystallography, crystal chemistry and crystal structures. Systematic study of mineral groups. Includes identification of minerals by physical, chemical and optical properties.

**Credit Hours:** 5

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**GEOL 3300: Introduction to Geochemistry**

Fundamentals of chemistry as applied to geology. Includes phase diagrams, thermodynamics, redox chemistry, aqueous chemistry, stable and radiogenic isotopes. Computer-based homework problems (satisfies computing requirement for Geology majors).

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1330

**Prerequisites:** MATH 1400 or MATH 1500, and GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 3550: Introduction to Paleontology with Laboratory**

Study of the morphology, paleontology, patterns of evolution, and causes of extinction in geologically important groups of invertebrate and vertebrate fossils. Lab concentrates on identification of biostratigraphically important fossils (mostly invertebrates). Several half-day field trips.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 3650: Structural Geology**

The mechanical behavior of earth materials. Analysis of the geometry and mechanics of faults, fractures, and folds. Laboratory includes problems on stresses and strains associated with deformation, geometric analysis of deformation structures, and interpretation of geologic maps.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1140 or MATH 1160 or MATH 1500

---

**GEOL 3800: Sedimentology and Stratigraphy with Lab**

Mechanics of sediment transport by fluid flow and gravity flow, origins of stratification and sedimentary structures, facies characteristics depositional environments.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

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**GEOL 4002: Topics in Geological Sciences-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4100: Groundwater Hydrology**

(cross-leveled with GEOL 7100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and PHYSCS 1210 or PHYSCS 2750, and MATH 1400 or MATH 1500

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**GEOL 4110: Karst Hydrology**

The hydrology of karst terrains is taught from the perspective of integrated drainage basins. Discussion addresses the origin and hydrogeology of karst aquifers and the biology of the animals that live in karstic aquifers.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 4120: Engineering Geology**

(cross-leveled with GEOL 7120). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and MATH 1500, or instructor's consent

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**GEOL 4130: Groundwater Modeling**

Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.



**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

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**GEOL 4180: Solar System Science**

(same as PHYSCS 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**GEOL 4200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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**GEOL 4210: Marine Geology**

Comprehensive examination of the geology of the oceans. Topics includes techniques of data collection and interpretation, physical oceanography, origin of marine sediments, marine tectonics, and ocean history.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800, CHEM 1330 and PHYSCS 1220

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**GEOL 4300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and ENV\_SC 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330. Junior standing or instructor's consent

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**GEOL 4350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 7350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and the hyper-abundant, we can address the fundamental question

of paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 2350, GEOL 2360

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**GEOL 4400: Geomicrobiology and Microbial Biogeochemistry**

Roles of microbes in a variety of geological settings through time. Microbial roles in degradation of organic pollutants and transformation of toxic metals and radionuclides in contaminated environments.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 4500: Organic Geochemistry**

Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 4650: Plate Tectonics**

Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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**GEOL 4650W: Plate Tectonics - Writing Intensive**

Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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**GEOL 4680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 7680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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**GEOL 4700: Theoretical Geochemistry**

Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, CHEM 1330 and MATH 1700

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**GEOL 4800: Introduction to Geophysics**

(cross-leveled with GEOL 7800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1700 or instructor's consent

---

**GEOL 4900: Igneous and Metamorphic Petrology with Laboratory**

Introduction to igneous and metamorphic rock associations and rock-forming processes. Emphasis on understanding the evolution of the Earth in view of igneous and metamorphic rock petrogenesis.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

**Recommended:** GEOL 3300

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**GEOL 4950: Senior Thesis**

Research conducted in an area of the Geological Sciences under the auspices of a member of the faculty. Under normal circumstances, this research should be completed over two semesters. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

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**GEOL 4990: Communicating in the Earth Sciences**

Synthesis of Geology curriculum through study of classic Earth Science papers. Emphasizes critical analysis of scientific papers, data interpretation, science writing and oral presentations. Satisfies Capstone for BA in Environmental Geology.

**Credit Hours:** 3

**Prerequisites:** instructors consent

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**GEOL 4991: Capstone in Environmental Geology**

Readings and discussions in selected areas of environmental geology. Subject depends on instructor. 3 credit hour Capstone must be completed unless student completes a Senior Thesis. In that case, Capstone + Senior Thesis credit hours must equal 3.

**Credit Hour:** 1-3

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**GEOL 4992: Geology Field Camp**

Field study of sedimentary, igneous and metamorphic rocks. Facies analysis of sedimentary rocks, mapping of folded and faulted sedimentary strata and fabric analysis of an igneous-metamorphic terrane. Excursion to Yellowstone and Grand Teton National Parks.

**Credit Hours:** 6

**Recommended:** GEOL 2350, GEOL 3650, and GEOL 3800

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**GEOL 7002: Topics in Geological Sciences-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 7085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 7100: Groundwater Hydrology**

(cross-leveled with GEOL 4100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and PHYSCS 1210 or PHYSCS 2750, and MATH 1400 or MATH 1500

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**GEOL 7110: Karst Hydrology**

Study of the mechanisms of groundwater flow in Karst terrains. Emphasizing several scales including that of a conduit, a catchment, and regional framework.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 7120: Engineering Geology**

(cross-leveled with GEOL 4120). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1500, or instructor's consent

---

**GEOL 7130: Groundwater Modeling**

Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

---

**GEOL 7180: Solar System Science**

(same as PHYSCS 7180 and ASTRON 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760 or instructor's consent

---

**GEOL 7200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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**GEOL 7210: Marine Geology**

Comprehensive examination of the geology of the oceans. Topics includes techniques of data collection and interpretation, physical oceanography, origin of marine sediments, marine tectonics, and ocean history.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800 CHEM 1330 and PHYSCS 1220

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**GEOL 7300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and ENV\_SC 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330 or instructor's consent

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**GEOL 7350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 4350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and hyper-abundant we can address the fundamental question of paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

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**GEOL 7400: Geomicrobiology and Microbial Biogeochemistry**

Roles of microbes in a variety of geological settings through time. Microbial roles in degradation of organic pollutants and transformation of toxic metals and radionuclides in contaminated environments.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 7500: Organic Geochemistry**

Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 7650: Plate Tectonics**

(cross-leveled with GEOL 4650). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, GEOL 3650 or instructor's consent

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**GEOL 7680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 4680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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**GEOL 7700: Theoretical Geochemistry**

Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, CHEM 1330 and MATH 1700

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**GEOL 7750: Microanalysis for Geological Sciences**

(cross-leveled with GEOL 4750). This course is intended to provide a working knowledge of electron and X-ray microbeam analytical instruments - both in principle and in practice. Lectures will focus on the physics of how these instruments collect data, and how these data can be interpreted. In addition, students will gain hands-on experience with operating these instruments, specifically on their own samples, as well as preparing their samples for microanalysis and interpreting/manipulating the resulting data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent (Instrument time is limited; graduate students who will use the instruments in their research will have priority)

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**GEOL 7800: Introduction to Geophysics**

(cross-leveled with GEOL 4800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1700 or instructor's consent

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**GEOL 7990: Research in Geological Sciences-Masters**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 7991: Investigation of Earth Materials**

Hands-on experience in all facets of quantitative field and laboratory analyses of near-surface earth materials.

**Credit Hours:** 3

**Prerequisites:** GEOL 2350, GEOL 4100, and GEOL 3800

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**GEOL 8002: Topics in Geological Sciences**

Organized study of selected topics. May be repeated with departmental consent.

**Credit Hours:** 3

**Prerequisites:** PhD standing, instructor's consent

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**GEOL 8050: Research in Geological Sciences-Masters Non-Thesis**

Research leading to a non-thesis Masters project. Graded on S/U basis only.

**Credit Hour:** 1-3

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**GEOL 8085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 8090: Research in Geological Sciences-Masters Thesis**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**GEOL 8100: Continental Tectonics**

The structural, metamorphic, and igneous evolution of mountain belts and continental rifts with emphasis on convergent margin settings and terrane accretion processes and products. Case studies are considered from the Precambrian to the recent.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 and GEOL 4900

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**GEOL 8140: Metamorphic Petrology**

Petrography and petrology of metamorphic rocks. Emphasis on textures, mineral assemblages, and mineral chemistry in order to determine the physico-chemical condition of metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

---

**GEOL 8150: Earthquake Seismology**

Theory and techniques used in analyzing earthquake seismograms and seismicity data. Ray theory and phase identification for the whole earth. Epicenter determination. Frequency-magnitude relationships. Earthquake source mechanisms and parameters.

**Credit Hours:** 3

**Prerequisites:** GEOL 8320

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**GEOL 8160: Igneous Petrology**

Studies of the origin and evolution of magmas with use of phase equilibria, physical properties, and kinetics.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8170: Radiogenic Isotope Geochemistry**

Studies of the application of trace element and radiogenic isotope systematics to petrogenesis of rocks.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900

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**GEOL 8190: Advanced Paleontology**

Principles of taxonomy, biostratigraphy, functional morphology and paleoecology are illustrated by individual projects that combine field collecting, laboratory examination and literature research.

**Credit Hours:** 3

**Prerequisites:** GEOL 4550

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**GEOL 8200: Advanced Structural Geology**

Advanced analysis of deformation structures in rocks. Theory and techniques of stress and strain analysis and their application to the mechanics of formation of faults, folds, shear zones, and rock fabric. Techniques of multideformation structural analysis.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650

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**GEOL 8210: Advanced Aqueous Geochemistry**

Study of mineral-water interface geochemistry. Course will cover dissolution and precipitation kinetics, sorption reactions, and current theories.

**Credit Hours:** 3

**Prerequisites:** GEOL 4300 or GEOL 7300 or instructor's consent

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**GEOL 8230: Groundwater and Subsurface Geomicrobiology**

Distribution of microorganisms in subsurface environments and the effects of microbial activity on groundwater chemistry. In situ bioremediation of contaminated aquifers by subsurface microorganisms.

**Credit Hours:** 3

**Prerequisites:** GEOL 4400

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**GEOL 8240: Hydrogeologic Processes**

Quantitative analysis of role of groundwater in major geologic processes. Theory review of fluid flow, heat transport, reactive solute transport in porous media. Applications to sedimentary diagenesis, hydrothermal ore deposits, petroleum migration, earthquakes, magmatism, metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or GEOL 7100 or equivalent

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**GEOL 8300: Precambrian History**

Coupled evolution of the biosphere, lithosphere, hydrosphere, and atmosphere over the span of Precambrian history. Topics will be discussed largely in the context of biological evolutionary events and the fossil record, as well as with a focus on geochemical records.

**Credit Hours:** 3

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**GEOL 8320: Introduction to Seismology**

Principles of wave propagation in layered elastic media. Applications of digital signal processing to seismological problems. Emphasis on theoretical basis behind modern analysis techniques.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760, MATH 4500 and CMP\_SC 1050

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**GEOL 8350: Marine Chemistry**

Survey of biogeochemical processes in shallow and deep marine settings. Topics include sediment diagenesis, geochemical tracers, nutrient patterns and pathways, global biogeochemical cycles, paleoceanographic proxy records, and integrated paleoenvironmental reconstructions of ancient marine sequences.

**Credit Hours:** 3

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**GEOL 8400: Ancient Greenhouse Climate**

Will explore a wide range of data concerning greenhouse climates and different techniques used in paleoclimatology. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800, GEOL 3500 and GEOL 4300

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**GEOL 8450: Tectonics and Sedimentation**

Global survey of modern and ancient convergent plate boundaries with an emphasis on sedimentary facies and structural styles.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650, GEOL 3800 and instructor's consent

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**GEOL 8510: Geodynamics**

This course is designed to cover the fundamentals of the quantitative aspects of Plate Tectonics. The study of these subjects is generally referred to as Geodynamics or Geodynamic Theory. This theory revolutionized the earth sciences and the way people think of earth processes. By definition Geodynamics is an interdisciplinary paradigm therefore it is necessary to cover a wide range of topics from heat transfer to gravity. This course will overlap with subjects covered in both Plate Tectonics and Geophysics but we will emphasize the quantitative aspects of this theory in this course.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760

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**GEOL 8550: Stable Isotope Geochemistry**

Mechanisms and fundamental concepts of fractionation of light stable isotopes in nature. Emphasizes application of hydrogen, carbon, oxygen and sulfur isotopes to igneous, metamorphic and sedimentary rocks, metallic ore deposits, and to natural waters.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 8600: Quaternary Environments**

Study of the Earth's most recent glacial/interglacial cycles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 8650: Thermal Processes in the Solid Earth**

Principles of heat transfer in solid earth by conduction, advection and convection. Basic analytic and numerical solutions. Application in Earth's dynamic system, environmental sciences, and geological problems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 1220 or PHYSCS 2750

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**GEOL 8750: Silicate Glasses, Liquids and Magmas**

Theory of silicate liquid viscosity, heat capacity and configurational entropy, emphasizing the role of volatile components. Applications to magma rheology and eruptive behavior. Lab instruction in viscometry techniques.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900 and GEOL 4700, or instructor's consent

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**GEOL 8800: Applied Numerical Analysis**

A study of applied mathematical analysis of spatial and temporal data as applied in the geosciences.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 or MATH 2300, PHYSCS 1220 or PHYSCS 2760

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**GEOL 8990: Research**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 9090: Research in Geological Sciences-Doctoral Dissertation**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## German Courses

**GERMAN 1100: Elementary German I**

For beginners with no prior knowledge of German. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication--oral and listening skills, reading and writing.

**Credit Hours:** 5

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**GERMAN 1100H: Elementary German I - Honors**

This course is designed for Honors students with little or no German language background and will provide students with a foundation in vocabulary and grammar in order to develop communication proficiency in German. Students will be trained using the five skills: listening, speaking, writing, reading and cultural knowledge. The course will be taught as a total immersion class and thus differs from the standard elementary German sequence. Furthermore, students will be required to complete lengthier reading and writing tasks as well as present a final oral multimedia project at the end of the semester.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GERMAN 1150: Freshman Introduction to German Studies**

Introduction to German Studies as academic field. Small seminar setting with senior faculty, their favorite texts, and questions pursued in the research and teaching. Recommended for all students interested in integrating German studies into their academic career, conducted in English.

**Credit Hour:** 1

**Prerequisites:** Restricted to Freshman students only

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**GERMAN 1200: Elementary German II**

A continuation of GERMAN 1100. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 5

**Prerequisites:** C- or better in GERMAN 1100, or equivalent

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**GERMAN 1200H: Elementary German II - Honors**

This course is designed for Honors students who either took the GERMAN 1100H section or are placing into GERMAN 1200 as honors eligible students. The main focus of this course is on further development of basic communication skills in speaking, listening, and reading, and writing in German adding more nuanced cultural and sociolinguistic competencies in a total immersion environment.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GERMAN 2001: Undergraduate Topics in German-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 2005: Undergraduate Topics in German-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

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**GERMAN 2005H: Undergraduate Topics in German-Humanities - Honors**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GERMAN 2100: Intermediate German I**

A continuation of GERMAN 1200. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 3

**Prerequisites:** C- or better in GERMAN 1200, or equivalent

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**GERMAN 2260: Intermediate German II: Language and Culture**

This course continues to help learners develop the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** C- in GERMAN 2100 or equivalent

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**GERMAN 2310: German Civilization: Beginning to 1850**

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLISH 1000.

**Credit Hours:** 3

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**GERMAN 2310W: German Civilization: Beginning to 1850 - Writing Intensive**

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLISH 1000.

**Credit Hours:** 3

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**GERMAN 2320: German Civilization: 1850 to Present**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLISH 1000

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**GERMAN 2320W: German Civilization: 1850 to Present - Writing Intensive**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLISH 1000

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**GERMAN 2480: Monstrous Births: Tales of Creation in 19th Century Literature**

Examines literary and other cultural works which explore the creation of human beings by traditional, technological, or magical means. Course and readings in English translation.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or equivalent

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**GERMAN 2820: Trends in World Cinema**

(same as FILM\_S 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1800 or FILM\_S 1800 or instructor's consent

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**GERMAN 3001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3160: German Conversation and Composition**

This course expands communicative competence in German and provides a review of advanced grammar concepts. Primary emphasis is on the further development of oral and written skills, reading comprehension, vocabulary expansion, and a broad exposure to relevant topics of contemporary German culture and society. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3180: Business German**

Examines language within the economic and professional context of German-speaking countries. Introduces different economic concepts of Germany's turbulent 20th century, modern-day business systems and everyday commercial activities such as job applications, professional routines, capital investment and banking. Provides students with vocabulary, cultural knowledge and communicative abilities in order to participate in the professional German-speaking world using linguistically-solid and stylistically-persuasive writing and speaking skills.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3190: Contemporary German Culture**

This content-driven course provides insights into essential subjects of 20th century German history and contemporary society, using a variety of literature, journalistic sources and film. The course will improve German conversation and literacy skills, and will strengthen critical reading and writing, as well as interpretative abilities. Significant grammatical concepts will be thoroughly reviewed throughout the semester. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or instructor's consent

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**GERMAN 3230: Introduction to German Literature**

This course introduces students to German-language literary texts, images, and films in their cultural and historical context through exposure to major genres (poetry, drama, short stories, and the novel). It further builds their vocabulary and teaches them critical interpretive skills as preparation for the analysis of literary texts in upper-division courses - and in life.

**Credit Hours:** 3

**Prerequisites:** C- or better in either GERMAN 3160 or GERMAN 3190

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**GERMAN 3320: Readings in German Literature**

Readings in English of selected works of German literature from Goethe to the present, with a particular emphasis on writers and texts that have had a strong influence on European thought and culture.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1000

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**GERMAN 3440: After the Fact: Holocaust in Contemporary History, Art & Literature**

(same as PEA\_ST 3440). Explores responses to the Holocaust from numerous perspectives. Considers how the Holocaust is remembered,

memorialized, and debated in a variety of national contexts. Touches on historical, philosophical, and aesthetic points of view.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GERMAN 3460: Marx & Nietzsche: Labor, Power, and the German Mind of 19th Century**

Examines writings of Germany's two most radical nineteenth-century thinkers. Explores key terms of political economy and philosophy developed by Marx and Nietzsche. Journal and three papers.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1000

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**GERMAN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as T\_A\_M 2810, PEA\_ST 2810, JOURN 3510, DST 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as JOURN 3510H, PEA\_ST 2810H, T\_A\_M 3010H, DST 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as JOURN 3510HW, T\_A\_M 3010HW, PEA\_ST 2810HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

---

**GERMAN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as T\_A\_M 2810W, PEA\_ST 2810W, JOURN 3510W, DST 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital

Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

---

**GERMAN 3520: Folk and Fairytales in a Global Context**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

---

**GERMAN 3520H: Folk and Fairytales in a Global Context**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520HW: Folk and Fairytales in a Global Context - Honors/ Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520W: Folk and Fairytales in a Global Context - Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3550: Resistance is Futile: The Advance of the Cyborg**

Contemporary culture is haunted by the image of artificial killing machine as metaphor for technology run rampant. Fears may be prompted by feelings of alienation in automated society and underlying suspicion that humans may be nothing more than sophisticated machines. Course maps history of l'homme machine, focusing on fictional representation of creatures that consist of both human and technological "parts." Goal is to discern source of fascination and sociopolitical mechanism behind evocation of "human machine."

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor

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**GERMAN 3605: The History of Blacks in Germany**

(same as BL\_STU 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, traveling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**GERMAN 3830: History of the German Film**

(same as FILM\_S 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GERMAN 3840: German Film After 1945**

(same as FILM\_S 3840). Examines a selection of post-War films by German directors, as well as historical, literary, and theoretical texts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**GERMAN 3865: The Holocaust on Screen**

(same as FILM\_S 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GERMAN 3895: Service Learning in German Studies**

Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Does not meet Arts and Science foundation requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** GERMAN 2260, or instructor's consent

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**GERMAN 4001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005H: Topics in German-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and instructor's consent. Honors eligibility required

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**GERMAN 4005W: Topics in German-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4070: Intensive Beginning German**

Designed to lead to a reading knowledge of German. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent

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**GERMAN 4160: Advanced Language Proficiency**

(cross-leveled with GERMAN 7160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4180: Advanced German: Conversation and Stylistics**

(cross-leveled with GERMAN 7180). This course continues to emphasize all communicative skills in German: oral and listening skills, reading and writing. There is also an emphasis on advanced grammar. The content focuses on contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** senior or graduate standing, or instructor's consent

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**GERMAN 4220: Eerie Tales: Classic German Narratives**

In this class, we will read classic uncanny tales in German by major authors, and will explore the traits of this category across a variety of literary movements.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent language capacity

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**GERMAN 4230: Enlightenment and Revolution**

Reading and discussion of selected works by major German writers from 1740 to 1870.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4240: Modernism and Modernity**

Reading and discussion of selected works by major German writers from 1870 to the present.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4260: Recent German Literature**

This course examines 'post-unification' works (i.e. by formerly East and West German authors) of literature and film written since 1989 that addresses social and political changes leading to or resulting from unification and the experience of WWII. Students will analyze the diverse cultural, political and economic factors that influence writers and filmmakers whose aesthetic production in turn helps shape contemporary German society.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230

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**GERMAN 4440: Enlightenment and Sturm und Drang**

Survey of literature and thought of 18th-century Germany, with emphasis on the works of Lessing, Wieland, Herder and the younger Goethe.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4450: German Romanticism**

German Romanticism.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4530: The German Novelle**

The German Novelle.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4650: Faust**

(cross-leveled with GERMAN 7650). Faust.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4670: Medieval German Literature 1170-1210**

(cross-leveled with GERMAN 7670). Analysis of major narrative and lyric poetry of the Age of Chivalry.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4730: German Internship and Methods**

(cross-leveled with GERMAN 7730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** junior standing, GERMAN 4230, or instructor's consent

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**GERMAN 4810: Case Studies in an Inter/Multicultural World**

(same as T\_A\_M 4810, PEA\_ST 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**GERMAN 4820: Blogging the World: The Web in Cultural Context**

(same as FRENCH 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new

social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as FRENCH 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4980: German Capstone Seminar**

(cross-leveled with GERMAN 7980). Required of all senior German majors; usually taken in the senior year. Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** senior standing or departmental consent

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**GERMAN 4996: Honors in German**

Special problems in Germanic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent of Honors director

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**GERMAN 7001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 7005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 7085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 7160: German Conversation and Composition III**

(cross-leveled with GERMAN 4160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 7180: Advanced German: Conversation and Stylistics**

(cross-leveled with GERMAN 4180). This course continues to emphasize all communicative skills in German: oral and listening skills, reading and writing. There is also an emphasis on advanced grammar. The content focuses on contemporary German culture and social life.

**Credit Hours:** 3

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**GERMAN 7440: Enlightenment and Sturm und Drang**

Survey of literature and thought of 18th-century Germany, with emphasis on the works of Lessing, Wieland, Herder and the younger Goethe.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7530: The German Novelle**

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7650: Faust**

(cross-leveled with GERMAN 4650). Faust.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7660: Recent German Literature**

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7670: Medieval German Literature 1170-1210**

(cross-leveled with GERMAN 4670). Analysis of major narrative and lyric poetry of the Age of Chivalry.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7730: German Internship and Methods**

(cross-leveled with GERMAN 4730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent, or instructor's consent

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**GERMAN 7820: Blogging the World: The Web in Cultural Context**

(same as RUSS 7820 and FRENCH 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context. Working in cross-disciplinary teams, students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold: students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

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**GERMAN 7960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GERMAN 7980: German Capstone Seminar**

(cross-leveled with GERMAN 4980). Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** one 3000-level literature course or equivalent, or instructor's consent

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**GERMAN 8001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 8005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 8007: SEMINAR:GERMAN**

Seminar in German.

**Credit Hours:** 3

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**GERMAN 8050: Research in German**

Translations or creative work not leading to thesis. Credit hours arranged.

**Credit Hour:** 1-3

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**GERMAN 8085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 8087: Seminar in German**

Course content varies.

**Credit Hours:** 3

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**GERMAN 8090: Research in German**

Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** graduate director's consent

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**GERMAN 8450: Reformation and Renaissance Literature**

The course investigates significant works of German literature of the late 15th and 16th Centuries.

**Credit Hours:** 3

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**GERMAN 8520: German Poetry from Sturm und Drang to 1848**

Reading of selected poetry by German writers of Sturm und Drang, Classicism, Romanticism, and Vomarz.

**Credit Hours:** 3

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**GERMAN 8615: History of the German Language**

(same as LINGST 8615).

**Credit Hours:** 3

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**GERMAN 8625: Middle High German**

(same as LINGST 8625).

**Credit Hours:** 3

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## Graduate School Courses

**GRAD 4010: Preparing To Be A Graduate Teaching Assistant**

Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

**Credit Hour:** 1

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**GRAD 7010: Preparing To Be A Graduate Teaching Assistant**

Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** graduate standing

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**GRAD 7020: Learning Across Borders Seminar**

Social, cultural, and economic problems--and their solutions--are increasingly global and interdisciplinary. Global awareness is essential, therefore, in order to compete in the increasing global marketplace. Coupling professional knowledge and skills with international experience gives graduates a competitive advantage, as employers look beyond the academic transcript for additional skills. The Learning Across Borders seminar (LAB) creates opportunities for graduate students to work across cultures and disciplines. Throughout the academic year students will participate in a series of Think Tanks (interactive discussions facilitated by MU faculty and special guests) and LAB-approved events. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Students must register for both semesters

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**GRAD 7070: Academic Interactions in the American University**

This course is designed to give graduate students new to the western academic environment an overview of classroom and departmental activities and expectations. Specifically, it will give students cultural insight into academic tasks and some of the linguistic tools necessary to accomplish those tasks.

**Credit Hours:** 3

**Prerequisites:** ibt TOEFL of 60

**Recommended:** for any students who have not previously studied in a western academic environment and strongly recommended for students with an overall TOEFL score of 80 or below or sub-scores in listening and/or speaking of 20 or less

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**GRAD 7302: Tools for Teaching American Students**

Emphasis on advanced academic listening, discrete pronunciation skills, techniques for laboratory teaching and one-to-one interactions. Integrated with a general overview of American classroom culture.

**Credit Hours:** 3

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**GRAD 7303: Communication and Culture for American College Teaching**

This class will focus on the linguistic aspects of teaching, as well as specific pedagogical; and cultural aspects of the American classroom. It will emphasize fluency development at the suprasegmental level, and interactive teaching skills, like organizational, questioning and compensation strategies.

**Credit Hours:** 3

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**GRAD 9001: Topics in Graduate School**

Organized study of selected professional and career development topics. Subjects and course credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's and academic advisor's consent

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**GRAD 9010: Preparing Future Faculty I**

First course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GRAD 9020: Preparing Future Faculty II**

Second course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Topics build upon those presented in GRAD 9010 and focus on the job search and career development processes. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** GRAD 9010

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**GRAD 9030: Teaching with Technology-Strategies for Your Online Classroom**

(same as IS\_LT 9477). Designed to assist current and future course instructors to integrate learning technologies into a traditional face-to-face course. Graded on A-F basis only.

**Credit Hour:** 1

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**GRAD 9050: Building Leadership Potential with Transferable Skills**

Specialized leadership and transferable skills course that helps students recognize their potential and versatility for careers within and beyond the academy. Beyond leadership theory, the course is framed by 4 competency areas: 1) Analytic competencies; 2) Personal competencies; 3) Communication competencies and 4) Organizational competencies. Learning is enhanced with short text readings and videos in the course management system. Guest speakers. To pass the course, students must attend class; complete a self-assessment; complete an informational interview or job shadow with a leader of choice; and submit 3 short assignments including an Individual Development Plan with goals. Graded on S/U basis only.

**Credit Hour:** 1

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**GRAD 9072: Science Policy and Public Engagement**

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hours:** 3

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**GRAD 9080: Essentials for Public Engagement**

This course will focus on understanding the role of scholarship and research in society and how to integrate public needs with research, ways to the public engages with scholarly research and how researchers can effectively engage individuals and groups. Topics covered include: different types of public engagement, public policy, ethics, broader impacts of research, extension education, public communication, theoretical rationale for engagement, historical trends in public engagement.

**Credit Hour:** 1

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**GRAD 9082: Science Policy and Public Engagement**

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals

and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hour:** 1

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**GRAD 9304: Instructional and Communication Strategies for Effective College Teaching**

This class will focus on teaching and presentation strategies such as lesson design, using case studies and problem based learning, interactive learning, and classroom and course management. The linguistic emphasis will be on reduction, linking and speech patterns as well as pragmatic issues of organizing, clarifying and emphasizing ideas. Requires an MU Oral Language Proficiency Assessment score of 3 and course consent. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ITAP language level 3P or GRAD 7303 and level 2; consent required

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**Grammar (Intensive English Program) Courses**

**IEPG \_0001: Grammar with Writing I**

Students will learn to recognize and use basic grammatical structures. Students will use these structures to produce basic sentences and short paragraphs on topics from daily life. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG \_0002: Grammar II**

Students will learn low-intermediate grammatical structures including modals, simple and progressive verb tenses, and expressions of quantity. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG \_0030: Grammar for Academic Purposes III**

Students will learn intermediate grammatical structures including present perfect tense, simple gerunds and infinitives, comparatives and superlatives, and restrictive adjective clauses. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG \_0040: Grammar for Academic Purposes IV**

Students will learn high-intermediate grammatical structures including past perfect tense, passive voice, noun clauses, adjective clauses, and adverb clauses. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG\_0050: Grammar for Academic Purposes V**

Students will learn advanced grammatical structures including passive and perfect modals, passive gerunds and infinitives, conditionals, and reported speech. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Greek Courses

**GREEK 1100: Elementary Ancient Greek I**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 5

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**GREEK 1100H: Elementary Ancient Greek I - Honors**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GREEK 1200: Elementary Ancient Greek II**

Continuation of GREEK 1100. Readings in Attic prose.

**Credit Hours:** 5

**Prerequisites:** GREEK 1100

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**GREEK 1200H: Elementary Ancient Greek II - Honors**

Continuation of GREEK 1100H. Readings in Attic prose.

**Credit Hours:** 5

**Prerequisites:** GREEK 1100, Honors eligibility required

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**GREEK 2000: Greek Reading**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200

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**GREEK 2000H: Greek Reading - Honors**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200, Honors eligibility required

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**GREEK 4120H: Intensive Beginning Greek II - Honors**

Continuation of GREEK 4110H. Attention to ability to read rapidly and accurately. Course meets five hours weekly for three hours credit.

**Credit Hours:** 3

**Prerequisites:** graduate standing and Honors eligibility required

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**GREEK 4300: Intermediate Readings**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000

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**GREEK 4350: The Greek New Testament**

(same as REL\_ST 4650). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4400: Homer**

Reading, discussion, and literary analysis of Iliad and Odyssey.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4500: Greek Stylistics**

Study and practice of Greek prose, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4505: Topics in Greek**

Topics course involving Greek texts. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4510: Greek Tragedy**

Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4520: Greek Comedy**

Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4530: Greek Lyric Poetry**

Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4540: Greek Oratory**

Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4550: Greek Philosophers**

Emphasis on readings and analysis of selected texts of major Greek philosophers.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4560: Greek Historians**

Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4570: Greek Epigraphy**

Introduction to study of Greek inscriptions and their contribution to the understanding of other aspects of ancient culture.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4700: Survey of Greek Literature**

Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 7300: Intermediate Readings in Greek**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000 or equivalent. Available to students for graduate credit in departments other than Classical Studies

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**GREEK 7350: The Greek New Testament**

(same as REL\_ST 7650). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Graduate students read significantly more Greek than do undergraduates and testing is accordingly more rigorous. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GREEK 4300 or instructor's consent

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**GREEK 7400: Homer**

Reading, discussion, and literary analysis of Iliad and Odyssey.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7500: Greek Stylistics**

Study and practice of general Greek prose tendencies, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

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**GREEK 7505: Topics in Greek**

Organized study of selected authors or eras. Subject and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** two years of Classical Greek or equivalent

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**GREEK 7510: Greek Tragedy**

Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7520: Greek Comedy**

Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7530: Greek Lyric Poetry**

Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

---

**GREEK 7540: Greek Oratory**

Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7550: Greek Philosophers**

Emphasis on readings and analysis of selected texts of major Greek philosophers.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

---

**GREEK 7560: Greek Historians**

Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

---

**GREEK 7570: Greek Epigraphy**

Introduction to study of Greek inscriptions and their contribution to the understanding of other aspects of ancient culture.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000

---

**GREEK 7700: Survey of Greek Literature**

Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent and two years Classical Greek or equivalent

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**GREEK 8000: Proseminar in Greek Texts**

This is a seminar-level introduction to Greek literary and historical texts. The emphasis in this course will be on wide and intensive reading, with the objective of helping the new graduate student quickly develop a sound literary and linguistic competence.

**Credit Hours:** 3

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**GREEK 8010: Greek Rough Guide**

Intensive exploration of Greek Literature from its earliest appearance through the Roman period. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**GREEK 8100: Greek Historiography**

(same as HIST 8500). Study of the major contemporary historians of Classical Greece and their methodology. Differential readings available to both students with a reading knowledge of Greek and also those without Greek.

**Credit Hours:** 3

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**GREEK 9287: Seminar in Greek Drama**

May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**GREEK 9387: Seminar in Greek Lyric Poetry**

Seminar in Greek Lyric Poetry.

**Credit Hour:** 1-99

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**GREEK 9487: Seminar in the Greek Philosophers**

Seminar in the Greek Philosophers.

**Credit Hours:** 3

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**GREEK 9587: Seminar in the Greek Historians**

Seminar in the Greek Historians.

**Credit Hours:** 3

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**GREEK 9687: Seminar in Greek Epic Poetry**

Seminar in Greek Epic Poetry.

**Credit Hours:** 3

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**GREEK 9787: Seminar on the Age of Pericles**

Study of Greek culture of mid-fifth century B.C., including law, religion, art, philosophy, science, and other aspects of the culture, to give students an integrated view of life of the period.

**Credit Hours:** 3

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**GREEK 9887: Seminar in Special Fields**

Seminar in Special Fields.

**Credit Hours:** 3

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## Health Management and Informatics Courses

**HMI 4420: Fundamentals of Bioinformatics**

(cross-leveled with HMI 7420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**HMI 4440: Health Information Technology**

(cross-leveled with HMI 7440). In this course, the student will learn 1) the visual basic programming language and how to design a visual basic application 2) the SQL database language and how to design and operate a database, and 3) HTML, HTML5, javascript and vbscript languages and how to design a client-server database application using Visual Basic and a web database application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**HMI 6495: Health Care Management**

Health Care Management

**Credit Hours:** 5

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**HMI 6935: Healthcare Ethics for Physicians**

Students will participate in 8-two hour lecture-discussion sessions over the 2-week period. In each session, the instructor lectures for one hour and then the class discusses concepts and cases for one hour. Topics may include ethical theories and frameworks, decision-making capacity, informed consent, truth-telling and deception, medical errors, confidentiality, surrogate decision-making, medical futility, end-of-life care and euthanasia, the physician-patient relationship, paternalism, vaccinations, newborn screening, gene therapy, treating minors, treating individuals with disabilities, deception of third-party payers, problematic documentation techniques, sexual harassment and discrimination, and conflicts of interest. When not participating in the lecture-discussion session, students will use their time reading the assigned material. This should take about two hours per day. There are no required student presentations but a high level of participation in discussion is expected. Two take-home exams will be given.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**HMI 6938: Biomedical Informatics**

Students will participate in 10-two hour lecture-discussion sessions over the 2-week period. These sessions will cover current and future developments in biomedical informatics. Selected topics include: electronic health records; public health informatics; imaging; practice management systems; information exchanges; data standards; privacy and security; consumer informatics; mobile technology; search engines; telehealth; bioinformatics databases; next generation sequencing; regulatory pathways; emerging trends.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

---

**HMI 7410: Introduction to the US Health Care System**

This is a survey course about the American health system, meant to provide a conceptual foundation for students to think critically about the US health system and to build upon in their future related courses. It includes concepts and language in health care, public health, and personal health and provides an understanding of how these domains of health interrelate. Particular focus is given to health care delivery, including how health care services are organized, delivered, paid for, and measured. Selected key, forward-looking issues are covered. The roles of management, leadership, and physicians are highlighted. A resource bank and regular flow of good information sources is developed. Business writing skills are emphasized.

**Credit Hours:** 3

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**HMI 7420: Fundamentals of Bioinformatics**

(cross-leveled with HMI 4420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Open to undergraduates with dual enrollment

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**HMI 7430: Introduction to Health Informatics**

(same as INFOINST 7430). Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HMI 7431: Foundation of Public Health Informatics**

This course will cover foundational knowledge relevant to Public Health Informatics (PHI). The purpose of this course is to expose students to emerging research and application areas in the field of PHI. It will enhance abilities to know when and how to use theories, concepts, and tools of informatics applied to public health. The emphasis of the course is on the use of informatics tools and practices in public health and the

existing and evolving relationship between clinical and public health systems. The focus is on PHI including topics such as data exchange and standards, interoperability, use of informatics tools, applying informatics to public health communication and dissemination, surveillance systems, public health policy and project management.

**Credit Hours:** 3

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**HMI 7432: Health Database Management and Public Health Data Systems**

This course will cover foundational knowledge relevant to database management and public health data systems for Public Health Informatics (PHI). The purpose of this course is to provide students with concepts relevant to the effective use of data, information, and knowledge tools to build, manage, merge, retrieve, and analyze public health data from appropriate health data systems. The emphasis of the course is to use, develop and adapt public health information systems as needed to support public health efforts through use of public health informatics tools and practices to support existing and evolving relationships between clinical and public health systems. The focus is to plan, develop, implement, manage and evaluate database management systems and health data systems that meet the needs of public health practice through PHI.

**Credit Hours:** 3

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**HMI 7440: Health Information Technology**

(cross-leveled with HMI 4440). In this course, the student will learn 1) the visual basic programming language and how to design a visual basic application 2) the SQL database language and how to design and operate a database, and 3) HTML, HTML5, javascript and vbscript languages and how to design a client-server database application using Visual Basic and a web database application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics

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**HMI 7471: Introduction to Accounting and Finance in Health Care**

This course introduces the current financial environment in which providers operate and the fundamentals of financial accounting, with an emphasis on accounting and financial management principles and concepts that are critical to decision making for department-level management of health services organizations. This course provides the foundation for the second healthcare financial management course offered in the second year of this program.

**Credit Hours:** 3

**Prerequisites:** Graduate standing or consent of instructor

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**HMI 7564: Health Ethics Theory**

An introduction to health ethics theory and methodology. We discuss metaethics and normative ethics theories, normative ethics in health ethics and methods of ethics case work up.

**Credit Hours:** 3

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**HMI 7566: HIPAA, Social Media, and the Ethics of Health Information**

An introduction to how the increasing use of distance-based technologies, computers, and online communications may impact the ethical delivery of health care. Examples of questions to be addressed: Is

it possible that the increasing use of computers in healthcare has made things worse? How should HIPAA be interpreted and why is there such confusion about it? Should patients be able to "post" negative comments about providers on social media sites? What should be done about the increasing amounts of personal information healthcare corporations are collecting on patients?

**Credit Hours:** 3

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**HMI 7567: Health Organizational Ethics**

Examples of questions to be addressed: Should hospitals and doctors try to maximize profits? Do providers have a moral obligation to serve people who cannot pay? Is it okay to deceive an insurance company if it means better patient care? What should employees do if their employer is committing fraud? Is it ethical for hospitals to drug-test employees and investigate their private lives? What is the ethical way to hire and fire healthcare staff? What should you do if your supervisor is evil?

**Credit Hours:** 3

**Prerequisites:** HMI 7564 or equivalent course, or permission of instructor

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**HMI 7750: Physical Function and Older Adults**

(same as F\_C\_MD 7750, ARCHST 7640, H\_D\_FS 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**HMI 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A- basis only.

**Credit Hours:** 3

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**HMI 8090: Thesis Research in Health Management and Informatics**

Research leading to a thesis. May be repeated to maximum of 9 hours.

**Credit Hour:** 1-6

**Prerequisites:** Advisor's consent

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**HMI 8401: Topics in Health Management and Informatics**

Organized study of selected topics. Subjects will vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**HMI 8435: Information Security, Evaluation and Policy**

The purpose of this course is to provide an extensive overview, practical applications and analyses of functionality and usability evaluations of health care information technology, and to discuss the impact of security on the present and future health care settings.

**Credit Hours:** 3

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**HMI 8437: Data Warehousing and Data/Text Mining for Health Care**

An introduction to the basic concepts of data warehouse and data/text mining, creating an understanding of why we need those technologies and how they can be applied to healthcare problems.

**Credit Hours:** 3

**Prerequisites:** HMI 8441

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**HMI 8441: Biomedical and Health Vocabularies and Ontologies**

Basic and advanced concepts of controlled terminologies and their use in the representation of biomedical information and knowledge, with emphasis on terminology management in the health care enterprise. Syntactic and semantic structure of controlled terminologies are examined and a number of representative terminologies are analyzed.

**Credit Hours:** 3

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**HMI 8443: Enterprise Information Architecture for Knowledge Driven Healthcare Systems**

Organization and development of infrastructure necessary to support an enterprise information system for patient care. Components of architecture are introduced in a problem-based approach, case examples are presented as the basis for addressing specific attributes of the components, as well as problems facing the design of an enterprise information system for health care.

**Credit Hours:** 3

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**HMI 8450: Methods of Health Services Research**

Writing intensive course provides students with basic understanding of literature search, experimental designs, evaluation methods, ethics, reporting and application of health services research. Practical research problems are discussed and students prepare a professional, managerially relevant research proposal.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Satisfactory completion of a college-level course in statistics

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**HMI 8451: Individual Executive Management Studies**

Students will investigate and address important issues in their organizations. Students will use scientific evidence and techniques to solve applied problems. They will develop data collection protocols, collect and analyze data, draw conclusions, and develop recommendations using basic research methods tools. They will provide actionable and feasible recommendations based on their analysis.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 8450 or permission of instructor

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**HMI 8453: Executive Management Studies**

Students will use scientific evidence and techniques to solve applied problems in health care organizations. Students will serve as professional consultants, working within small teams to develop project specifications and plans in collaboration with their clients. They will develop data collection protocols, collect and analyze data, draw conclusions and develop recommendations using basic research methods tools. They will provide actionable, feasible recommendations to their clients based on their analysis. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Graduate standing or permission of the instructor

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**HMI 8460: Administration of Health Care Organizations**

Analyzes health care organizations, emphasizing organizational structure, and strategy, and managerial leadership. Topics include governance, adaptation, design, interorganizational networks, and organizational performance.

**Credit Hours:** 3

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**HMI 8461: Managing Human Resources in Health Care Organizations**

Provides a framework for understanding and thinking strategically about employee relations and management of people in organizations, drawing on insights from social sciences to explore how psychological, economic, social, and cultural forces influence human resources management in health care.

**Credit Hours:** 3

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**HMI 8470: Strategic Planning and Marketing for Health Care Organizations**

Analysis of strategic planning and services management and marketing concepts, techniques, and tools in the health care industry. Includes analyzing the environment, assessing the organization's strengths and weaknesses, formulating strategy to achieve competitive advantage, and implementing strategy through service management and marketing.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, and HMI 8524

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**HMI 8472: Financial Management for Health Care Organizations**

Application of concepts, tools and techniques of financial management and their interrelationships as they apply to current and future operation of health care organizations. Prerequisites: For Residential students: HMI 7410, HMI 7471, HMI 8460, HMI 8524. For Executive students: HMI 7410, HMI 8460, HMI 8524, and satisfactory completion of college-level courses in managerial accounting and financial management or satisfactory completion of HMI's online accounting and finance module.

**Credit Hours:** 3

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**HMI 8478: Knowledge Management in Health Care**

Representing clinical terms, concepts and knowledge in a form for manipulation by intelligent systems. Theoretical formalisms and conceptual representations of medical information. Examination of knowledge engineering tools and decision support systems.

**Credit Hours:** 3

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**HMI 8485: Problems in Health Management and Informatics**

Intensive study of an area of health services management.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**HMI 8515: Problems in Medical Ethics and Clinical Ethics Consultation Practicum**

The Problems in Medical Ethics Course is a practicum based course with a hands-on clinical ethics consultation component. The course will provide the student with a tailored learning experience that will encourage

and develop skills and a working knowledge about health care ethics, and the ability to respond effectively when confronted with the difficult ethical dilemmas that may be encountered at multiple levels in the complex arena of health care. Specifically students will cultivate skills which will optimize their ability to work as an ethics consultant in a multidimensional and diverse society as well as an inclusive health care environment. The course is designed with flexibility in mind, however there are mandatory onsite components which will require the student to attend structured meetings, consultations and presentations.

**Credit Hours:** 5

**Prerequisites:** M-4 status for medical students. For Graduate students, HMI 7564 - Health Ethics Theory and HMI 8565 - Health Care Ethics and permission of instructor

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**HMI 8524: Health Economics**

Building upon previous knowledge of basic economic theories, concepts, and tools, the structure, organization, activities, functions, and problems of health and medical care are considered from an economics perspective.

**Credit Hours:** 3

**Prerequisites:** microeconomics

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**HMI 8544: Managerial Epidemiology (Population Health Management)**

Examination of basic epidemiological concepts and methods as applied to health services management. Equal emphasis on applications of epidemiology to health services planning, quality monitoring, policy development, system development, and finance.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students only

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**HMI 8545: Methods in Public Health Informatics/Biostatistics**

This course will cover foundational statistical knowledge and methods relevant to Public Health Informatics (PHI). The purpose of this course is to teach students to identify and perform appropriate statistical methods for the data analysis of data from many commonly used experimental designs in the field of PHI. The emphasis of the course is on the understanding of theoretical assumptions underlying these statistical methods. The focus of this course is to perform selected statistical analyses using, SPSS and/or R and to interpret statistical results, in a manner relevant to public health informatics in the context of public health. This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them specifically to the public health field.

**Credit Hours:** 3

**Recommended:** college algebra

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**HMI 8546: Public Health Information and Visualization (GIS) in Public Health**

This course will cover foundational knowledge of Geographic Information Systems (GIS) relevant to Public Health Informatics (PHI). The purpose of this course is to learn basic descriptive and analytical functions of GIS for research and application areas in the field of PHI. The course emphasis is for students to gain hands-on experience in the use of GIS, mapping, and spatial data analysis software such as ArcGIS, R, and Instant Atlas. The focus is on the use of geographic information systems (GISs) in the analysis of public health data. No previous knowledge

of mapping or GIS is required, but one is expected to have a working knowledge of MS Office, Windows operating systems, and Biostatistics (prerequisites Methods in Public Health Informatics/Biostatistics). This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them in a GIS context specific to Public Health Informatics.

**Credit Hours:** 3

**Prerequisites:** HMI 8545

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#### **HMI 8550: Health Data Analytics**

The purpose of this course is to provide you with an applied approach to analyze healthcare data. It will enhance abilities to know when and how to use theories, concepts, and tools of data analysis and statistics to evaluate and analyze health care data systematically. The emphasis of the course is on the use of data analysis in the health care field. The focus is on applying data analysis to health care data, problems and issues in the health care system, and on the data application necessary to make decisions based on the analysis. This course builds upon previous knowledge of basic statistics and analytics, concepts, and tools by applying them specifically to the health care system.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics or permission of instructor

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#### **HMI 8565: Health Care Ethics**

Explores ethics issues and controversies facing clinicians and healthcare administrators. Topics may include end-of-life care, imperiled newborns, maternal-fetal conflict, procreative liberty, genetic screening and enhancement, organ procurement and allocation, rationing, public health, workplace relationships, and conflicts of interest.

**Credit Hours:** 3

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#### **HMI 8571: Decision Support in Health Care Systems**

Applies principles and techniques of computer-assisted decision making to solve health care problems. Clinical and managerial applications of artificial intelligence, including expert systems reviewed. Advantages of integrating decision support programs with databases are discussed.

**Credit Hours:** 3

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#### **HMI 8573: Decision Making for Health Care Organizations**

Applies and integrates data and decision making techniques with process analytic and improvement tools and techniques. Also includes applications of spread sheets and relational databases in healthcare settings.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students

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#### **HMI 8574: Health Care Law**

Survey of the function and methods of law as applied to health care administration and health care.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 7471, HMI 8460, HMI 8524. Non HMI students with a Graduate or professional school career may be able to take the course with instructor consent

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#### **HMI 8575: Health Policy and Politics**

Overview and critical analysis of health policy issues in the United States, including how the dynamics of the policy making process have shaped outcomes, successful and unsuccessful, of a number of important policy initiatives.

**Credit Hours:** 3

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#### **HMI 8580: Project Management**

This course is designed to provide an in-depth understanding of the fundamentals of project management and its application to the provision of health care. A problem-based approach is used to frame both the theoretical underpinnings of project management and hands-on practical application. Students will develop an understanding of the foundations of project management designed to enable them to successfully complete the certification exam to become a certified project manager. Course content includes project scope development, project work breakdown, financial control, and human resources management for projects.

**Credit Hours:** 3

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#### **HMI 8610: Consumer Health Informatics**

Consumer health informatics explores the branch of medical informatics that analyzes consumers' needs for information; studies and implements methods of making information accessible to consumers; and models and integrates consumers' preferences into medical information systems.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 or instructor's consent

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#### **HMI 8689: Field Experience in Health Management and Informatics**

Supervised field experience in approved health agencies and institutions. Opportunity for observation and service participation in various fields of health. Graded on an A-F basis only.

**Credit Hours:** 3

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#### **HMI 8810: Research Methods in Informatics**

(same as INFOINST 8810). Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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#### **HMI 8870: Knowledge Representation in Biology and Medicine**

(same as INFOINST 8870). The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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#### **HMI 9440: Technology Evaluation in Health Care Systems Research**

(same as NURSE 9470). Examines technology applications and evaluator methods used to determine outcomes, efficiencies,

effectiveness, satisfaction, and cost of using technology. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410 or faculty consent

**Prerequisites:** 6.0 credit of graduate statistics

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## Health Professions Courses

### HTH\_PR 1001: Topics in Health Professions

Organized study of selected topics in Health Professions. Particular topics and credit may vary each semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 2000: Leadership in Health Care

This course will cover a broad range of concepts in leadership and professional development. Focus will be placed on knowledge and skills necessary for effective leadership in the Health Professions. The first of two semesters series. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructors consent

**Recommended:** to students in specified leadership programs

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### HTH\_PR 2001: Topics in Health Professions

Organized study of selected topics in health professions. Particular topics and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing and instructor's consent

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### HTH\_PR 2960: Special Readings in Health Professions

Directed study of literature and research reports in the health-related professions.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 4085: Problems in Health Professions

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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### HTH\_PR 4250: Human Kinesiology

(same as PH\_THR 4250 and OC\_THR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Application through analysis of daily functional performance, exercise and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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### HTH\_PR 4310: Health Policy for the Health Professional

Seminar to facilitate understanding of health policy, the legislative process, and politics. Emphasis on health professions, including issues of workforce, funding, and advocacy in the context of current health policy issues.

**Credit Hour:** 1-3

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### HTH\_PR 4950: Research Apprenticeship in Health Professions

This course provides undergraduate students in the health professions and related disciplines experience with research in the health professions and related disciplines experience with research in the health professions. Students will assist in the development and execution of research projects under the supervision of an SHP faculty member.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 7001: Topics in Health Professions

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 7300: Health Care in the United States

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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### HTH\_PR 7310: Health Policy for the Health Professional

Seminar to facilitate understanding of health policy, the legislative process, and politics. Emphasis on health professions, including issues of workforce, funding, and advocacy in the context of current health policy issues.

**Credit Hour:** 1-3

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### HTH\_PR 8001: Topics in Health Professions

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 8085: Problems in Health Professions

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 8960: Directed Readings in Health Professions

Selected readings on specific topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Health Psychology Courses

### HLTHPSYC 3100: Applied Behavior Analysis and Autism

Students will learn the behavioral principles and techniques currently employed to help children with autism acquire functional language, appropriate social behavior, and general academic and living skills as well as decrease problematic behaviors. The objectives of this course are to: 1) To identify and describe key features of applied behavior analysis (ABA), particularly as it applies to intervention for children with autism. 2) To identify and describe key issues in curricular design, program development, and evidence-based interventions in autism. 3) To become

familiar with key outcome research in behavioral interventions for children with autism. 4) To become familiar with key research on language, social skills, self-help skills, and problem behavior reduction as these areas relate to the behavioral treatment of autism. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTHPSYC 3500: Research and Practice in Applied Behavior Analysis**

Students will learn about the principles and procedures of applied behavior analysis through weekly reading assignments, discussions, and presentations. Student will gain experience applying this knowledge to improve behavior in a practical setting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTHPSYC 3100

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**HLTHPSYC 8100: Concepts and Principles in Behavior Analysis**

This course will provide an overview of both classic and contemporary theory and research on nonhuman and human learning. We will focus on a behavior-analytic conceptualization of learning and the underlying research on basic processes and operations that result in learning. The readings and class discussions will provide you with a strong foundation in the psychology of learning from a behavioral orientation, with particular emphasis on the relation between biological and environmental contributions to selection of behavior. To effectively produce socially significant behavior change among members of clinical populations, we must approach the task with a thorough understanding of these basic principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Admission to the Graduate Certificate program in Applied Behavior Analysis

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**HLTHPSYC 8200: Advanced Applied Behavior Analysis**

This course provides students with a basic understanding of the fundamentals of behavior analysis and behavioral interventions designed to establish, shape, strengthen and maintain desirable behavior and reduce aberrant behavior. The course focuses on the application of behavioral principles using procedures such as differential reinforcement, extinction, antecedent interventions, and punishment. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTHPSYC 8300: Ethics in Applied Behavior Analysis**

This course provides the student with an in-depth coverage of ethics and professional behavior in applied behavior analysis. This course will help the student become prepared to sit for the Behavior Analyst Certification Board exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Student must be enrolled in the Graduate Certificate in ABA or Master's in ABA program

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**HLTHPSYC 8400: Survey of Applied Behavior Analysis**

This course builds upon the basic principles of learning and applied behavior analysis presented during previous courses in the Behavior Analysis core. The course will offer coverage of the many different applications of behavior analysis (e.g., behavioral medicine, behavioral gerontology, substance abuse, organizational behavior management,

etc.). Finally, this class will cover topics related to professional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTHPSYC 8100 OR HLTHPSYC 8200

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**HLTHPSYC 8800: Practicum in Applied Behavior Analysis**

The Practicum in Applied Behavior Analysis provides practical training in ABA. Graduate students will participate in an intensive practicum that focuses on developing well-rounded training in ABA. Students will work hands on with children at the MU Thompson Center for Autism and Neurodevelopmental Disorders. By the completion of the practicum, students will be well versed in the development of skill building programs as well as behavioral reduction programs that focus on function-based interventions (e.g., functional analyses). Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Students must be enrolled in the Graduate Certificate in ABA or Masters of Science in ABA programs

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## Health Sciences Courses

**HLTH\_SCI 1000: Introduction to the Health Professions**

Overview of clinical/non-clinical health careers; aptitudes/abilities needed for each; the history, current and future state of health care in the U.S: introduction to diverse populations and patient/family issues; Assists with career planning/selection of appropriate majors. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2100: Health Sciences Seminar**

Professional Development course for Health Science Majors. Topics include resume development/ revision , interviewing skills, applying to graduate/professional programs and/or jobs, professional communication, etc. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** sophomore standing required; restricted to Health Science majors only

---

**HLTH\_SCI 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2200W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 3300: Public Health Principles, Practice, and Education**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3300H: Public Health Principles, Practice, & Education - Honors**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 3300W: Public Health Principles and Practice - Writing Intensive**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3310: Social and Behavioral Health Theory and Practice**

Social and Behavioral Health (SBH) is the core discipline of public health that focuses on the factors that influence individuals' and communities health actions and decisions. This course will take both a theoretical and a practical approach to understanding SBH. Students will gain an understanding of theory and develop practical skills to apply theories to real world health issues. Readings, assignments, and discussions will focus largely on ways to understand and change health behaviors and various individual, relational, community, and social-level influences on health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration. Sophomore standing required

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**HLTH\_SCI 3400: Global Public Health and Health Care Systems**

(same as PEA\_ST 3401). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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**HLTH\_SCI 3500: Mental Health**

This course provides a look at mental health problems with regard to influences, etiology, diagnosis, and treatment. Students learn theories of mental health, diagnostic criteria, treatment modalities, and community issues concerning the mental health system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 3600: Health Promotion Programs I: Assessment and Planning**

Health promotion planning is the development and implementation of a well-researched and tailored intervention to increase the health status of an individual and population. This course will provide a comprehensive introduction to health promotion planning and assessment by integrating a solid theoretical foundation of the discipline with hands-on experience in assessing needs, assets and capacity for health education, health education and project planning, funding, intervention development, implementation of health education projects, and evaluation. Special attention placed on implementing health education and promotion programs that are tailored to the particular population in need as well as specialized for the appropriate setting be it school, work, health care clinic, or the community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors during pre-registration

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**HLTH\_SCI 3610: Health Promotion Programs II: Implementation, Evaluation, and Communication**

This course builds on topics covered in Health Promotion Programs I: Assessment and Planning. It will provide a comprehensive introduction to the implementation, evaluation and communication required for successful health promotion programs by integrating a solid theoretical foundation of the discipline with hands-on experience in the

implementation of health promotion program, developing an evaluation and communication strategies for successful health education and health promotion programs in a variety of community-based settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors only

**Corequisites:** HLTH\_SCI 3600

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**HLTH\_SCI 3900: Introduction to The Research Process and Evidence Base**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 3900W: Introduction to The Research Process and Evidence Base - Writing Intensive**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 4001: Topics in Health Science**

Organized study of selected topics. Subjects will vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4300: Health Care in the United States**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4300H: Health Care in the United States - Honors**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 4400: Culture and Health Literacy for the Health Professions**

This course will explore differences and attitudes towards the health care industry across various social, cultural and ability groups. This exploration will result in more culturally competent health professionals by promoting self-awareness and challenging the existing assumptions and biases of the health care system.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**HLTH\_SCI 4410: Humanism and Health Literacy**

This class will teach how the humanities can help students become better health professionals. Topics include: spirituality and health; non-medical factors that impact health; representation of disability in art history; and literature and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4420: Health Literacy and Behavioral Compliance**

Students will learn about the behavioral, psychological, and cognitive factors that impact health literacy and the ability to follow healthcare recommendations.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4480: Clinical Ethics**

Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4480W: Clinical Ethics - Writing Intensive**

Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4500: Health Care Management**

Examines various management concepts as they relate to the unique environment of health care. Concepts include planning, decision making, budgeting, staffing, organizing, and motivating for working with individuals or teams. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100; junior standing

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**HLTH\_SCI 4510: Essential Tools for the Health Care Leader: A Problem-Based Approach**

This course is designed to increase students' ability to evaluate, synthesize, and perform tasks in the areas of business intelligence, business analysis, performance and process improvement, data management and mining, information security and privacy, and project management. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above; HLTH\_SCI 2100. Restricted to Health Sciences Majors Only

**Recommended:** Access to and experience using Microsoft Excel 2010

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**HLTH\_SCI 4975: Internship in Health Sciences**

Focuses on knowledge, skills and attitudes that enhance personal effectiveness and professional success. Opportunities to research selected career paths and related topics in health sciences and participate in directed service learning projects or internships in selected emphasis area. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 4985: Healthcare Organization and Leadership**

(same as CDS 4985). In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100; senior standing required

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## Hebrew Courses

**HEBREW 1100: Elementary Hebrew I**

For beginners with no prior knowledge of Hebrew. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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**HEBREW 1200: Elementary Hebrew II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in HEBREW 1100, or equivalent

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**HEBREW 2001: Topics in Hebrew-General**

Organized study of selected topics. Subjects and topics may vary semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

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**HEBREW 2005: Topics in Hebrew - Humanities**

Organized study of selected topics. Subjects and topics may vary semester to semester. May be repeated with departmental consent. No knowledge of Hebrew required. No language credit.

**Credit Hour:** 1-3

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**HEBREW 3085: Problems in Hebrew**

Supervised study of Hebrew language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HEBREW 3310: Introduction to Israeli Culture**

Examines unique qualities that shape modern Israeli culture; looks at major social and political events that have shaped ethnicity, ideology, religion, identity, and diversity of the State of Israel. Discusses literature, the fine arts, language, and the mass media. No Foreign Language credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**HEBREW 3845: Modern Israeli Film**

(same as FILM\_S 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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## History Courses

**HIST 1004: Undergraduate Topics in History-Social Science**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**HIST 1100: Survey of American History to 1865**

Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

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**HIST 1100H: Survey of American History to 1865 - Honors**

Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1200: Survey of American History Since 1865**

Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

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**HIST 1200H: Survey of American History Since 1865 - Honors**

Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. No credit will be

given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1400: American History**

Broad survey of political, economic, social, intellectual, diplomatic and constitutional development of American people from first English settlements to present day; emphasizes evolution of American culture and institutions. Students may not receive additional credit for HIST 1100 and/or HIST 1200.

**Credit Hours:** 5

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**HIST 1410: African American History**

(same as BL\_STU 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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**HIST 1420: Globalization and History**

This course will explore the contemporary phenomenon of globalization in historical perspective. Our goal will be to help students come to terms with the origins and dynamics of this process, which is transforming our economy and society more rapidly and thoroughly than ever before.

**Credit Hours:** 3

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**HIST 1500: Foundations of Western Civilization**

Development of characteristic ideas and institutions of Western cultural tradition, from origin of civilization in ancient Near East to beginning of rapid social, political, intellectual transformation of Europe in 18th century.

**Credit Hours:** 3

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**HIST 1500H: Foundations of Western Civilization - Honors**

Development of characteristic ideas and institutions of Western cultural tradition, from origin of civilization in ancient Near East to beginning of rapid social, political, intellectual transformation of Europe in 18th century.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1510: History of Modern Europe**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

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**HIST 1510H: History of Modern Europe - Honors**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

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**Prerequisites:** Honors eligibility required

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**HIST 1510HW: History of Modern Europe - Honors/Writing Intensive**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1520: The Ancient World**

Survey of institutional and cultural development of ancient Near East, Greece, Rome, and Asia.

**Credit Hours:** 3

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**HIST 1540: England Before the Glorious Revolution**

Survey of English institutions, culture and politics from the Roman invasion to the Revolution of 1688.

**Credit Hours:** 3

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**HIST 1550: Britain 1688 to the Present**

Surveys British history from 1688 to present. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 1560: The World of the Middle Ages**

Survey of European development from the fall of Rome to the 16th century.

**Credit Hours:** 3

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**HIST 1570: Survey of Early Modern Europe, 1350-1650**

Survey of Western and Central Europe (including Britain) from the Black Death to the end of the Thirty Years' War. This period comprises late medieval crises, the Renaissance, Reformation, Counter-Reformation, Exploration and the New World, the Confessional Age, early modern state-building, and the Thirty Years' War.

**Credit Hours:** 3

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**HIST 1580: History of Christianity**

Origin, diffusion and development of Christianity, with special attention to its influence on Western civilization. Major emphasis on period up to French Revolution.

**Credit Hours:** 3

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**HIST 1590: Women and the Family in the Pre-Modern West**

Examines the changing roles of women and familial structures from the Ancient Mediterranean World to the Protestant Reformation and the effects of religious, political and economic change on the family.

**Credit Hours:** 3

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**HIST 1600: Foundations of Russian History**

A survey of the Kievan and Muscovite period to the end of the 17th century.

**Credit Hours:** 3

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**HIST 1610: Russia in Modern Times**

(same as PEA\_ST 1610). Survey of Russian history from 1801 to present.

**Credit Hours:** 3

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**HIST 1790: History of Early Africa**

(same as BL\_STU 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**HIST 1800: History of Modern Africa**

(same as BL\_STU 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**HIST 1810: History of South Africa**

(same as BL\_STU 1810). Surveys the social, cultural and economic dynamics of South African society from the 16th century to the present with an emphasis on the last two centuries and the consolidation of the apartheid state.

**Credit Hours:** 3

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**HIST 1820: Asian Humanities**

(same as REL\_ST 1820, AR\_H\_A 1230 and S\_A\_ST 1152). This course in an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**HIST 1830: Survey of East Asian History**

(same as KOREAN 1830). Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era.

**Credit Hours:** 3

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**HIST 1840: Colonial Latin America**

Survey of Latin America, 1492-1825; Exploration and conquest; European settlement; colonial government and institutions; economy and society; cultural and intellectual life, independence movements.

**Credit Hours:** 3

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**HIST 1850: Latin America Since Independence**

Political, social and economic developments; nationalism; revolutionary movements; U.S. influence.

**Credit Hours:** 3

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**HIST 1860: History of Ancient India**

(same as S\_A\_ST 1860). This course surveys the history of South Asian history. The course begins with the Indus Valley Civilization (fl. 2600-1900B.C.) and ends with an analysis of Islamic impact on India culture around 1200-1350. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used for the study of premodern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**HIST 1861: History of Modern India**

(same as [S\_A\_ST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**HIST 1862: History of India: 1000-1750**

(same as [S\_A\_ST 1862). This course surveys the history of the South Asian subcontinent from the eleventh through mid-eighteenth centuries. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used to study civilization. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**HIST 1870: Imperial China: China to 1600**

This course offers a broad introduction to Chinese history and culture from antiquity up to the later imperial period (around 1600). It is designed to provide the student with an understanding of the historical development of China's culture, economic, political, and intellectual traditions.

**Credit Hours:** 3

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**HIST 1871: History of China in Modern Times**

This is a lecture course designed to introduce to beginning level students the epic journey of China's historical transformation since c. 1600. This survey provides a basis for understanding the painstaking transition from "tradition" to "modernity" in China.

**Credit Hours:** 3

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**HIST 1872: Mao's China and Beyond: China Since 1949**

Through a series of readings, images, and film we will look at the dramatic cultural, economic, social and intellectual changes the People's Republic of China has experienced since 1949, and look at the interrelated, yet often contradictory, challenges facing Beijing in regards to the task of furthering economic prosperity while promoting policies of integrating with the international society.

**Credit Hours:** 3

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**HIST 2004: Topics in History-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**HIST 2004H: Topics in History-Social Science - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**HIST 2100H: The Revolutionary Transformation of America - Honors**

In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing "the causes which impelled" the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 2120H: The Young Republic - Honors**

This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 2150: The American Civil War: A Global History**

In this class students will study the American Civil War from the perspective of global history. The familiar actors and events will be covered - the debate over slavery, the secession of the South, the rise of Abraham Lincoln, the great battles and generals, etc. But these familiar episodes will take on different meanings when viewed in relation to global structures of politics, economics, social relations, and ideology. The 1860s was at once a formative moment in the history of globalization and the key decade for the formation and consolidation of modern nations.

**Credit Hours:** 3

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**HIST 2210: Twentieth Century America**

Survey of American development from 1900 to present. For students who have not taken advanced courses in American history, especially HIST 4210, HIST 4220, or HIST 4230.

**Credit Hours:** 3

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**HIST 2220: America in the 1960's**

(same as PEA\_ST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

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**HIST 2230: Walt Disney and American Culture**

Examines Walt Disney's influence on shaping of modern American culture.

**Credit Hours:** 3

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**HIST 2400: Social History of U.S. Women**

(same as WGST 2400). This course, the social History of US Women, offers a general overview of US Women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**HIST 2410: African American Women in History**

(same as BL\_STU 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**HIST 2420: Conspiracy Theories and Conspiracies in American History and Culture**

From the Salem witch trials to the present-day obsessions with the JFK assassination, UFOs, and the like, Americans have often embraced conspiracy theories to explain mysterious events and wrenching social changes. The primary objective of the course is to help students deal more intelligently with the conspiratorial fears and political paranoia that pervade modern American culture, by placing them in a broad historical context. Prerequisites: sophomore standing

**Credit Hours:** 3

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**HIST 2430: History of American Religion**

This course focuses on the overall development of American religion from the 17th century to the present. Students will be invited to think about the larger questions concerning American religion, including why religion in America has developed in the way that it has, and how and why it continues to thrive in American popular culture.

**Credit Hours:** 3

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**HIST 2440: History of Missouri**

Survey of Missouri's development from the beginning of settlement to present.

**Credit Hours:** 3

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**HIST 2445: American Constitutional Democracy**

(same as POL\_SC 2445). This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and

economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 2520: From Waterloo to Sarajevo: European History, 1815-1914**

Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**HIST 2520W: From Waterloo to Sarajevo: European History, 1815-1914 - Writing Intensive**

Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**HIST 2530: Ukrainian History from Medieval to Modern Times**

A successor state of the former Soviet Union, Ukraine occupies a strategic position in Eastern Europe. The course will trace the long, turbulent history of this East Slavic nation, culminating the independence in 1991.

**Credit Hours:** 3

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**HIST 2531: Women in Russian History**

This is a survey course which is designed for students who have not previously taken in course in Russian history, and who are interested in how women experienced the period from the formation of the Kievan state in the ninth century to the fall of the Soviet Union in 1991.

**Credit Hours:** 3

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**HIST 2580: Mafia Myth and Reality: The Italian Mafia and the Nation-State, 1860 to the Present**

This course explores contemporary cultural representations of the Mafia in film and literature and grounds these fictional representations in the history of modern Italy. We trace the emergence of the various Mafia networks during the wars of the Risorgimento and the construction of the "southern problem", and the impact transnational Italian migration, the rise of Fascism and the postwar reconstruction had on the form and function of these networks.

**Credit Hours:** 3

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**HIST 2600: Early Christianity**

(same as REL\_ST 2600). History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodoxy Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 2610: Medieval Christianity**

(same as REL\_ST 2610). Study of the doctrinal developments, major theologians and schools, institutional formation and dissolution, mysticism, and liturgical expression within the context of cultural and political history. Beginning with Augustine and concluding with the 15th century. Prerequisites: REL\_ST 2600

**Credit Hours:** 3

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**HIST 2620: History of Christianity, 1500-Present**

(same as REL\_ST 2620). Protestant and Catholic Christianity in age of European expansion; enlightenment; 19th and 20th-century challenges and responses.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2600 and REL\_ST 2610

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**HIST 2630: History of Christian Traditions**

(same as REL\_ST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topics will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy.

**Credit Hours:** 3

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**HIST 2800: Women in Indian History**

(same as S\_A\_ST 2800). This course examines the role of women in Indian (South Asian) history, focusing on women in British India from the eighteenth century up to the Partition of 1947. While previous knowledge of South Asian history may be beneficial, it is not required for this course.

**Credit Hours:** 3

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**HIST 2810: History of Korea: Premodern to Hypermodern**

(same as KOREAN 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history.

**Credit Hours:** 3

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**HIST 2820: Taiwan: The First Chinese Democracy**

This course is an introduction to the history of Taiwan, from the seventeenth century to the present day. This course examines historical development leading to the contemporary situation. It problematizes the notion that "democracy is not suitable for Chinese society."

**Credit Hours:** 3

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**HIST 2904: Black Studies in Slavery and Freedom**

(same as BL\_STU 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours:** 3

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**HIST 2950: Sophomore Seminar**

This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**HIST 2950W: Sophomore Seminar - Writing Intensive**

This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**HIST 3000: History of Religion in America to the Civil War**

(same as REL\_ST 3000). Studies major American religious traditions from the Age of Discovery to the Civil War, especially the evolution of religious practices and institutions and their influence upon American social, intellectual and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3010: Colonial America**

This course will examine major colonial American events from a cultural history standpoint. We will explore the ways in which the famous and not so famous shaped and were shaped by events of the seventeenth and eighteenth centuries and how these people understood the changing meaning of American liberty.

**Credit Hours:** 3

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**HIST 3200: Black Freedom Movement, 1955-1973**

(same as BL\_STU 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours:** 3

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**HIST 3210: History of Religion in Post-Civil War America**

(same as REL\_ST 3210). Surveys major American religious traditions from 1865 to the present. Focuses on the evaluation of religious practices and institutions and their interaction with and influence upon American social, intellectual and political developments.

**Credit Hours:** 3

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**HIST 3220: U.S. Women's Political History, 1880-Present**

(same as WGST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3230: Individualism and Success in Modern America, 1830-Present**

This course explores changing notions of individualism and success in American culture during the 19th and 20th centuries. Standards defining achievement, gain, and happiness for the individual citizen have evolved over time, and we will examine a wide variety of sources - advice literature, essays, novels, historical texts, plays and movies, political and religious texts, social criticism - to analyze this broad evolution. The resulting insights into a variety of historical issues and values, problems and possibilities, promise to forge a deeper understanding of what it has meant to be a successful individual in the United States over the last two hundred years.

**Credit Hours:** 3

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**HIST 3400: Religious Biography: Black Religion**

(same as BL\_STU 3590). Studies black American religion through the biographies of representative and influential figures of the 19th and 20th centuries, including Nat Turner, W.E.B. Du Bois, and Marcus Garvey, M.L. King, Malcolm X.

**Credit Hours:** 3

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**HIST 3420: America's Environmental Experience**

(same as PEA\_ST 3420). Team-taught analysis of American thought and action on physical environment during 19th-20th centuries. Relation between politics, economics, technological change, environmental quality; roles of science, law, regulatory agencies, grassroots action.

**Credit Hours:** 3

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**HIST 3430: Sex Radicals in U. S History**

(same as WGST 3430). Survey of the history of sexuality in the United States.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3485: The United States and the Middle East**

This course will explore the history of American relations with the Middle East. How have U.S. Policy-makers defined American interests in this region? How have they sought to protect and advance those interests? We will consider the cultural stereotypes and assumptions Americans have brought to their relations with the Middle East, and the images of the Middle East that have been projected in American popular culture. Finally, we will explore the ways in which the current political situations in the Middle East reflects the results of past U.S.

**Credit Hours:** 3

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**HIST 3510: The Ancient Greek World**

Political and social institutions, intellectual life of Greek city-states to time of Alexander.

**Credit Hours:** 3

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**HIST 3515: Egypt From Alexander the Great to Cleopatra**

This course deals with the history of Egypt under the Ptolemaic dynasty (323-30 BC) of the Hellenistic period. Its main focus is political and military history, but various social and economic aspects of Egyptian society, as well as the infamous Ptolemaic bureaucracy, are considered,

as well as the literary and scientific output of scholars at Alexandria, the intellectual center of the Hellenistic world.

**Credit Hours:** 3

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**HIST 3520: The Roman World**

Rise and development of Roman institutions, Rome's imperialism and culture through reign of Marcus Aurelius.

**Credit Hours:** 3

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**HIST 3530: The Hellenistic World: From Alexander to Rome**

The achievements of Alexander the Great; political, social, economic development of Hellenistic kingdoms from his death to 31 B. C.

**Credit Hours:** 3

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**HIST 3540: 20th Century Europe**

Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars.

**Credit Hours:** 3

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**HIST 3540W: 20th Century Europe - Writing Intensive**

Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars.

**Credit Hours:** 3

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**HIST 3550: The Origins of Scientific Thought**

This course will trace the evolution of Western science from its Egyptian-Babylonian roots to the "Copernican Revolution" of the mid-sixteenth century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3555: Galileo and His World**

(same as GN\_HON 3230H). The purpose of this course is to evaluate Galileo's contribution to modern science on the basis, primarily, of his actual writings. In the process, we will examine the "Galileo Myth", focusing on the problem of scientific truth and freedom of thought.

**Credit Hours:** 3

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**HIST 3560: The Scientific Revolution: 1550-1800**

This course covers the history of science, or natural philosophy, from late Renaissance to the beginnings of the "Darwinian Revolution."

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3570: European Women in the 19th Century**

(same as WGST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's roles in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3580: Modern Italy, 1815 to the Present**

Political, cultural and social history of Italy since 1815. Looks at how Unification, World War, Fascism, the Cold War, Student protests, the women's movement and the end of the USSR shaped contemporary Italy.

**Credit Hours:** 3

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**HIST 3590: The Early Middle Ages**

This course will focus on the social, political, economic, and cultural development of Europe from roughly 300 to 1050.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3600: The Later Middle Ages**

This course will focus on the social, political, economic, and cultural development of Europe from roughly 1050 to 1500. Prerequisites: sophomore standing

**Credit Hours:** 3

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**HIST 3610: Ireland, 1100s to 1850**

(same as PEA\_ST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3611: Ireland, 1850-1923**

(same as PEA\_ST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**HIST 3612: Ireland, 1920-Present**

(same as PEA\_ST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Prerequisites:** May be restricted to History majors only during preregistration

**Recommended:** HIST 3610 and/or HIST 3611

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**HIST 3624: Comparative Approaches to Black Studies in History**

(same as BL\_STU 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Program consent for repetition.

**Credit Hours:** 3

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**HIST 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as BL\_STU 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Program consent for repetition.

**Credit Hours:** 3

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**HIST 3820: Twentieth Century China**

History of China from Nationalist Revolution of 1911 to present. A problem-oriented course: special emphasis on Mao and Maoist ideology, social, literary and cultural history also receive attention.

**Credit Hours:** 3

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**HIST 3830: Chinese Women's History**

Historical analysis of Chinese women in family, community, ideology, and national politics from the Late Imperial period to the present.

**Credit Hours:** 3

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**HIST 3850: Islam and the West**

(same as PEA\_ST 3850). This course provides a historical intellectual context for the raging debate on Islam and the West. It will discuss how Muslims conceived and reacted variously to the political and cultural challenge the West posed in the nineteenth and twentieth century. It will focus on the discourse on the reception of modernization in Islam. It will highlight the political and cultural energies invested by various Muslim elite communities to distinguish between modernization and Westernization. Islamic fundamentalism, the dominant Islamic expression of our time, will be usefully discussed in the context of this debate and praxis about modernization, authenticity, and Westernization.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing

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**HIST 3860: History of Mexico**

Survey of Mexican history from Cortes to present day.

**Credit Hours:** 3

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**HIST 3870: Social Revolution in Latin America**

(same as PEA\_ST 3870 and SOCIOL 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3

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**HIST 3880: History of Caribbean America**

Comparative regional study of insular and mainland Caribbean nations. Emphasis on modern period. Independence; abolition of slavery; U.S. hegemony; economic, social, and political upheaval.

**Credit Hours:** 3

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**HIST 4000: Age of Jefferson**

Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**HIST 4001: Topics in History-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**HIST 4004: Topics in History-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**HIST 4004H: Topics in History-Social Science - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**HIST 4004W: Topics in History-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**HIST 4010: The Age of Jackson**

This course will examine American Politics, society and culture in the 1820's, 1830's, and 1840's. Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse.

**Credit Hours:** 3

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**HIST 4030: History of the Old South**

Study of the South to 1860.

**Credit Hours:** 3

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**HIST 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as BL\_STU 4040; cross-leveled with HIST 7040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**HIST 4050: American Colonial History to 1760**

Study of colonial America; special emphasis on creation of a native American culture prior to 1760.

**Credit Hours:** 3

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**HIST 4055: Witchcraft in Seventeenth Century New England**

This course explores the social, cultural and intellectual aspects of witchcraft and witch-hunting in seventeenth century New England.

**Credit Hours:** 3

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**HIST 4060: The Period of the American Revolution, 1760-1789**

Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789.

**Credit Hours:** 3

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**HIST 4070: Indians and Europeans in Early America**

A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada.

**Credit Hours:** 3

**Prerequisites:** HIST 1100 or equivalent

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**HIST 4080: American Foreign Policy from Colonial Times to 1898**

(same as PEA\_ST 4080).

**Credit Hours:** 3

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**HIST 4085: Special Problems in History**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4085H: Special Problems in History**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**HIST 4085W: Special Problems in History - Writing Intensive**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4100: American Cultural and Intellectual History to 1865**

Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**HIST 4200: American Cultural and Intellectual History Since 1865**

Tensions and transformations in American culture to the present. Topics include: spiritual crisis in Christianity; rise of welfare state liberalism; socialist and feminist alternatives; literature and the arts.

**Credit Hours:** 3

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**HIST 4210: Origins of Modern America, 1877-1919**

Political, social, economic, and intellectual evolution of America into a modern society, 1877-1918.

**Credit Hours:** 3

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**HIST 4220: U.S. Society Between the Wars 1918-1945**

Detailed examination of American history from end of World War I to end of World War II.

**Credit Hours:** 3

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**HIST 4230: Our Times: United States Since 1945**

Detailed examination of American history from end of World War II to the present.

**Credit Hours:** 3

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**HIST 4235: The Wire: Race, Urban Inequality, and the "Crisis" of the American City**

(cross-leveled with HIST 7235). The HBO series "The Wire", a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, "The Wire" complicates understandings of the "urban crisis" through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**HIST 4240: History of the New South**

Study of the South since 1860.

**Credit Hours:** 3

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**HIST 4250: U.S. Foreign Relations, 1898-1945**

A history of American Foreign Policy from the Spanish American War to the end of World War II.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945 - Present**

(same as PEA\_ST 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4270: African-Americans in the Twentieth Century**

(same as BL\_STU 4270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**HIST 4280: America in the Reagan Years**

Examines the major political, economic, social, and cultural currents and developments of the "Long Eighties," from Jimmy Carter's "malaise speech" of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and renunciation that the era of big government was over.

**Credit Hours:** 3

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**HIST 4310: Adoption, Child Welfare and the Family, 1850-Present**

(same as WGST 4310; cross-leveled with HIST 7310 and WGST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender, race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**HIST 4400: History of American Law**

American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Recommended:** HIST 1100, HIST 1200, or HIST 1400

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**HIST 4410: Introduction to U.S. Social History**

Study of daily life and the ways ordinary Americans experienced historical change. Considers such topics as work, leisure, family and community. Compares how people's experiences varied by region, class, gender, ethnicity, and race.

**Credit Hours:** 3

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**HIST 4415: African Americans and American Justice**

(same as BL\_STU 4415) This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 4415W: African Americans and American Justice - Writing Intensive**

(same as BL\_STU 4415) This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 4420: American Urban History**

Growth, development and implications of the city in American history; historical analysis of urban problems.

**Credit Hours:** 3

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**HIST 4425: The Superhero in American Culture From Washington to Wolverine**

This course aims to help students become better informed and more critical consumers of popular culture by situating a selection of important American works and genres within the historical context of their creation, and in the history of American culture. Students will be challenged to look for historical patterns in popular culture and to consider the particular habits of thought and action that American popular culture seems to reinforce.

**Credit Hours:** 3

**Prerequisites:** HIST 1100 or HIST 1200 or HIST 1400 or HIST 2210

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**HIST 4430: The Great West in American History**

Historical development of major regions, with emphasis on response to environment, public land policy, role of government in economic and resource development, citizen action, and cultural pluralism.

**Credit Hours:** 3

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**HIST 4440: History of the American Environment**

A reading and discussion course exploring diverse responses to the changing American environment from early man to the present, including ecological, institutional, and philosophical aspects.

**Credit Hours:** 3

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**HIST 4445: American Political Economy from the Commerce Clause to the Great Recession**

This course examines the history of the American political economy from the founding of the United States to the recent Great Recession. Scholars of political economy explore the ways in which politics and public policy intersect with economics, such as the operation of the institutions like the tax system, the first and second Banks of the United States in the late 18th and early 19th centuries, and the Federal Reserve after 1913. We will focus on efforts by the U.S. federal government to regulate the American economy and bring economic affairs under the control of the American people and their representatives through a wide variety of political, legal, and institutional mechanisms. A specialized knowledge of economics is not required for this course.

**Credit Hours:** 3

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**HIST 4445W: American Political Economy from the Commerce Clause to the Great Recession - Writing Intensive**

This course examines the history of the American political economy from the founding of the United States to the recent Great Recession. Scholars of political economy explore the ways in which politics and public policy intersect with economics, such as the operation of the institutions like the tax system, the first and second Banks of the United States in the late 18th and early 19th centuries, and the Federal Reserve after 1913. We will focus on efforts by the U.S. federal government to regulate the American economy and bring economic affairs under the control of the American people and their representatives through a wide variety of political, legal, and institutional mechanisms. A specialized knowledge of economics is not required for this course.

**Credit Hours:** 3

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**HIST 4470: Quantitative Methods in Historical Study**

Introduces quantitative approaches to the study of history. Emphasizes opportunities, limitations, and dangers involved in several common forms of quantitative study. Math Reasoning Proficiency Course.

**Credit Hours:** 3

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**HIST 4480: War Crimes and Genocide**

(same as PEA\_ST 4480). This course will explore the development of international law, international consciousness, and U.S. Foreign policy on the two distinct but often related issues of war crimes and genocide during the late 19th and throughout the 20th centuries.

**Credit Hours:** 3

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**HIST 4500: Philip II and Alexander the Great of Macadonia**

Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period.

**Credit Hours:** 3

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**HIST 4510: Crime and Punishment: Law in Classical Athens**

Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures.

**Credit Hours:** 3

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**HIST 4515: Power and Oratory in Ancient Greece**

Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

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**HIST 4520: The Rise and Fall of the Roman Republic**

(cross-leveled with HIST 7520). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

**Credit Hours:** 3

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**HIST 4530: The Roman Empire**

Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

**Credit Hours:** 3

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**HIST 4535: Monastic Worlds**

(same as REL\_ST 4535, MDVL\_REN 4535; cross-leveled with REL\_ST 7535, MDVL\_REN 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount

Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A/F basis only.

**Credit Hours:** 3

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**HIST 4540: The Later Roman Empire**

Political, religious and cultural life in Late Antiquity, from the "soldier emperors," to the barbarian kingdoms and early Byzantium.

**Credit Hours:** 3

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**HIST 4550: Age of the Vikings**

Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** junior standing required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 4550W: Age of the Vikings - Writing Intensive**

Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** junior standing required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 4555: Medieval France**

(cross-leveled with HIST 7555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasis on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Previous coursework in medieval history

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**HIST 4555W: Medieval France - Writing Intensive**

(cross-leveled with HIST 7555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasis on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Previous coursework in medieval history

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**HIST 4560: The Crusades**

Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4570: Intellectual History of Europe, 17th and 18th Centuries**

The Enlightenment's attack on traditional Christian thought and values.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4580: The "Making" of Modern Europe: Identity, Culture, Empire**

(cross-leveled with HIST 7580). This course will explore some of the ideas, institutions and events that shaped modern Western civilization and thought, focusing on Western Europe, but also giving attention to the relationship between the West and the rest of the world. The course will introduce topics such as the rise of, nationalism, the cult of science, scientific racism and sexism, consumer mass culture, fascist ideology, existentialism, psychoanalysis, the modern city, gender and sexuality.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4585: Rome from Fascism to Liberation, 1922-1944**

In this course we will explore the history of Fascism and German occupation in Italy through the city of Rome. We will study how fascism remade Rome, the arrival of the Germans, the history of the Jewish community and the deportations and the resistance.

**Credit Hours:** 3

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**HIST 4610: Early Modern Britain, 1450-1688**

Study of English politics, society, economy, culture, and religion during primarily the Tudor and Stuart eras, from the establishment of the Tudor dynasty (1485) through the Glorious Revolution. Emphasis on social and religious history.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4620: Modern England**

Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 4625: Nature vs. Nurture: The History of a Debate**

(cross-leveled with HIST 7625). The purpose of this course is to explore the debate on nature vs. nurture in human society from the late eighteenth century to the present. The goal of this course is to give biology, history, and social science (including journalism) majors a better understanding of how this debate between nature and culture has played out over the past 250 years, and what impact it has left on biology, the social sciences, and public discourse today.

**Credit Hours:** 3

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**HIST 4630: The Age of the Renaissance**

Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The "Renaissance problem".

**Credit Hours:** 3

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**HIST 4640: The Age of the Reformation**

State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform movements. Protestant-Catholic Reformation. Development of the modern state and international relations.

**Credit Hours:** 3

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**HIST 4645: Witchcraft and Witch Hunting in Pre-Modern Europe**

(cross-leveled with HIST 7645). The surviving evidence indicates that between 1400 and 1700, at least 50,000 women, men, and children were executed for practicing witchcraft. Is there an explanation for this? Does it make any sense in terms of the intellectual, religious, social, political, and economic contexts of this period in European history? Fundamental to this course are the assumptions that there are many, not one, reasonable explanations for witchcraft beliefs and persecutions, and that when studied in terms of the various historical contexts this phenomenon must be understood as an integral part of European society during these centuries.

**Credit Hours:** 3

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**HIST 4650: Revolutionary France, 1789-1815**

Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4660: European Women in the 20th Century**

(same as WGST 4660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4670: From the Holy Roman Empire to the First World War: German History, 1750-1918**

(cross-leveled with HIST 7670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 4670W: From the Holy Roman Empire to the First World War: German History, 1750-1918 - Writing Intensive**

(cross-leveled with HIST 7670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 4680: From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century**

(cross-leveled with HIST 7680). Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany.

**Credit Hours:** 3

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**HIST 4700: Imperial Russia, 1682-1825**

Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I.

**Credit Hours:** 3

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**HIST 4710: The Russian Revolution**

Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed.

**Credit Hours:** 3

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**HIST 4800: Modern China and Japan: War, Imperialism and Memory**

(cross-leveled with HIST 7800). This course examines the interaction between Japan and China since the late nineteenth century in an effort to understand deeper historical reasons behind the rising tension in East Asia at the present time.

**Credit Hours:** 3

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**HIST 4815: African History Through the Digital Medium**

(cross-leveled with HIST 7815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web.

**Credit Hours:** 3

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**HIST 4815W: African History Through the Digital Medium - Writing Intensive**

(cross-leveled with HIST 7815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web.

**Credit Hours:** 3

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**HIST 4840: History of the Mongols**

In the 13th century, the Mongols went from warring tribes to the largest Eurasian empire in history. This course examines the Mongol tribes, Chinggis Khan's unification of the tribes, the Mongols rapid military victories across Eurasian and their equally rapid decline.

**Credit Hours:** 3

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**HIST 4850: Traversing the Muslim World**

(same as S\_A\_ST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4850W: Traversing the Muslim World - Writing Intensive**

(same as S\_A\_ST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential

travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4860: Colonial Masculinity/Colonial Frontier**

(same as S\_A\_ST 4860). This writing intensive seminar-style course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny, and martial race ideology.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4865: Buying Desire: History of Consumption**

(cross-leveled with HIST 7865). This course explores the history of consumption practice in various cultural contexts. The course is divided into four parts: "Masses As Consumers", "Selling/Consuming Cultures", "Consumption as (Postcolonial) Modernity", and "Consumption and the Nation". Under each section are thematically related texts on particular cultural contexts. The reading of ethnographic texts on consumption is to be accompanied by critical discussions that locate consumption within the practices of the nation-state-making and global product-marketing.

**Credit Hours:** 3

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**HIST 4867: North Korea: History, Political Economy, Culture**

(same as KOREAN 4867; cross-leveled with HIST 7867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes.

**Credit Hours:** 3

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**HIST 4870: Southeast Asia Since the Eighteenth Century**

The general objective of this course is to introduce students to the fascinating world of Southeast Asia. We will look at the shared history of commodity, cultural, and religious exchanges that gave this region a collective character, as well as explore the historical conditions from which individual modern Southeast Asian state emerged.

**Credit Hours:** 3

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**HIST 4880: Chinese Migration: From Yellow Peril to Model Minority**

(cross-leveled with HIST 7880). This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities.

**Credit Hours:** 3

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**HIST 4900: Beltway History: American Constitutional Democracy in Theory and Practice**

(same as POL\_SC 4900). This course is an experiential overview of American political history for students participating in the Kinder

Forum's Washington internship program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on the interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

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**HIST 4904: Historical and Contemporary Slavery**

(same as BL\_STU 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**HIST 4910: History in the Public: An Introduction to the Theory and Practice of Public History**

(cross-leveled with HIST 7910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history.

**Credit Hours:** 3

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**HIST 4910W: History in the Public An Introduction to the Theory & Practice of Public History - Writing Intensive**

(cross-leveled with HIST 7910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history.

**Credit Hours:** 3

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**HIST 4940: Internship in History**

Professional training in history and archive-related fields. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4960: Special Readings in History**

Individual work, with conferences adjusted to needs of student.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4970: Undergraduate Seminar in Third World History**

Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4970W: Undergraduate Seminar in Third World History - Writing Intensive**

Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4971: Undergraduate Seminar in European History**

Readings in problems in European history with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4971W: Undergraduate Seminar in European History - Writing Intensive**

Readings in problems in European history with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4972: Undergraduate Seminar in American History**

Readings in selected problems in American history with reports and discussion on selected topics.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4972W: Undergraduate Seminar in American History - Writing Intensive**

Readings in selected problems in American history with reports and discussion on selected topics.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4975: Journal on Constitutional Democracy**

(same as POL\_SC 4975). The Journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current and former participants in the Institute's undergraduate Society of Fellows program. Each volume of the Journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the Journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**HIST 4980: Undergraduate Thesis in History**

Individually directed research leading to a senior thesis.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4981: Undergraduate Thesis in History**

Continuation of HIST 4980.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4981W: Undergraduate Thesis in History - Writing Intensive**

Continuation of HIST 4980.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4995: Honors Thesis in History**

Research and completion of the thesis required for graduation with Honors in History.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4995W: Honors Thesis in History - Writing Intensive**

Research and completion of the thesis required for graduation with Honors in History.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4996: Honors Thesis in History**

Continuation of HIST 4995.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4996W: Honors Thesis in History - Writing Intensive**

Continuation of HIST 4995.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 7000: Age of Jefferson**

Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**HIST 7004: Topics in History - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Graduate students will be expected to complete additional reading and writing assignments commiserate with graduate level course requirements. May be repeated to maximum of 6 hours.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 7010: The Age of Jackson**

This course will examine American politics, society and culture in the 1820's, 1830's, and 1840's. Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse.

**Credit Hours:** 3

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**HIST 7020: United states History from 1800-1860**

American history from the Jeffersonian "revolution" in 1800 to the election of 1860 focuses on major discussion topics including the War of 1812, Jacksonian democracy, the growth of slavery, westward expansion, reform movements, and the coming of the Civil War.

**Credit Hours:** 3

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**HIST 7030: History of the Old South**

Study of the South to 1860.

**Credit Hours:** 3

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**HIST 7040: Slavery and the Crisis of the Union: The American Civil War Era**

(cross-leveled with HIST 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world? Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7050: American Colonial History to 1760**

Study of colonial America; special emphasis on creation of a native American culture prior to 1760.

**Credit Hours:** 3

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**HIST 7060: The Period of the American Revolution, 1760-1789**

Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789.

**Credit Hours:** 3

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**HIST 7070: Indians and Europeans in Early America**

A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada.

**Credit Hours:** 3

**Prerequisites:** HIST 1100 or equivalent

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**HIST 7080: American Foreign Policy from Colonial Times to 1898**

(same as PEA\_ST 7080).

**Credit Hours:** 3

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**HIST 7085: Problems in History**

(same as S\_A\_ST 8085). Individual work not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 7100: American Cultural and Intellectual History to 1865**

Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**HIST 7200: American Cultural and Intellectual History Since 1865**

Tensions and transformations in American culture to the present. Topics include: spiritual crisis in Christianity; rise of welfare state liberalism; socialist and feminist alternatives; literature and the arts.

**Credit Hours:** 3

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**HIST 7210: Origins of Modern America, 1877-1919**

Political, social, economic, and intellectual evolution of America into a modern society, 1877-1918.

**Credit Hours:** 3

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**HIST 7220: U.S. Society Between the Wars 1918-1945**

Detailed examination of American history from end of World War I to end of World War II.

**Credit Hours:** 3

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**HIST 7230: Our Times: United States Since 1945**

Detailed examination of American history from end of World War II to the present.

**Credit Hours:** 3

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**HIST 7235: The Wire: Race, Urban Inequality, and the "Crisis" of the American City**

(cross-leveled with HIST 4235). The HBO series "The Wire", a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, "The Wire" complicates understandings of the "urban crisis" through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7240: History of the New South**

Study of the South since 1860.

**Credit Hours:** 3

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**HIST 7250: U.S. Foreign Relations, 1898-1945**

A history of American Foreign Policy from the Spanish American War to the end of World War II.

**Credit Hours:** 3

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**HIST 7260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as PEA\_ST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

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**HIST 7270: African-Americans in the Twentieth Century**

(same as BL\_STU 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**HIST 7280: America in the Reagan Years**

Examines the major political, economic, social, and cultural currents and developments of the "Long Eighties," from Jimmy Carter's "malaise speech" of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and pronouncement that the era of big government was over.

**Credit Hours:** 3

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**HIST 7310: Adoption Child Welfare and the Family, 1850-present**

(same as WGST 7310; cross-leveled with HIST 4310, WGST 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meanings of adoption since 1850; historical connections between adoption and poverty, family, gender, race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**HIST 7410: Introduction to U.S. Social History**

Study of daily life and the ways ordinary Americans experienced historical change. Considers such topics as work, leisure, family and community. Compares how people's experiences varied by region, class, gender, ethnicity, and race.

**Credit Hours:** 3

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**HIST 7415: African Americans and American Justice**

(same as BL\_STU 7415) This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 7420: American Urban History**

Growth, development and implications of the city in American history; historical analysis of urban problems.

**Credit Hours:** 3

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**HIST 7430: The Great West in American History**

Historical development of major regions, with emphasis on response to environment, public land policy, role of government in economic and resource development, citizen action, and cultural pluralism.

**Credit Hours:** 3

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**HIST 7440: History of the American Environment**

A reading and discussion course exploring diverse responses to the changing American environment from early man to the present, including ecological, institutional, and philosophical aspects.

**Credit Hours:** 3

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**HIST 7470: Quantitative Methods in Historical Study**

Introduces quantitative approaches to the study of history. Emphasizes opportunities, limitations, and dangers involved in several common forms of quantitative study.

**Credit Hours:** 3

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**HIST 7480: War Crimes and Genocide**

This course will explore the development of international law, international consciousness, and U.S. foreign policy on the two distinct but often related issues of war crimes and genocide during the late 19th and throughout the 20th centuries.

**Credit Hours:** 3

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**HIST 7500: Philip II and Alexander the Great of Macedonia**

Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period.

**Credit Hours:** 3

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**HIST 7510: Crime and Punishment: Law in Classical Athens**

Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures.

**Credit Hours:** 3

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**HIST 7515: Power and Oratory in Ancient Greece**

Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HIST 7520: The Rise and Fall of the Roman Republic**

(cross-leveled with HIST 7520). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

**Credit Hours:** 3

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**HIST 7530: The Roman Empire**

Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

**Credit Hours:** 3

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**HIST 7540: The Later Roman Empire**

Political, religious and cultural life in Late Antiquity, from the "soldier emperors," to the barbarian kingdoms and early Byzantium.

**Credit Hours:** 3

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**HIST 7550: Age of the Vikings**

Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** consent required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 7555: Medieval France**

(cross-leveled with HIST 4555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasize on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HIST 7560: The Crusades**

Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages.

**Credit Hours:** 3

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**HIST 7570: Intellectual History of Europe, 17th and 18th Centuries**

The Enlightenment's attack on traditional Christian thought and values.

**Credit Hours:** 3

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**HIST 7580: The "Making" of Modern Europe: Identity, Culture, Empire**

(cross-leveled with HIST 4580). This course will explore some of the ideas, institutions and events that shaped modern Western civilization and thought, focusing on Western Europe, but also giving attention to the relationship between the West and the rest of the world. The course will introduce topics such as the rise of, nationalism, the cult of science, scientific racism and sexism, consumer mass culture, fascist ideology, existentialism, psychoanalysis, the modern city, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7610: Early Modern Britain, 1450-1688**

Study of English politics, society, economy, culture, and religion during primarily the Tudor and Stuart eras, from the establishment of the Tudor dynasty (1485) through the Glorious Revolution. Emphasis on social and religious history.

**Credit Hours:** 3

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**HIST 7620: Modern England**

Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 7625: Nature vs. Nurture: The History of a Debate**

(cross-leveled with HIST 4625). The purpose of this course is to explore the debate on nature vs. nurture in human society from the late eighteenth century to the present. The goal of the course is to give biology, history, and social science (including journalism) majors a better

understanding of how this debate between nature and culture has played out over the past 250 years, and what impact it has left on biology, the social sciences, and public discourse today. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7630: The Age of the Renaissance**

Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The "Renaissance problem."

**Credit Hours:** 3

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**HIST 7640: The Age of the Reformation**

State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform movements. Protestant-Catholic Reformation. Development of the modern state and international relations.

**Credit Hours:** 3

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**HIST 7645: Witchcraft and Witch Hunting in Pre-Modern Europe**

(cross-leveled with HIST 4645). The surviving evidence indicates that between 1400 and 1700, at least 50,000 women, men, and children were executed for practicing witchcraft. Is there an explanation for this? Does it make any sense in terms of the intellectual, religious, social, political, and economic contexts of this period in European history? Fundamental to this course are the assumptions that there are many, not one, reasonable explanations for witchcraft beliefs and persecutions, and that when studied in terms of the various historical contexts this phenomenon must be understood as an integral part of European society during these centuries. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7650: Revolutionary France, 1789-1851**

Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France.

**Credit Hours:** 3

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**HIST 7660: European Women in the 20th Century**

(same as WGST 7660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community.

**Credit Hours:** 3

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**HIST 7670: From the Holy Roman Empire to the First World War: German History, 1750-1918**

(cross-leveled with HIST 4670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 7680: From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century**

(cross-leveled with HIST 4680). Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany.

**Credit Hours:** 3

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**HIST 7700: Imperial Russia, 1682-1825**

Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I.

**Credit Hours:** 3

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**HIST 7710: The Russian Revolution**

Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed.

**Credit Hours:** 3

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**HIST 7800: Modern China and Japan: War, Imperialism and Memory**

(cross-leveled with HIST 4800). This course examines the interaction between Japan and China since the late nineteenth century in an effort to understand deeper historical reasons behind the rising tension in East Asia at the present time.

**Credit Hours:** 3

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**HIST 7815: African History Through the Digital Medium**

(cross-leveled with HIST 4815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web. Prerequisites: Consent of department

**Credit Hours:** 3

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**HIST 7840: History of the Mongols**

In the 13th century, the Mongols went from warring tribes to the largest Eurasian empire in history. This course examines the Mongol tribes, Chinggis Khan's unification of the tribes, the Mongols rapid military victories across Eurasia and their equally rapid decline.

**Credit Hours:** 3

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**HIST 7850: Traversing the Muslim World**

The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**HIST 7860: Colonial Masculinity/Colonial Frontier**

This writing intensive discussion-based course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny, and martial race ideology.

**Credit Hours:** 3

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**HIST 7865: Buying Desire: History of Consumption**

(cross-leveled with HIST 4865). This course explores the history of consumption practice in various cultural contexts. The course is divided into four parts: "Masses As Consumers", "Selling/Consuming Cultures", "Consumption as (Postcolonial) Modernity", and "Consumption and the Nation". Under each section are thematically related texts on particular cultural contexts. The reading of ethnographic texts on consumption is to be accompanied by critical discussions that locate consumption within the practices of the nation-state-making and global product-marketing. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7867: North Korea: History, Political Economy, Culture**

(cross-leveled with HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7870: Southeast Asia Since the Eighteenth Century**

The general objective of this course is to introduce students to the fascinating world of Southeast Asia. We will look at the shared history of commodity, cultural, and religious exchanges that gave this region a collective character, as well as explore the historical conditions from which individual modern Southeast Asian state emerged.

**Credit Hours:** 3

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**HIST 7880: Chinese Migration: From Yellow Peril to Model Minority**

(cross-leveled with HIST 4880). This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities.

**Credit Hours:** 3

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**HIST 7910: History in the Public: An Introduction to the Theory and Practice of Public History**

(cross-leveled with HIST 4910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7990: Economic Analysis of Policy & Regulation**

(cross-leveled with AG\_EC 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Recommended:** Graduate students should have previous coursework in basic econometrics and at least intermediate-level micro economic theory

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**HIST 8000: Studies in American Colonial History**

Readings in American history from beginning of English settlements to adoption of the Constitution. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8001: Seminar in the History of Colonial America**

Directed research in the colonial and revolutionary period of American history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8004: Topics in History-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to maximum of 6 hours.

**Credit Hour:** 1-99

**Prerequisites:** department consent

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**HIST 8010: Studies in American Religious History, 1750-1850**

This class will examine important ideas and trends in the field, with an emphasis on popular religious movements. This is a reading-based seminar, revolving around discussion of influential recent books. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8015: Seminar in American Religious History**

The purpose of this course is for students to write an original work of scholarship, such as might be publishable in an academic journal or serve as a dissertation or book chapter. The field is open to topics in American religious history, including the social, cultural, political and intellectual history of American religion. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8020: Seminar in the Early American Republic**

Directed research in the period 1787-1861. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8021: Studies in the Early American Republic**

This is an intense reading and discussion course designed to give students a crash course in the historiography of this period (emphasizing political culture) as well as practical experience in assimilating themselves quickly to a field. Students must attend and be prepared to participate knowledgeably in each class section. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8022: Studies in the Age of Jackson 1824-1850**

Continuation of HIST 8021, from election of Jackson to Civil War. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8030: Studies in Sectional Controversy, Civil War and Reconstruction**

Directed readings and discussions of major issues in the period of national unification of the United States, from 1850 through 1877. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8031: Seminar in United States Sectionalism, Civil War & Reconstruction**

Directed original research on political and related topics of the period 1848-1877. May be repeated to a maximum of 6 hours.

**Credit Hour:** 3-12

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**HIST 8040: Seminar in Imperial History**

Empires have been the predominant organizing political structure in modern world history (c. 1500-2000). Yet historians mostly structure historical inquiry around nations. This graduate class seeks to redress this imbalance by acquainting students with a diverse selection of the modern Anglophone historiography on empire, as well as giving them the opportunity to develop their own research project on an aspect of imperial history of their choosing. This class is reading and writing intensive, as should be expected of graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8085: Problems in History**

Individual work not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 8089: Masters Research in History**

Work equal to research done for a dissertation, but not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 8090: Masters Research in History**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**HIST 8210: Studies in Recent United States History**

Critical evaluation of writing in American history in period 1929-present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8211: Seminar in Recent United States History**

Advanced seminar in American history from 1929 to present. May be repeated to a maximum of 12 hours.

**Credit Hour:** 1-12

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**HIST 8220: Studies in American Religious History, 1850-2000**

The purpose of this course is to discuss important ideas and trends in the history of American religion from about 1850-2000. This period is currently one of the richest fields in American historical scholarship, and this is particularly the case for American religious history. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent required

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**HIST 8400: Studies in U.S. Women's History**

Reading, discussion, and analysis of the historiography of the field. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8401: Seminar in U.S. Women's History**

Directed research and writing in American women's history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8405: Studies in Gender**

Studies in recent research material focused on the analysis of the intersections of gender, race and class in particular times and places. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8406: The Politics of the Body in Historical Perspective**

This graduate seminar will launch an investigative inquiry into how the body has been conceptualized in the historical past and how it continues to serve as a site of contention. This course will offer an opportunity to introduce students to the major intellectual debates that guide the study of the body and body-related processes in current scholarship. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8410: Independent Readings for History Ph.D. Comprehensive Examination**

Independent readings for Ph.D. Comprehensives.

**Credit Hour:** 1-99

**Prerequisites:** Open only to graduate students formally admitted to candidacy for Ph.D. in history

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**HIST 8415: Studies in African-American History**

(same as BL\_STU 8415). Readings on selected topics in African-American history from 1619 to the present, with emphasis on conflicting interpretations. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8416: Seminar in African-American History**

(same as BL\_STU 8416). Directed research in selected topics in African-American history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8425: Seminar in United States Immigration History**

The course will focus on historiography of American immigration, mainly European immigrants during 1820-1920. Special attention given to books and articles published in the past 25 years. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8432: Studies in Rural Social History of the United States**

This course surveys the historiography of rural social history of the United States using a comparative regional perspective and presenting a chronological overview of the nineteenth and twentieth centuries.

**Credit Hours:** 3

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**HIST 8435: Seminar in American Cultural and Intellectual History**

Directed research and writing in American cultural and intellectual history. May be repeated to maximum of 6 hours.

**Credit Hour:** 1-12

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**HIST 8436: Studies in American Cultural and Intellectual History**

Reading and discussion designed to promote critical understanding of theoretical and historiographical problems in American cultural and intellectual history. May be repeated to maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8440: Studies in American Western and Environmental History**

Readings, class discussion, and written analysis on topics in American Western and environmental history from early settlement to the present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8441: Seminar in American Western and Environmental History**

Directed research in problems in American Western and environmental history. May be repeated to maximum of 6 hours.

**Credit Hour:** 3-6

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**HIST 8445: Studies in World Environmental History**

Readings explore relationship between human agency and environmental change over the courses of world history and on various continents. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8450: Studies in the History of the South**

Group readings and appraisal of controversial interpretations in Southern history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8455: Studies in the History of American Diplomacy**

Readings in evolution of American diplomacy from the Revolution to present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8456: Seminar in Recent American Diplomatic Problems**

Directed research in problems of 20th-century American diplomacy. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8457: Studies in the History of the United States and the World**

This graduate seminar will explore the emerging historiographical field known as "The United States and the World", broadly defined to encompass both the history of U.S. foreign policy and other topics like

the history of trade, immigration, and cultural exchange. This course will focus on historiography and methodology in order to introduce students to the existing literature, assist in preparation for comprehensive examinations, identify major trends in the field, and suggest directions for future research. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8460: Studies in Trans-Atlantic History**

This course examines important historical themes in a trans-Atlantic context. Readings will invite exploration of changes, continuities, contrasts, and causation of similar phenomena on both side of the ocean, in the Americas, Europe, and/or Africa.

**Credit Hours:** 3

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**HIST 8480: Historiography**

Acquaints graduate students with examples of modern historical thought and practice by examining various conceptual approaches to the study of history. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 8510: Seminar in Ancient History**

Readings and research on selected problems in ancient history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8511: Studies in Ancient History**

Reading of standard works and recent scholarship on selected problems in ancient history. May be repeated a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8531: Studies in English History**

Readings in historical literature covering period since 1660; particular reference to new interpretations of political, social developments. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8540: Seminar in Medieval Culture**

Investigates cultural developments in the medieval period. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8541: Studies in Medieval History**

Readings in medieval history and historiography with emphasis on current scholarship. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8542: Seminar in Medieval Paleography**

This course provides an introduction to medieval and Renaissance manuscript-sources and their use as research-tools in a fairly wide variety of sub-fields (e.g., archival study, scholastic text-analysis, vernacular literature). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent and competence in Latin grammar required

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**HIST 8550: Seminar in the Renaissance and Reformation**

Analyzes problems of the period 1300-1600; emphasizes intellectual history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8551: Studies in Early Modern European History**

Readings in historical classics and current scholarship on Renaissance, Reformation, Baroque, and Enlightenment periods. Problem of modernity. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8570: Studies in Modern European History**

Readings in recent research material on selected topics. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8800: Studies in Latin American History**

Readings in standard and recent historical literature, with critical discussion of reports on special topics. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-6

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**HIST 8820: Studies on India in World History**

This course is designed to introduce graduate students to major themes of South Asian history as well as to show how South Asian history may be integrated into world history survey course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent of department required

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**HIST 8830: Studies in Muslim History**

This course is designed to introduce graduate students to major themes in Muslim history, to supplement their current studies, and to provide a background necessary to teach surveys in world history, the modern world, or interdisciplinary studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 9089: PhD Research in History**

Work equal to research done for a dissertation, but not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 9090: PhD Research in History**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Honors-General Courses

**GN\_HON 1010H: Career Explorations**

Colloquia in which experts from both the University and the Columbia communities discuss their specialties and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 1030H: Honors Discussion Groups**

Informal discussion between students and faculty on various academic topics. Graded S/U only.

**Credit Hour:** 1-2

**Prerequisites:** Honors eligibility required

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**GN\_HON 1050H: Honors Seminar**

Freshman-sophomore seminar offering a small group opportunity to write about and discuss basic works chosen by instructor.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1070H: Honors Elective Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1080H: Honors Internship**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2010H: Honors Tutorial**

Small group of students (2-5) engage in collaborative work under faculty guidance. The focus is determined in advance by a faculty member and shaped through discussion with the enrolled students. Course may be repeated for credit. Honors eligibility required

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GN\_HON 2015H: Theory and Practice of Tutoring Writing Seminar**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent

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**GN\_HON 2085H: Honors Problems**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2111H: The Ancient World**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2111HW: The Ancient World - Honors/Writing Intensive**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112H: The Middle Ages and the Renaissance**

The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112HW: The Middle Ages and the Renaissance - Honors/Writing Intensive**

The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment**

The third segment of the Sequence treats the cultural developments in the West from the Baroque to the Enlightenment through Romanticism. The works of Cervantes, Descartes, Milton, Voltaire, Kant, Austen, Goethe, and Dickinson are among those studied. The music and visual arts of these periods are also included.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114H: The Modern Era**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114HW: The Modern Era - Honors/Writing Intensive**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2230HW: Honors Social Science Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2243H: Human Sciences Sequence I: Personal Identity**

This interdisciplinary course approached the perennial but fascinating question of how we define, develop, and present ourselves. It considers this question from a range of disciplinary, regional, and thematic perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2244H: Social Relations**

This interdisciplinary course explores the construction of human identity as it related to social groups (these groups might include anything from the family to fan clubs, sports teams to college students).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2245H: Social Organization**

This course examines various forms of social organization from an interdisciplinary perspective. The course will examine small organizations (such as families and kin networks) that are grounded in face-to-face relationships and then consider the impact of large-scale organizations (such as markets and states). The class will also explore how these larger organizations can hold together in the absence of direct personal connections between members.

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**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2246H: Global Citizenship**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2246HW: Global Citizenship - Honors/Writing Intensive**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2310H: Honors Behavioral Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2450H: Honors Biological, Physical, Math (Computer Science) Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Biological, Physical or Mathematical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2461H: Environment: From Molecules to the Cosmos**

Inquiry-based exploration of how the world was made, environments formed, life evolved, and how it works together to sustain life on Earth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2462H: Energy: From Particles to Civilizations**

Inquiry based exploration of energy, what it is, how it is used, and how it sustains our life on Earth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 1-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 3070H: Honors Electives Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3070HW: Honors Electives Colloquium - Honors/Writing Intensive**

Honors Electives Colloquium - Honors/Writing Intensive.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3112H: Interdisciplinary Topics in the Humanities: Aesthetics and Performance**

Aesthetics and Performance is the 2nd course offered in a four-semester, upper-level Humanities Series. It takes an Interdisciplinary approach to a variety of topics relevant to such disciplines as Art History, Art, Theater, English, and Film Studies. Students will be introduced to key figures, ideas, and texts in aesthetics and performance. The course format will be a combination of guest lectures, small-group discussion, and when possible, team-teaching. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing. Honors eligibility required

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**GN\_HON 3113H: Interdisciplinary Topics in the Humanities: Big Ideas, Big Questions**

Big Ideas, Big Questions is the third course offered in a four-semester, upper-level Humanities Series. It takes an interdisciplinary approach to concepts, theories, debates, and questions central to our understanding of the humanities.

**Credit Hours:** 3

**Prerequisites:** upper-level standing or permission of instructor; Honors eligibility required

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**GN\_HON 3120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3120HW: Honors Humanities Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210H: Honors Behavioral Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210HW: Honors Behavioral Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3230HW: Honors Social Science Colloquium - Honors/Writing Intensive**



**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3241H: Human Nature**

(same as ANTHRO 3340H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3241HW: Human Nature - Honors/Writing Intensive**

(same as ANTHRO 3340H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3242H: Interdisciplinary Topics in the Human Sciences: The Nature of Humans**

This course investigates the dynamic qualities of human experience in psychological, social, and environmental context with a focus on contemporary global issues. Course topics vary by semester but will bridge the social and behavioral sciences to address an overarching question: What makes us human? We will explore the social and behavioral factors that shape our shared human condition as well as those that contribute to diversity in the human experience. We will then investigate the complexities of what it means to be human within the globally interconnected societies we live in today. How do we deal creatively with human diversity in addressing the global problems and uncertainties that confront us? What attitudes, practices, and projects

might help us manage global uncertainties and opportunities more effectively? What is your role in the global community of the twenty-first century? In exploring these questions through intensive reading, writing, research, and discussion, this course will help you develop a global consciousness that is sensitive to the lived textures and realities of places and peoples around the world. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3242HW: Interdisciplinary Topics in the Human Sciences: The Nature of Humans - Honors/Writing Intensive**

This course investigates the dynamic qualities of human experience in psychological, social, and environmental context with a focus on contemporary global issues. Course topics vary by semester but will bridge the social and behavioral sciences to address an overarching question: What makes us human? We will explore the social and behavioral factors that shape our shared human condition as well as those that contribute to diversity in the human experience. We will then investigate the complexities of what it means to be human within the globally interconnected societies we live in today. How do we deal creatively with human diversity in addressing the global problems and uncertainties that confront us? What attitudes, practices, and projects might help us manage global uncertainties and opportunities more effectively? What is your role in the global community of the twenty-first century? In exploring these questions through intensive reading, writing, research, and discussion, this course will help you develop a global consciousness that is sensitive to the lived textures and realities of places and peoples around the world. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3450H: Honors Biological, Physical, Math (Computer Sci.) Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 4070H: Advanced Honors Elective Colloquium**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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**GN\_HON 4070HW: Advanced Honors Elective Colloquium - Writing Intensive**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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**GN\_HON 4950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 2-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Junior standing required. Honors eligibility required

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## Hospitality Management Courses

**HSP\_MGMT 1100: Introduction to Hospitality Management**

An overview of the size, scope, form, analysis and development of various sectors in the hospitality industry. These include hotel, tourism, food and beverage, convention and events, club, cruise, gaming, managed services, and sport venue management. Emphasis will be on the global nature of the industry and its impact on economy and employment. Students will be exposed to career opportunities, cultural diversity, ethical consideration and current trends facing industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to freshman and sophomore students only

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**HSP\_MGMT 2100: Hospitality Law**

Provides an integrated analysis of the legal system as it applies to the hospitality industry. Topics include: theories of recover/liability; employment laws, property rights and contracts, lawsuits and their prevention; familiarization with legal arguments, litigation, ethical issues and the tort of negligence in professional context. Relevant federal and state cases, statutes, and regulations will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2115: Club Management and Operations**

Examines aspects of club operations from a managerial perspective. Topics include: history, types of club and membership systems, club management structure, charter, by-laws; athletic activities, master and club calendars; unique features of club operations including food and beverage operations, human resources management, finances, building and facilities management, external and governmental factors, trends and the future of clubs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2190: Seminar in Professional Development**

A systematic approach to expose students to a journey of self assessment and to develop life-long skills for their careers in the hospitality industry. Using professionalism as a framework, students are made aware of the foundation of effective workplace relationship and how to appropriately manage these relationships toward career success. Topics include self management, workplace relationship, and career planning tools. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100; restricted to Hospitality Management majors only

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**HSP\_MGMT 2200: Fundamentals of Conference and Events Industry**

Overview of the Meeting, Incentive, Convention and Exhibition (MICE) management industry in hospitality and tourism from a macro perspective. The knowledge and information available to conference and meeting business are described and evaluated, including the trend and issues facing the industry, the characteristics of the size and scope of the market, key players, and different sectors in the meeting industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2300: Fundamentals of the Food and Beverage Industry**

An introduction to the macro aspects and a comprehensive overview of the Food and Beverage industry. The course begins with a history of meals away from home and an overview of commercial versus noncommercial food and beverage operations. Detailed considerations are given to components of the food service businesses: size and scope of the industry, major classifications, ownership types, key players, consumer purchasing behavior, quality assurance, trends, challenges, cultural diversity, ethical consideration, and impact of globalization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2400: Fundamentals of Lodging Industry**

Explores the foundations of the global lodging industry. The history of the industry, relationship of tourism, size and scope, classification and types, major global players will be examined. Issues related to the impact of globalization, international hotel investment, development and operations, global competitions, political aspects, human resources and cultural diversity will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2500: Fundamentals of Sport Venue Industry**

An overview of the Sport Venue Industry from a macro perspective. Students will be exposed to the major aspects regarding management of athletic and recreational facilities. Topics will include: history, trends and globalization of sport and venue development, types of sport facilities and major key players, construction and finance, facility systems and operations, sales and marketing, liability and risk management, ticket and box office operation, and event management. Cultural diversity, ethical issues and career opportunities in Sport Venue Management will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 3100: Service Management**

Addresses the essence of delivering memorable guest experience through service management. Topics include concepts of service, guest behavior, perceptions and satisfaction, service compliance standards, assessment methods and service recovery strategies. Students will then learn how to leverage their understanding of these concepts to establish

service culture and strategies to meet organizational goals within the context of hospitality businesses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; restricted to Hospitality Management junior and senior students only

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#### **HSP\_MGMT 3104: Topics in Hospitality Management**

An examination of specific subject matter areas in the field of hospitality management will be addressed. Current issues, trends and challenges will also be discussed. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** HSP\_MGMT 1100; Restricted to Hospitality Management junior and senior students

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#### **HSP\_MGMT 3105: Problems in Hospitality Management**

Students develop problem solving, analytical skills by engaging in a supervised study of a selected field in the hospitality industry. Challenges and issues will be identified and probable solutions will be weighed and evaluated. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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#### **HSP\_MGMT 3115: Management of Gaming Operations**

An overview, analysis of gaming management and financial elements unique to operating gaming businesses. Topics include: History and development of gaming, economic relationships, social impact, legal and changing competitive environments, consumer behavior and psychological forces, corporate culture and technology, revenue control, and promotion and marketing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; Restricted to Hospitality Management junior and senior students only

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#### **HSP\_MGMT 3200: Conference and Meeting Management**

Addresses the different operational aspects regarding convention and meeting planning management. Students will be exposed to skill-based knowledge pertaining to meeting and event planning, implementation and management. Topics discussed to include group business market, the role of the event planner, the various techniques and services used to meet their needs. Food and beverage, technology used, legal issues, social responsibility, and international aspects in the convention and meeting industry will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2200; Restricted to Hospitality Management junior and senior students only

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#### **HSP\_MGMT 3300: Food Production Management**

Explore the production and service aspects of the food and beverage businesses. It will examine principles of concept development, menu planning, pricing and costing, forecasting, standardize recipe and testing, purchasing, food sanitation and safety, quantity food production, delivery of service, inventory control, quality assurance, professionalism and team work. Students will rotate through the different functions of the "front" and "back of the house" of a food facility. This supervised student-operated facility enables students to apply theories to the actual food service operation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; Restricted to Hospitality Management juniors and seniors only

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#### **HSP\_MGMT 3310: Food Service Budgeting and Controls**

Examines management systems and techniques in the food and beverage industry. Topics include: effective use and control of food, beverage, and labor costs to manage a company's operations, with emphasis on computer applications, problems solving and analytical skills, making sound financial decisions, and excellence in customer service. This is a Math Reasoning Proficiency course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100, MATH 1100.; Restricted to Hospitality Management junior and senior students only

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#### **HSP\_MGMT 3315: Banquet and Catering Management**

Engage in the management of service and production systems in catering operations and banquet facilities. An emphasis will be placed on the fundamentals of communication and planning with event coordinators, menu planning, sales and marketing, food and beverage cost control, guest service standards, quantity food productions, food safety, needs and challenges of catering both on and off premises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; Restricted to Hospitality Management junior and senior students only

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#### **HSP\_MGMT 3320: Beverage Management**

Explore and analyze operational and managerial elements of the bar and beverage industry. Topics include: alcoholic versus non-alcoholic beverage, beverage menu development, pricing strategy and costing, sensory evaluation, food and beverage pairing, marketing and promotion, inventory control, training of personnel, legal aspects of responsible service of alcohol. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300.; Restricted to Hospitality Management junior and senior students only

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#### **HSP\_MGMT 3400: Lodging Operations and Management**

Exposes students to the principles of managing lodging businesses regarding the fundamental principles, hows and whys of management. Topics include: Analysis of the functions of each department, organization structure, inter-relationship among various departments of a lodging facility, property management system, safety and security, guest service and satisfaction, and total quality issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400

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#### **HSP\_MGMT 3420: Technology Applications in the Lodging Industry**

Survey of the technology applications, issues, and trends in the lodging industry. The role of technology in operations and as a strategic tool to achieve competitive advantage will be examined. Students will need to have a good grasp of how to best implement information technology that will impact the future of their organizations. Current technology issues of

interest and importance to the industry will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 3500: Sport Venue Operation Management**

Examines the various operational dynamics and management of sport venues and facilities. Topics such as public versus private ownership and governance structures, facility planning and feasibility study, design and construction, event planning, programming and execution, sales and marketing, box office operations, and financial management will be addressed. Ethical issues, legal responsibilities, risk and security management will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3993: Field Training in Hospitality Management**

Applies theories into actual industry setting. Aspects such as career paths, team work, inter-relationship in the workplace and professionalism are explored. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 4100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4100W: Hospitality Human Resources Management - Writing Intensive**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4110: Hospitality Sales and Marketing Management**

(cross-leveled with HSP\_MGMT 7110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4180: Strategic Management in the Hospitality Industry**

Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think "out-of-the-box" in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3100 and MANGMT 3000. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4190: Trends in Hospitality Management**

To keep abreast of the development that affects current managerial practices, this course is a survey of key trends and critical issues that impact the hospitality industry. Best practices, opportunities and challenges facing the industry will also be discussed. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100 and open to Hospitality Management students only

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**HSP\_MGMT 4200: Destination Management**

(cross-leveled with HSP\_MGMT 7200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2200. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4280: Special Events Management**

Synthesis of theories and a comprehensive guide in understanding, planning, promoting and producing and managing special events. Topics

include: Event design, feasibility studies, legal compliance, promotion, safety and security, logistics, staffing, financial control and technology. It is based on a systematic, step-by-step approach to event planning, implementation, and management. This course requires a considerable amount of teamwork. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3200. Open Hospitality Management senior students only

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**HSP\_MGMT 4280W: Special Events Management - Writing Intensive**

Synthesis of theories and a comprehensive guide in understanding, planning, promoting and producing and managing special events. Topics include: Event design, feasibility studies, legal compliance, promotion, safety and security, logistics, staffing, financial control and technology. It is based on a systematic, step-by-step approach to event planning, implementation, and management. This course requires a considerable amount of teamwork. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3200. Open Hospitality Management senior students only

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**HSP\_MGMT 4380: Managing Food Service Businesses**

Students explore the market positioning and the management of the student-run food service operation from concept development to execution. Students will apply knowledge gained from marketing, human resources and operational budgeting to develop their themes and execute their meals. Students will hone their problem solving, leadership and interpersonal skills while engaging in team building. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3300. Open to Hospitality Management senior students only

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**HSP\_MGMT 4380W: Managing Food Service Businesses - Writing Intensive**

Students explore the market positioning and the management of the student-run food service operation from concept development to execution. Students will apply knowledge gained from marketing, human resources and operational budgeting to develop their themes and execute their meals. Students will hone their problem solving, leadership and interpersonal skills while engaging in team building. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3300. Open to Hospitality Management senior students only

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**HSP\_MGMT 4400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 7400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100, FINANC 2000. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4480: Advanced Lodging Management**

Apply, integrate, and synthesize previously learned knowledge, skills, and experience to solve real problems that the lodging industry faces. Specifically, managerial responsibilities, organizational structures and current trends will be examined. Throughout the class students will develop their professional identity, leadership skills and confidence to participate in the workforce. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3400. Open to Hospitality Management senior students only

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**HSP\_MGMT 4480W: Advanced Lodging Management - Writing Intensive**

Apply, integrate, and synthesize previously learned knowledge, skills, and experience to solve real problems that the lodging industry faces. Specifically, managerial responsibilities, organizational structures and current trends will be examined. Throughout the class students will develop their professional identity, leadership skills and confidence to participate in the workforce. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3400. Open to Hospitality Management senior students only

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**HSP\_MGMT 4500: Management and Promotion of Live Entertainment**

Examines the various media used to promote venues, events and live entertainment. Topics include: Artist management, budgets and financial management, insurance, liabilities, contracts and riders, event production and tour scheduling, sport communication, and community relations. In particular, emphasis will be on the use of social media platforms in promotions, public relations, and other revenue generating activities of the industry. The principles of organizational advocacy, press conferences, and crisis communication plans will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500, open to Hospitality Management students only

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**HSP\_MGMT 4515: The Business of Sport Venue Management**

Focuses on the business aspects of managing athletic and recreational venues. The course examines the management and financial tools that managers use to run their sport venues and businesses. Traditional and innovative methods of revenue acquisition, financial business structure, sponsorship and forecasting processes as it pertains to the effective management of venues and sport organizations are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4580: Sport Venue and Facility Management**

Applies previously learned principles and concepts of sport venue management and develop critical planning and organizational skills required of sport venue managers. The course will address three main modules: Security and risk management, the sport venue, and the sport

event. The security and risk management module will examine efficient best practices and how they can significantly reduce the occurrence of injury and loss at sports venues and events. The sport venue and event modules will integrate concepts of venue planning, construction and operations; and event conception, planning, execution and reconciliation through case study analysis. Ethical considerations will also be stressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3500. Open to Hospitality Management seniors only

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**HSP\_MGMT 4580W: Sport Venue and Facility Management - Writing Intensive**

Applies previously learned principles and concepts of sport venue management and develop critical planning and organizational skills required of sport venue managers. The course will address three main modules: Security and risk management, the sport venue, and the sport event. The security and risk management module will examine efficient best practices and how they can significantly reduce the occurrence of injury and loss at sports venues and events. The sport venue and event modules will integrate concepts of venue planning, construction and operations; and event conception, planning, execution and reconciliation through case study analysis. Ethical considerations will also be stressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3500. Open to Hospitality Management seniors only

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**HSP\_MGMT 4993: Internship in Hospitality Management**

Students apply concepts and theories from their coursework to practical work experiences in the hospitality industry, under the direction of industry professionals and faculty evaluation. It is the student's responsibility to secure an internship position and all internship experience must have prior approval from his/her advisor. In addition to the field experience, students will develop their problem solving and analytical skills through projects that are operational in nature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**HSP\_MGMT 7100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 4100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7110: Hospitality Sales and Marketing**

(cross-leveled with HSP\_MGMT 4110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality

businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7180: Strategic Management in the Hospitality Industry**

(cross-leveled with HSP\_MGMT 4180). Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think "out-of-the-box" in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**HSP\_MGMT 7200: Destination Management**

(cross-leveled with HSP\_MGMT 4200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7390: Optimization and Management of Food and Agriculture Systems**

(same as F\_S 7390 and AG\_S\_M 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 4400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Human Development And Family Studies Courses

### **H\_D\_FS 1520: Drop-In Child Care Programs**

Examination of appropriate planning for and experience in a drop-in child care program.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 or equivalent and instructor's consent

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### **H\_D\_FS 1600: Foundations of Family Science**

Introduction to family studies discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**Credit Hours:** 3

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### **H\_D\_FS 1600H: Foundations of Family Science - Honors**

Introduction to family studies discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **H\_D\_FS 1610: Intimate Relationships and Marriage**

Examination of issues pertaining to intimate and marital relationships such as relationship foundation and dissolution processes, love, sex, behavioral scripts, and conflict. Diversity related to race, ethnicity, gender, and sexual orientation is explored.

**Credit Hours:** 3

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### **H\_D\_FS 2085: Problems in Human Development and Family Science**

Graded on S/U basis only.

**Credit Hour:** 1-30

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### **H\_D\_FS 2200: Research Methods in Human Development and Family Science**

Introduction to research methods in the social sciences. Emphasis on both qualitative and quantitative methods, as well as applied research and program evaluation.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### **H\_D\_FS 2300: Multicultural Study of Children and Families**

Study of cultural variation in family life around the world and within America (e.g.: African-American, Hispanic American). Attention is paid to the external conditions that affect the internal workings of these families.

**Credit Hours:** 3

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### **H\_D\_FS 2400: Principles of Human Development**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 3

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### **H\_D\_FS 2400H: Principles of Human Development - Honors**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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### **H\_D\_FS 2400HW: Principles of Human Development - Honors/ Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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### **H\_D\_FS 2400W: Principles of Human Development - Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000

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### **H\_D\_FS 2450: Human Sexuality Across the Life Span**

An introductory survey of human sexuality including gender, love and intimacy, sexual expression and variation, sexual orientation, contraception, pregnancy and birth, sexually transmitted infections, sexual coercion, and sex in society. Sexuality within the context of intimate relationships across the life course will be emphasized.

**Credit Hours:** 3

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### **H\_D\_FS 2510: Observation, Assessment, and Curriculum Planning**

This course is fundamental for students in the emphasis area Child Development and Education and for other students planning to engage in work that requires observing young children to plan curriculum and assess their development.

**Credit Hours:** 4

**Prerequisites:** H\_D\_FS 2400

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### **H\_D\_FS 3050: Child Development: Birth to 3 (Infant/Toddler)**

Child development from birth to age 3. Topics include growth patterns; influences of disabilities and risk factors; environmental factors and attachment; language acquisition; brain development; cognitive and social-emotional development; and perceptual and sensory motor skills. Some course content overlaps with H\_D\_FS 3500.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFs, Pre-HDFs, and Education majors during Early Registration

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### **H\_D\_FS 3085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 3090: Research Experience in Human Development and Family Science**

Student training and engagement in research with a H\_D\_FS faculty member. Students learn about the research process and methods, and develop research skills (e.g., data collection, entry, coding, analysis) through hands-on work. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200; instructor's consent

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**H\_D\_FS 3150: Child Development 4-8 (Early Childhood)**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3150W: Child Development 4-8 (Early Childhood) - Writing Intensive**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3250: Introduction to Early Childhood Education in a Mobile Society**

Role of a professional as a teacher, administrator, or advocate in early childhood programming. Topics include professionalism and ethics; identifying child abuse; the role of an early childhood educator; program models and working with children and professional colleagues.

**Credit Hours:** 3

**Prerequisites:** enrollment restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3350: Child Guidance and Classroom Environments**

Examines developmentally appropriate practice in child guidance. Current guidance methods and programs will be covered. Students will develop their own approach to guidance based upon course content.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3420: Early and Middle Childhood**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for

more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3420W: Early and Middle Childhood - Writing Intensive**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3430: Adolescence and Young Adulthood**

Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 3440: Adulthood and Aging**

Examination of biological, cognitive, psychological and social changes experienced across adulthood.

**Credit Hours:** 3

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**H\_D\_FS 3450: Health, Safety and Nutrition**

Topics include planning, promoting, and maintaining health and safe learning/care environments; understanding childhood illnesses and establishing healthy lifestyles; performing first aid; and maintaining care providers' health and safe relationships with others; identifying and reporting child abuse; nutrients for life; and safe food preparations.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains Idea Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3500: Infant-Toddler Practicum**

Practical experience working with infants and toddlers, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social/emotional, creative and motor development; and staff and family relationships in child care settings. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3050 or H\_D\_FS 3420 or instructor's consent

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**H\_D\_FS 3530: Foundations of Community-Based Programs for Children and Youth**

Examines non-academic community-based programming for children and youth. Experience working with these age groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 or equivalent or instructor's consent



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**H\_D\_FS 3550: Technology and Young Children**

Students will learn how electronic technology impacts the development of young children in educational, home and community environments, and how technology can be used to enhance teaching and learning.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3600: Partnering with Parents and Families**

Examination of stages of parenthood, caregiving styles, and the impact of relationships and culture on caregiving and its challenges. Development of applied skills working with parents and families in a service learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2400

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**H\_D\_FS 3650: Diversity in the Lives of Young Children and Families**

In this course, students will explore cultural diversity in daily life and beliefs in families with young children. The focus is on U.S. families, with attention to the multiple cultures from which they come. Course content overlaps with H\_D\_FS 2300. Not recommended for students to enroll in both courses. Students may not receive credit for both H\_D\_FS 3650 and H\_D\_FS 2300.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 3700: Preschool Practicum**

Practical experience working with children ages 2.5-5 years of age, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social and emotional, creative, and motor development, and family and staff relationships in a child care setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3150 or H\_D\_FS 3420 or instructor's consent

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**H\_D\_FS 3720: Student Teaching Prekindergarten**

Experience working with children (2-5 years), using general guidance principles and methods for fostering creativity.

**Credit Hours:** 6

**Prerequisites:** H\_D\_FS 3420 or equivalent and instructor's consent

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**H\_D\_FS 3730: Field Training Practicum**

Field training experiences under supervision. May be repeated for credit. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** advisor's consent

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**H\_D\_FS 3750: Working with Families**

This course focuses on application of an ecological model to the understanding of variation in parental roles, perspectives, approaches, and challenges. The course also provides an overview of effective communication strategies and parent education programs. Course

content overlaps with H\_D\_FS 3600. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 3600 and H\_D\_FS 3750.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 3800: Children's Play**

This course is an examination of the complex phenomenon of play in children's lives. Emphasis is placed on the value of play in developmental, social, and cultural contexts. Topics include the exploration of play theories and supporting empirical evidence, play materials, various environments, violence and conflict resolution, and therapeutic uses of play. Observation and assessment of children at play and analysis of play environments is required.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400, H\_D\_FS 3420, PSYCH 2410 or ESC\_PS 2500 or equivalent, junior standing. Enrollment is restricted to H\_D\_FS and Pre H\_D\_FS majors during preregistration period

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**H\_D\_FS 3950: Practicum I: Child Observations in Classroom Environment**

Opportunity for Early Childhood Education teacher candidates to have a guided learning experience in a professional agency that provides services to children and families. Some course content overlaps with LTC 4110.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE); H\_D\_FS 3050, H\_D\_FS 3150, H\_D\_FS 3250, H\_D\_FS 3350 and H\_D\_FS 3450

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**H\_D\_FS 3960: Readings in Human Development and Family Science**

Readings in recent research; critical discussions.

**Credit Hour:** 1-30

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**H\_D\_FS 4001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-6

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**H\_D\_FS 4085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 4090: Advanced Research in Human Development and Family Science**

Advanced training and engagement in research with a H\_D\_FS faculty member. Student develops research skills (e.g., data collection, entry, coding, analysis) and works semi-independently on own research project. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 and H\_D\_FS 3090; instructor's consent

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**H\_D\_FS 4100: Children in Health Care Settings**

Overview of the medical conditions and treatments commonly encountered by children and adolescents in health care settings and their typical reactions to them. Introduction to the philosophy and the role of the child life profession.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400 and H\_D\_FS 3420, or equivalent. Restricted to Human Development and Family Studies and Pre- Human Development and Family Studies majors during pre-registration period

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**H\_D\_FS 4110: Child Life Theory and Practice**

Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3420, H\_D\_FS 3500 or H\_D\_FS 3700, and instructor's consent

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**H\_D\_FS 4130: Child Life Practicum**

Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 4150: Development of Curriculum for Children Ages Birth to 3**

Students will learn and use assessment and documentation to inform curriculum; plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages birth to 3.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4200: Latino/a Youth and Families**

Current issues in theory, methods, and research in U.S. Latino/a youth and families are examined from a social and developmental psychological perspective. The course is an advanced level study, with a particular focus on history, theories, methods, research, and applied social issues. Topics will include, parenting, siblings, youth development and adjustment, stress, risky behaviors, gender issues, assessment, study design, cultural values, intervention programs, and immigration issues.

**Credit Hours:** 3

**Prerequisites:** Pre-H\_D\_FS and H\_D\_FS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400

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**H\_D\_FS 4250: Development of Curriculum for Children 4-8**

Students will learn and use assessment and documentation to inform curriculum, plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages 4-8.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4300: Black Families**

(same as BL\_STU 4300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the Black family.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent, and junior standing

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**H\_D\_FS 4350: Assessing Young Children and their Environments**

Use of appropriate assessment tools for children birth to 8. Using data to inform decisions about teaching and intervention. Emphasis on the ethical use of assessments, validity of assessments, multicultural sensitivity and assessment for children with special needs.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4400: Childhood Death and Bereavement**

An exploration of issues that arise for children and families when facing life-threatening illness and death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400, H\_D\_FS 3420 and instructor's consent. Restricted to HDFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 4420: Environmental Influences on Lifespan Cognition**

This course covers the change and growth of cognition through the lifespan with particular attention to how the environment influences cognition (including perception, language memory, attention executive functions, and problem solving).

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS Majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400 and H\_D\_FS 3420

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**H\_D\_FS 4450: Understanding and Adapting for Developmental Differences**

This course focuses on knowledge of disability conditions, assessment and identification, interventions in inclusive environments, and collaborations among service providers.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4550: Practicum II: Child Observations in Classroom Environments**

Practicum in ECE is an opportunity for teacher candidates to have a guided learning experience in a professional agency that provides services to children and families, and allows teacher candidates to have the opportunity to use and implement theories and practices. Course content overlaps with LTC 4110. Not recommended for students to enroll in both courses.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 4570: Development and Administration of Child Services Programs**

The development of leadership and management skills for administering community-and hospital-based programs for children. Includes an overview of office policy and procedure, staff and volunteer management, public relations, budgeting, accounts, accountability, and quality assurance.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-HDFS and HDFS Majors. Must have also completed H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400 and H\_D\_FS 3700

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**H\_D\_FS 4610: Stress and Resilience in Families**

Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4620: Family Interaction**

Analysis of intrafamilial interaction from a systems perspective; includes comparative study of family paradigms, family subsystems, goals, and resources, boundaries, and patterns of feedback.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4630: The Process of Divorce**

Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies are considered.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4640: Interpersonal Relationships**

In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students are introduced to the field of close relationships.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4650: Administration/Supervision in Early Childhood Settings**

Exploration of issues surrounding the administration of ECE programs including identification of community needs, analysis of business opportunities, evaluation and appropriate use of quality programming, consideration of policy and equal responsibilities, and professionalism. Course content overlaps with H\_D\_FS 4750. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 4650 and H\_D\_FS 4750.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 4655: History of the Family in Russia**

Survey of family relations in Russia from the Kievan period. Materials drawn from child development and family studies, education, history, sociology, and literature.

**Credit Hours:** 3

**Prerequisites:** 3 hours in Social/Behavioral Sciences

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**H\_D\_FS 4655H: History of the Family in Russia - Honors**

Survey of family relations in Russia from the Kievan period. Materials drawn from child development and family studies, education, history, sociology, and literature.

**Credit Hours:** 3

**Prerequisites:** 3 hours in Social/Behavioral Sciences. Honor eligibility required

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**H\_D\_FS 4680: Family Communication**

(same as COMMUN 4520). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**H\_D\_FS 4700: Children and Families in Poverty**

Study of the extent, distribution, and implications of poverty on children and families. Examination of myths and realities, social conditions, policies, and programs that contribute to or reduce poverty and its consequences.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4720: Child and Family Advocacy**

Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement. There will be sections restricted to H\_D\_FS majors and to Education majors. The H\_D\_FS section will be for 3 credits and the Education will be for 2 credits.

**Credit Hour:** 2-3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4740: Parent-Child Relations Over the Life Course**

Examines the development, continuities, transitions, and discontinuities of parent-child relationships over the life course. Considers the influence of parents on children and children on parents.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent

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**H\_D\_FS 4750: Practicum III: Capstone Experience**

This is a 15-week experience allowing the student to demonstrate practical application of developmentally appropriate early childhood teaching techniques and skills, teaching experience and developmental feedback. Includes observation and evaluation of classroom experience. Course content overlaps with H\_D\_FS 3700 and LTC 4170. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 4750 and H\_D\_FS 3700 or H\_D\_FS 4750 and LTC 4170.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). H\_D\_FS 3950, H\_D\_FS 4150, H\_D\_FS 4250, H\_D\_FS 4350, H\_D\_FS 4450 and H\_D\_FS 4550

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**H\_D\_FS 4800: Program and Curriculum Design for FACS Education in Middle and Secondary Schools**

What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2010 and SPC\_ED 2020 or equivalent. Admission to Phase II, and instructor's consent

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**H\_D\_FS 4820: Assessment in Family and Consumer Sciences Education**

What should a teacher do to determine the extent to which program/lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design.

**Credit Hours:** 2

**Prerequisites:** admission into Phase II, H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 4830: Methods of Teaching FACS in Middle and Secondary Schools**

What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations.

**Credit Hours:** 3

**Prerequisites:** admission into Phase II, and instructor's consent

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**H\_D\_FS 4940: Field Experience in Family and Consumer Sciences**

Students will observe and assist in FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 4941: Field Experience in Family and Consumer Sciences**

Students will be involved in real-world experiences in a FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4830; requires instructor's consent

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**H\_D\_FS 4942: Student Teaching FACS in Middle and Secondary Schools**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLSH 1000, admittance to Phase III, and instructor's consent

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**H\_D\_FS 4942W: Student Teaching FACS in Middle and Secondary Schools - Writing Intensive**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLSH 1000, admittance to Phase III, and instructor's consent

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**H\_D\_FS 4970: Families and Lifespan Development Capstone**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**H\_D\_FS 4970W: Families and Lifespan Development Capstone - Writing Intensive**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**H\_D\_FS 4971: Child Development and Education Capstone**

Practical experience working with young children (up to 10) in out-of-home care facilities. Program planning for children and working with parents. Lab hours required.

**Credit Hours:** 9

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3500 and H\_D\_FS 3700, or equivalent and instructor's consent

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**H\_D\_FS 4993: Internship in Human Development and Family Science**

Internships or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 or equivalent and instructor's consent

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**H\_D\_FS 7001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 7085: Problems**

Independent work on special problems in human development and family studies. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 7100: Children in Health Care Settings**

Overview of the medical conditions and treatments commonly encountered by children and adolescents in health care settings and their typical reactions to them. Introduction to the philosophy and the role of the child life profession.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400 and H\_D\_FS 2420 or equivalent

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**H\_D\_FS 7110: Child Life Theory and Practice**

Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 and H\_D\_FS 3500 and instructor's consent

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**H\_D\_FS 7130: Child Life Practicum**

Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 7200: Latino Families and Youth**

This course will cover the critical integration of theoretical, methodological, and empirical issues in Latino psychology using a cross-cultural, cross-ethnic perspective, including the increased sensitivity to issues and challenges facing Latino families and youth from a social science perspective. There will be a particular focus on selected topics in social and developmental psychology, as well as, understanding the relevance to other areas of study, to policy contexts, and to applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. The course will consist primarily of seminar discussions based on the textbook and additional readings. Students will lead class discussions based on the readings and their QRCs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 7231: Foundations of Youth Development**

This course provides an introduction to the field of youth development and the professions that include youth work. This course is designed to provide a foundation of knowledge that students will need to begin any course in the Great Plains IDEA Youth Development programs. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hour:** 1

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**H\_D\_FS 7233: Basic Grant Development and Management**

This course introduces students to grant development and management. This short-course is not intended to cover all aspects of grant

development and management, but it will help students gain confidence in their grant development abilities and inspire them to learn more.

Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7252: Adult Development**

This course presents a life-span, multidisciplinary developmental framework that considers sociohistorical influences, individual differences, and concern for promoting optimal functioning. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7253: Physical Health and Aging**

This course identifies the basic physiologic changes during aging and their effects on health and disease. The focus will be on successful aging with special emphasis on physical activity and nutrition. Practical application to community settings is addressed. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7255: Aging Policy**

Policy development in the context of the economic status of the elderly populations. Retirement planning and the retirement decision; Social Security and public transfer programs for the elderly; intrafamily transfers to/from the elderly; private pensions; financing medical care for the elderly; prospects and issues for the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7256: Environments and Aging**

Examination of attributes of physical environments that support special needs of older people and application of this knowledge to the design and management of housing, institutional settings, neighborhoods and communities. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7257: Aging and the Family**

Theories and research related to personal and family adjustments in later life affecting older persons and their inter-generational relationships. Related issues including demographics are also examined through the use of current literature. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7259: Mental Health and Aging**

Student is introduced to the range of issues utilizing several theoretical perspectives and the systems framework. Major mental, emotional, and psychiatric problems encountered in old age are examined, along with normal processes of aging individual's personality, mental and brain functions. Priority given to students in the Great Plains Idea Group master's and certificate programs.

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**Credit Hours:** 3

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**H\_D\_FS 7260: Women and Aging**

Women and aging is the study of theory, research and application of issues related to women and the aging experience. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7261: Biological Principles of Aging**

This course will give an overview of the normal aging process of the human body systems, environmental factors influencing normal aging, diseases and disorders associated with aging. A special topics unit will include but is not limited to interviews and observations dealing with the aging process in humans. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7262: Long-Term Care Administration**

Provides information for persons interested in leadership role in long-term care, or for those considering careers intersecting with senior living organizations. Also considers long-term care options. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7300: Black Families**

(same as BL\_STU 7300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the black families.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent

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**H\_D\_FS 7400: Childhood Death and Bereavement**

An exploration of issues that arise for children and families when families when facing terminal illness or death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400 and H\_D\_FS 3420

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**H\_D\_FS 7470: Problems of Development in Multicultural Context**

Within the context of socio-cultural diversity, this course covers developmental problems from conception to early adulthood. Theoretical and empirical contributions to classification, assessment, intervention, and public policy are emphasized.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400, H\_D\_FS 1600, H\_D\_FS 2300, and H\_D\_FS 3420, or instructor's consent

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**H\_D\_FS 7500: Developing Plans of Care for Community-Dwelling Older Adults**

This applied course focuses on conducting geriatric assessments across multiple domains in order to develop holistic plans of care for older adults. Designed for students with some familiarity with the large age-graded

income and health programs (e.g., Social Security, Medicare), the course examines the broad range of community resource programs designed to support more specific medical, psychosocial, and functional needs. Although service delivery varies by community, students will be trained to seek out those that are locally provided, up to and including resources providing a transitional bridge to respite and long-term care services. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Bachelor or Master's degree in Human Services, Social Work, Mental Health, Nursing, Physical Rehabilitation, or Psychology. Must be enrolled in Graduate Certificate in Geriatric Care Management Program

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**H\_D\_FS 7520: Ethical, Legal, and Business Considerations in Geriatric Care Management**

This applied eight-week course addresses multiple issues that geriatric care managers must consider in their work with the vulnerable older population. Topics include the ethics of care management, developing cultural and spiritual competencies, legal requirements in both the fee-for-service and nonprofit settings, as well as business aspects for those considering independent practice in this growing field, including national certification. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 7500, H\_D\_FS 8012 and H\_D\_FS 7510; Bachelor or Master's degree in human services, social work, mental health, nursing, physical rehabilitation or psychology required; must be enrolled in Graduate Certificate in Geriatric Care Management program

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**H\_D\_FS 7570: Program Development and Administration**

(cross-leveled with H\_D\_FS 4570). The development of leadership and management skills for administering community-based early childhood programs for children and their families. Includes an overview of early childhood standards; budgeting, funding and financial matters; developing, equipping, and staffing a center; recruiting children and families; curriculum; health, safety, and nutrition; volunteer and staff development, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400 and H\_D\_FS 3500 or H\_D\_FS 3700; Restricted to H\_D\_FS majors only

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**H\_D\_FS 7583: Personal Financial Issues of Older Adults**

(same as FINPLN 7583). Principles and practice of personal finance relevant to assessing and improving the financial security of older individuals. Topics covered include sources of income, management of cash flow, credit use and abuse, risk exposure, investment management, housing, and financial planning. Financial vulnerabilities of seniors will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Bachelor or Master's degree in human services, social work, mental health, nursing physical rehabilitation or psychology; must be enrolled in Graduate Certificate in Geriatric Care Management program. May be repeated for credit

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**H\_D\_FS 7600: Resilience in Families**

Exploration of the evolution of a resilience approach to the study of families and human development. Using a lifespan approach, students

will explore resilience across time as well as within special populations such as families experiencing crisis and trauma, culturally diverse families, and military families. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7610: Stress and Resilience in Families**

Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

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**H\_D\_FS 7630: The Process of Divorce**

Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies will be considered.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, and H\_D\_FS 2200 or equivalent; or instructor's consent

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**H\_D\_FS 7640: Interpersonal Relationships**

In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students will also be introduced to the field of close relationships.

**Credit Hours:** 3

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**H\_D\_FS 7650: Family Crisis Intervention**

Individuals and families in crises are examined. Focus is on grief and loss, substance abuse, family violence, and suicidal ideation. Examination of evidence-based preventions and treatments and community resources for those affected by stress, trauma, and crises. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7690: Family Resource Management**

Survey course of personal finance and family resource management literature to provide an overview of how individual and family members develop and exercise their capacity to obtain and manage resources to meet life needs. Resources include the self, other people, time, money, energy, material assets, space, and environment. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7720: Child and Family Advocacy**

Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement. There will be sections restricted to Human Developmental and Family Studies majors and to Education majors. The Human Developmental and Family Studies section will be for 3 credits and Education will be for 2 credits.

**Credit Hour:** 2-3

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**H\_D\_FS 7750: Physical Function and Older Adults**

(same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7800: Program and Curriculum Design for FACS Education in Middle and Secondary School**

What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2010 and SPC\_ED 4020 or equivalent. Admission to Phase II, and instructor's consent

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**H\_D\_FS 7820: Assessment in Family and Consumer Sciences Education**

What should a teacher do to determine the extent to which program/ lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design.

**Credit Hours:** 2

**Prerequisites:** admission into Phase II, H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 7830: Methods of Teaching FACS in Middle and Secondary Schools**

What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations.

**Credit Hours:** 3

**Prerequisites:** admission into Phase II, and instructor's consent

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**H\_D\_FS 7940: Field Experience in Family and Consumer Sciences Education**

Students will observe and assist in FACS classroom.

**Credit Hour:** 1

**Corequisites:** H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 7941: Field Experience in Family and Consumer Sciences**

Students will be involved in real-world experiences in a FACS classroom.

**Credit Hour:** 1

**Corequisites:** H\_D\_FS 4820, H\_D\_FS 4830, and instructor's consent

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**H\_D\_FS 7942: Student Teaching FACS in Middle and Secondary Schools**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hours:** 15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, instructor's consent

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**H\_D\_FS 8001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 8012: Family Dynamics and Intervention**

(same as NURSE 8010). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**H\_D\_FS 8085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8087: Seminar in Human Development and Family Science**

Seminar in selected topics in human development and family science.

**Credit Hour:** 1-99

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**H\_D\_FS 8090: Research in Human Development and Family Science**

Independent research not leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 8100: Foundations and Principles of Family and Community Services**

This course provides an introduction to the field of family studies and related professions that involve working with individuals and families in communities. This course is designed to provide a foundation of knowledge that students will need in the Great Plains IDEA family and Community Services program. This course is organized around theory, research, and practice of Family Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8110: Developmental Perspectives on Health and Illness**

Seminar on child and adolescent development as applied to illness and hospitalization, with a focus on applying psychosocial research and theory in work with pediatric populations. Graded on A-F only. May be repeated for credit.

**Credit Hours:** 3

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**Prerequisites:** instructor consent; coursework in human development and experience with pediatric populations

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**H\_D\_FS 8200: Research Methods in Human Development and Family Science**

Examination of the rationale for conducting scientific research; various research methods pertinent to the study of individuals over the life span, close relationships, marriages, and families; hypothesis formulation; selection of appropriate designs, instrumentation, and analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8210: Theories of Human Development**

Major theories of life span human development. Attention given to structure, content, and major research critiqued for theoretical strengths.

**Credit Hours:** 3

**Prerequisites:** 6 hours of 300-level Behavioral Sciences courses or instructor's consent

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**H\_D\_FS 8220: Family Theories**

Reviews existing family theories, their assumptions, values, propositions, and applications. Examines processes of theory testing and construction and linkages between theory and research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8221: Gerontechnology**

Population aging is combining with technological advancement to create and change the world of modern older people, their families, and their communities. This course takes an interdisciplinary approach to the understanding of the biological, environmental, and social spheres where technology and gerontology meet. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8222: Creativity and Aging**

What happens to creativity as a person ages? This unique class will help students to understand developmental and pathological changes in the brain that can lead to changes in creative output over time. Through hands-on experiences and direct association with older adults, students will grow an appreciation for creativity produced and inspired by older people. This course is intended to provide experiences that will help the student to be able to create art programs for older adults. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8231: Management and Leadership**

This course serves as an overview of management and leadership concepts related to the operational and administrative competencies necessary in effective community-based family and youth organizations and agencies. It is designed to provide students with foundational skills and knowledge to manage day-to-day functions related to organizational systems such as human resource management, financial management, risk management, strategic planning, governance and advisory structures, and marketing. Graded on A-F basis only.

**Credit Hours:** 3



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**H\_D\_FS 8232: Youth Professionals as Consumers of Research**

This course will help youth development professionals understand and evaluate the quality of research reports. Students will learn the basics of quantitative and qualitative research approaches that will enable them to understand, evaluate, and critique research articles reported in newspaper, journals or other sources. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8234: Adolescents and their Families**

This course explores adolescent development in the context of the family. The bi-directional influences between adolescents and their families will be examined. Implications for professionals working with youth and families will be explored and highlighted. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8235: Administration and Program Management**

This course introduces students to the development, administration and management of youth-serving organizations. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8236: Federal and State Policies that Impact Youth Development**

This course examines various federal and state policies that effect developmental opportunities for youth. Course participants will also examine not only how policies are developed, but also why. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8237: Youth Cultures and the Cultures of Youth**

This course examines the cultural contexts that affect youth from within and outside the family. Students will study social, ethnic, and educational processes that affect youth, and they will examine how history has shaped the current cultural climate of the U.S. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8238: Program Design, Implementation and Evaluation**

The course will discuss program design, implementation, and outcome evaluation. This course will focus on planning, designing logic models, and evaluating program. Students will evaluate a community-based project.

**Credit Hours:** 3

**Prerequisites:** graduate standing required. Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8239: Community Youth Development**

This course focuses on community youth development from a strength-based or developmental asset approach. This approach encompasses both individual development and interrelationships with

social environments. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8240: Youth Development**

This course introduces the developmental period of adolescence. Emphasis will be on developmental tasks of this life stage and influences of family and home, school, peers and other contextual forces. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8251: Perspectives in Gerontology**

An overview of current aging issues including the prevailing focus of gerontology theory and research, critical social and political issues in aging, the interdisciplinary focus of gerontology, career opportunities, and aging in the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8253: Physical Health in Aging**

This course identifies the basic physiologic changes during aging and their effects on health and disease. The focus will be on successful aging with special emphasis on physical activity and nutrition. Practical application to community settings is addressed. Priority given to students in the Great Plains Idea Group master's and certificate program.

**Credit Hours:** 3

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**H\_D\_FS 8254: Gerontology Research Methods and Program Evaluation**

Overview of program evaluation, research methods and grant writing in gerontology. Includes application of quantitative and qualitative methods in professional settings. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8258: Professional Seminar in Gerontology**

An integrative experience for gerontology students designed to be taken near the end of the degree program. By applying knowledge gained in earlier course work, students strengthen skills in ethical decision-making behavior, apply these skills in gerontology-related areas such as advocacy, professionalism, family and workplace issues.

**Credit Hours:** 3

**Prerequisites:** Completion of all other gerontology program coursework. Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8300: Advanced Seminar on Multicultural Families**

Advanced study of multicultural (racial, ethnic, social) families within American society. Attention is focused on each group's unique cultural heritage and social environment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8400: Programs for Young Children**

An examination of program models that serve as a framework for curriculum in programs for children birth through age 5.

**Credit Hours:** 3

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**H\_D\_FS 8420: Cognitive Development**

(same as PSYCH 8420). Study of the development of reasoning, perception and language.

**Credit Hours:** 3

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**H\_D\_FS 8430: Temperament and Personality Development**

(same as PSYCH 8430). Intended for graduate students in psychology and related fields. This course is a survey of theory and research in the area of temperament and personality development, with emphasis on child development. Prerequisite: instructor's consent.

**Credit Hours:** 3

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**H\_D\_FS 8440: Social and Emotional Development**

(same as PSYCH 8440). Seminar on emotional and social development in children, with focus on research and theory on the impact of various family, school, and societal factors.

**Credit Hours:** 3

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**H\_D\_FS 8450: Adolescence and Emerging Adulthood**

Seminar on development during adolescence and emerging adulthood from biological, cognitive, psychosocial, and cultural perspectives, and with a focus on health-related attitudes and behaviors.

**Credit Hours:** 3

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**H\_D\_FS 8460: Life Course Perspective**

Seminar on the life course perspective, an interdisciplinary approach to the study of lives over time and the interplay between human lives and social institutions. Deals with how individual lives are shaped by social change and social structure.

**Credit Hours:** 3

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**H\_D\_FS 8470: Identity Development**

Uses an Eriksonian framework to explore research regarding developmental tasks related to identity, such as attachment, self-esteem, moral behavior, achievement, and the formation of an abstract sense of self. Also considers such issues as gender identity, ethnic identity, and sexual identity.

**Credit Hours:** 3

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**H\_D\_FS 8500: Prosocial and Moral Development**

The course objective is to increase the understanding of the study of morality from psychological and developmental perspectives and the critical integration of theoretical, methodological, and empirical issues in moral psychology. It will also cover understanding the relevance of moral concepts and findings to other areas of study, policy contexts, and applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** Instructor's consent

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**H\_D\_FS 8510: Parenting Education**

Study of theories, models, research and skills regarding parenting effectiveness and parent-child relations in the context of Western and Eastern cultures. Included are comparisons of the relative strengths and weaknesses of various parenting approaches, historical perspective on parenthood and children, parenting roles, strategies for contemporary parenting, developmental interaction from infancy through adulthood and selected special concerns of parents. A Bio-Ecological Systems approach will be utilized in this course. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8520: Lifespan Development**

This course covers the human development including the cognitive, social-emotional, motor, language, and moral domains from both a lifespan and a bio-ecological perspective. Course content focuses on the major theories of development as well as current research on the micro-macro interrelationship. Students who complete this course will have a better understanding of individual human developmental processes and their relationship with context and within family and community matters. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8610: Remarriage & Stepfamilies: Development, Dynamics, & Intervention**

The processes of remarriage and reconstituted family dynamics; special developmental needs and intervention models will be studied. The impact on children is considered.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8620: Work and Family**

Study of the interaction between paid labor, unpaid labor, and the American family. Heavy concentration is placed on the roles gender, race, and history play in the workplace and in the home.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8630: Gendered Relations in Families**

(same as WGST 8630). From a feminist perspective, the roles of gender in shaping family life experience and of family life experience in shaping gender will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8640: Family Interaction**

Examination of intrafamilial interaction. Includes an overview of theories used to study family interaction, critical review of the assessment of family interaction; and examination of contemporary research on family interaction focusing on intra and inter-generational relationships.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2200 or equivalent; or instructor's consent

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**H\_D\_FS 8710: Children, Families and Public Policy**

Seminar on societal issues relating to children and families, with focus on the development of public policies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8770: Poverty**

Implications of poverty for child, adult, and family functioning. Poverty-related policies and programs.

**Credit Hours:** 3

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**H\_D\_FS 8960: Readings in Human Development and Family Science**

Readings in recent research; critical evaluation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8972: Internship in Human Development and Family Science**

Internships and/or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 9090: Research in Human Development and Family Science**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 9100: Teaching Practicum**

Supervised experience in teaching various audiences, including college students, professionals, and community residents. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9130: Writing Research Proposals: Skill Building**

(same as NURSE 9132) This course teaches the components of writing a research proposal for external funding. Graded on S/U basis only

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 9200 and graduate level statistics course; instructor's consent; PhD Students only

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**H\_D\_FS 9131: Responsible Conduct of Research in Health and Social Sciences**

(same as NURSE 9131). This course examines professional research ethics including the rights of human subjects. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**H\_D\_FS 9200: Advanced Research Methods in Human Development and Family Science**

(same as NURSE 9410). Examination of issues related to the study of individuals and their families: measurement, designs, and interpretation of

statistical analyses. Statistics are placed in perspective through readings and discussions of the relationships between theory, research design, and data analyses.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 8200 or instructor's consent

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**H\_D\_FS 9210: Research Practicum in Human Development and Family Science**

Independent research activities in conjunction with faculty. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9400: Macro Social Theory**

(same as SOC\_WK 9400). An in-depth examination of human development and social environmental theories appropriate to social welfare practice in formal organizations, interorganizational combinations, communities, and larger political entities. Students may not receive credit for both H\_D\_FS 9400 and SOC\_WK 9400.

**Credit Hours:** 3

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**H\_D\_FS 9420: Qualitative Methods**

(same as NURSE 9420). Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**H\_D\_FS 9550: Meta Analysis Research**

(same as NURSE 9550). Examines quantitative synthesis including research questions, search strategies, coding issues, meta-analysis statistical procedures, and interpretation of findings. Emphasizes conceptual understanding and practical methods. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites:** 6 hours of graduate statistics; H\_D\_FS 9200 or graduate level quantitative methods course

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**H\_D\_FS 9560: Qualitative Systematic Reviews**

(same as SOC\_WK 9560 and NURSE 9560). Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 9420 or equivalent

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**H\_D\_FS 9700: Social Welfare Policy Seminar**

(same as SOC\_WK 9700) Critical examination of comparative models of social policy development; preparation of a professional social work policy analysis in the student's area of interest/specialization.

**Credit Hours:** 3

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## Industrial And Manufacturing Systems Courses

### IMSE 1000: Introduction to Industrial Engineering

Introduction to industrial engineering profession, the Industrial and Manufacturing Systems Engineering department, and the core topics of industrial engineering. Introduction to problem solving, ethics and industrial engineering design and analysis techniques.

**Credit Hour:** 1

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### IMSE 1010: Experimental Course

For freshman-level students. Content and credit to be listed in the Schedule of Courses.

**Credit Hour:** 1-99

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### IMSE 1087: Undergraduate Seminar

Seminars are held monthly to provide a forum for departmental communication of upcoming opportunities (jobs, speakers, deadlines, etc.), speakers from industry to provide educational context, and student interaction. Required every semester of enrollment for graduation. Graded on S/U basis only.

**Credit Hours:** 0

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### IMSE 2030: Fundamentals of Systems Design and Analysis

Develop an understanding of a systems approach to the design and operation of modern industrial organizations: systems structure and function, system specification, structured problem solving and system design methodology.

**Credit Hours:** 3

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### IMSE 2110: Probability and Statistics for Engineers

Introduction to data analysis, probability concepts, random variables, parameter estimation and hypothesis testing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500. Restricted to Engineering Students who are non-IMSE majors

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### IMSE 2210: Linear Algebra for Engineers

Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700

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### IMSE 2410: Introduction to Information Technologies

A survey of current technologies and their use. Different technologies will be reviewed. Examples: web search strategies, common application tools, searching and sorting on the WWW, upcoming trends and directions in information technologies. This is a web-based self-study course with instructor's guidance.

**Credit Hour:** 1

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### IMSE 2710: Engineering Economic Analysis

Fundamentals of engineering economic decision making. Includes time value of money, breakeven analysis, capital budgeting, replacement, after-tax analysis, inflation, risk, sensitivity analysis and multi-attribute analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### IMSE 2810: Performance Measurement and Ergonomics

Design of man-machine systems considering capabilities and limitations of the human component. Method of measuring human performance in man-machine systems; includes lab.

**Credit Hours:** 3

**Prerequisites:** IMSE 2110

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### IMSE 3001: Topics in Industrial and Manufacturing Systems Engineering

Current and new technical developments in industrial engineering. May be repeated to 6 hours.

**Credit Hour:** 0-4

**Prerequisites:** instructor's consent

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### IMSE 3030: Manufacturing and Supply Systems

Provide a structured approach for the design and optimization of a system throughout its lifecycle: techniques following the logical sequence of strategic analysis, system design, implementation, and monitoring.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030

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### IMSE 3110: Probability Models for Engineers

Introduction to probability concept and theory, random variables, discrete and continuous probability distributions, joint probability distributions.

**Credit Hours:** 3

**Prerequisites:** MATH 1500. Restricted to IMSE students only

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### IMSE 3810: Ergonomics and Workstation Design

Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students and ENGINR 1200

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### IMSE 3810W: Ergonomics and Workstation Design - Writing Intensive

Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students and ENGINR 1200

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**IMSE 4001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 4085: Problems in Industrial Engineering**

Supervised investigation in industrial engineering presented in form of an engineering report.

**Credit Hour:** 1-4

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**IMSE 4110: Engineering Statistics**

Understanding and application of statistical analysis techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE).

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. Grade of C- or better in IMSE 3110

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**IMSE 4210: Linear Optimization**

(cross-leveled with IMSE 7210). Theory and application of linear optimization.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. Grade of C- or better in IMSE 2210

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**IMSE 4220: Optimization Modeling and Computational Methods**

(cross-leveled with IMSE 7220). Modeling and solution techniques for mathematical optimization, including linear, nonlinear, integer, and stochastic programming. Emphasis on formulation of models for most-efficient use of solution algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 3110, IMSE 4210

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**IMSE 4230: Operations Research Models**

Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. Grade of C- or better in IMSE 2210 and IMSE 3110

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**IMSE 4280: Systems Simulation**

Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. INFOTC 1040 or CMP\_SC 1050. Grade of C- or better in IMSE 4110

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**IMSE 4310: Integrated Production Systems Design**

Design and operation of production systems, including lean six sigma concepts, just-in-time/kanban, facility layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4210, IMSE 4280

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**IMSE 4330: Material Flow and Logistics System Design**

Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 and IMSE 4280

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**IMSE 4350: Production and Operations Analysis**

Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4210 and IMSE 4230

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**IMSE 4360: Supply Chain Engineering**

(cross-leveled with IMSE 7360). Modeling and analysis of supply chain network design and management issues including integration of production, inventory control, supplier selection, risk management and logistics network design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4350

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**IMSE 4380: Six Sigma Methodology**

(cross-leveled with IMSE 7380). An overview of the Six Sigma DMAIC methodology for analyzing and improving processes. Requires completing a Six Sigma Green Belt project. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in IMSE 2110 or IMSE 4110 or STAT 4710

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**IMSE 4385: Lean Six Sigma Green Belt Project**

Application of the Lean Six Sigma methodology in an industry-based project. **Prerequisites:** IMSE 4310

**Credit Hour:** 1

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**IMSE 4410: Management Information Systems Design**

MIS concepts and management issues, HTML for web pages and eShop (front-office operations), back-office operations using relational databases, introduction to SQL.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. INFOTC 1040 or CMP\_SC 1050 and junior standing required

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**IMSE 4420: Web-Based Information Systems**

Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410 and instructor's consent

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**IMSE 4550: Computer Aided Design and Manufacturing**

(cross-leveled with IMSE 7550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 4

**Prerequisites:** Restricted to IMSE students; Junior Standing

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**IMSE 4560: Introduction to Rapid Prototyping**

(cross-leveled with IMSE 4560). Course covers all five MU systems: FDM, SLS, SLA, Polyjet, 3DP. Students will learn fundamental rapid prototyping and related concepts, and design and produce models from each system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**IMSE 4570: Computer Integrated Manufacturing Control**

Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking.

**Credit Hours:** 3

**Prerequisites:** Junior Standing

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**IMSE 4580: Industrial Energy Efficiency and Management**

(cross-leveled with IMSE 7580). Introduction to the fundamentals of industrial energy efficiency and management. Covers the essential concepts, best practices, management systems and current standards to achieve and improve energy efficiency in industrial settings, and utilizes hands-on experiences involving real assessment and analysis of industrial site visits and projects.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030 or instructor's consent

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**IMSE 4610: Engineering Quality Control**

Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4110

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**IMSE 4750: Entrepreneurial Innovation Management: Enterprise Conception**

(same as MANGMT 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**IMSE 4755H: Entrepreneurial Innovation Management: Enterprise Conception-Honors**

Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Honors eligibility required

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**IMSE 4760: Entrepreneurial Innovation Management: Enterprise Design**

(same as MANGMT 4760). Expand on IMSE 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes.

**Credit Hours:** 3

**Prerequisites:** IMSE 4750

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**IMSE 4765H: Entrepreneurial Innovation Management: Enterprise Design-Honors**

(same as MANGMT 4765H). Expand on IMSE 4755H business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes.

**Credit Hours:** 3

**Prerequisites:** IMSE 4755H. Honors eligibility required

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**IMSE 4770: Entrepreneurial Innovation Management: Enterprise Operations**

(same as MANGMT 4770). Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Prerequisites: Junior Standing

**Credit Hours:** 3

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**IMSE 4775H: Entrepreneurial Innovation Management: Enterprise Operations-Honors**

Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery.

**Credit Hours:** 3

**Prerequisites:** Junior Standing. Honors eligibility required

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**IMSE 4810: Cognitive Ergonomics**

(cross-leveled with IMSE 7810). This course will cover the study of empirical research in Cognitive ergonomics and Human-Computer Interaction (HCI). Students will learn cognitive information processing, mental workload, human reliability, and empirical methods in HCI research. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior or senior level undergraduate students

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**IMSE 4910: Industrial Engineering Internship**

An industry-based learning experience that provides opportunities to apply industrial engineering skills, concepts and theories in a practical context. Requires submission of an internship plan for prior approval and a final oral presentation / written report at the completion of the internship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor and departmental consent

**Recommended:** junior standing

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**IMSE 4920: Industrial Engineering COOP**

An industry-based learning experience that provides opportunities to apply industrial engineering skills, concepts and theories in a practical context. Requires submission of a COOP plan for prior approval and a final oral presentation / written report at the completion of the COOP. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor and departmental consent

**Recommended:** junior standing

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**IMSE 4970: Capstone Design I**

Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to IMSE students; Senior Standing, IMSE 2030; IMSE 2710

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**IMSE 4970W: Capstone Design I - Writing Intensive**

Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to IMSE students; Senior Standing, IMSE 2030; IMSE 2710

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**IMSE 4980: Capstone Design II**

Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering curriculum. Must immediately follow IMSE 4970.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE student; IMSE 3810, IMSE 4310, and IMSE 4970

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**IMSE 4980W: Capstone Design II - Writing Intensive**

Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering curriculum. Must immediately follow IMSE 4970.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE student; IMSE 3810, IMSE 4310, and IMSE 4970

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**IMSE 4990: Undergraduate Research in Industrial Engineering**

Independent investigation or project in industrial engineering. May be repeated to 6 hours.

**Credit Hour:** 0-6

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**IMSE 4995: Undergraduate Research Industrial Engineering - Honors**

Independent investigation or project in industrial engineering. May be repeated to 6 hours. Enrollment limited to receiving departmental honors

**Credit Hour:** 0-6

**Prerequisites:** Restricted to IMSE students only

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**IMSE 7001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 7110: Engineering Statistics**

Understanding and application of statistical analysis of techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE).

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 3110

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**IMSE 7210: Linear Optimization**

(cross-leveled with IMSE 4210). Theory and application of linear optimization.

**Credit Hours:** 3

**Prerequisites:** IMSE 2210

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**IMSE 7220: Optimization Modeling and Computational Methods**

(cross-leveled with IMSE 4220). Modeling and solution techniques for mathematical optimization, including linear, nonlinear, integer, and stochastic programming. Emphasis on formulation of models for most-efficient use of solution algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 3110, IMSE 4210

---

**IMSE 7230: Operations Research Models**

Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 2110 and IMSE 3110

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**IMSE 7280: Systems Simulation**

Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 4110, INFOTC 1040 or CMP\_SC 1050

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**IMSE 7310: Integrated Production Systems Design**

Design and operation of production systems, including lean production concepts, just-in-time / kanban, facility layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210, IMSE 4280

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**IMSE 7330: Material Flow and Logistics System Design**

Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210, IMSE 4280

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**IMSE 7350: Production and Operations Analysis**

Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 and IMSE 4230

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**IMSE 7360: Supply Chain Engineering**

(cross-leveled with IMSE 4360). Modeling and analysis of supply chain network design and management issues including integration of production, inventory control, supplier selection, risk management and logistics network design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4350

---

**IMSE 7380: Six Sigma Methodology**

(cross-leveled with IMSE 4380). An overview of the Six Sigma DMAIC methodology for analyzing and improving processes. Requires completing a Six Sigma Green Belt project. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in IMSE 2110 or IMSE 4110 or STAT 4710

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**IMSE 7385: Lean Six Sigma Green Belt Project**

Application of the Lean Six Sigma methodology in an industry-based project.

**Credit Hour:** 1

**Prerequisites:** IMSE 4310

---

**IMSE 7410: Management Information Systems Design**

MIS concepts and management issues, HTML for web pages and eShop (front office operation), back-office operations using relational databases, introduction for SQL. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050

---

**IMSE 7420: Web-Based Information Systems**

Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410 and instructor's consent

---

**IMSE 7550: Computer Aided Design and Manufacturing**

(cross-leveled with IMSE 4550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 4

---

**IMSE 7560: Introduction to Rapid Prototyping**

(cross-leveled with IMSE 4560). Course covers all five MU systems: FDM, SLS, SLA, Polyjet, 3DP. Students will learn fundamental rapid prototyping and related concepts, and design and produce models from each system. Graded on A-F basis only.

**Credit Hours:** 3

---

**IMSE 7570: Computer Integrated Manufacturing Control**

Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking.

**Credit Hours:** 3

---

**IMSE 7580: Industrial Energy Efficiency and Management**

(cross-leveled with IMSE 4580). Introduction to the fundamentals of industrial energy efficiency and management. Covers the essential concepts, best practices, management systems and current standards to achieve and improve energy efficiency in industrial settings, and utilizes hands-on experiences involving real assessment and analysis of industrial site visits and projects.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030 or instructor's consent

---

**IMSE 7610: Engineering Quality Control**

Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology.

**Credit Hours:** 3

**Prerequisites:** IMSE 4110 or IMSE 7110

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**IMSE 7750: Entrepreneurial Innovation Management: Advanced Enterprise Conception**

Develop a new business and technology plan (including marketing, finance, engineering, manufacturing, and production concepts) in this joint College of Engineering/College of Business course.

**Credit Hours:** 3

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**IMSE 7760: Entrepreneurial Innovation Management: Advanced Enterprise Design**

Expand on IMSE 7750 business and technology plan into a business operation plan: advertising designs, facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and product prototypes.

**Credit Hours:** 3

**Prerequisites:** IMSE 7750

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**IMSE 7770: Entrepreneurial Innovation Management: Advanced Enterprise Operations**

Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales, and delivery.

**Credit Hours:** 3

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**IMSE 7810: Cognitive Ergonomics and Decision Making**

(cross-leveled with IMSE 4810). This course will cover the study of empirical research in cognitive ergonomics and Human-Computer Interaction (HCI). Students will learn cognitive information processing, mental workload, human reliability, decision-making, and empirical methods in HCI research. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8001: Advanced Topics in Industrial & Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 8030: Advanced Manufacturing and Supply Systems**

The design, regulation, and optimization of manufacturing and supply systems through systems analysis.

**Credit Hours:** 3

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**IMSE 8070: Research Methods in Industrial & Manufacturing System Engineering**

Development of research approach. Selection of topic area including techniques of literature search with special emphasis on problem definition. Topics pertinent to planning, organizing and carrying out industrial engineering research or design project.

**Credit Hour:** 1

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**IMSE 8085: Problems in Industrial and Manufacturing Systems Engineering**

Supervised investigation in industrial engineering to be presented in the form of an engineering report.

**Credit Hour:** 1-99

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**IMSE 8087: Industrial Engineering Graduate Seminar**

Selected topics in industrial engineering; oral presentations and engineering reports. Graded on S/U basis only.

**Credit Hours:** 0

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**IMSE 8110: Engineering Experimentation**

Application of advanced statistical methods for the analysis of engineering design and experimental problems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4110 or IMSE 7110

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**IMSE 8210: Operations Research-Discrete Models**

Applications of discrete operations research methods, including linear programming, fuzzy sets, integer programming, and meta-heuristics.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or IMSE 7210

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**IMSE 8220: Nonlinear Optimization**

Introduces computational non-linear mathematical programming procedures their use in solving complex industrial systems design problems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or IMSE 7210

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**IMSE 8230: Operations Research-Stochastic Models**

Theory and applications of stochastic processes; includes continuous time Markov chain, Markov decision process, queueing theory, and stochastic manufacturing systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4230 or IMSE 7230

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**IMSE 8280: Advanced Systems Simulation**

Theory and practice of dynamic modeling and statistical experimentation.

**Credit Hours:** 3

**Prerequisites:** IMSE 4280

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**IMSE 8310: Advanced Integrated Production Systems**

Advanced study of the design and operation of flow shop, job shop, and cell-based production systems, including scheduling, layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** IMSE 4310 or IMSE 7310

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**IMSE 8370: Supply Chain Modeling and Analysis**

Theory and application of supply chain networks, integration of production and inventory control methods.

**Credit Hours:** 3

**Prerequisites:** IMSE 8210, IMSE 8230

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**IMSE 8410: Advanced Management Information Systems Design**

Develops requirements for management information, staffing, cost estimating, evaluation, and the design of management communication systems; includes case studies.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410

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**IMSE 8550: Advanced CAD/CAM**

Covers the state-of-the-art in CAD/CAM and explores the latest developments, residual problems, and new direction in CAD/CAM. Includes sculptured surface modeling, rapid prototyping and manufacturing, integrated process planning, shape analysis, machine intelligence.

**Credit Hours:** 3

**Prerequisites:** IMSE 4550 or IMSE 7550

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**IMSE 8610: Advanced Quality Systems**

Advanced process control charts, empirical model-building, fractional factorial designs and Taguchi techniques as tools for process and

product improvement, professional ethics in quality management; TQM and ISO 9000.

**Credit Hours:** 3

**Prerequisites:** IMSE 4610, IMSE 8110

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#### **IMSE 8730: Strategic Enterprise Management**

Topics including enterprise strategies, process and content models, strategy implementation, value chain analysis, business processes, systems engineering approaches, business process reengineering, and dynamic systems modeling.

**Credit Hours:** 3

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#### **IMSE 8810: Human Factors**

Human factors inputs, outputs and environment and their influence on design and evaluation of man and machine systems.

**Credit Hours:** 3

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#### **IMSE 8850: Health Care Systems Design and Analysis**

Health care systems design principles and major problems, basic organization within health care system, alternative system design strategies, factors affecting design process success.

**Credit Hours:** 3

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#### **IMSE 8990: Research-Masters Thesis in Industrial Engineering**

Independent investigation in field of industrial engineering to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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#### **IMSE 9210: Advanced Linear Optimization**

Advanced study of linear programming, including optimization and its application including large-scale optimization, primal-dual methods, decomposition, interior point methods, convex analysis, and integer programming. Prerequisites: IMSE 4210 or IMSE 7210

**Credit Hours:** 3

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#### **IMSE 9230: Stochastic Service Systems**

Development and application of stochastic models in the design of service systems in which either demands for service or services supplies, or both, have a probabilistic nature.

**Credit Hours:** 3

**Prerequisites:** STAT 4750, IMSE 8230

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#### **IMSE 9250: Dynamic Programming**

Introduces theory and computational aspects of dynamic programming; its application to sequential decision problems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or IMSE 7210 and IMSE 4230 or IMSE 7230

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#### **IMSE 9260: Integer and Combinatorial Optimization**

Theory, solution methodology, and application of integer and combinatorial optimization.

**Credit Hours:** 3

**Prerequisites:** IMSE 8210

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#### **IMSE 9990: Research-Doctoral Dissertation in Industrial Engineering**

Independent investigation in field of industrial engineering to be presented as a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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## **Information Science And Learning Technologies Courses**

#### **IS\_LT 1111: Information Use and Student Success**

In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools.

**Credit Hour:** 1

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#### **IS\_LT 1111H: Information Use and Student Success - Honors**

In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools. Honors eligibility required

**Credit Hour:** 1

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#### **IS\_LT 4310: Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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#### **IS\_LT 4356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 7356). The purpose of this course is to provide students with opportunities to explore, use, and synthesize various JavaScript frameworks, user interface and visualization libraries, and plugins while creating interactive user experiences with HTML5, JavaScript animation, and mobile platforms. The course will cover topics like interactive photo galleries, mobile Web design, animation, user interactivity, jQuery, and development environments.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370

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#### **IS\_LT 4360: Introduction to Web Development**

Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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#### **IS\_LT 4361: Introduction to Digital Media**

(cross-leveled with IS\_LT 7361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4364: Flash Authoring**

Teaches skills required to plan, develop and evaluate a multimedia project using digital authoring software. Emphasizes instructional design and user interface issues. Course is production-based. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4370: Intermediate Web Development**

(cross-leveled with IS\_LT 7370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4360 or instructor's consent

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**IS\_LT 4371: Exploring Sakai**

(cross-leveled with IS\_LT 7371). This course will prepare students to work within the Sakai Learning Management System (LMS) to set up and manage an online course. Students in this course will investigate and manipulate components of Sakai from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4372: Exploring Blackboard**

(cross-leveled with IS\_LT 7372). This course will prepare students to work within the Blackboard (BB) Learning Management System (LMS) to set up and manage an online course. Students in the course will investigate and manipulate components of Blackboard from an instructor's perspective. Graded on A-F basis.

**Credit Hour:** 1

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**IS\_LT 4373: Exploring Moodle**

(cross-leveled with IS\_LT 7373). This course will prepare students to work within the Moodle Learning Management System (LMS) to set up and manage an online course. Students in the course will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4374: Exploring Canvas**

(cross-leveled with IS\_LT 7374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4375: Mobile Web App Development**

(cross-leveled with IS\_LT 7375). The purpose of this course is to provide students with knowledge necessary to create a mobile app with basic functions using HTML 5, JavaScript, and CSS3. Through this course, students will obtain knowledge of mobile web app development including

both design and development phases. Upon the completion of this course, students will produce a mobile web app that can be operated via a mobile device. Graded on A-F basis only. Recommended: Students must be able to hand code: html, Styling and positioning web pages using CSS & JavaScript, and JavaScript basic functions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or permission of instructor

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**IS\_LT 4384: Designing Games for Learning**

(cross-leveled with IS\_LT 7384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ("mods"), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or senior standing required

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**IS\_LT 4467: Technology to Enhance Learning**

This course is designed for undergraduates in the teacher education program. Emphasis is placed on strategies for integrating technology into the teaching and learning process, with a focus on enhancing how students think rather than what they think. Special attention given to supporting higher order thinking and problem solving with technology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent required (students must be admitted to College of Education's Teacher Education program)

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**IS\_LT 7301: Introduction to Information Technology**

The nature of information and information transfer in the institutional setting; covers the culture of information in society, standards for information processing and transfer, and networking in communications perspectives of information providing agencies.

**Credit Hours:** 3

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**IS\_LT 7302: Organization of Information**

An overview of the research that addresses information-seeking behavior and the history, background, and development of catalogs and indexes.

**Credit Hours:** 3

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**IS\_LT 7305: Foundations of Library and Information Science**

An introduction to the background, contexts, organizations, issues, ethics, values, and terms of information science, the information professions, and the library as an idea, space, institution, and repository of the cultural record.

**Credit Hours:** 3

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**IS\_LT 7310: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 7312: Principles of Cataloging and Classification**

Theory and practice of cataloging and classification of library materials using current standards and tools. Principles, developments, and trends in cataloging and access to library data.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305

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**IS\_LT 7313: Collection and Access Management**

Selection of materials for libraries and information agencies, policies for collection management, freedom and diversity of information, access to information and evaluation of collections and access.

**Credit Hours:** 3

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**IS\_LT 7314: Reference Sources and Services**

General reference sources with emphasis on print sources. principles, developments and trends in reference services and reference service organization.

**Credit Hours:** 3

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**IS\_LT 7315: Management of Information Agencies**

Concepts of management applied to libraries and information systems; management tools, programming, models and simulation in an environment of an information producing or disseminating agency.

**Credit Hours:** 3

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**IS\_LT 7320: Emerging Technologies in Libraries**

Critically examines web technologies, devices, and methods used to access collections and services, promote social interaction, and facilitate communication. Focuses on new and emerging software, resources, and communication methods including their discovery and implementation. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7334: Library Information Systems**

Focuses on the automated library systems marketplace. Covers integrated online library systems from the systems, functional and user perspective. Includes management approaches for procurement and operation of such systems.

**Credit Hours:** 3

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**IS\_LT 7356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 4356). The purpose of this course is to provide students with opportunities to explore, use, and synthesize various JavaScript frameworks, user interface and visualization libraries, and plugins while creating interactive user experiences with html5, JavaScript animation, and mobile platforms. The course will cover topics like interactive photo galleries, mobile Web design, animation, user interactivity, jQuery, and development environments.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370

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**IS\_LT 7357: Web Application Development I**

Students learn to develop Web applications to support online learning and collaboration using ASP.Net, PHP, or Java. In this course students will learn fundamental Web programming principles and develop web applications. Specific concepts taught in this course include: reading and writing files to a server, interacting with users through web forms, storing and retrieving data in relational databases (MS SQL, MySQL, or Oracle), object-oriented programming, and web application security.

**Credit Hours:** 3

**Prerequisites:** Intermediate Web Development

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**IS\_LT 7358: Web Application Development II**

Building on Web Application Development I, this course covers advanced Web programming techniques and focuses on developing Web-based learning applications. With intensive programming, students will analyze and learn how the applications in existing learning environments operate and interact, and then develop learning applications of their own. Specific concepts covered in this course include task analysis, algorithms, APIs, user rights and permissions, data integrity, flexible design, code documentation, Web Services, Web for mobile handheld devices or Ajax.

**Credit Hours:** 3

**Prerequisites:** Web Application Development I

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**IS\_LT 7360: Introduction to Web Development**

Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7361: Introduction to Digital Media**

(cross-leveled with IS\_LT 4361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7364: Flash Authoring**

Plan, develop, and evaluate a multimedia project using digital authoring software (Macromedia Flash). Emphasizes scripting and user interface issues for web-based animations. Course is production-based. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7366: Technology Leadership in Schools**

Develop skills, knowledge, and values needed to provide leadership in schools. Analyzes characteristics of effective leaders, focusing on staff development. Explores technology and school reform, technology integration, and current issues. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7368: Technology Across the Curriculum**

The emphasis in this course is on using technologies to enhance and support student collaboration and learning in K-23 classrooms.

**Credit Hours:** 3

**Prerequisites:** admission to the Teaching Fellowship Program

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**IS\_LT 7370: Intermediate Web Development**

(cross-leveled with IS\_LT 4370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7360 or instructor's consent

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**IS\_LT 7371: Exploring Sakai**

(cross-leveled with IS\_LT 4371). This course will prepare you to work within the Sakai Learning Management System (LMS) to set up and manage an online course. As a student in this course you will investigate and manipulate components of Sakai from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7372: Exploring Blackboard**

(cross-leveled with IS\_LT 4372). This course will prepare you to work within the Blackboard Learning Management System (LMS) to set up and manage an online course. As a student in the course, you will investigate and manipulate components of Blackboard from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7373: Exploring Moodle**

(cross-leveled with IS\_LT 4373). This course will prepare you to work within the Moodle Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7374: Exploring Canvas**

(cross-leveled with IS\_LT 4374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

---

**IS\_LT 7375: Mobile Web App Development**

(cross-leveled with IS\_LT 4375). The purpose of this course is to provide students with knowledge necessary to create a mobile app with basic functions using HTML 5, JavaScript, and CSS3. Through this course, students will obtain knowledge of mobile web app development including both design and development phases. Upon the completion of this course, students will produce a mobile web app that can be operated via a mobile device. Graded on A-F basis only. Recommended: Students must be able to hand code: html, Styling and positioning web pages using CSS & JavaScript, and JavaScript basic functions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370 or permission of instructor

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**IS\_LT 7378: Electronic Portfolio Development**

This course provides an overview of electronic portfolio development. Students will select, categorize and document their accomplishments in the Technology in Schools emphasis area for review and assessment. Students will demonstrate mastery of the ISTE Standards and commitment to ongoing learning. Web development skills are required.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted into the Technology in Schools emphasis

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**IS\_LT 7380: School Library Practicum**

Directed, project-based experience in school libraries.

**Credit Hour:** 1-3

**Prerequisites:** admission to MA, initial certification or 24 completed LIS credit hours taken at MU; instructor's consent

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**IS\_LT 7381: Practicum in Information Agencies**

Provides a supervised work experience for master's degree students in a public, academic, or special library. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** IS\_LT 7301, IS\_LT 7302 or IS\_LT 7312, IS\_LT 7314, IS\_LT 7315

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**IS\_LT 7383: Rapid Development Tools for Online Learning**

Students will apply principles of rapid development and use rapid development tools to create a prototype of an e-learning module that uses technology features that can enhance learning (e.g. learner interactions). Specific competencies include: Storyboard and "rapidly" develop an e-learning module using software designed to support this process; Use software tools that develop specific elements of e-learning (e.g. video, animation, gaming), and incorporate those elements into an e-learning module; Evaluate rapidly developed e-learning products; Compare and contrast features of rapid development software packages. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7384: Designing Games for Learning**

(cross-leveled with IS\_LT 4384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ("mods"), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9085: Problems in Information Science and Learning Technology**

Independent, directed study on a topic in the areas of information science and learning technologies.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**IS\_LT 9090: Research in Information Science and Learning Technologies**

Dissertation research. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Doctoral Committee Chair's consent

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**IS\_LT 9407: Intellectual Freedom and Its Discontents**

The course examines principles and contradictions of intellectual freedom and their relation to librarianship. The nature of free speech, the First Amendment, sources of censorship, and professional disputes about intellectual freedom practice in libraries will be important topics.

**Credit Hours:** 3

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**IS\_LT 9408: Information Policy**

Examination of the roles of private and public sectors in information policy formation. Includes consideration of social, economic, political and technological issues.

**Credit Hours:** 3

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**IS\_LT 9409: Seminar in Digital Libraries**

This course is a project-based learning environment that combines Instructor-prepared content, group-based student projects, and threaded asynchronous discussions on selected topics relating to the design, development, and implementation of practical digital libraries. Research directives within the broad domain of digital library development are also covered.

**Credit Hours:** 3

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**IS\_LT 9410: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 9411: Doctoral Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in information science and learning technologies. Graded on A-F basis only.

**Credit Hour:** 1-3

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**IS\_LT 9412: Information Storage and Retrieval**

Introduces students to concepts and terminology associated with the storage and retrieval of bibliographic information. Emphasizes design of applied database management systems.

**Credit Hours:** 3

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**IS\_LT 9413: Electronic Resource Management**

This course explores electronic resources (primarily subscription journals and databases) in terms of products, pricing, in-house management of resources, both technical and organizational, licensing, configuring databases and organizing websites for the end user, statistical reporting, and future trends.

**Credit Hours:** 3

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**IS\_LT 9417: Technology Action Research**

Study of concepts associated with action research; and the processes and procedures for conducting action research. Culminating project is the development of an action research project.

**Credit Hours:** 3

**Prerequisites:** 12 credit hours completed prior to enrolling

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**IS\_LT 9419: American Library History**

Students in this course will learn about the history of libraries in America, reading about and analyzing the political, cultural, and social roles of particular libraries and the library as an institution. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9420: Scholarly Communication**

Exploration of the production and communication of information and knowledge in the disciplines.

**Credit Hours:** 3

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**IS\_LT 9421: Usability of Information Systems and Services**

Introduction to concepts and methods of usability testing and research and user-centered design strategy. Course takes a process approach to define target audiences and usability problems, create and administer investigative procedures, analyze results, and report findings effectively. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9423: Ethics, Data, and Information**

Critical inquiry into perennial and emerging issues in the ethics of data and information.

**Credit Hour:** 1-3

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**IS\_LT 9427: Social Constructs of Information**

This course focuses on information as it is used, and defined, by society. The primary lens, or theoretical background, used in this investigation is the notion of "cultural hegemony," proposed by Antonio Gramsci. We will study the complex relationship between information and society, looking at how each is a reflection and shaper of the other. The relationship of libraries and other information agencies to the state, and the role of information professionals in the political and cultural spheres are central themes in the course. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9428: History of Books and Media**

Examines the history and philosophy of books and media from the beginnings of writing to the Internet, emphasizing the effects of changes in communication and information technologies. The focus is on the social, cultural, intellectual, scientific, and religious impacts of shifts in the media for preserving and transmitting information. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9429: Metadata**

Explores principles, standards, and schema for metadata in diverse online environments to facilitate information retrieval and use. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9431: Children's Library Materials**

Evaluation and selection of materials for children birth-age 13 (Grade 6). Early literacy, emergent readers, reader response theory; social, cultural contexts of readers and reading, trends in publishing.

**Credit Hours:** 3

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**IS\_LT 9432: Online Searching**

Search strategies and techniques for commercial online databases. The course first covers the basic concepts of online information retrieval and then focuses on selection and online searching in the most prominent social science, science, humanities, and numerical databases.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4301 or IS\_LT 7301 and IS\_LT 4314 OR IS\_LT 7314

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**IS\_LT 9433: Youth Services in Libraries**

Examines physical, mental, and emotional development of youth birth through high school. Emphasis on community analysis, outreach services, program design and techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9434: Teen Library Materials**

Evaluation, selection of print, alternate formats for teens, 13-18 (Grades 7-12). Personal, social, popular culture contexts of teen readers and texts; emphasizes reader response; challenges common assumptions about teens and reading.

**Credit Hours:** 3

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**IS\_LT 9435: Adult Services in Libraries**

Library services to adults, including special populations. Emphasis on information needs of adults, organization and management of adult services.

**Credit Hours:** 3

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**IS\_LT 9437: Reader Advisory Services**

Examination of value and role of leisure reading and leisure reading materials. Coverage of reader advisory techniques, support processes, and resources for providing reader advisory services to various audiences. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9438: Marketing and Libraries**

This course provides an introduction to marketing - concepts, planning, strategies and evaluation - as related to libraries and information agencies. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9439: Digital Humanities and Information**

This course on history, philosophy, and methods in the emerging field of 'digital humanities' focuses on topics at the nexus of information, the humanities disciplines, technology, and culture, as well as the contexts of the academy, libraries/archives, museums, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9440: Learning with Web-based Technologies**

Explores the potential of the Internet to support inquiry-based learning through collaborative activities, research, and authoring/publishing. Investigates goals and methods of online learning. Examines learning theories and models of teaching/learning in relation to selected Internet activities for K-12, undergraduate students and learners in other fields outside education (e.g., work placed learning, non-formal learning).

**Credit Hours:** 3

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**IS\_LT 9443: The Academic Library**

Development, objectives, organization and structure, nature of the collections and responsibility for their development, philosophy of library services, measurement and standards of library effectiveness.

**Credit Hours:** 3

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**IS\_LT 9444: The Public Library**

An overview of public library history, missions, and societal roles. Includes public library funding, organization, and management.

**Credit Hours:** 3

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**IS\_LT 9445: Special Libraries and Information Centers**

Goals of special librarianship including information provision, management styles. Library functions as performed in special libraries. Contributions of special libraries, such as information analysis centers, information brokering, and accountability for and evaluation of services.

**Credit Hours:** 3

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**IS\_LT 9446: International and Comparative Librarianship**

International libraries, intercultural information concerns, how information agencies differ between nations and global information issues. Course presents various countries, their information infrastructures and the influence of information and communication technologies.

**Credit Hours:** 3

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**IS\_LT 9447: Human Centered Design**

This course provides an overview to the Human Computer Interaction (HCI) field while focusing on the use and adaptation of existing HCI theories and research to a range of interface design problems. The course points the way to acquiring continuing information on the field and also provides groundwork for understanding future applied research papers in the field. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9449: Services for Business Communities and Entrepreneurs**

The course covers the introduction to and application of basic concepts of business information in academic, public and special library

environments, and the information searching techniques used for specific business information needs (finding company information, industry information, investment information, statistical information, marketing information, etc.) Course includes service to entrepreneurs. Content covers company, investment, industry, statistical and marketing information and includes use of GIS systems.

**Credit Hours: 3**

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**IS\_LT 9450: Introduction to Research in Library and Information Science**

Examination of the nature, utility, and methodologies of research in the profession. Emphasis is on understanding and evaluating potential and actual research.

**Credit Hours: 3**

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**IS\_LT 9452: Information Literacy and Instruction**

This course is designed to prepare Library Science students/Information professionals for the variety of teaching situations they will encounter in library and information agency settings. Students will consider learning theory applicable to library instruction, learning styles, teaching methods, and appropriate evaluation of library instruction. Students will also learn strategies for incorporating library instruction into the institutional curriculum. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9453: Planning and Evaluation of Information Services**

The course focuses on the complexity of the planning process in libraries and other information agencies, including the influence of external environments (upper administrations, user communities, information producers) on planning. Internal elements of the organization (staffing, services, finances) are discussed, as are external elements (requirements of a parent organization, legal constraints, etc.). The role of evaluation of personnel, budgets, facilities, access to information, and services is integrated into the process of providing service.

**Credit Hours: 3**

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**IS\_LT 9454: Copyright in Libraries**

An introductory and practical course covering the foundations of copyright, fair use, e-reserves, related laws including DMCA and TEACH and managing copyright in the public and school environments.

**Credit Hours: 3**

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**IS\_LT 9455: Formative and Summative Evaluation**

Study of the process of gathering data and making judgments about the effectiveness of instructional programs that uses technology. Covers techniques of a formative evaluation process to revise instruction. Culminating project is planning and conducting a portion of a summative evaluation of instructional program.

**Credit Hours: 3**

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**IS\_LT 9456: Designing Computer Support for Collaborative Learning**

Students will examine the theoretical bases for using collaboration and social interaction as methods for learning, and learn key methods and approaches for designing computer supported collaborative learning. Graded A-F only.

**Credit Hours: 3**

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**IS\_LT 9457: Designing Computer Support for Cooperative Work**

Study of the tools and methods of groupware and communities of practice, including their psychological, social and organizational effects. Students focus on designing and developing improved tools and methods. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9458: Technology and Assessment**

Learn how to assess specific types of knowledge, using technology to enhance the process. Topics include use of tools/strategies for data collection to guide instructional decision-making and investigating technologies to improve assessment of student learning. Emphasis on aligning learning objectives, activities, and assessments and developing performance assessments to measure higher-order thinking. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9461: Interaction Design**

Students will learn the basic concepts of interaction design, then focus on usability engineering and prototyping principles to support the design process for learning and performance based technologies.

**Credit Hours: 3**

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**IS\_LT 9466: Learning Analytics**

Learning Analytics (LAK) addresses the questions of how people learn together and how computers can participate with and augment that learning. LAK researchers address the socio-technical aspects of how technology mediates learning practices. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9467: Technology to Enhance Learning**

Strategies for integrating technology into the teaching and learning process, with a focus on enhancing how students think rather than what they think. Special attention given to supporting higher order thinking and problem solving with technology.

**Credit Hours: 3**

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**IS\_LT 9468: Learning and Task Analysis**

Multiple methods for conducting task analysis for learning to identify learning processes, learning topics, and learning experiences, including procedural, prerequisites, cognitive simulations, case libraries, environmental analysis, and decision making.

**Credit Hours: 3**

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**IS\_LT 9469: Designing Electronic Performance Support Systems**

Performance support systems (PSS) are technology systems that support human activity within the complexities of organizational requirements and processes. Students build competency for designing PSS.

**Credit Hours: 3**

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**IS\_LT 9471: Instructional Systems Design**

Develop knowledge and skills related to the systematic design of instruction. Learn to analyze, design, develop, implement, and evaluate learning systems and instruction. Identify appropriate technologies to support learning and explore alternative models of instructional design.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** course in Curriculum or Instruction

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**IS\_LT 9472: Designing and Modeling Systems**

Examination of living systems, general systems theory, and the art and practice of the learning organization.

**Credit Hours:** 3

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**IS\_LT 9473: Project Management**

This course introduces the learner to the necessary and practical project management concepts and skills that lead to reductions in project cycle time while maintaining control over budget, resources, risk, and delivered value. This course proposes to integrate practical project management skills within the project management lifecycle (i.e., initiating, planning, executing, controlling, and closing).

**Credit Hours:** 3

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**IS\_LT 9474: Front End Analysis of Systems**

Develop skills for systematically analyzing learning, or other types of systems, that need to be improved. Develop data collection instruments (e.g. surveys, observation protocols, interviews); analyze secondary data; analyze tasks or activities in the system, and interpret data to make recommendations for system improvement. Skills will be learned by doing and applying to real systems that need improvement.

**Credit Hours:** 3

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**IS\_LT 9475: Diffusion of Educational Innovations**

In-depth analysis of innovation development and adoption processes in educational organizations, including schools, universities, and training centers.

**Credit Hours:** 3

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**IS\_LT 9478: Designing Problem-Based Learning Environments**

Based on theories of situated learning, constructivism, everyday cognition, case-based reasoning, and activity theory, students will design and develop a learning environment that engages learners in constructive learning and problem solving with emphasis on assessing higher-order learning. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9480: Internship in Information Science and Learning Technologies**

Provides internship experience under supervision in advanced levels of practical experience in Information Science and Learning Technology Research and Teaching. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** School director's consent

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**IS\_LT 9483: Capstone: Online Educator Emphasis Area**

Culminating course for Online Educator emphasis area in Information Science and Learning Technologies graduate degree. Design/develop/evaluate an online course or rework existing course. Analyze evaluation data from two external reviewers (novice/expert). Write paper describing results and modifications. To be taken during last semester of student's program. Graded on S/U basis only.

**Credit Hour:** 1

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**IS\_LT 9484: Teaching Online Courses**

Learn to be an effective online instructor! Examine issues in teaching and learning online; instructor and student roles; instructional strategies for supporting diverse learners; methods of student assessment; online communication; classroom management; characteristics of online learning management systems. Projects put you in the role of instructor to practice what you learn.

**Credit Hours:** 3

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**IS\_LT 9485: Designing Online Learning**

Online learning is everywhere! This online course will teach you how to leverage existing software tools to design and develop online learning activities in multiple domains that are grounded in sound learning principles. Course will focus on developing online learning for meaningful learning outcomes such as problem solving, building communities, and developing collaboration skills.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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## Information Technology Courses

**INFOTC 1001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 1040: Introduction to Problem Solving and Programming**

An introduction to problem solving methods and programming concepts, providing experience in designing, developing, implementing, and testing programs. Cannot be taken for credit after CMP\_SC 1050.

**Credit Hours:** 3

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**INFOTC 1610: Introduction to Entertainment Media**

This course is an introduction to the basic fundamentals of entertainment products such as postproduction technology, camera and lighting technology, audio creation and mixing technology, and broadcast technology. Computer programs designed for visual special effects are used.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2600: Digital Multimedia**

This course introduces broad views of concepts, software, hardware, and solutions in entertainment media applications. It will examine career options in fields such as information technology, news, film production and postproduction, website design, advertising, or communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2610: Audio/Video I**

This is an introductory course on digital audio and video editing. Background presented in the course will include an overview of the techniques used in modern Non-Linear video editing, and understanding of block editing, and why it is essential when using modern digital technology. The course is hands-on with students at workstations, learning the software directly at the keyboard, and working on assignments in a lab context.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2620: Computer Modeling and Animation I**

Introduction to the field of computer modeling and animation with an emphasis on tools. Learn programming methods for developing customized modeling and animation algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 1050. May be restricted to Information Technology majors during early registration

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**INFOTC 2810: Fundamentals of Network Technology**

This course includes an overview of networking and the common wireless standards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050. May be restricted to Information Technology majors during early registration

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**INFOTC 2910: Cyber Security**

This course covers numerous platform-independent security topics including threats, problem ports and services, theory and practice of defense in security, intrusion detection, data security, securing remote access, user education and support, designing a secure network and security management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050, INFOTC 2810. May be restricted to Information Technology majors during early registration

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**INFOTC 3001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 3610: Audio/Video II**

This course presents broad professional techniques for completing an off-line edit and the progression to online and finishing, adding depth to topics introduced in A/V I. Students will gain experience in editing techniques involving dialogue, action, documentaries, music videos, and multi-camera projects. The course also introduces special effects, audio finishing, clip and media management, and use of various media formats.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2610. May be restricted to Information Technology majors during early registration

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**INFOTC 3620: Computer Modeling and Animation II**

This course covers advanced methods for modeling and animation with an emphasis on computer science theory and virtual reality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2620. May be restricted to Information Technology majors during early registration

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**INFOTC 3630: Introduction to Game Design**

This class will focus on the theory, design, and implementation of games using the industry standard game development tools. Students will learn about the workflow for designing, creating and implementing vital components for modern games, with respect to data structures, algorithms, content, development tools and practice of game development. The final project is a fully functional, your own custom game.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050. May be restricted to Information Technology majors during early registration

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**INFOTC 3640: Digital Effects**

This course is an introduction to the fundamentals of digital motion picture effects technology. This course is designed for a student interested in pursuing a career in information technology, news, film production and film postproduction, website design, or communication.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or C- or higher in INFOTC 2610. May be restricted to Information Technology majors during early registration

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**INFOTC 3850: Computer System Administration**

This course will cover network management tools, network maintenance, data management, remote access management, management tasks, responsibilities and ethics, required plans and policies, design of a well-managed network. Some work will be done in both Windows and Linux environments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, junior standing. May be restricted to Information Technology majors during early registration

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#### **INFOTC 3940: Internship in Information Technology**

Information Technology-related experience in business or industry jointly supervised by faculty and IT professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on an S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor Consent

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#### **INFOTC 4001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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#### **INFOTC 4390: Database Administration**

This course is designed to give a firm foundation in Database Administrators' tasks. The primary goal is to give necessary knowledge and skills to setup, maintain and troubleshoot an Oracle database. This is an instructor-led course featuring lecture and hands-on exercises. Online demonstration and written practice sessions reinforce the concepts and skills introduced. The course defined objectives are designed to support preparation for the Oracle Certified Professional examination.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4380. May be restricted to Information Technology majors during early registration

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#### **INFOTC 4400: C#/ .NET Development**

Learn how to develop and debug multi-threaded Windows desktop applications based on the object-oriented (OO), Model-View-Controller (MVC), and Model View ViewModel (MVVM) paradigms using C#, .NET, Windows Presentation Foundations (WPF), and Visual Studio. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050. May be restricted to Information Technology majors during early registration

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#### **INFOTC 4500: Team-Based Mobile Device Application Development**

(same as JOURN 4444). This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** for Journalism majors (Designers), instructor's consent; for Computer Science or Information Technology majors (Developers), CMP\_SC 2050 or permission of instructor. May be restricted to Information Technology majors during early registration

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#### **INFOTC 4630: Game Design II**

This course explores 1) the manual and procedural development of static and dynamic game content, 2) programming for gameplay, interactivity, UI, game Artificial Intelligence, and 3) algorithms, ADTs, and research vital to game design.

**Credit Hours:** 3

**Prerequisites:** INFOTC 3630. May be restricted to Information Technology majors during early registration

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#### **INFOTC 4640: Digital Effects II**

This course builds on fundamentals of digital motion picture effects technology learned in Digital Effects I. Computer programs designed for digital visual special effects in film and broadcast are integrated throughout the course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 3640. May be restricted to Information Technology majors during early registration

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#### **INFOTC 4650: Shader Programming**

The focus of this course is modern computer graphics algorithms and programming, with an emphasis on games, shader languages, (GLSL and Cg) and Graphical Processor Units (GPUs).

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, INFOTC 2620. May be restricted to Information Technology majors during early registration

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#### **INFOTC 4970: Senior Capstone Design**

This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT) program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel, complex, and integrated project requirements in real-world IT problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing. Restricted to INFOTC majors

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#### **INFOTC 4970W: Senior Capstone Design - Writing Intensive**

This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT) program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel, complex, and integrated project requirements in real-world IT problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing. Restricted to INFOTC majors

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## **Integrative Neuroscience Courses**

#### **NEUROSCI 7990: Non-Thesis Research in Neuroscience**

The course is intended primarily for post-baccalaureate students who have not entered a formal graduate program but who are performing neuroscience research. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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**NEUROSCI 8020: Advances in Neuroscience and Neuropathology**

In depth review of recent advances in basic neuroscience research as well as pathological conditions affecting nervous systems at the cellular and systems level, and the methods and techniques used to study the nervous system. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEUROSCI 8090: Thesis Research in Neuroscience**

The course is intended primarily for graduate students who are working with mentors in departments that do not offer courses (e.g. Radiology). Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent required

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**NEUROSCI 8187: Neuroscience Journal Club**

In depth readings and presentations/discussions of neuroscience journal articles including recent advances in basic neuroscience research, pathological conditions affecting nervous systems, and neuroscience techniques. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

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**NEUROSCI 8440: Integrative Neuroscience 1**

(same as BIO\_SC 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**NEUROSCI 8442: Integrative Neuroscience II**

(same as BIO\_SC 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**NEUROSCI 9090: Thesis Research in Neuroscience**

The course is intended primarily for graduate students who are working with mentors in departments that do not offer courses (e.g. Radiology). Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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## Interdisciplinary Studies Courses

**INTDSC 1001: Proseminar in Interdisciplinary Studies**

Lecture/discussion survey of time-management, note taking techniques, in the context of the three courses that are part of a Freshman Interest Group. Regular use of library, electronic mail and computing facilities is stressed. Elective credit only; students cannot receive credit for INTDSC 2001 and INTDSC 1001 or INTDSC 1150. Graded on S/U basis only.

**Credit Hour:** 1

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**INTDSC 1020: University Freshmen Seminar**

(same as SSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility

underlies all seminar activities. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester.

**Credit Hour:** 1

**Prerequisites:** Restricted to freshman only

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**INTDSC 1940: Internship**

Limited to freshmen/sophomores who are "undecided" or otherwise not accepted into a major. Graded on S/U basis only.

**Credit Hour:** 0-1

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**INTDSC 2001: Proseminar in Interdisciplinary Studies**

Lecture/discussion survey of a range of issues of special importance for transfer students new to the University. Elective credit only; no credit for INTDSC 1001 and/or SSC 1150. Graded on A-F basis only.

**Credit Hour:** 1

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**INTDSC 2940: Internship in Interdisciplinary Studies**

Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

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**INTDSC 2960: Readings in Interdisciplinary Studies**

Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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**INTDSC 4940: Internship in Interdisciplinary Studies**

Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental Consent Required

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**INTDSC 4960: Readings in Interdisciplinary Studies**

Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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**INTDSC 4970: Service Learning Project.**

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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**INTDSC 4970W: Service Learning Project. - Writing Intensive**

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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**INTDSC 4971: Capstone Internship in Interdisciplinary Studies**

Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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## Internal Medicine Courses

**IN\_MED 6002: Medicine Clerkship**

Students spend eight weeks on the medicine inpatient service at University Hospital and Harry S. Truman Veterans Hospital where they learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

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**IN\_MED 6012: Rural Medicine Clerkship**

Rural Medicine Clerkship

**Credit Hours:** 8

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**IN\_MED 6022: Springfield Medicine Clerkship**

Students learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**IN\_MED 6035: SCC Medical Intensive Care**

Internists and medical sub-specialists frequently encounter patients with critical conditions that require unique skills. During this rotation medicine students will: 1. Provide assessment, management and follow-up of critically ill patients under the supervision of the medical critical care attending. 2. Be intimately involved in this multidisciplinary approach to patient care. 3. Work collaborative with medical attending physicians,

nurses, pharmacists, respiratory therapists and nutritional support staff. 4. Work in a coordinated fashion with consulting physicians and services, social services, physical therapy workers, and the radiology, pathology laboratory departments and chaplain services.

**Credit Hours:** 5

**Prerequisites:** Successful completion of IN\_MED 6002 or IN\_MED 6012 or IN\_MED 6022 or IN\_MED 6102

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**IN\_MED 6102: Remediation Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** IN\_MED 6002 Medicine Clerkship, received unsatisfactory grade

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**IN\_MED 6261: ABS Medicine Investigation**

ABS Medicine Investigation

**Credit Hours:** 5

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**IN\_MED 6263: ABS Internal Medicine Research**

ABS Internal Medicine Research

**Credit Hour:** 5-10

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**IN\_MED 6265: ABS IN MED RSCH/REVIEW**

ABS in Medicine Research Review

**Credit Hours:** 5

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**IN\_MED 6267: ABS Quality Improvement and Patient Safety**

ABS Quality Improvement and Patient Safety

**Credit Hours:** 5

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**IN\_MED 6365: ABS Internal Medicine Research and Review**

ABS Internal Medicine Research and Review

**Credit Hour:** 5-10

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**IN\_MED 6450: Dermatology I**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology; Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist; Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health; Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases; Learn appropriate use of both systemic and topical dermatologic medications; Learn basic punch, shave, and excisional biopsy techniques; Become proficient in skin surveillance, especially early detection of skin cancer. Students are evaluated using a standard evaluation. The student's knowledge of subject matter is evaluated in the following settings: informal discussion during clinics, ward rounds, inpatient consultation rounds and scheduled conferences. A slide (Kodachrome) practical and written examination at

the end of the block will be administered at UMC on the last day of the block. Material covered is from the student slide set given in CD format, the AAD Core Curriculum website ([www.aad.org/education/titlepage.htm](http://www.aad.org/education/titlepage.htm)), weekly student lectures, and Unknowns Conference.

**Credit Hours:** 5

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**IN\_MED 6500: Cardiology Consultation Service**

On the inpatient cardiology consultation block, the senior student gains experience in cardiology consultation at either the University Hospital or the Harry S Truman VA Hospital. Through active participation in the consult service the student is provided the opportunity to acquire knowledge of cardiovascular anatomy, physiology, cardiovascular pharmacology, prevention of cardiovascular disease, risk factors for cardiac disease, lipid disorders, chronic coronary artery disease management and its complications, cardiac arrhythmias and conduction abnormalities, hypertension, valvular heart disease, cardiomyopathy, pericardial disease, pulmonary heart disease, peripheral vascular disease, cerebral vascular disease, adult congenital heart disease, and pre- and post-operative assessment of patients with or without cardiac problems. Students will be evaluated using the standard department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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**IN\_MED 6507: Endocrinology/Metabolism**

The Endocrinology rotation is designed to enable the student to deal with clinical problems in Diabetes endocrinology and metabolism with particular emphasis on the more common problems in an ambulatory setting. During the rotation the student will have the opportunity to see patients with a wide range of endocrine disorders. These patients will be used as the focus for teaching with the emphasis placed on differential diagnosis, pathophysiology, management, and how the disorder affects the patient as a whole. By the end of the rotation the student should be able to evaluate and manage (with supervision) patients with: 1. Diabetes Mellitus 2. Hypoglycemia 3. Thyroid disorders including goiters, thyroid nodules, hyperthyroidism and hypothyroidism 4. Adrenal disorders including adrenal incidentalomas, Cushing and Hyperaldosteronism 5. Pituitary problems including hypopituitarism, conditions due to pituitary hormone excess that including Cushing's disease, acromegaly and prolactinoma. 6. Calcium abnormalities including hyperparathyroidism, hypoparathyroidism, hypercalcemia, hypocalcaemia and osteoporosis. 7. Polycystic ovarian syndrome. Evaluations: The course grade will be based on students' skill in performing a history and physical exam, the quality of the presentation, the quality of their knowledge base and the quality of their interactions.

**Credit Hours:** 5

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**IN\_MED 6508: General Internal Medicine Outpatient**

General Internal Medicine Outpatient

**Credit Hours:** 5

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**IN\_MED 6509: Internal Medicine Off-Site Elective**

Internal Medicine Off-Site Elective

**Credit Hours:** 5

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**IN\_MED 6511: Quality Improvement and Patient Safety**

Quality Improvement and Patient Safety

**Credit Hours:** 5

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**IN\_MED 6513: Infectious Diseases**

The goals of the Infectious Diseases elective will be to: 1. Teach the student how to be an effective consultant. 2. Assist the student in his/her knowledge of disease processes. 3. Help the student improve his/her history taking and physical examination skills. 4. Enhance the student's knowledge regarding the use of antimicrobial agents. 5. Improve the student's understanding of the diagnosis and management of commonly-encountered infectious diseases with attention to the use of the history and readily available laboratory tests..

**Credit Hours:** 5

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**IN\_MED 6515: Problems in Medical Ethics**

Problems in Medical Ethics

**Credit Hours:** 5

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**IN\_MED 6517: Geriatrics-Internal Medicine Elective**

Geriatrics-Internal Medicine Elective

**Credit Hours:** 5

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**IN\_MED 6671: General Medicine - Offsite**

This course was established to accommodate fourth year medical students who wish to take an elective at another medical institution. There is no specific maximum number of students who will be permitted to enroll in this course.

**Credit Hours:** 5

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**IN\_MED 6700: Cardiology Consultation Services - Rural**

Cardiology Consultation Services - Rural

**Credit Hours:** 5

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**IN\_MED 6702: Immunology/Rheumatology - Rural**

Immunology/Rheumatology - Rural

**Credit Hours:** 5

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**IN\_MED 6704: General Internal Medicine Outpatient - Rural**

General Internal Medicine Outpatient - Rural

**Credit Hours:** 5

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**IN\_MED 6705: Pulmonary Medicine - Rural**

Rural Pulmonary Medicine general elective.

**Credit Hours:** 5

**Prerequisites:** IN\_MED 6002. Restricted to fourth year medical student

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**IN\_MED 6707: General Internal Medicine Outpatient - Rural**

The 4th year medical student will work with an IM community-based faculty member at a rural training site. Students will see patients in clinic, perform the history and physical examination, and develop an assessment and plan for these patients on their own. They will then discuss with the community-based faculty member and see the patient together. The 4th year student will complete oral presentations and document encounters as directed by the community-based faculty member. Course may be repeated for credit.

**Credit Hours:** 5

**Prerequisites:** IN\_MED 6002, 4th year medical student

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**IN\_MED 6750: DERMATOLOGY 1-RURAL**

Dermatology 1 - Rural

**Credit Hours:** 5

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**IN\_MED 6800: Coronary Care Unit**

During the Coronary Intensive Care Unit rotation, the medical student is provided the opportunity to acquire knowledge in the evaluation and management of acute and chronic coronary artery disease, life threatening cardiac arrhythmias, acute severe congestive heart failure, acute valvular disease, acute infective endocarditis, hypertensive emergencies, cardiac tamponade, aortic dissection, aortic pulmonary embolism, life threatening complications of cardiac therapy, hypotension, and shock. The Coronary Intensive Care rotation allows the student to evaluate and treat these patients in close conjunction with medical residents, cardiology fellows and cardiology faculty. Students will be evaluated using the standard Department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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**IN\_MED 6801: Diabetes Mellitus Externship**

Diabetes Mellitus Externship

**Credit Hours:** 5

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**IN\_MED 6802: Gastroenterology**

Medical students will be assigned to the inpatient GI consultation service, where they will see and evaluate patients, read about their problems, and present them to the GI fellow and/or teaching attending. They should attend all endoscopic procedures on the patients they follow on the inpatient service. They should also attend a sampling of outpatient procedures each week in the Endoscopy Center. As time permits, they may be assigned to one or more GI clinics during the rotation as well. Medical students will be expected to attend all GI conferences during the rotation. Students are also encouraged to attend Internal Medicine Grand Rounds and Internal Medicine Morning Report. They may also be assigned to give one formal presentation during their rotation. It is recommended that they read the entire GI-Liver section of the Internal Medicine textbook that they used on their third-year Internal Medicine Clerkship. Ongoing feedback is provided to the student during the rotation. At the end of the rotation, a formal written evaluation will be

prepared by the inpatient attending, in conjunction with the GI fellow with whom the resident/medical student worked with. Conference participation is factored in.

**Credit Hours:** 5

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**IN\_MED 6803: Subinternship in Internal Medicine**

The internal medicine subinternship builds on the skills begun during the internal medicine clerkship and prepares the student for the internship year. 1. Students will refine and further develop skills in: a. Physical exam, history taking, chart review, and written notes; b. Problem list development and management plan; data interpretation and synthesis; c. Oral presentation; d. Interpersonal relations with patients, families, staff and peers ; e. Time management i. Self-directed learning ii. Evidence-based medicine 2. Expand knowledge base in general internal medicine 3. Assume primary responsibility for inpatient care 4. Further develop in the role of primary care giver Patient management skills, medical record keeping, presentation skills, knowledge base, and ability to handle responsibility will be carefully observed by both the senior ward resident and the attending physician. Students will receive constructive feedback/suggestions for improvement throughout the rotation from both the attending and the senior ward resident. The attending, with input from the senior ward resident and the third year students, will report the final scores using the Department of Internal Medicine standard electives evaluation form. Students will meet with the attending physician at the end of the block to discuss their performance. Students will not receive elective credit for three weeks rotations.

**Credit Hours:** 5

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**IN\_MED 6804: Geriatrics - Internal Medicine @ VA**

Geriatrics - Internal Medicine @ VA

**Credit Hours:** 5

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**IN\_MED 6805: Hematology and Medical Oncology Chronic Care**

The specific objective of the course is to assist the student in developing a greater understanding for the care of chronically ill patients with hematologic and neoplastic diseases. The student's evaluation is based predominantly on his/her performance in presentation and in written chart notes of patients under the student's care. This evaluation will be by the attending physician with whom the student has worked. The standard department student elective evaluation form will be used to document student performance.

**Credit Hours:** 5

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**IN\_MED 6806: Immunology/Rheumatology**

The overall curricular objectives of this elective include: 1. Basic Information. The student should be able to: a. Perform a medical history and screening physical examination with attention to symptoms and signs of rheumatic disease. Understand the basic pathophysiology and clinical diagnosis of common arthritic and musculoskeletal diseases in adults. b. Understand the natural history of rheumatic diseases, particularly rheumatoid arthritis, soft tissue rheumatism, degenerative joint disease, systemic lupus erythematosus and spondyloarthropathies. c. Understand the short and long term management of rheumatic conditions and apply these principles together with overall clinical judgment in the management of individual patients. These therapeutic measures include: 1. drug therapy, 2. physical rehabilitative measures, and 3. surgical intervention. d. Learn the uses and pitfalls of laboratory tests in practice.

e. Formulate ways to approach the emotional problems of patients with chronic disease. f. Understand the value of the comprehensive approach in arthritis treatment including patient education, the role of the allied health professional and community resources.

**Credit Hours:** 5

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**IN\_MED 6807: Medical Intensive Care**

Under the supervision of the medical critical care attending, the medical students are part of a team providing assessment, management, and follow-up of critically ill patients. Students will be intimately involved in this multidisciplinary approach to patient care. As a member of the ICU patient management team, the student will work collaboratively with residents, fellows, medical attendings, nurses, pharmacists, respiratory therapists and the nutritional support staff. The team will work in a coordinated fashion with consulting physicians and services, social services, physical therapy workers, and the radiology and pathology laboratory departments, and chaplain services.

**Credit Hours:** 5

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**IN\_MED 6808: Nephrology Advanced Elective**

This elective builds on the knowledge and skills students have acquired in the third year course in Internal Medicine. Students will have the opportunity to perform histories and physicals, participate in the decision-making process of patient management, and be responsible for daily follow-up in patients with fluid and electrolyte problems, acid-base disturbances, acute and chronic renal failure and a variety of renal diseases. The focus in these areas will be at a much higher level of responsibility and management than in the third-year course.

**Credit Hours:** 5

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**IN\_MED 6809: Pulmonary Medicine Diagnostic Services**

The Pulmonary Medicine Service is designed to allow students to participate in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. This service evaluates and assists in management of adult patients at the University or VA Medical Centers. Either rotation includes intensive care unit patients with primary surgical or cardiac diagnoses, the rotation at the VA Medical Center also includes intensive care unit patients with primary medical diagnoses. The rotation will introduce the student to major clinical entities including the diagnosis and management of infectious lung disorders, neoplasms of the lungs, chronic obstructive pulmonary disease, asthma, acute respiratory failure, occupational pulmonary disease and interstitial lung disorders. The student will be introduced to the variety of diagnostic tests including radiographic studies, fiberoptic bronchoscopy, pulmonary function testing, cardiopulmonary exercise testing, surgical lung biopsy, thoracentesis and pleural biopsy, and arterial blood sampling. Students also participate in consultation on patients requiring outpatient pulmonary clinic evaluation. Each student is encouraged to spend extra time in the pulmonary function lab, and have pulmonary function tests and cardiopulmonary exercise tests done on themselves, depending on available time. Each student rotating through the pulmonary service will be expected to evaluate and present patients fully on a daily basis to the pulmonary consult team, including the attending physician. The student will have an opportunity to assist fellows and faculty with procedures such as bronchoscopy and thoracentesis. Students will have the opportunity to interpret pulmonary function tests, chest radiographs and other

radiographic studies such as computed tomography and nuclear medicine studies of the thorax.

**Credit Hours:** 5

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**IN\_MED 6820: General Medicine - Offsite**

This course was established to accommodate fourth year medical students who wish to take an elective at another medical institution. There is no specific maximum number of students who will be permitted to enroll in this course.

**Credit Hours:** 5

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**IN\_MED 6821: Internal Medicine Off-Site Selective**

Internal Medicine Off-Site Selective

**Credit Hours:** 5

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**IN\_MED 6850: DERMATOLOGY 2**

DERMATOLOGY 2

**Credit Hours:** 5

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**IN\_MED 6911: Cardiology Procedure Service**

The Cardiology Procedure Service is designed to allow students to participate in the cardiology procedures involved in the diagnosis and care of hospitalized patients with an acute cardiac problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**IN\_MED 6914: Pulmonary Medicine Procedure Service**

The Pulmonary Medicine Procedure Service is designed to allow students to participate in the pulmonary procedures involved in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**IN\_MED 6932: Adult Diabetes and Endocrinology**

During the elective rotation, students will participate in clinical activities of the division-inpatient and outpatient. The Diabetes and Endocrine Service has a strong ambulatory curriculum with daily outpatient clinics held at the Cosmopolitan International Diabetes and Endocrinology Center. These clinics provide the student with the opportunity to evaluate patients with a wide variety of endocrine disorders. These patients will be used as the focus for teaching with the emphasis placed on differential diagnosis, pathophysiology, management, and how the disorder affects the patient as a whole. If interested, students can get involved in inpatient consultations in conjunction with the fellow on call and inpatient nurse practitioner. The student will participate in Tuesday afternoon endocrine conferences that include case conferences, basic science conferences, Journal clubs, Endocrine lectures, research conferences and Endocrine



board review sessions. Endocrine board review sessions will be optional for the students. In addition to this they will also participate in diabetes patient education session/sessions.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

**Recommended:** Completion of Medicine Clerkship

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## International Studies Courses

### **INTL\_S 2940: Capstone Internship in International Studies**

Internship limited to students pursuing the AB in International Studies Degree. May be repeated to a maximum of six hours. Graded on S/U basis only.

**Credit Hour:** 1-6

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### **INTL\_S 2960: Capstone Readings in International Studies**

Independent readings with supervisory faculty member. Open only to international studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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### **INTL\_S 4290: Pre-Departure Seminar for the TaLK Program**

Prior to beginning the TaLK Program in Korea, students will explore Korean language, culture and educational system through seminars and workshops provided by the Asian Affairs Staff and guest speakers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **INTL\_S 4940: Internship in International Studies**

Internship limited to students pursuing the AB in International Studies degree. May be repeated to a maximum of six hours. Graded on S/U basis only.

**Credit Hour:** 1-6

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### **INTL\_S 4960: Readings in International Studies**

Independent readings with supervisory faculty member. Open only to International Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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### **INTL\_S 4970: Special Readings in International Studies**

Independent readings with supervisory faculty member; this course serves as the students' capstone experience. Open only to International studies majors.

**Credit Hour:** 1-6

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### **INTL\_S 4971: Capstone Internship in International Studies**

Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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## Italian Courses

### **ITAL 1100: Elementary Italian I**

Intensive approach to beginning language. Designed to give students an overview of the grammar and syntax of Italian. Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets Arts and Science or Journalism foreign language requirements.

**Credit Hour:** 5-6

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### **ITAL 1200: Elementary Italian II**

Continues basic grammar and syntax of Italian . Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meet Arts and Science or Journalism foreign language requirements.

**Credit Hour:** 5-6

**Prerequisites:** grade of C- or better in ITAL 1100 or its equivalent

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### **ITAL 1200H: Elementary Italian II - Honors**

Continues basic grammar and syntax of Italian . Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meet Arts & Science or Journalism foreign language requirements.

**Credit Hour:** 5-6

**Prerequisites:** grade of C- or better in ITAL 1100 or its equivalent.

Honors eligibility required

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### **ITAL 2001: Undergraduate Topics in Italian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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### **ITAL 2004: Undergraduate Topics in Italian-Social Science**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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### **ITAL 2005: Undergraduate Topics in Italian-Humanities/Fine Arts**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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### **ITAL 2160: Intermediate Italian**

Continues development of language skills acquired in Elementary Italian. While learning new structures and new vocabulary, students also review basic grammar components. By the end of the course, students are able to understand (through reading and listening) and communicate (in writing and orally) in a variety of both formal and informal situations.

**Credit Hours:** 3

**Prerequisites:** ITAL 1200

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**ITAL 2310: Italian Civilization**

Open to any student interested. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ITAL 2850: Italian Cinema**

(same as FILM\_S 2850). A course which concentrates on the development of Italian Cinema, primarily since the Post-WWII era, and the ways in which it reflects major economic, social and political events occurring in Italy. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ITAL 3001: Topics in Italian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

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**ITAL 3005: Topics in Italian-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

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**ITAL 3005H: Topics in Italian-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**ITAL 3150: Post-Intermediate Italian**

Gives emphasis on acquiring communicative multi-skills competence necessary to understand and discuss a variety of written and aural texts, from newspaper articles to brief literature excerpts. It offers students opportunity to review grammar components as well as learning more complex structures, to expand their vocabulary, and to use language in a variety of cultural contexts.

**Credit Hours:** 3

**Prerequisites:** ITAL 2160

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**ITAL 3160: Italian Composition**

Continues the development of the language skills acquired in Intermediate and Post-Intermediate Italian. It offers students the opportunity to expand their vocabulary, to use the language in a variety of contexts prompted by cultural activities, and to acquire more complex grammatical structures. Emphasis is given on refining writing skills in connection with different text types.

**Credit Hours:** 3

**Prerequisites:** ITAL 3150

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**ITAL 3310: 20th Century Italian Fiction in Translation**

This course is designed to present American students with a selection of Italian novels aimed at introducing them to some key issues in the historical, social, and literary developments of Italian life from the turn of the century to the 1960s.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or ENGLISH 1000

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**ITAL 3420: Introduction to Italian Literature**

This course introduces students to the literacy terminology that will enable them to study Italian literature.

**Credit Hours:** 3

**Recommended:** ITAL 2310 and basic reading knowledge of a Romance Language

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**ITAL 3430: Survey of Italian Literature**

Designed to expose students to the rich variety of Italian letters. Emphasis will be placed on textual analysis as well as on authors, themes and stylistic features.

**Credit Hours:** 3

**Recommended:** ITAL 2310 and basic reading knowledge of a Romance Language

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**ITAL 3820: Films of Federico Fellini**

(same as FILM\_S 3820). In studying the filmic career of one of the supreme stylists of the cinematic world, students will view films from each phase of Fellini's career.

**Credit Hours:** 3

**Prerequisites:** ITAL 2850 or ENGLISH 1810 or ENGLISH 1820; instructor's consent

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**ITAL 4070: Intensive Beginning Italian**

Designed for rapid acquisition of a reading knowledge of Italian. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ITAL 4960: Special Readings in Italian**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

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## Japanese Courses

**JAPNSE 1100: Elementary Japanese I**

For beginners with no prior knowledge of Japanese. Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

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**JAPNSE 1200: Elementary Japanese II**

Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

**Prerequisites:** C- or better in JAPNSE 1100, or equivalent

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**JAPNSE 2001: Topics in Japanese-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester.

**Credit Hour:** 1-3

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**JAPNSE 2005: Topics in Japanese - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. No knowledge of Japanese required. No language credit.

**Credit Hour:** 1-3

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**JAPNSE 2160: Japanese Conversation and Composition**

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 1200, or equivalent

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**JAPNSE 2310: Japanese Civilization I**

Survey of Japanese culture and arts before 1868. May be taken independently of JAPNSE 2320. No knowledge of Japanese required. No foreign language credit.

**Credit Hours:** 3

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**JAPNSE 2320: Japanese Civilization II**

Survey of Japanese culture and arts after 1868. May be taken independently of JAPNSE 2310. No knowledge of Japanese required. No foreign language credit.

**Credit Hours:** 3

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**JAPNSE 2330: The World of Japanese Business**

Designed to assist the student to achieve successful business contacts with Japanese counterparts by understanding the characteristics of Japanese business in cultural, economical, and practical contexts and by learning useful Japanese terms and expressions in business.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3085: Problems in Japanese**

Supervised study in Japanese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**JAPNSE 3160: Intermediate Japanese Composition and Conversation**

Further develops oral command of Japanese as well as listening comprehension and further essay writing skills.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 2160

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**JAPNSE 3320: Classical Japanese Literature (in translation)**

This course studies Classical Japanese Literature preceded by a brief historical survey of Japanese literature. Analyzes such works as "The Tale of Genji", "Essays in Idleness", "The Pillow Book", "Hojoki" and NO drama. Readings and lectures in English.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3360: Modern Japanese Literature (in Translation)**

Surveys Japanese literature from 1868 to present. Analyzes works by such authors as Soseki, Tanizaki, Kawabata, Mishima, Oe, Murakami, and others. Readings and lectures in English.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3370: Intermediate Readings in Japanese**

Develops reading and speaking skills and acquisition of more Kanji, vocabulary, and complex structures.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 3160, or equivalent, or instructor's consent

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**JAPNSE 3380: Intermediate Japanese II**

Continues development of intermediate reading, listening, speaking, and writing skills achieved in JAPNSE 3370, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multi-media materials also help students gain greater familiarity with Japanese culture. Encourages development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3370

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**JAPNSE 3850: Traditional Japanese Theatre**

Study of the history, scripts, and performance techniques of Japanese theatre from 14th century through late 19th century. Examines major plays (in English translations) and the culture that created them. Looks at staging and performance techniques of traditional puppet theatre. Course included stage performances and performances on campus and/or in the community.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 3880: Japan and its Cinema**

Survey and analysis of selected Japanese films from the 1940s to present. Films will be viewed and discussed in terms of history, techniques, artistry, and social impact. English subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 4005: Topics in Japanese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing

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**JAPNSE 4005H: Topics in Japanese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing; Honors eligibility required

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**JAPNSE 4160: Advanced Japanese I**

Continues development of reading, listening, speaking, writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature, exercises using authentic multi-media materials. Encourages development of student autonomy in language learning with introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3380 or equivalent, or instructor's consent

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**JAPNSE 4180: Advanced Japanese II**

This course continues the development of reading, listening, speaking, and writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multimedia materials also help students gain greater familiarity with Japanese culture. The course encourages the development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 4160

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## Journalism Courses

**JOURN \_0900: News Practicum**

Instruction in fundamentals of newswriting for students entering the graduate program without an undergraduate degree in journalism.

**Credit Hours:** 3

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**JOURN 1000: The News Media: Journalism and Advertising in a Democratic Society**

This course surveys the fields of journalism and advertising and discusses their role in a democratic society. Pre-Journalism and Journalism Majors cannot count this course towards the Bachelor of Journalism.

**Credit Hours:** 3

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**JOURN 1010: Career Explorations in Journalism**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Undeclared Journalism, Pre-Journalism, or Science and Agricultural Journalism majors only

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**JOURN 1010H: Career Explorations in Journalism - Honors**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Freshman Journalism and Science and Agricultural Journalism Majors only. Honors Eligibility Required

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**JOURN 1100: Principles of American Journalism**

Course designed to acquaint students with concepts and functions of journalism in American society. Stresses the basic issues and problems facing journalists and the mass media.

**Credit Hours:** 3

**Recommended:** For first-time college students a high school core GPA of 3.0 or higher and 15 college credits (dual, AP, IB or other). For current MU students a GPA of 2.75 and 15 college credits

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**JOURN 1940: Pre-Sequence Internship**

Internship for Journalism students who have not yet entered their emphasis areas. Used to satisfy employer requirements. Graded on S/U basis only.

**Credit Hour:** 0-1

**Prerequisites:** Consent from internship coordinator required

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**JOURN 2000: Cross-Cultural Journalism**

Cross-Cultural Journalism provides journalistic tools for the coverage of diverse ethnic, gender, ability and ideological groups inside and outside the United States. The critical role of diverse voices in a democracy will be discussed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required; C- or higher in JOURN 1100 and UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism Students Only

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**JOURN 2100: News**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of "B-" or higher in ENGLSH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2100H: News**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of "B-" or higher in ENGLSH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100HW: News - Honors/Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of "B-" or higher in ENGLSH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100W: News - Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of "B-" or higher in ENGLSH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2150: Fundamentals of Multimedia Journalism**

This course deals with the challenges faced by journalists and other communicators working with still photos, audio, video and print. Students learn the basics and ethics of cross-platform, multimedia storytelling. May not be taken concurrently with JOURN 2100. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in JOURN 1100; sophomore standing and a UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students only

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**JOURN 3000: History of American Journalism**

American mass media from colonial days to present in the context of social, economic and political change.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism or Science and Agricultural Journalism majors

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**JOURN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, T\_A\_M 2810, PEA\_ST 2810, DST 3510). This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, PEA\_ST 2810H, T\_A\_M 3010H, DST 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, PEA\_ST 2810HW, T\_A\_M 3010HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 2810W, DST 3510W, T\_A\_M 3010W). This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 4000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism and Science and Agricultural Journalism majors

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**JOURN 4050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4050H: Communications Practice - Honors**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050HW: Communications Practice - Honors/Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050W: Communications Practice - Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4056: Intersession Colloquium**

Lecture portion of any course the student plans to take later during an intersession.

**Credit Hour:** 1

**Prerequisites:** Consent of Dean required. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4058: New York Program: Journalism Theory and Practice**

Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences.

**Credit Hour:** 2-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4116: Managing and Leading People**

Dramatic changes in technology and in the media's role in covering technologies requires new management and leadership techniques and paradigms based on new management theories. Students will write case studies examining these changes and applying these new theories.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4120: New Media Basics**

Students will learn how to use the Internet to communicate with others, find human and electronic sources for stories and publish on the World Wide Web.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 7122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Students and Junior standing

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**JOURN 4126: Digital Audio and Visual Basics for Journalists**

Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Agricultural Journalism majors only

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**JOURN 4130: Account Services**

(cross-leveled with JOURN 7130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4136: Creative Techniques**

(cross-leveled with JOURN 7136). Designed for advanced strategic communication students preparing for careers in creative work. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4138: Public Relations Techniques**

(cross-leveled with JOURN 7138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4140: Interactive Techniques**

(cross-leveled with JOURN 7140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4146: Strategic Communication Techniques**

(cross-leveled with JOURN 7146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4148: Interviewing Essentials**

(cross-leveled with JOURN 7148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 4150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150. Journalism and Science and Agricultural Journalism majors and Junior Standing

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**JOURN 4198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4200: Principles of Strategic Communication**

(cross-leveled with JOURN 7200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors. Junior Standing Required

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**JOURN 4206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 4208: Strategic Writing II**

(cross-leveled with JOURN 7208). Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 7212) Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 7213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 7214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4216: Media Sales**

(cross-leveled with JOURN 7216). Focus of this course is to familiarize students with how to sell a variety of media, including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4218: MoJo Ad Staff**

(cross-leveled with JOURN 7218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 4220: Creative Portfolio**

(cross-leveled with JOURN 7220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** JOURN 4208 or JOURN 4228. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4224: Effective Job Search Strategies**

Are you getting ready to apply for a job or internship? A resume is a brief written account of personal, educational, and professional qualifications and experience that you prepare as part of your application materials for a prospective job. To ensure that your resume is read by the recipient, you will need a cover letter that markets your unique qualifications for the specified job description. In the current global economy, it is essential for job seekers to optimize their chances of being considered and hired for positions that are well-suited to their qualifications and interests. This course will help you effectively develop employment application materials for today's job market by honing your resume writing skills, providing you with tools to create an impressive resume (or to improve the one you already have), and giving suggestions on developing an effective cover letter. You will study different types of resume and cover letter formats that can be applied to various prospective employment situations and your own personal career goals. You will undertake a critical assessment of the professional skills you already possess, brainstorm and apply the best ways to market these skills in your resume and cover letter, and enhance your application materials by using specific tips and techniques to make you more competitive for the job you seek. Special focus is placed on developing effective application correspondence, follow-up correspondence and interviewing techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4226: Strategic Design and Visuals I**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Strategic Communications students only

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**JOURN 4226H: Strategic Design and Visuals I - Honors**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication students only with junior standing or higher. Honors eligibility required

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**JOURN 4228: Strategic Design and Visuals II**

(cross-leveled with JOURN 7228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4236: Psychology in Advertising**

(cross-leveled with JOURN 7236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the "lifestyle" factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4238: Broadcast Advertising**

(cross-leveled with JOURN 7238). Broadcast advertising production. Emphasis on equipment, directing, script/storyboard preparation and commercial analysis. Students become familiar with procedures, techniques and facilities used in basic radio and television production.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4240: Direct and Mail Order Advertising**

(cross-leveled with JOURN 7240). Direct mail advertising and mail order promotion, retail and national; mailing lists, copy, production, postal regulations, strategy.

**Credit Hours:** 2

**Prerequisites:** JOURN 4204. Restricted to Strategic Communications and Science and Agricultural Journalism students only

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**JOURN 4248: Media Strategy and Planning**

(cross-leveled with JOURN 7248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4250: Management of Strategic Communication**

(cross-leveled with JOURN 7250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4252: Branded Strategic Storytelling**

(cross-leveled with JOURN 7252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4256H: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Honors eligibility required

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**JOURN 4258: Global Communication**

(cross-leveled with JOURN 7258). Understanding global communication systems with an emphasis on planning and executing strategic communication campaigns. Particular attention will be paid to cultural, political and economic differences as they affect marketing and development communication.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4262: Digital Strategy I**

(cross-leveled with JOURN 7262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4263: Digital Strategy II**

(cross-leveled with JOURN 7263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4262

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**JOURN 4268: Strategic Communication Practicum**

(cross-leveled with JOURN 7268). Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all

journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4270: Public Relations Writing**

(cross-leveled with JOURN 7270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4300: Broadcast News I**

Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4301W: Topics in Journalism - Writing Intensive**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300

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**JOURN 4308: Broadcast News III**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4308W: Broadcast News III - Writing Intensive**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4310: News Producing**

(cross-leveled with JOURN 7310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308

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**JOURN 4320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 7320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308

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**JOURN 4328: Advanced News Communication**

(cross-leveled with JOURN 7328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Majors only with Junior Standing or higher

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**JOURN 4330: From Murrow to Moore: What Good Journalists Read**

Introduces undergraduates to seminal works in broadcast and print Journalism that influences contemporary professional practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 7340). The course will examine images of journalists in American films ranging from "Citizen Kane" to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 4350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4350H: Problems in Journalism - Honors**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute

for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior Standing required. Honors eligibility required

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**JOURN 4350W: Problems in Journalism - Writing Intensive**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4360: Fundamentals of Design**

(cross-leveled with JOURN 7360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or JOURN 2150

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**JOURN 4370: Film Studies: The Intersections of Documentary Film and Journalism**

(same as FILM\_S 4370; cross-leveled with FILM\_S 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms - documentary film and journalism - and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 4371: Editing for Documentaries**

(cross-leveled with JOURN 7371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final

product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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#### **JOURN 4372: Documentary Reporting**

(cross-leveled with JOURN 7372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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#### **JOURN 4373: Documentary Development**

(cross-leveled with JOURN 7373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4371

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#### **JOURN 4375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 7375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4564

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#### **JOURN 4377: Documentary Senior Project**

Students in this course will begin work on a yearlong documentary project to be the capstone of their work in the documentary journalism program. This course will concentrate on the research, reporting and field acquisition work for the senior documentary project. Students will show and discuss their work in group settings to share progress and report

results. Each will also meet individually with the instructor to fine tune the direction and content of the project. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4375

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#### **JOURN 4379: Documentary Senior Capstone**

Focus on the completion of a long-form documentary work and its place in current documentary programming. Students will apply knowledge from previous documentary courses in this capstone experience through writing, in-class presentations and their finished work.

**Credit Hours:** 3

**Prerequisites:** JOURN 4377

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#### **JOURN 4379W: Documentary Senior Capstone - Writing Intensive**

Focus on the completion of a long-form documentary work and its place in current documentary programming. Students will apply knowledge from previous documentary courses in this capstone experience through writing, in-class presentations and their finished work.

**Credit Hours:** 3

**Prerequisites:** JOURN 4377

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#### **JOURN 4400: Introduction to News Editing**

(cross-leveled with JOURN 7400). Introduces the fundamentals of editing stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hour:** 1-2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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#### **JOURN 4406: Digital News Editing**

(cross-leveled with JOURN 7406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work is hands-on experience at columbiainmissourian.com and the Missourian newspaper.

**Credit Hours:** 3

**Prerequisites:** restricted to Journalism and Science and Agricultural Journalism Majors only

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#### **JOURN 4408: Magazine Editing**

(cross-leveled with JOURN 7408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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#### **JOURN 4410: Intermediate Writing**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410W: Intermediate Writing - Writing Intensive**  
(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4412: Lifestyle Journalism**  
(cross-leveled with JOURN 7412). In-depth reporting, research and writing techniques focused on lifestyle journalism. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4414: Field Reporting on the Food System and Environment**  
(same as SCI\_AG\_J 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required

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**JOURN 4415: Current Issues in Science Journalism**  
(same as SCI\_AG\_J 4415). Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** JOURN 2100 or instructor's consent

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**JOURN 4416: Science, Health and Environmental Writing**  
(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3  
**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4416W: Science, Health and Environmental Writing - Writing Intensive**  
(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4418: Critical Reviewing**  
(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3  
**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4418W: Critical Reviewing - Writing Intensive**  
(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3  
**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4420: Editorial Writing**  
Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3  
**Prerequisites:** JOURN 4450. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4422: Sports Journalism**  
(cross-leveled with JOURN7422). A review of everything from "how to watch Sports" to the history of sports writing. Contact instructor for consent on this course. Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-serve basis as space allows. Course graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450/JOURN 7450 or JOURN 4804/JOURN 7804 or JOURN 4306/JOURN 7306 or JOURN 4560/JOURN 7560. Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-served basis as space allows

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**JOURN 4424: Covering Traumatic Events**  
(cross-leveled with JOURN 7424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and

staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 4426: Religion Reporting and Writing**

(same as REL\_ST 4418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4428: Health Reporting Skills**

This course focuses on research and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** Consent of Instructor required. Recommended JOURN 4450 or JOURN 4306 or JOURN 4804

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**JOURN 4430: Computer-Assisted Reporting**

How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior Standing

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**JOURN 4432: Advanced Data Journalism**

(cross-leveled with JOURN 7432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430  
**Recommended:** JOURN 4502

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**JOURN 4434: The Art and Mechanics of the Business Story**

The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only; JOURN 4450 or JOURN 7450, or JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556

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**JOURN 4436: Investigative Reporting**

Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4438: Business and Economics Reporting**

Advanced reporting course concentrating on writing and reporting about business and the economy. Emphasis on sources, records, documents and writing techniques.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 and JOURN 4410 or JOURN 4506

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**JOURN 4440: Mapping for Stories and Graphics**

Learn mapping software to discover information for news stories and lay the foundation for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

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**JOURN 4444: Team-Based Mobile Device Application Development**

(same as INFOTC 4500). This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4204 or JOURN 4306 or JOURN 4450

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**JOURN 4450: News Reporting**

Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4450W: News Reporting - Writing Intensive**

Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4460W: Advanced News Reporting - Writing Intensive**  
(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3  
**Prerequisites:** JOURN 4450

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**JOURN 4462: Emerging Technologies in Journalism**  
This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3  
**Prerequisites:** junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4464: Magazines Across Platforms**  
(cross-leveled with JOURN 7464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480: Will Write for Food (and Wine)**  
(same as SCI\_AG\_J 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480W: Will Write for Food (and Wine) - Writing Intensive**  
(same as SCI\_AG\_J 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4482: Field Reporting: Wine Country Writing**  
(same as SCI\_AG\_J 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles

into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only. Prerequisites: JOURN 2100

**Credit Hours:** 3

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**JOURN 4482W: Field Reporting: Wine Country Writing - Writing Intensive**  
(same as SCI\_AG\_J 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only. Prerequisites: JOURN 2100

**Credit Hours:** 3

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**JOURN 4500: Publication Design**  
Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use and execution of design style guides. Recommended: JOURN 4360

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required

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**JOURN 4502: Multimedia Planning and Design**  
Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages.

**Credit Hours:** 3  
**Prerequisites:** Consent of instructor required  
**Recommended:** Completion of one of the following--JOURN 4804 or JOURN 4508 or JOURN 4406 or JOURN 4506 or JOURN 4204 or JOURN 4306 or OURN 4450 or JOURN 4560

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**JOURN 4506: Magazine Design**  
Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3  
**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4508: Information Graphics**  
Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3  
**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4510: Visual Communication**  
How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hours:** 3  
**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4550: Basic Photography and Photo Editing**

A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4554: Visual Editing for Multimedia**

This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4556: Fundamentals of Photojournalism**

A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4556W: Fundamentals of Photojournalism - Writing Intensive**

A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 7558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques--available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556

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**JOURN 4560: Staff Photojournalism**

(cross-leveled with JOURN 7560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor Required

**Recommended:** JOURN 4558

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**JOURN 4562: Photojournalism Business Practices**

Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566 or consent of instructor; junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4564: Micro-Documentary Photojournalism and Videography**

This course extends student's understanding and abilities to produce short-form video journalism. They will produce, from concepts to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 4306 or JOURN 4804

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**JOURN 4566: Electronic Photojournalism**

Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 and instructor's consent

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**JOURN 4568: History of Photojournalism**

Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4568W: History of Photojournalism - Writing Intensive**

Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4650: International Issues and the Media**

(cross-leveled with JOURN 7650). Attached to an internship-based journalism study abroad program, this course is an overview of the media in a geographic region. The course aims to enhance students' research, writing, reporting and analytical skills so that they can produce articles, multimedia products and communications campaigns.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4200

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**JOURN 4656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

**Prerequisites:** junior standing in Journalism or Science and Agricultural Journalism

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**JOURN 4658: International Journalism**

An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4660: Media Forces Shaping the European Union**

Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4662: Global News Across Platforms**

(cross-leveled with JOURN 7662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4372 or JOURN 4564

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**JOURN 4700: Participatory Journalism**

An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of "news". Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4306 or JOURN 4206 or JOURN 4560

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**JOURN 4706: The Community Newspaper**

The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4710: Newspaper Management**

Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern to newspaper management. Cases examine critical newspaper management issues.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors with Junior standing

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**JOURN 4716: Women and the Media**

(same as WGST 4716; cross-leveled with JOURN 7716, WGST 7716).

Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills. Enrollment limited to Journalism and Science and Agricultural Journalism majors only with junior standing required.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4718: Law and the Justice System**

(cross-leveled with JOURN 7718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4720: Internet Law**

This course will focus on how to avoid legal pitfall while doing e-mail or e-commerce or browsing the Web and how to use the law to your benefit.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4728: Confronting Controls on Information**

A review of actions by government, society and the communications media calculated to limit or alter the content of information in the United States and elsewhere around the world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4730: Journalism and Conflict**

(same as PEA\_ST 4830). Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**Credit Hours:** 3

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**JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom. Graded on A-F basis only.

**Credit Hours:** 3



**Prerequisites:** Junior Standing. Restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4736: Changing Media Business Models**

Analysis of the economic changes in news media industry. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4738: Thought, Language and Journalism**

This seminar uses the methods of science to explore and better understand the biases and limitations of language, culture, technology and other factors shaping the semantic environment as applied to the practice of journalism and mass communications studies.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4802: Fundamentals of TV, Radio and Photojournalism**

Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 and instructor's consent required. Restricted to Journalism and Science and Agricultural Journalism majors only. Sophomore standing required

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**JOURN 4804: Convergence Reporting**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4804W: Convergence Reporting - Writing Intensive**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4806: Convergence Editing and Producing**

(cross-leveled with JOURN 7806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804 or JOURN 4450

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**JOURN 4810: Advanced Global Converged News**

(cross-leveled with JOURN 7810). Internet news services offers real-world newsroom experience synthesizing worldwide news coverage and revealing alternative perspectives on current events. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor consent required

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**JOURN 4812: Online Audience Development**

(cross-leveled with JOURN 7812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 4804 or JOURN 4306 or JOURN 4450 or instructor consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4814: Multimedia Sports Journalism**

(cross-leveled with JOURN 7814). Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 4940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent from internship coordinator required

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**JOURN 4950: Understanding Audiences**

Focuses on the recipients of journalistic efforts by teaching students to identify, analyze and address media audiences. Students will learn a variety of research methods and gain hands-on experience with audience analysis through team-based practical projects.

**Credit Hours:** 3

**Prerequisites:** JOURN 2000 and junior standing. Strategic Communication students may not enroll in this entry level research course

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**JOURN 4952: Strategic Communication Research I**

(cross-leveled with JOURN 7952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4970: Strategic Campaigns**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4970W: Strategic Campaigns - Writing Intensive**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4972: Photo and Visual Editing**

An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or or JOURN 4204 or JOURN 4500 or JOURN 4560

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**JOURN 4974: Advanced Internet Applications for Radio/TV News**

Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4976: Seminar in Radio/TV News**

Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4978: Media Management and Leadership**

Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4980: The Picture Story and Photographic Essay**

Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final

portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560

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**JOURN 4984: Magazine Staff**

(cross-leveled with JOURN 7984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4408 and JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986: Advanced Writing**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986W: Advanced Writing - Writing Intensive**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4988: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4988W: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia

prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4990: Journalism and Democracy**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4990W: Journalism and Democracy - Writing Intensive**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4992: Reporting, Editing and Marketing of Converged Media**

Capstone course brings together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate journalistic content and applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4992W: Reporting, Editing and Marketing of Converged Media - Writing Intensive**

Capstone course brings together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate journalistic content and applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4994: Magazine Publishing**

(cross-leveled with JOURN 7994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 and either JOURN 4410 or equivalent, or JOURN 4360 or 4500. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 7000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

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**JOURN 7050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean. Some sections of the course may be offered on either A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Study Abroad sections require consent by International Program. Obtain consent in 76 Gannett

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**JOURN 7056: Intersession Colloquium**

Lecture portion of any course the student plans to take later during an intersession.

**Credit Hour:** 1

**Prerequisites:** Dean's consent

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**JOURN 7058: New York Program: Journalism Theory and Practice**

Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences.

**Credit Hour:** 2-3

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**JOURN 7120: New Media Basics**

Students will learn how to use the Internet to communicate with others, find human and electronic sources for stories and publish on the World Wide Web.

**Credit Hour:** 1

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**JOURN 7122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 4122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. Graded on A-F basis only. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Restricted to Graduate Journalism students.

**Credit Hour:** 1

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**JOURN 7126: Digital Audio and Visual Basics for Journalists**

Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals.

**Credit Hour:** 1

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**JOURN 7130: Account Services**

(cross-leveled with JOURN 4130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary.

**Credit Hour:** 1

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**JOURN 7136: Creative Techniques**

Designed for advanced Strategic Communication students preparing for careers in creative work. Section topics vary.

**Credit Hour:** 1

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**JOURN 7138: Public Relations Techniques**

(cross-leveled with JOURN 4138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary.

**Credit Hour:** 1

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**JOURN 7140: Interactive Techniques**

(cross-leveled with JOURN 4140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary.

**Credit Hour:** 1

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**JOURN 7146: Strategic Communication Techniques**

(cross-leveled with JOURN 4146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

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**JOURN 7148: Interviewing Essentials**

(cross-leveled with JOURN 4148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 7150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**JOURN 7152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150

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**JOURN 7198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

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**JOURN 7200: Principles of Strategic Communication**

(cross-leveled with JOURN 4200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

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**JOURN 7204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agriculture Journalism Majors

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**JOURN 7206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 7208: Strategic Writing II**

(cross-leveled with JOURN 4208). Advanced course in the creation of strategic communication materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 4212). Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 4213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Graduate Students

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**JOURN 7214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 4214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7216: Media Sales**

(cross-leveled with JOURN 4216). Focus of this course is to familiarize students with how to sell a variety of media including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7218: Mojo Ad Staff**

(cross-leveled with JOURN 4218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative, media and research. Other electives required based on position. Application required.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 7220: Creative Portfolio**

(cross-leveled with JOURN 4220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** core courses and JOURN 4208 or JOURN 7208

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**JOURN 7226: Strategic Design and Visuals I**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

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**JOURN 7228: Strategic Design and Visuals II**

(cross-leveled with JOURN 4228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7236: Psychology in Advertising**

(cross-leveled with JOURN 4236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on

the increasing use of psychographics (the "lifestyle" factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7952, JOURN 4204 or JOURN 7204

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**JOURN 7238: Broadcast Advertising**

(cross-leveled with JOURN 4238). Broadcast advertising production. Emphasis on equipment, directing, script/storyboard preparation and commercial analysis. Students become familiar with procedures, techniques and facilities used in basic radio and television production.

**Credit Hours:** 3

**Prerequisites:** JOURN 4206 or JOURN 7206

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**JOURN 7248: Media Strategy and Planning**

(cross-leveled with JOURN 4248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7592, JOURN 4204 or JOURN 7204. Restricted to Journalism graduate students

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**JOURN 7250: Management of Strategic Communication**

(cross-leveled with JOURN 4250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 7252: Branded Strategic Storytelling**

(cross-leveled with JOURN 4252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200/JOURN 7200, JOURN 4204/JOURN 7204 and JOURN 4952/JOURN 7952. Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for-profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200

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**JOURN 7258: Global Communication**

(cross-leveled with JOURN 4258). Understanding global communication systems with an emphasis on planning and executing strategic communication campaigns. Particular attention will be paid to cultural,

political and economic differences as they affect marketing and development communication.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4204 or JOURN 7204, JOURN 4952 or JOURN 7952

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**JOURN 7262: Digital Strategy I**

(cross-leveled with JOURN 4262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7200, JOURN 7204 and JOURN 7952

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**JOURN 7263: Digital Strategy II**

(cross-leveled with JOURN 4263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7262. Restricted to Journalism Graduate students

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**JOURN 7268: Strategic Communication Practicum**

(cross-leveled with JOURN 4268) Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4204 or JOURN 7204 and JOURN 4952 or JOURN 7952

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**JOURN 7270: Public Relations Writing**

(cross-leveled with JOURN 4270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7300: Broadcast News I**

Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

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**JOURN 7306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300 or JOURN 7300

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**JOURN 7308: Broadcast News III**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306, instructor's consent required

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**JOURN 7310: News Producing**

(cross-leveled with JOURN 4310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 4320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7328: Advanced News Communication**

(cross-leveled with JOURN 4328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 4340). The course will examine images of journalists in American films ranging from "Citizen Kane" to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 7350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

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**JOURN 7360: Fundamentals of Design**

(cross-leveled with JOURN 4360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or 2150

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**JOURN 7370: The Intersections of Documentary Film and Journalism**

(same as FILM\_S 7370; cross-leveled with JOURN 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military—issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms—documentary film and journalism—and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 7371: Documentary Theory**

(cross-leveled with JOURN 4371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** JOURN 7564

**Recommended:** JOURN 7370

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**JOURN 7372: Documentary Reporting**

(cross-leveled with JOURN 4372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 7373: Documentary Development**

(cross-leveled with JOURN 4373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone in on a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7371

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**JOURN 7375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 4375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 7564

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**JOURN 7400: Introduction to News Editing**

(cross-leveled with JOURN 4400). Introduces the fundamentals of editing of stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 7406: Digital News Editing**

(cross-leveled with JOURN 4406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work is hands-on experience at columbiamissourian.com and the Missourian newspaper.

**Credit Hours:** 3

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**JOURN 7408: Magazine Editing**

(cross-leveled with JOURN 4408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 7410: Intermediate Writing**

(cross-leveled with JOURN 4410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804. Restricted to Journalism majors only

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**JOURN 7412: Lifestyle Journalism**

(cross-leveled with JOURN 4412). In-depth reporting, research and writing techniques focused on lifestyle journalism. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets. This course can serve as a substitute for JOURN 7410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804. Restricted to Journalism majors only

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**JOURN 7414: Field Reporting on the Food System and Environment**

(same as SCI\_AG\_J 7414) Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day filed trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 4416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 7410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804

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**JOURN 7418: Critical Reviewing**

(cross-leveled with JOURN 4418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 7422: Sports Journalism**

A review of everything from "How to Watch Sports" to the history of sports writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450, or JOURN 4804 or JOURN 7804, or JOURN 4306 or JOURN 7306. Restricted to Journalism and Science and Agricultural Journalism students only. Instructor's consent required. Priority will be given on first-come, first-served basis as space allows

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**JOURN 7424: Covering Traumatic Events**

(cross-leveled with JOURN 4424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 7426: Religion Reporting and Writing**

(same as REL\_ST 7418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or its equivalent in professional writing experience and instructor's consent

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**JOURN 7428: Health Reporting Skills**

This course focuses on reporting, sourcing and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** JOURN 4450 or JOURN 7450, JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804 and instructor's consent

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**JOURN 7430: Computer-Assisted Reporting**

How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3



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**JOURN 7432: Advanced Data Journalism**

(cross-leveled with JOURN 4432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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**JOURN 7434: The Art and Mechanics of the Business Story**

The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers. Those classes include: JOURN 4450 or JOURN 7450; JOURN 4306 or JOURN 7306; JOURN 4804 or JOURN 7804; JOURN 4556 or JOURN 7556.

**Credit Hours:** 3

**Prerequisites:** Journalism Graduate students who have passed a newsroom reporting class (or its equivalent)

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**JOURN 7436: Investigative Reporting**

Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 and instructor's consent

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**JOURN 7438: Business and Economics Reporting**

Advanced reporting course concentrating on writing and reporting about business and the economy. Emphasis on sources, records, documents and writing techniques.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 and JOURN 4410 or JOURN 7410 or JOURN 4506 or JOURN 7506

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**JOURN 7440: Mapping for Stories and Graphics**

Learn mapping software to discover information for news stories and lay the foundations for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 2100 and instructor's consent

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**JOURN 7450: News Reporting**

Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

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**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting, and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7462: Emerging Technologies in Journalism**

This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded A-F basis only.

**Credit Hour:** 1-3

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**JOURN 7464: Magazines Across Platforms**

(cross-leveled with JOURN 4464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804

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**JOURN 7480: Will Write for Food (and Wine)**

(cross-leveled with SCI\_AG\_J 4480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing, instructor's consent and JOURN 4450. Restricted to Journalism and Science Agriculture Journalism students only

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**JOURN 7500: Publication Design**

Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use of execution of design style guides.

**Credit Hours:** 3

**Prerequisites:** JOURN 4360 and instructor's consent. Restricted to Journalism Graduate students only

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**JOURN 7502: Multimedia Planning and Design**

Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages. Prerequisites: Completion of one of the following: JOURN 4804, JOURN 4508, JOURN 4406, JOURN 4506, JOURN 4204, JOURN 4306, JOURN 4450 or JOURN 4560; or by instructor's consent.

**Credit Hours:** 3

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**JOURN 7506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

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**JOURN 7508: Information Graphics**

Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or the professional equivalent, or instructor's consent

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**JOURN 7510: Visual Communications**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hour:** 2-3

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**JOURN 7550: Basic Photography and Photo Editing**

A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7554: Visual Editing for Multimedia**

This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agriculture Journalism students only

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**JOURN 7556: Fundamentals of Photojournalism**

A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 4558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques-available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556

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**JOURN 7560: Staff Photojournalism**

(cross-leveled with JOURN 4560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558

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**JOURN 7562: Photojournalism Business Practices**

Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566, or instructor's consent required. Restricted to graduate Journalism majors only

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**JOURN 7564: Micro-Documentary Photojournalism and Videography**

This course extends students' understanding and abilities to produce short-form video journalism. They will produce, from concept to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 or JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804 or consent of instructor. Restricted to Journalism or Science and Agricultural Journalism students only

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**JOURN 7566: Electronic Photojournalism**

Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556 and instructor's consent required

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**JOURN 7568: History of Photojournalism**

Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

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**JOURN 7650: International Issues Reporting**

An advanced professional seminar on how to recognize, report and write about the domestic influence of international political, economic and cultural problems and trends.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

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**JOURN 7658: International Journalism**

An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

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**JOURN 7660: Media Forces Shaping the European Union**

Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

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**JOURN 7662: Global News Across Platforms**

(cross-leveled with JOURN 4662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

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**JOURN 7700: Participatory Journalism**

An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of "news." Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 7706: The Community Newspaper**

The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 and JOURN 2100

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**JOURN 7710: Newspaper Management**

Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern to newspaper management. Cases examine critical newspaper management issues.

**Credit Hours:** 3

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**JOURN 7716: Women and the Media**

(same as WGST 7716;cross-leveled with JOURN 4716, WGST 4716). Focus on portrayal of women in American mass media. Other goals:

historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7718: Law and the Justice System**

(cross-leveled with JOURN 4718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers, with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7720: Internet Law**

This course will focus on how to avoid legal pitfall while doing e-mail or e-commerce or browsing the Web and how to use the law to your benefit.

**Credit Hours:** 3

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**JOURN 7728: Confronting Controls on Information**

A review of actions by government, society and the communications media calculated to limit or alter the content of information in the United States and elsewhere around the world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7730: Journalism and Conflict**

Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**Credit Hours:** 3

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**JOURN 7734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Agricultural Journalism students only

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**JOURN 7736: Changing Media Business Models**

Analysis of the economic changes in news media. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

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**JOURN 7738: Thought, Language and Journalism**

This seminar uses the methods of science to explore and better understand the biases and limitations of language, culture, technology and other factors shaping the semantic environment as applied to the practice of journalism and mass communications studies.

**Credit Hour:** 1-3

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**JOURN 7802: Fundamentals of TV, Radio and Photojournalism**

Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7804: Convergence Reporting**

(cross-leveled with JOURN 4804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7802 or instructor's consent

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**JOURN 7806: Convergence Editing and Producing**

(cross-leveled with JOURN 4806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804

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**JOURN 7810: Advanced Global Converged News**

(cross-leveled with JOURN 4810). Internet news services offers real-world newsroom experience synthesizing world wide news coverage and revealing alternative perspectives on current events. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7812: Online Audience Development**

(cross-leveled with JOURN 4812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 7814: Multimedia Sports Journalism**

Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306, or JOURN 4450 or JOURN 7450, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556 or JOURN 4560 or JOURN 7560. Restricted to Journalism and Science and Agricultural Journalism students only. Instructor's consent required

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**JOURN 7940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Restricted to Journalism students only

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**JOURN 7952: Strategic Communication Research I**

(cross-leveled with JOURN 4952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7970: Strategic Campaigns**

(cross-leveled with JOURN 4970). This capstone course gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7972: Photo and Visual Editing**

An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 or JOURN 4204 or JOURN 7204 or JOURN 4500 or JOURN 7500 or JOURN 4560 or JOURN 7560

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**JOURN 7974: Advanced Internet Applications for Radio/TV News**

Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7976: Seminar in Radio-TV News**

Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions. Not for students who have taken JOURN 8096.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306; instructor's consent required

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**JOURN 7978: Media Management and Leadership**

Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804

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**JOURN 7980: The Picture Story and Photographic Essay**

Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 7560

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**JOURN 7984: Magazine Staff**

(cross-leveled with JOURN 4984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410, JOURN 4408 or JOURN 7408

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**JOURN 7986: Advanced Writing**

(cross-leveled with JOURN 4986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410 or equivalent. Restricted to Journalism students only

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**JOURN 7988: Advanced Publication Design**

(cross-leveled with JOURN 4988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500 or JOURN 7500

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**JOURN 7992: Reporting, Editing and Marketing of Converged Media**

Capstone course brings together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate journalistic content and applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804, JOURN 4806 or equivalent level of multimedia experience; instructor's consent required

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**JOURN 7994: Magazine Publishing**

(cross-leveled with JOURN 4994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a

nuts and bolts, learn-by-doing approach to how these components work together and influence one another.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 and either JOURN 4410 or 7410 or equivalent, or JOURN 4360 or JOURN 7360 or JOURN 4500 or JOURN 7500. Restricted to Journalism students only

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**JOURN 8000: Mass Media Seminar**

Concepts, functions and major problems of print and electronic media in the United States. Two hours lecture and one hour of discussion lab each week.

**Credit Hours:** 3

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**JOURN 8001: Seminar on Topics in Journalism**

Problems, issues and approaches to research in selected topic areas. Specific content varies by needs of faculty and students and will be announced in advance.

**Credit Hours:** 3

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**JOURN 8006: Quantitative Research Methods in Journalism**

Research methods of utility in journalism and philosophy of science. Emphasis on understanding common quantitative methods and tools.

**Credit Hours:** 3

**Prerequisites:** six hours of journalism or instructor's consent

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**JOURN 8008: Qualitative Research Methods in Journalism**

Course is designed to introduce graduate students to common qualitative approaches applicable to the study of journalism and mass communication. Students will learn a variety of approaches, practical methodologies and tools that will help them conduct research.

**Credit Hours:** 3

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**JOURN 8010: Advanced Qualitative Methods in Journalism**

Designed to familiarize doctoral students with qualitative approaches applicable to the study of journalism and mass communication. Students will be introduced to a variety of philosophical and conceptual approaches as well as to practical tools-oriented methodologies in four major areas of qualitative research.

**Credit Hours:** 3

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**JOURN 8016: Advanced Quantitative Research Methods**

Experimental design, factor analysis, semantic differential and Q methodology as tools for the researcher in journalism, communication.

**Credit Hours:** 3

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**JOURN 8018: Strategic Communication Research II**

Course reviews the latest principles of strategic communication with emphasis on the crucial role of research to develop informed strategy, monitor communication programs and evaluate overall campaign effectiveness.

**Credit Hours:** 3

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**JOURN 8020: Principles and Tools in Strategic Communication Planning**

Introduces the latest principles of strategic communication and the importance of strategic planning in many contemporary communication fields. A significant operational component in the course introduces skills such as budgeting, scheduling objective-setting, organizing personal time, and managing people.

**Credit Hours:** 3

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**JOURN 8026: Philosophy of Journalism**

Seminar deals with wide assortment of philosophical questions in journalism but concentrates on epistemology, political press theory and ethics. Such questions as "objectivity" in journalism, press responsibility, professionalism.

**Credit Hours:** 3

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**JOURN 8028: The Literature of Journalism**

Reading of ten basic books about journalism. Several books are assigned to everyone; several are assigned on an individual basis, and several are electives. Oral reports, short papers, and class discussion.

**Credit Hours:** 3

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**JOURN 8030: History of Mass Media**

American mass media from colonial days to present in the context of social, economic and political change. History research.

**Credit Hours:** 3

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**JOURN 8032: Media Sociology**

This course examines the relationship between media (and journalism in particular) and society by addressing the impact of society on media and the impact of media on society. It connects media actors, organizations, and institutions to important sociological concepts, such as socialization, social interaction, social roles, and social structures, concerns, such as power, ideology, autonomy, and identity, and debates, such as agency-structure, subjectivity-objectivity, and stability-change. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 8036: Historical Methods**

Graduate seminar in research methods and theoretical approaches used by media historians, including oral history, biography, quantitative and archival research.

**Credit Hours:** 3

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**JOURN 8038: Seminar in Communications Law**

A graduate-level survey of issues in media law, as well as an introduction to First Amendment theory and scholarship. The course familiarizes students with fundamental concepts of mass media law through exposure to primary materials and provides students with the opportunity to analyze the issues discussed in class through individual research projects.

**Credit Hours:** 3

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**JOURN 8042: Health News and Promotion**

This is an advanced seminar that examines and critiques the literature on health communication in news about health and its impact and health promotion campaigns.

**Credit Hours:** 3

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**JOURN 8044: Strategic Conflict Management**

Strategic conflict management is a cross-disciplinary study that integrated organizational behavior, crisis management, conflict resolution and image repair. This course melds theory with practice, and is for those venturing into media management, law, and strategic communication.

**Credit Hours:** 3

**Prerequisites:** graduate journalism standing required

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**JOURN 8046: Controls of Information**

A detail of actions by government, largely the federal government, calculated to limit or alter the content of information in the United States.

**Credit Hours:** 3

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**JOURN 8052: Case Studies in the Digital Globe**

This course seeks to broaden students perspective about how digital technology affects the world around us. Final course in the CDiG certificate. Inter-departmental course.

**Credit Hours:** 3

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**JOURN 8054: Entrepreneurship and Media of the Future**

This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Us and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Journalism or MBA program

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**JOURN 8056: Theory of Mass Communication**

Major communication theories and theorists. Interpersonal theories are included as they relate to mass communication.

**Credit Hours:** 3

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**JOURN 8058: Communication in Media Organizations**

Covers key concepts in management and communication in media organizations, including print, broadcast, advertising and public relations. Topics include leadership, human resource management, managerial/employee communication, career success, financial decision-making, teambuilding and goal setting in media organizations.

**Credit Hours:** 3

**Prerequisites:** Open to students in the online master's program only

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**JOURN 8068: The Mass Media and the Presidency**

This seminar examines that historical triad of the free expression clauses of the First Amendment, the presidency and the American mass media through readings, class assignments and a project.

**Credit Hours:** 3

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**JOURN 8070: Proseminar in Communications**

Seminar on professional and academic issues in journalism and communication. Specific discussion topics selected by faculty and students on a per class basis.

**Credit Hour:** 1-3

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**JOURN 8080: Media Ethics**

An introduction to and application of ethical theory to their contemporary mass media.

**Credit Hours:** 3

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**JOURN 8085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the master's thesis or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Master's students only

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**JOURN 8090: Research in Journalism**

Guidance for graduate students engaged in research toward production of the thesis. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**JOURN 8092: Photography in Society**

Social and political dimensions of still photography with emphasis on critical thinking and analysis in visual communication.

**Credit Hours:** 3

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**JOURN 8098: MA Project Seminar**

Choosing and designing an appropriate profession project; preparation to carry out work successfully; discussion of trends and future directions in various areas of journalism. Must be completed before starting the professional project. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8100: MA Thesis Seminar**

Choosing and developing an appropriate research topic for a thesis; designing a research strategy and learning appropriate investigative techniques. Must be completed before starting thesis. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8106: The Magazine: Then and Now**

Examines magazines' history, role, economics and ethical practices, and the companies and people who produce them, particularly in the United States. It also reviews research perspectives that have illuminated this medium.

**Credit Hours:** 3

**Prerequisites:** JOURN 8000

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**JOURN 8108: News Reporting and Writing for the High School Advisor**

Introduction to fundamentals of new writing. Provides training under deadline pressure in writing news stories for publication. Stories include several "live" reporting assignments.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8110: Editing and News Design for the High School Advisor**

Fundamentals of editing and headline writing for publication. Principles of design with emphasis on newspaper usage.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8120: Media Law and Ethics for the High School Advisor**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they related to print, broadcast, scholastic journalism, advertising and other areas. Includes examination of media ethics and practice.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8122: Graduate Proseminar for High School Advisors**

This seminar is designed to introduce students to the multiplicity of approaches to the study of journalism and mass communication. The course will focus on theories that relate to adolescents and children, plus other areas of interest to high-school educators.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8185: Area Seminar in Journalism**

Seminar designed to accompany JOURN 8190, Area Problem. Through readings and discussions the master's student examines the special area related to the project.

**Credit Hours:** 3

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**JOURN 8190: Area Problem in Journalism**

Work project enabling a master's student to demonstrate professional competence; may be one offered in a graduate reporting program or a creative project designed to meet a particular interest of student. Graded on S/U basis only.

**Credit Hour:** 1-9

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**JOURN 9000: Doctoral Theory and Research I**

First semester of a one-year course that covers theory and method in important topic areas. Each topic would be examined from several theoretical and methodological points of view. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9006: Doctoral Theory and Research II**

Continuation of JOURN 9000. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9008: Readings in Journalism**

Directed readings for doctoral candidates. Designed to supplement work in other courses and to broaden student's knowledge of trends, interpretations and developments in the media.

**Credit Hour:** 1-5

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**JOURN 9010: Doctoral Research Design**

This course is designed to meet the University requirement for a first-year qualifying examination process for doctoral students, involve students in research early in their programs and encourage students to recruit members of their doctoral committees.

**Credit Hours:** 3

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**JOURN 9016: Advanced Seminar, Theory of Communication**

In-depth investigation of communication theory with emphasis on problems of theory building in communication.

**Credit Hours:** 2

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**JOURN 9018: Media and Politics**

With a general premise that the mass media play a central role in American politics, this seminar seeks to answer how the class will examine various theoretical bases for that role and the ensuing political communications, the issues raised in covering American politics, and the types of effects both from politicians and from the mass media coverage on the American society.

**Credit Hours:** 3

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**JOURN 9020: Risk Communication**

Designed to acquaint students from a variety of disciplines and with a variety of career goals with the scholarship of risk communication.

**Credit Hours:** 3

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**JOURN 9026: Mass Communication and Cultural Theory**

Explores the relationship between mass communication and the idea of culture as it emerges during the second half of the twentieth century in the United States.

**Credit Hours:** 3

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**JOURN 9085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the doctoral dissertation or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Doctoral students only

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**JOURN 9087: Professional Development**

Weekly discussion session for doctoral students. Required of all doctoral students. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 9090: Research in Journalism**

Guidance for doctoral candidates engaged in investigations looking toward production of the dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**Korean Courses**

**KOREAN 1001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1100: Elementary Korean I**

Introductory course on Korean language. Five hours classroom instruction with one hour lab weekly.

**Credit Hours:** 6

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**KOREAN 1200: Elementary Korean II**

Five hours classroom instruction with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in KOREAN 1100

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**KOREAN 1830: Survey of East Asian History**

(same as HIST 1830)Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era. Graded on A-F basis only.

**Credit Hours:** 3

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**KOREAN 2001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2160: Intermediate Korean Language I**

Intermediate Korean I continues to build on the skills students acquired in the first-year series with increasing work in authentic materials and situations in conversation and reading that encourage students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 1200

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**KOREAN 2310: Korean Civilization I**

Focuses on understanding traditional Korean people and culture through examining social, political, economic, and belief systems. Considers literature, art, folklore, and history up to the late 19th century. May be taken independently of KOREAN 2320.

**Credit Hours:** 3

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**KOREAN 2320: Korean Civilization II**

Considers the situation and culture of Korea at the end of the Chosun Kingdom, and the period of modernization beginning about 1876. Investigates how modernization has changed Korea by looking at attitudes, behaviors, values, philosophies, and trends of Korea in the 20th and 21st centuries. May be taken independently of KOREAN 2310.

**Credit Hours:** 3

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**KOREAN 2330: Study Tour of Korea**

Study tour allows students to experience firsthand important cultural, historical, and education aspects of Korea. Visit key landmarks, museums, and other sites. Provides information and insight needed to cultivate greater understanding of Korea. Graded on A-F basis only.

**Credit Hours:** 3

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**KOREAN 2810: History of Korea: Premodern to Hypermodern**

(same as HIST 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history. More time is devoted to the contemporary period than other periods, and North Korea is equally considered with South Korea. This course is not only about what happened in Korea but also about how Korea's historical events are causally connected to world events, with the greater aim of universalizing Korea's historical questions.

**Credit Hours:** 3

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**KOREAN 3001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: sophomore standing and instructor's consent;

**Credit Hour:** 1-3

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**KOREAN 3005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 3160: Intermediate Korean Language II**

Continues to build on the skills students acquire in the third semester of Korean language with increasing work in authentic materials and situations in conversation and reading. Encourages students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 2160, or instructor's consent

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**KOREAN 3180: Advanced Korean I**

The course is designed to advance students to greater strength in oral communication competence, reading skills, and socio-cultural knowledge of Korea. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in KOREAN 3160, or equivalent

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**KOREAN 3650: The Korean Peninsula in World Affairs: Political, Economic, and Cultural Forces**

Designed as interdisciplinary introduction to Korean politics, public policy, economics, and society, paying special attention to the government and politics of South Korea. The Korean peninsula (South and North Korea) has important implications for U.S. foreign policy toward East Asia. Surrounded by Russia, China, and Japan, the Korean peninsula long been regarded among social scientists as one of major regional cases that informs the broader theoretical debate on political and economic issues including democratization, civil society, economic development, and security. Course aims to provide students with the information necessary to understand and analyze modern South and North Korea, and discuss the future of the two Koreas as well as of U.S. foreign policy toward Korea.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 3800: Korean Economic Development and US-Korean Free Trade Agreement**

Covers introductory theories of economic development and overviews Korean historical economic development plans. Aids with understanding how South Korea achieved high levels of economic development and what policies the South Korean Government implemented to spur growth. US -Korea Free Trade Agreement is a good example of how trade promotes the achievement of development goals.

**Credit Hours:** 3

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**KOREAN 3850: Religion and Culture in Modern Korea**

Survey of religious traditions and culture in Korea within a broader context of world religions: Shamanism, Buddhism, Confucianism, and Christianity, as well as new religions that have sprouted since the late nineteenth century. Intended to help students understand how religious values, ideas and practices have been integrated into the modern contemporary Korean society and culture. Discussion of how religious traditions in Korea have interacted with each other and culture. No knowledge of Korean language or culture or history required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 3890: Korean Society Through Cinema**

(same as FILM\_S 3895). Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 4001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4220: Korean Unification**

Explores many different topics related to Korean Unification. Studies North Korean ideology, political system, economic system, military, and negotiating behavior. Examines Unification policies of Koreas as well as past efforts toward Unification. Considers various scenarios of unification. Studies unification attitudes and values of Korean people including anti-American values, and the roles of neighboring countries.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**KOREAN 4260: The Korean Diaspora in the U.S., Japan and China**

Interdisciplinary course related to the phenomenon of migration and settlement from Korea. Course seeks to deepen understanding of the ways in which Korean immigrants have shaped and continue to shape social thought as well as institutions in the United States, Japan and China. Draws upon literature, history and cultural studies to examine experiences of Koreans living in the U.S., Japan and China. Through reading critical literatures, students address issues such as immigration history, race/ethnicity, racism and resistance, gender and sexuality, culture and identity, labor, migration and globalization, class, education, religion.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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**KOREAN 4867: North Korea: History, Political Economy, Culture**

(same as HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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## Laboratory Animal Medicine Courses

**LAB\_AN 8085: Problems in Laboratory Animal Medicine**

Advanced studies not expected to terminate in a thesis.

**Credit Hour:** 1-99

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**LAB\_AN 8090: Research in Laboratory Animal Medicine**

Research expected to terminate in a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LAB\_AN 8450: Research in Laboratory Animal Medicine**

Research not expected to terminate in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**LAB\_AN 9085: Topics in Laboratory Animal Medicine**

Courses on various specialized topics in laboratory animal medicine or comparative medicine given on an as needed basis; content depends on faculty expertise and student need.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LAB\_AN 9087: Seminar in Laboratory Animal Medicine**

Theme-oriented seminars and discussions in the field of laboratory animal medicine, comparative medicine or related areas. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**LAB\_AN 9437: Pathology of Laboratory Animals**

Pathogenesis, pathology and diagnosis of naturally occurring diseases in animals used in research.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**LAB\_AN 9468: Laboratory Animal Biology**

Anatomy, taxonomy, reproduction, genetics, nutrition, and behavior of common laboratory animals. Emphasis is placed on mice and rats, including genetically-engineered models with comparative discussions on other laboratory animals. Prerequisites: departmental consent

**Credit Hours:** 4

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**LAB\_AN 9469: Laboratory Animal Resource Management**

Policies, standards and regulations in the care and use of laboratory animals, including colony management, animal procurement, cost accounting, facility design, and supervisory skills.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**LAB\_AN 9475: Methodology of Animal Experimentation**

Topics include experimental design, applied biostatistics, concepts of animal modeling.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**LAB\_AN 9476: Grant and Manuscript Writing for Biomedical Researchers**

Topics include experimental design applied biostatistics and writing effective grant proposals and scientific manuscripts. Methods include lecture, discussion and assignments including an individual grant proposal which will be reviewed by a mock study section.

**Credit Hours:** 3

**Prerequisites:** LAB\_AN 9475; instructor's consent

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**LAB\_AN 9477: Laboratory and Project Management**

This course will provide graduates with professional development skills and career guidance including instruction in laboratory and project management. Topics will include job searching, start-up considerations, equipping a lab, personnel management and budget management. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrollment in Comparative Medicine Area Program or approval of course coordinator

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## Latin Courses

**LATIN 1100: Elementary Latin I**

Forms, grammar, syntax.

**Credit Hours:** 5

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**LATIN 1100H: Honors Elementary Latin**

Beginning Latin for Honors Eligible students.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**LATIN 1200: Elementary Latin II**

Continuation of LATIN 1100.

**Credit Hours:** 5

**Prerequisites:** LATIN 1100

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**LATIN 1200H: Honors Elementary Latin II**

Continuation of LATIN 1100H.

**Credit Hours:** 5

**Prerequisites:** LATIN 1100. Honors eligibility required

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**LATIN 2000: Latin Reading**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200

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**LATIN 2000H: Latin Reading - Honors**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200. Honors eligibility required

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**LATIN 4300: Latin Poetry**

Readings in selections from the Latin poets.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 4350: Latin Prose**

Selections from various Latin prose writers; some composition at instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 4500: Latin Stylistics**

Study and writing of connected prose compositions.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 4505: Topics in Latin**

Topics course involving Latin texts. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4510: Age of the Scipios**

Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4520: Age of Cicero**

Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4530: Vergil**

Readings, discussion, and literary analysis of Vergil Aeneid.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4540: Augustan Literature**

Critical readings in and integrated analyses of the culture of Augustan Rome.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4550: Latin Epigraphy**

Introduction to the study of Latin inscriptions and their contributions to ancient culture.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4560: Neronian Literature**

Critical readings in and integrated analysis of the culture of the age of Nero.

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**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4570: Age of Pliny and Tacitus**

Critical readings in and integrated analyses of the ages of Domitian and Trajan.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4580: The Theodosian Age**

A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4590: Medieval Latin**

Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4600: Survey of Latin Literature**

Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 7300: Latin Poetry**

Readings in selections from the Latin poets. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000 or equivalent

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**LATIN 7350: Latin Prose**

Selections from various Latin prose writers; some composition at instructor's discretion. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 7500: Latin Stylistics**

Study and writing of connected prose compositions.

**Credit Hours:** 3

**Prerequisites:** two years classical Latin or equivalent

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**LATIN 7505: Topics in Latin**

Topics in Latin.

**Credit Hours:** 3

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**LATIN 7510: Age of the Scipios**

Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7520: Age of Cicero**

Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7530: Vergil**

Readings, discussion, and literary analysis of Vergil's Aeneid.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7540: Augustan Literature**

Critical readings in and integrated analyses of the culture of Augustan Rome.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

---

**LATIN 7550: Latin Epigraphy**

Introduction to the study of Latin inscriptions and their contributions to ancient culture.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

---

**LATIN 7560: Neronian Literature**

Critical readings in and integrated analysis of culture of the age of Nero.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7570: Age of Pliny and Tacitus**

Critical readings in and integrated analyses of the ages of Domitian and Trajan.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

---

**LATIN 7580: The Theodosian Age**

A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7590: Medieval Latin**

Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**LATIN 7600: Survey of Latin Literature**

Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 2-3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 8000: Proseminar in Latin Texts**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 8010: Latin Rough Guide**

Intensive exploration of Latin literature from the Roman Republic through the Late Empire. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies.

**Credit Hours:** 3

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**LATIN 9187: Seminar in Roman Comedy**

Seminar in Roman Comedy.

**Credit Hours:** 3

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**LATIN 9287: Seminar in Latin Lyric and Elegiac Poetry**

Seminar in Latin Lyric and Elegiac Poetry

**Credit Hours:** 3

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**LATIN 9387: Seminar in Neronian Literature**

Seminar in Neronian Literature

**Credit Hours:** 3

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**LATIN 9487: Seminar in Roman Historians**

Seminar in Roman Historians.

**Credit Hours:** 3

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**LATIN 9587: Seminar in Latin Epic Poetry**

Seminar in Latin Epic Poetry.

**Credit Hour:** 1-99

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**LATIN 9687: Seminar in the Augustan Age**

Integrated studies in the culture of the age of Augustus--its literature, art and architecture, religion, political and social institutions.

**Credit Hour:** 3-6

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**LATIN 9787: Seminar in Late Antiquity**

Integrated studies in the culture of late antiquity with interdisciplinary focus.

**Credit Hours:** 3

**Prerequisites:** consent required for non graduate students

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**LATIN 9887: Seminar in Special Fields**

Seminar in special fields.

**Credit Hours:** 3

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## Law Courses

**LAW 5010: Civil Procedure I**

Fundamental and recurrent problems in civil actions in federal and state courts; remedies; pleading; discovery; trials; jurisdiction; appeals; joinder; preclusion.

**Credit Hour:** 1-3

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**LAW 5015: Civil Procedure II**

Continuation of LAW 5010.

**Credit Hour:** 1-3

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**LAW 5020: Contracts I**

Contract formation, insufficient and defective agreement, bases of promissory liability (including consideration and promissory estoppel), resolution, and abuse of bargaining process, Statutes of frauds, parole evidence rule and principles of interpretation, contract performance and risk allocation, remedies for breach.

**Credit Hour:** 1-3

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**LAW 5025: Contracts II**

A continuation of Law 5020

**Credit Hour:** 1-3

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**LAW 5035: Criminal Law**

The purposes of criminal law; nature of criminal responsibility; characteristics of particular crimes.

**Credit Hour:** 1-4

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**LAW 5050: Property**

Classification of real and personal property; rights to found goods; bailments; possession and adverse possession; estates in land and future interests; concurrent ownership; Landlord and tenant; easements, profits and licenses; covenants running with land and equitable servitudes; contracts for the sale of land; conveyancing.

**Credit Hour:** 1-5

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**LAW 5070: Torts**

Principles and practices governing recovery of damages for injuries to person or property. Topics typically covered are intentional torts, negligence, strict liability, products liability, immunities and a survey of various "no fault" proposals.

**Credit Hour:** 1-5

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**LAW 5080: Legal Research and Writing**

An introduction to the basics of legal research (using print materials), legal citation and legal writing. Each student writes two objective office memoranda, and a client letter.

**Credit Hour:** 1-2

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**LAW 5085: Advocacy and Research**

An introduction to Computer Assisted Legal Research, written advocacy, oral advocacy, and the Missouri rules of appellate procedure. Each student writes a trial court motion and brief and then argues that motion. Each student also writes an appellate brief and presents an oral argument in the First Year Moot Court Competition directed by the Board of Advocates (BOA).

**Credit Hour:** 1-3

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**LAW 5090: Legal Reasoning**

A limited enrollment course designed to assist first-year students to better understand the legal system, prepare for examinations and improve their legal analysis and reasoning skills. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5095: Lawyering: Problem Solving and Dispute Resolution**

This course is designed to provide students in introduction to critical lawyering skills; to give students an overview of the alternative processes that a lawyer can employ to resolve a client's problem; and to offer students an understanding of the lawyer's role as a problem solver. It includes an introduction to Interviewing, Counseling, Negotiation, Mediation, Arbitration, mixed dispute resolution processes and ways to choose or build dispute resolution process.

**Credit Hour:** 1-2

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**LAW 5220: Constitutional Law**

Study of theories of judicial review and justiciability; sources of federal legislative power, commerce, taxing, spending, treaty, presidential, military powers; power of states to regulate and tax interstate commerce; preemption; state actions doctrine; due process, equal protection, First Amendment rights.

**Credit Hour:** 1-4

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**LAW 5240: Criminal Procedure**

Constitutional and other limitations placed upon law enforcement officers and prosecutors.

**Credit Hour:** 1-3

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**LAW 5260: Evidence**

The basic law of evidence; use in trials, relevancy, circumstantial proof and real proof; use of witnesses, methods of examination; presumptions and burden of proof; functions of judge and jury.

**Credit Hour:** 1-4

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**LAW 5280: Professional Responsibility**

Responsibilities of lawyer to client, courts and the public. Topics include: organization of the legal profession, fees, conflicts of interest, the confidential relationship, advertising and solicitation, unauthorized practice and courtroom behavior.

**Credit Hour:** 1-3

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**LAW 5310: Administrative Law**

(same as PUB\_AF 8864). Administrative Law is concerned with the process government agencies used to make decisions. As such it develops the requirements for establishing rules and policies. It also covers the means by which regulations and statutory provisions are enforced by agencies, and the means for securing judicial review of rules and enforcement actions.

**Credit Hour:** 1-3

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**LAW 5320: Advanced Legal Research**

Skill training in advanced research techniques and resources used in law practice. Designed to help students become critical legal information consumers with emphasis on developing effective, cost-efficient research strategies. Topics include advanced litigation research, legislative and regulatory history, audience research, research in transactional practices areas, and research in other practices areas including legal ethics, public interest law, and international law. In-depth practice with Lexis, Westlaw and free Internet sources, including appropriate and effective use of social networking tools to extend research.

**Credit Hour:** 1-2

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**LAW 5321: Advanced Legal Writing**

This course is designed to help students to think purposefully about the process of writing and to practice writing and editing in a disciplined way. Students will do exercises involving: rhetorical techniques; grammar; punctuation; and, word usage. Students also will rewrite and critique portions of appellate briefs or judicial opinions as a way to practice particular writing techniques.

**Credit Hour:** 1-3

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**LAW 5323: Advanced Torts: Dignitary and Economic Torts**

The Advanced Torts: Dignitary and Economic Torts class will examine dignitary and economic torts covering but not limited to such topics as: defamation, invasion of privacy, tortious interference, misrepresentation and injurious falsehood. Unlike tortious conduct that results in an individual suffering physical harm or contact, the claims that arise from these torts represent one of two kinds of non-physical injury - independent dignitary that are similar to or include emotional harms or independent economic or commercial harms. The purpose of the course is to provide students with an opportunity to explore tortious conduct and remedies available that are omitted typically from the First Year Torts course.

**Credit Hour:** 1-3

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**LAW 5325: Advanced Trial Practice**

This course will expand student knowledge of opening statements, direct/cross examination witnesses, jury instruction, closing arguments and will focus significantly on the examination/cross examination of expert witnesses. Grading is based on student participation in examination of witness and semester-ending written trial brief. NOTE: Intersession Trial Practice will not satisfy the prerequisite.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5260 Evidence and LAW 5925 Trial Practice

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**LAW 5327: Advertising and Marketing Law**

This course will cover the regulation of false and misleading advertising under the Lanham Act, the FTC Act and state consumer protection laws. Students will examine advertising and analyze what claims are being made and whether those claims are false or misleading under applicable law. Students will examine the procedures available for competitors, the government and consumers to challenge false or misleading advertising and the remedies available through those procedures.

**Credit Hour:** 1-3

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**LAW 5330: Advocacy, Family Violence and Public Policy**

Interdisciplinary presentations examine both the state of family violence in America and the cross disciplinary issues in effective intervention, including legal procedures. The seminar is open to 2nd or 3rd year law students and other professional graduate students with permission of the faculty. (Not available to students on probation, except for students classified as 3L students).

**Credit Hour:** 1-2

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**LAW 5337: American Legal History to 1876**

This is a revision of Legal History. The course covers such topics as the impact of the English common law heritage; the development of law in the American colonies; slavery, race and gender in nineteenth century America. The course ends with the conclusion of the Civil War. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5338: American Legal History from 1876**

Historical study of the development of American law since the Civil War. The course will cover such topics as the Civil War amendments to the Constitution; Reconstruction and its aftermath; legal change during the rise of industrialism; race and gender in late 19th century and 20th century America; law in the Progressive Era; the growth of civil liberties and civil rights in the Supreme Court; the law during war and the Depression; jurisprudential trends; and the Civil Rights Movement of the 1960s. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5340: Antitrust Law**

Introduces antitrust and economic analysis and the role of competition, with emphasis on price fixing, horizontal and vertical restraints of trade, monopoly and merger problems.

**Credit Hour:** 1-3

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**LAW 5345: Appellate Advocacy**

Enhances skills training for the preservation and presentation of matters on appeal. In addition, an introductory examination of extraordinary remedies (as a complement to appeal) and other unique actions filed in the Supreme Court of Missouri.

**Credit Hour:** 1-3

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**LAW 5350: Arbitration**

Law, policy and practices relating to arbitration process as it is utilized in commercial and international sectors. Topics include modern arbitration statutes (e.g., the Federal Arbitration Act), enforceability of agreements to arbitrate, public policy defenses against enforcement of arbitration agreements, arbitrators and administering institutions, components of the arbitral process, arbitral remedies and awards, and the arbitration award in the courts.

**Credit Hour:** 1-3

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**LAW 5357: Advanced Topics in Automobile Insurance**

This course will explore advanced topics in a major area of insurance law and practice - automobile insurance. It will examine automobile insurance at a national level, but with special emphasis on Missouri law. The class will focus primarily on acquiring a foundational understanding of policy forms, statutes, regulations, and cases relevant to the representation of accident victims, insurance companies, and those who receive representation under the terms of their automobile liability insurance policies. Practitioners with substantial experience in automobile insurance claims processing, dispute resolution, and litigation will be brought into the course periodically for the purpose of linking the substantive law of automobile insurance with practice skills.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5635 Insurance Law

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**LAW 5365: Bankruptcy**

Focuses on rights of both secured and unsecured creditors under state and federal law. State law covers collective actions and such individual actions as execution, attachment, garnishment, and the law of fraudulent conveyances. Federal law concentrates on liquidation proceedings under Chapter 7 of the Bankruptcy Code and reorganizations for wage earners under Chapter 13 of the Code. Includes, as time permits, an introduction to the business reorganization provisions of Chapter 11.

**Credit Hour:** 1-3

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**LAW 5375: Basic Federal Income Taxation**

Federal income tax problems of individuals taxpayers; nature of income; when and to whom income is taxable; exclusion from tax base; deduction; tax effects of exchange or other disposition of capital assets. This course is designed to introduce students to the income tax considerations that arise in a variety of legal contexts and will benefit even those students not planning to pursue a career in tax.

**Credit Hour:** 1-4

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**LAW 5385: BOA Competition**

This is a late summer moot court competition directed by the Board of Advocates. The competition is open to 2Ls and 3Ls, but only 2Ls can advance to the final rounds. Students receive an assignment in the spring, submit their written appellate briefs at the end of July, and participate in oral arguments at the beginning of fall semester. The top six 2L competitors present their final arguments in Jefferson City before Missouri Supreme Court judges. These finalists are invited to represent the law school during the following academic year as members of our regional teams for the National Moot Court Competition. Regional team members must enroll in Moot Court I and Moot Court II. Class may be dropped anytime up to the day that the Appellate Brief is due. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** LAW 5085 Advocacy & Research (or the equivalent for transfer students)

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**LAW 5392: Business, Entrepreneurship, and Tax Law Review**

The Business, Entrepreneurship, and Tax Law Review (BETR) will be affiliated with the Center for Intellectual Property and Entrepreneurship. The BET Review journal will give students an opportunity to hone their legal research and writing skills, as well as their leadership skills as editors of the journal, on contemporary issues in growing areas of legal practice. It will also provide an outlet for the publication of articles stemming from symposia and a colloquium series that will be held on topics in the fields of intellectual property, entrepreneurship, and tax.

**Credit Hour:** 1-2

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**LAW 5395: Business Organizations**

The law school's foundation course in business law; recommended for students in all areas of interest. Course coverage includes the study of agency, partnership, limited partnerships, limited liability partnerships, limited liability companies, and corporations. This course is a prerequisite for several advanced electives in business law.

**Credit Hour:** 1-4

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**LAW 5410: Children and the Law**

This course covers the status, rights and obligations of children in contemporary American law; civil proceedings and criminal prosecutions alleging child abuse or neglect; foster care; termination of parental rights; juvenile protective legislation; and delinquency. Emphasis is placed on juvenile justice doctrine, policy and practice issues and the historical and contemporary operation of juvenile and family courts.

**Credit Hour:** 1-3

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**LAW 5415: Constitutional and Civil Rights Litigation**

Advanced analysis of protection of civil liberties that derive from the United States Constitution and federal statutes. The statutes which will be covered most extensively include the Reconstruction Era laws now codified at 42 U.S.C. section 1981, 1983 and 1985, Rehabilitation Act of 1973, Titles IX of the Educational Amends. of 1972, and Titles II and VI of the Civil Rights Acts of 1964.

**Credit Hour:** 1-3

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**LAW 5420: Client Interviewing and Counseling**

This course covers the nature and conduct of counseling process including basic interviewing techniques, psychological factors affecting the interview process, facilitating and structuring the interview, clarification of statements and ascertaining legal issues, and dealing with client resistance and hostility. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5425: Clinical Skills**

Skills training for students enrolled in the Criminal Clinic. Lectures and simulations designed to facilitate student skills in case preparation and presentation and client representation: ethical concerns, fact investigation, interviewing and counseling, drafting legal documents, direct and cross examination, making and responding to objections. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence and LAW 5280 Professional Responsibility

**Corequisites:** LAW 5470 Criminal Clinic and LAW 5475 Criminal Clinic Writing Project

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**LAW 5430: Commercial Real Estate Leasing**

Seminar course focused on the study of selected topics involved in the negotiation, drafting, and interpretation of commercial real estate leases. Topics will include but are not limited to: rental provisions, defining the premises, use of the premises, condition of the premises, assignments and subleases, maintenance and repairs, casualty insurance, default/remedies, and collateral lease documentation. The course looks at the various parties involved in the process of commercial real estate leasing, their respective interests, and the dynamics of the negotiation and drafting process in which these parties memorialize their respective interests in the lease document. There is a heavy focus upon the careful reading, review, negotiation and revision of the lease document. Grading is based upon a series of exercises involving document review, negotiation, and drafting, and includes both individual and group work.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5856 Real Estate Finance, or LAW 5858 Real Estate Transactions, or LAW 5697 Landlord/Tenant Law and Practice

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**LAW 5435: Comparative Law**

This course examines differences and similarities between the major legal systems of the world, focusing on distant areas of substantive and procedural law to demonstrate diverse methods of addressing similar legal issues. The course includes a discussion of the historical distinctions between the common and civil law traditions but also moves the analysis forward to address more recent legal innovations and the recognition of new groupings of legal systems. Students will leave the class with a solid understanding of (1) how U.S. legal principles compare to approaches used elsewhere and (2) the uses and benefits of the comparative approach. Principles taught in this course will be equally applicable to those who anticipate practicing domestic U.S. law as well as those who expect to develop an international practice. No foreign language skills are necessary for this course.

**Credit Hour:** 1-3

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**LAW 5440: Complex Litigation**

Course will examine principles and practical techniques relevant to complex civil cases. Building on civil procedure, the course will focus on litigation involving multiple parties and/or multiple jurisdictions. Each student will be required to complete several drafting assignments.

**Credit Hour:** 1-3

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**LAW 5441: Complex Litigation: Mass Torts**

This course will explore aspects of complex civil litigation through the lens of mass torts lawsuits. It will specifically examine issues such as discovery and scientific evidence, alternative liability issues, class action and multi-district litigation, and alternatives to litigation. This course will involve a final exam.

**Credit Hour:** 1-3

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**LAW 5450: Conflict and Conflict Management**

This course is designed to give lawyers a better understanding of the meaning and dynamics of conflict, so that they may better understand their client's situations, as well as the mechanisms that may be most appropriate to the resolution of any particular dispute. Course draws its theoretical teachings from a variety of disciplines beyond law: psychology, sociology, anthropology and economics.

**Credit Hour:** 1-3

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**LAW 5454: Contract Drafting**

Course teaches students the principles of drafting commercial agreements. Although the course will be of particular interest to students pursuing a corporate or commercial law career, the concepts are applicable to any transactional practice. Students will learn how transactional lawyers translate business deals into contract provisions, as well as techniques for minimizing ambiguity and drafting with clarity. Through a combination of lecture, hands-on drafting exercises and extensive homework assignments, students will learn about different types of contracts, other documents used in commercial transactions, and the drafting problems that contracts and other documents present. Course will also focus on how a drafter can add value to a deal by finding, analyzing and resolving business issues. Grades will be based on the graded assignments, good faith completion of the ungraded assignments, and class participation.

**Credit Hour:** 1-3

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**LAW 5455: Copyright Law**

Nature of copyright law; common law misappropriation; scope of common law copyrights; Copyright Revision Act of 1976 as amended; formalities of registration (fixation, copyright notice); copyrightable subject matter; originality; exclusive rights of copyright owner; scope of copyright protection; substantial similarity and infringement; fair use; joint and composite works; duration, renewal, termination, transfer; remedies; artists moral rights; federal preemption; international protection; copyrightability of computer software; copyright issues on the internet.

**Credit Hour:** 1-3

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**LAW 5465: Corporate Taxation**

This course will provide an in-depth study of the federal income taxation of corporations and their shareholders, including the tax aspects of forming and capitalizing a corporation, corporate distributions,

redemptions, and taxable and tax-free corporate liquidations. This course will be taught using the problem methods of instruction.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** Must have taken or be currently enrolled in LAW 5375 Basic Federal Income Taxation

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5470: Criminal Clinic**

The Criminal Clinic is available during both the Fall and Winter semesters. It can only be taken once. Enrollment is limited to 8 students per semester. Students must also enroll in Clinical Skills and Criminal Clinic Writing Project and have completed, or be enrolled in, LAW 5280 Professional Responsibility and LAW 5260 Evidence. (Not available to students on probation).

**Credit Hour:** 1-5

**Prerequisites:** LAW 5280 Professional Responsibility, LAW 5260 Evidence. Students must have prior permission of professor

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**LAW 5475: Criminal Clinic Writing Project**

This is the Writing Section accompanying course LAW 5470.

**Credit Hour:** 1-2

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**LAW 5477: Criminal Justice Administration**

This course will examine the justice system's processing of formal criminal cases from the point at which a defendant is formally charged and going forward. In other words, it will be a "procedure" course reviewing the processing and adjudication of criminal cases. Topics will include the defendant's rights under the Sixth Amendment (e.g. jury trial, speedy trial, confrontation clause, and compulsory process rights); Eighth Amendment issues (e.g. bail and cruel and unusual punishment); criminal discovery (e.g. the prosecutor's Brady obligation to provide exculpatory evidence to defendants and notice requirements for alibi and insanity defenses); expert witnesses; pretrial and trial publicity; plea bargaining; sentencing (e.g. use of discretionary guidelines and minimum mandatory systems); and appeals. Other topics that may be reviewed are: post-conviction relief (e.g. habeas corpus, pardons, and commutations); fraud and other white collar crimes; conspiracy and the expanding federal presence in investigation, prosecution, and incarceration. This will be both an advanced criminal procedure course (similar to "bail to jail" courses at other law schools) and an advanced criminal law course.

**Credit Hour:** 1-3

**Recommended:** successful completion both LAW 5035 Criminal Law and LAW 5240 Criminal Procedure before taking this course

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**LAW 5485: Cross-Cultural Dispute Resolution**

The course will focus on the impact culture can have on the private ordering of disputes. Culture affects communication, perceptions regarding conflict and methods for resolution. As the world becomes more interrelated and Missouri and the U.S. more diverse, lawyers need to be prepared to resolve problems across cultural lines. 20-25% of the grade will come from timely attendance and class participation.

**Credit Hour:** 1-3

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**LAW 5496: Deal Skills Class**

Introduces students to business and legal issues common to commercial transactions. Class will emphasize the thought process involved in,

and required by, the practice of transactional law, skills as interviewing, counseling and communicating with your client, understanding business issues and drafting contract provisions to reflect those issues, negotiation deals and managing a transaction closing. Simulation exercise, in-class role-play and lectures, out-of-class due diligence, negotiation and other exercises.

**Credit Hour:** 1-3

**Prerequisites:** Either LAW 5395 - Business Organization or LAW 5454 - Contracting Drafting. Students cannot enroll concurrently in Corporate Finance and Deal Skills. Students who have completed Deal Skills are precluded from enrolling in Corporate Finance. However, students are allowed to enroll in Deal Skills even if they have already taken Corporate Finance

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#### **LAW 5497: Death Penalty Law**

The primary focus of this course will be on the Supreme Court's capital punishment jurisprudence over the past 35 years, with particular attention to how it has shaped state statutory schemes and legal argumentation in capital sentencing trials.

**Credit Hour:** 1-3

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#### **LAW 5516: Dispute Resolution in the Digital Age**

This course will explore the need for expanded and equalized access to remedies in consumer cases, and how the internet opens doors to online dispute resolution ("ODR") systems that utilize cost-effective negotiation, mediation, and arbitration processes for resolving complaints. ODR has its drawbacks, but it can be especially effective and satisfying for low dollar claims such as those in most consumer contexts because of its efficiencies. ODR also has potential to ease power imbalances that have hindered market regulation. Accordingly, this course will look at the various systems currently used by major companies such as eBay, as well as the rules and treaty developments in global markets. We also will do ODR simulation exercises, led by Colin Rule, who has been a leader in creating ODR systems. The class also will include deep consideration of both the potential and drawbacks of ODR systems. All ODR processes are not beneficial, and thus we will also discuss development of best practices and question policy directions.

**Credit Hour:** 1-4

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#### **LAW 5520: Drafting of Legal Instruments**

Problems frequently encountered in general office practice (land transfers, mortgages, leases, contracts, wills, business organizations, etc.), with drafting of the related instruments. Use and adaptation of legal forms. Graded on S/U basis only.

**Credit Hour:** 1-2

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#### **LAW 5525: Education Law**

This course examines the application of discrete doctrines from criminal law, constitutional law, juvenile law, employment law, and disability law to the legal problems facing American schools. Students will explore the ways in which the objectives of these discrete legal doctrines either promote or interfere with our educational policies. Substantive areas of concentration include state regulation of education; freedom of speech, association and religion; equal educational opportunity; employment of teachers; and discipline of students.

**Credit Hour:** 1-3

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#### **LAW 5530: Elder Law**

This course address legal issues impacting older individuals, including discussion of government benefits (Social Security, Medicaid, Medicare, Supplemental Security Income), long-term care (types, contract issues, civil rights, and financial planning), guardianship and conservatorship, planning for incapacity, and health care decisions at the end of life. The course emphasizes planning techniques for the average client. Grade will be based on a short paper and take-home exam. The course may be taken for writing credit.

**Credit Hour:** 1-3

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#### **LAW 5532: Election Law**

Election Law has become more important in recent years. This course will introduce students to the many theoretical and practical constitutional, statutory, common law, and policy issues that accompany the franchise, including: legislative districting, voting rights, campaign finance, political parties, interest groups, direct democracy, and alternative democratic structures. The course will emphasize federal law, but will also address Missouri state law as appropriate.

**Credit Hour:** 1-3

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#### **LAW 5534: Electronic Discovery**

This course provides an in-depth treatment of the legal, technical, and cost management issues involving electronically stored information ("ESI") in civil litigation. Covers the 2006 FRCP ESI amendments (Rules 26 meet and confer, 34, production, and 37 sanctions), FRE 502 (privilege review and production), state e-discovery rules, the rapidly developing ESI case law, and emerging best practices from the Sedona Conference Cooperation Proclamation, the Electronic Discovery Reference Model, and other E-discovery authorities. Practice drafting litigation holds, preservation orders, and related e-discovery documents regularly used in civil litigation. Grading is based on student projects and a final examination.

**Credit Hour:** 1-3

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#### **LAW 5537: Emotional Intelligence in Law**

Success in law requires more than substantive legal knowledge. It also requires self-awareness, or "emotional intelligence," by the lawyer in order to be able to operate effectively in a complex and nuanced legal environment. This course is designed to help students develop their emotional intelligence by cultivating such personal and social competencies as personal and social awareness, understanding of motivation, empathy and social skills.

**Credit Hour:** 1-3

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#### **LAW 5540: Employment Discrimination**

This course examines the laws which prohibit discriminatory practices in employment. Title VII is the primary focus, but coverage is also given to the Equal Pay Act, the Americans with Disabilities Act, and the Age Discrimination in Employment Act. Additionally, the course addresses the administrative process available for dealing with employment discrimination complaints, the prima facie case requirement and burden shifting analysis fused in civil rights cases, and affirmative action requirements.

**Credit Hour:** 1-3

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**LAW 5543: Employment Law**

Employment Law focuses on the legal relationship between employers and employees in the non-unionized workplace. The course will survey a variety of issues regarding the establishment, maintenance and termination of the employment relationship. For example, the course will cover the common law aspects of that relationship, particularly contracts and torts. It will examine statutory modifications of the common law in areas such as wage and hours, pensions, whistle-blower protection, unemployment insurance, workers compensation, and health and safety.

**Credit Hour:** 1-3

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**LAW 5544: Entrepreneurship Legal Clinic**

The Entrepreneurship Legal Clinic (the "Clinic") combines business law issues, intellectual property, and transactional experiential learning. The Clinic explores the lawyer's role as counsel to entrepreneurs engaged in early-stage ventures. Students will survey the legal and business issues encountered by entrepreneurs and develop the practical skills necessary to effectively represent them, including client interviewing and counseling, entity formation and planning, governance issues, employee issues, intellectual property analysis (except patents [presently]), and contract drafting. Students will work on actual client matters approved by the Clinic's Supervising Attorney. Students must have the Supervising Attorney's permission to enroll, and they must meet the Requisites listed below. The Clinic is graded and enrollment is limited.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5395 -Business Organizations

**Corequisites:** LAW 5280 - Professional Responsibility

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**LAW 5545: Environmental Law**

Federal and state regulation of the environment, including the economic and philosophical foundations of environmental regulation, the common law roots of environmental regulation, and substantive coverage of a number of environmental statutes, such as the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, National Environmental Policy Act, and Endangered Species Act.

**Credit Hour:** 1-3

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**LAW 5555: Estate Planning and Taxation**

This is a tax-oriented planning course, including discussion of federal estate and gift tax, income taxation of estates and trusts, and techniques for transferring property of a minimal tax cost both during life and at death. Grade will be based on the preparation of one or more projects.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5560 and LAW 5375

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**LAW 5560: Estates and Trusts**

Wills: probate process and will contests, intestate succession; restrictions on testation; execution, revival of wills; integration, incorporation by reference, events of independent significance; will substitutes; will construction; family protection.. Trusts: elements and creations; modification and termination; beneficial interests; charitable trusts; trust construction; powers of appointment; trust administration and fiduciary duties.

**Credit Hour:** 1-4

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**LAW 5570: Externship**

The Externship offers students an opportunity to develop the skills necessary to bridge the gap between law school and law practice. Through the Externship, students prepare for "effective and responsible participation in the legal profession" (ABA Std. 301) by applying the core concepts learned in law school courses to the challenges presented in the actual, in-office practice of law. Details concerning the requirements and structure of the course are available at the Externship webpage. Students cannot take more than 6 hours of Externship credits. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5575: Family Law**

After surveying the variety of family arrangements in contemporary America and central issues concerning the practice of domestic relations law, this course covers marriage; dissolution; distribution of marital property; alimony; child custody' visitation and support; post-dissolution disputes over custody and child-rearing; non-marital families and non-marital children; private agreements in family law; and alternative dispute resolution in collaboration with other professions in client representations, and ethical and policy issues.

**Credit Hour:** 1-3

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**LAW 5580: Family Violence Clinic: Individual and Social Justice**

Rule 13 certified law students represent needy abused women and children in 13 rural Missouri counties. Students obtain orders of protection in adult abuse courts, and appear in protective custody cases in juvenile courts. Weekly debriefings may include interprofessional graduate students. Law students must complete LAW 5330 Advocacy, Family Violence and Public Policy before or during their clinical experience. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5280 Professional Responsibility

**Corequisites:** LAW 5330 Advocacy, Family Violence and Public Policy

**Recommended:** LAW 5260 Evidence

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**LAW 5584: Fiduciary Administration**

This course will cover key issues that arise in the administration of decedent's estates and trusts, including the necessity for probate, rights of creditors, the fiduciary obligations of trustees and personal representatives, investments, and accounting and distribution. Depending on class size, grading will be based either on an exam, a practice-oriented project, or both.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trusts

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**LAW 5585: Federal Courts**

The course will examine the role of federal courts and their relationship to state courts. Topics covered: justiciability; federal question and diversity jurisdiction; sovereign immunity; abstention; and habeas corpus.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** LAW 5220 Constitutional Law

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**LAW 5590: Freedom of Speech and Association**

A study of the rights of speech and association under the First Amendment of the United States Constitution. Major Supreme Court decisions regarding freedom of speech, including content-based and content-neutral restrictions of speech, regulation of commercial speech, regulation of obscenity and pornography, regulation of speech in public and private fora, libel and privacy law, forced association with persons or ideas, and subsidization of speech.

**Credit Hour:** 1-3

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**LAW 5591: Food Law and Policy**

This course examines the laws that govern food safety and food labeling, and considers how well this network works to protect American consumers. It also considers current issues affecting the global food system. Representative topics include recent food safety problems such as tainted meat and salmonella contamination of eggs; food labeling issues such as the use of the term "grass fed" in meat labeling and the use of GMO seed; organic standards; government efforts to address the obesity problem; urban food deserts; animal welfare concerns; the regulation of pet food, and the like. Specific topics addressed each semester will depend on current events and recent legal developments. Students will be graded on the basis of research paper and class participation. The course will often include a writing section designed to meet the upper-level writing requirement. The course may be offered from time to time as a paper-only course, designed to meet the upper-level writing requirement.

**Credit Hour:** 1-3

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**LAW 5592: Firearms Law**

This class will examine the historical development and modern context of the regulation of firearms. Although emphasizing domestic law, some international and comparative perspectives will be examined. The class may be taken for writing credit.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5220 Constitutional Law

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**LAW 5595: Gender, Race, Sexuality and the Law**

A study of the treatment of gender by the legal system. Topics will include a survey of writings by influential feminist legal scholars, historians and social scientists; a comparison of different theoretical frameworks; and an overview of substantive law and the latest legal developments involving gender. The primary aim of the course is to study various feminist theories to discern how gender is viewed by today's lawmakers and courts.

**Credit Hour:** 1-3

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**LAW 5615: Health Care Law: The Doctor-Patient Relationship**

An examination of the law governing the interactions between patients and their health care providers (doctors, hospitals and managed care organizations). The course will focus on rules governing the duty to treat, confidentiality, informed consent, medical malpractice liability, institutional vicarious liability, managed care liability, ERISA preemption and medical malpractice reform. As time permits, the class may also cover selected elements of public health law.

**Credit Hour:** 1-3

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**LAW 5632: Innocence Project Clinic**

This is a joint clinic among the MU and UMKC law schools, the MU School of Journalism and The Midwestern Innocence Project, a non-profit organization. Law students will work under the supervision of the Clinic Director, a practicing lawyer, on cases of possible actual innocence from six states. Graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5946 Wrongful Convictions

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**LAW 5635: Insurance Law**

A basic course in the fundamentals of insurance law. Topics covered include defining insurance; risk and the nature of the insurance relationship; insurable interest; indemnity; fortuity; subrogation; coordination of benefits; interpretation; rights a variance with policy provisions; contract formation; warranties, misrepresentation and concealment; condition; agents and brokers; introduction to regulation; introduction to insurance coverage.

**Credit Hour:** 1-3

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**LAW 5637: Insurance Claims Processing and Dispute Resolution**

This course provides an in-depth examination of claims processing and dispute resolution in the insurance business in both first-party (property, life, etc.) and third-party (liability) insurance. Topics covered include notice of loss, proof of loss, duty to cooperate; negotiation of insurance claims; appraisal; mediation and arbitration of insurance claims; remedies for noncompliance with claims processing obligations; bad faith. The topics will be covered from a national perspective, but special emphasis will also be given to Missouri law. This course is approved to count as an elective toward the Dispute Resolution Certificate.

**Credit Hour:** 1-4

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**LAW 5640: Intellectual Property**

This course is an introduction to the four broad areas of intellectual property. Students will learn about intellectual property, contract, and tort knowledge gained from the first year curriculum. The course will cover trademarks, trade secrets, patent law, and copyright law. Thus, the course will cover how one obtains the special property rights called the copyright, patent, trademark contract. Further, the course will cover how these intellectual property rights are protected from the tortious act of infringement, as well as any defense to infringement it is important to note that this introductory class cannot be used to satisfy any of the requirements for the Intellectual Property certificate; nor is this introductory course substitute for the more in-depth coverage offered by Patent Law and Policy, Copyright Law or Trademark Law. Rather, it is designed to allow students to explore basic intellectual property issues and to meet any prerequisites for Cyberspace Law, Software Law and International Intellectual Property. Students may find that taking this introductory course complements the rest of the intellectual property curriculum. Class participation and preparations is required, as is class attendance. An exam and several small written projects will be required.

**Credit Hour:** 1-3

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**LAW 5652: International Commercial Arbitration**

This course offers a study of arbitration as a dispute resolution process for international trade and business disputes. The course reviews ad hoc and institutional arbitration, the authority of arbitral panels, enforcement of agreement to arbitrate, challenging arbitrators, procedure and choice

of law in arbitral proceedings, the enforcement of international arbitral awards. Special attention will be given to the international convention on the recognition and enforcement of international arbitral agreements and awards (New York Convention) and the UNCITRAL (U.N. Commission of International Trade Law) arbitral rules and model law. The course focuses on commercial arbitration as an international practice and not on arbitration under any particular national system. Students will participate in a hypothetical arbitration matter, beginning from the development of the claim to preliminary proceedings, the arbitration hearing, and ending with the arbitrators' award.

**Credit Hour:** 2-3

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**LAW 5660: International Human Rights**

The purpose of this course is not enable students to develop a basic understanding of the concept of international human rights law and the role played by international and regional organizations, states and private actors in defining and enforcing human rights. Beginning with the historical origins of human rights, the course will examine the international regional human rights instruments and institutions that form the sources of human rights law (the UN system, including the Charter and treaties, European, African and Inter-American human rights regimes). It will also examine the role of non-governmental organization, the International Criminal Court and International humanitarian law (the law of war), and the interaction between US civil rights law and International human right. Throughout the course, students will be introduced to important critical themes of human rights, including: the distinctions between public and private acts, evolving theories of statehood, sovereignty immunity, cultural relativism, and the western tradition of individual rights, and the relationship between rights and duties. Issues examined will include: political participation and democratization, religious freedom, the use of torture, corporate liability, woman's rights, the right and status of refugees, genocide and war crimes.

**Credit Hour:** 1-3

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**LAW 5665: International Law**

Introduction to the international legal system, with emphasis on relations between nation-states or international entities. Topics include statehood and recognition, legislative and judicial jurisdiction, human rights and the status of the individual, treaties and international organizations.

**Credit Hour:** 1-3

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**LAW 5675: International Taxation**

This course examines the federal income tax treatment of international transactions. It will focus on the principles and policies underlying the United States tax system as it relates to income earned by U.S. citizens and residents doing business and investing outside the country, as well as income derived from foreign persons doing business and investing in the United States. Topics include jurisdiction issues, source of income rules, effectively connected income, FDAP income, the foreign tax credit, the role of tax treaties in international tax, and an introduction to subpart F and other anti-deferral mechanisms.

**Credit Hour:** 1-3

**Recommended:** LAW 5375 Basic Federal Income Taxation

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**LAW 5677: Internet Law and Practice**

This course will focus on preparing to advise business client dealing with electronic commerce an internet law issues. There is no technological background requirement or prerequisite to take the class. We will explore a variety of themes including the control over the internet by both government and private actors; how online activities differ from their off-line counterparts; and how the laws should react to new forms of interaction and social structures found online. Specific doctrinal topics include problems of digital authorship and publication including rights of anonymity, copyrights, trademarks, defamation and other torts; sales and licensing of products; marketing, advertising and data-mining, including privacy issues; jurisdiction over online actors; and cyber-squatting. Grades will be based on the final exam and an optional short paper.

**Credit Hour:** 1-3

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**LAW 5679: Introduction to Privacy Law**

This course will focus on the fundamental principles of privacy and these principles' implementation in statutes, regulations and case law. Covered topics include: (a) why privacy matters; (b) fundamental privacy principles; (c) scope of "privacy law;" (d) U.S. Federal privacy laws (including HIPAA, COPPA, GLB, FCRA); (e) key State privacy laws (including CalOPPA, Massachusetts's Data Security Regulation, and overview of breach notification laws); (f) overview of foreign privacy regimes, with a particular focus on European Union's evolving privacy laws; (g) restrictions on, and methods to accomplish, trans-border data transfer in light of varying laws (e.g. U.S. Safe Harbor, Model Contracts); and (h) key enforcement bodies and selected enforcement decisions.

**Credit Hour:** 1-3

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**LAW 5680: Journal of Dispute Resolution**

Credit for work as prescribed by the faculty for members of the Journal of Dispute Resolution. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5690: Jurisprudence**

The major part of the course will cover classic jurisprudential questions about the nature of law - what law is-and related questions regarding judicial decision-making: Under what conditions is a rule a law within a legal system? Are there moral principles that are part of the law even though a legislature has not enacted them? How do judges actually interpret statutes and constitutional clauses? How should they interpret them and are there definitive right answers to disputes about what the law is? Is it possible to refrain from "legislating from the bent." or does judicial decision-making necessarily involve making new law based on moral and political judgments? In the second part of the course, we will begin thinking about the proper function or aim of some core areas of substantive law. For example, questions might include: Does the criminal law aim to exact retributive justice, to achieve deterrence, or both? Is it legitimate for the legislature to use law to enforce morality of the community's moral belief? Does tort law aim to achieve corrective justice? Does corrective justices require reparations to groups for long past injuries? Reading will include Hart, Fuller, Dworkin, Raz, Ely, Holmes, Scalia, Feinberg, and others.

**Credit Hour:** 1-3

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**LAW 5691: Jury Instructions**

Theoretical and practical aspects of jury instructions (including general and special verdicts) at trial are presented from the perspectives of the judge, counsel, the jury, and the court of appeals. The course will involve the students in researching and drafting instructions, using pattern instructions, observing or participating in a simulated jury instruction conference, and writing an appellate court opinion that describes what the student has learned during the course.

**Credit Hour:** 1-3

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**LAW 5695: Labor Law**

The regulation of relations between employers and labor unions at common law and under federal and state legislation; primary emphasis on the National Labor Relations Act, as amended.

**Credit Hour:** 1-3

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**LAW 5697: Landlord Tenant Law and Practice**

This course focuses primarily on litigation under the Missouri Landlord Tenant statute and under federal administrative regulations governing public entities which provide housing and housing subsidies to low-income people including the processes for litigating against such entities. The course will address proper pleading, relevant evidentiary issues, and requisite settlement skills/strategies. This course is available to all 2L's and 3L's. The course is required for all students enrolled in the Landlord/Tenant Practicum.

**Credit Hour:** 1-3

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**LAW 5698: Landlord/Tenant Practicum**

The Landlord-Tenant Practicum serves indigent individuals in Mid-Missouri. A Mid-Missouri Legal Services Corporation staff attorney supervises Rule 13 certified law students representing tenants including but not limited to those who are being evicted and/or who wish to sue their landlords for habitability or security deposit non-return. Students may also represent tenants who reside in public or subsidized housing in administrative actions brought by or against a Housing Authority. The practicum is graded and enrollment is limited.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** LAW 5697 Landlord/Tenant Law and Practice

**Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5700: Land Use Controls**

This course focuses on laws governing the use and development of land. The course examines legal rules and policy considerations related to zoning, subdivision controls, building codes, historic preservation, aesthetic regulation, growth management, eminent domain, nuisance law, regional land use conflicts, development exactions, and environmental land use restrictions.

**Credit Hour:** 1-3

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**LAW 5715: Law and Economics**

Study of the use of microeconomic analysis and methods in influencing the law. Topics: economic analysis of tort, contract and property law, the use and misuse of economics in the common law judging tradition, limitations on the use of economic analysis in law and links between economic analysis and constitutional law/public choice theory.

**Credit Hour:** 1-3

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**LAW 5717: The Law of Habeas Corpus and Post-Conviction Relief**

Course will cover principles and practices of post-conviction remedies available to collaterally attack a criminal conviction in state and federal courts. Students will prepare post-conviction motions and petitions for a writ of habeas corpus under state and federal rules.

**Credit Hour:** 1-3

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**LAW 5721: Law Practice Management and Technology**

Managing a successful law practice requires time and project management skills, as well as knowledge about the business of practicing law. This course explores the practical and ethical challenges that confront the solo or small firm lawyer. Students will be introduced to a range of resources for the solo and small firm lawyer, and gain practical experience in preparing a business plan, client welcome package, and policies and procedure manual. Material presented is relevant to both the litigation and the transactional lawyer.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5280 Professional Responsibility

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**LAW 5723: The Law and Practice of Criminal Sentencing**

This simulation-based course examines the substantive law and practical operation of state and federal criminal sentencing systems and seeks to provide students with entry-level competence as advocates in the sentencing phase of criminal cases. Students will participate in a series of simulated sentencing proceedings in state and federal court, acting as counsel for the government or the defendant, or as the sentencing judge. Criminal Procedure and Criminal Justice Administration are recommended, but not required.

**Credit Hour:** 1-4

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**LAW 5724: Law and Public Policy**

This course provides students with a framework for making decisions about the policies that governments should adopt to respond to important public problems. It takes an interdisciplinary perspective and argues that decision-makers manage four kinds of risk: litigation risk, political risk, policy risk and implementation risk. Students are introduced to techniques for identifying and minimizing such risks, and apply these techniques to real-world policy problems. Guest speakers also provide a perspective on the challenges of policy choice. More information on the course can be obtained from <http://www.a.roberts.us/category/law-and-public-policy>.

**Credit Hour:** 1-3

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**LAW 5727: The Law of Tax Exempt Organizations**

This course will briefly address theories and rationales for exempt organizations and examine in some depth the Internal Revenue Service's tests for tax-exemption and the major types of 501(c)(3) organizations and related contribution deductions, as well as a collection of other 501(c) associations. Attention will be paid to state law regarding the formation and operation of Missouri Nonprofit corporations and the IRS application process for recognition of tax-exemption in addition to nonprofit corporate governance matters. Focus will be on Internal Revenue Code provisions, Treasury Regulations, IRS interpretive rulings and case law.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

**Recommended:** LAW 5395 Business Organizations

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**LAW 5730: Law Review**

Credit for work as prescribed by the faculty for members of the Missouri Law Review. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5745: Legislation**

Study of how statutes are drafted, adopted, and interpreted. The principal focus of the course is on the interpretation of statutes by courts.

**Credit Hour:** 1-3

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**LAW 5746: Legislative Practicum**

This course provides students with the opportunity to work with individual lawyer legislators, or lawyer staff, at the Missouri General Assembly. The students will assist members of the General Assembly with drafting legislation, preparing materials for hearings, conducting research and analysis to respond to broad public policy issues as well as constituent concerns. On occasion students may be assigned to legislative committees, legislative staff support services, or to groups lobbying for legislation. Students will be expected to meet periodically with the professor and to maintain a journal of their activities. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5748: Life Skills for Lawyers**

Readings and discussions will focus on how members of the class want to live their lives as a lawyer. Students will be asked to examine their law school experience and visualize their place in the legal profession. Various problems faced by lawyers (e.g. the pressure to produce billable hours and dealing with clients) will be discussed. Some of the positive aspects of being a lawyer will be identified. The emphasis will be on what the problems and opportunities mean to you personally and the importance of taking responsibility for your own personal and professional life. (not available to students on probation, except for students classified as 3L students).

**Credit Hour:** 1-3

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**LAW 5750: Local Government Law**

(same as PUB\_AF 8866). Structure and powers of local government units; state-local relations, including "home rule"; local government finance, including taxation and indebtedness; incorporation and annexation; eminent domain; tort liability; land use controls; labor relations.

**Credit Hour:** 1-3

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**LAW 5765: Mediation**

A study of the process in which a neutral third party assists others in resolving a dispute or planning a transaction. The course addresses the mediation movement as regards public policy, politics, professional responsibility, malpractice, and negotiation. Students develop mediation and negotiation skills through readings, demonstrations, experimental exercises, and preparation of a case study.

**Credit Hour:** 1-3

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**LAW 5770: Mediation Clinic**

(same as LAW 6970). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LAW 5765 Mediation (or concurrent enrollment), or completion of an approved training. Limited to J.D. or LL.M. students in Designated semesters

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**LAW 5800: Moot Court I**

Required only for those students participating in the National Moot Court or ABA Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5805: Moot Court II**

Required only for those students participating in the National Moot Court or ABA Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5808: Natural Resources Law**

This course is a foundational survey course in the law and policy related to management of natural resources. Resources covered may include public lands, waters, submerged lands and wetlands, forests, minerals and energy, wildlife and biodiversity and ecosystems. Topics also may include organic statutes establishing certain resource management standards and procedures, generally applicable statutes governing agency behavior, judicial review of agency decisions, integrated management of multiple resources, the use of ecosystem management and conservation methods, and takings.

**Credit Hour:** 1-3

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**LAW 5810: Negotiation**

Negotiation is an essential skill for most lawyers, regardless of practice area. Lawyers must negotiate with their counterparts, clients, partners, staff, courts, and many others in the course of representing a client. This course provides an in-depth understanding of the different models of negotiation, and practical skill development for meeting the many challenges that negotiation presents.

**Credit Hour:** 1-3

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**LAW 5815: Partnership Taxation**

This course will study the federal income tax treatment of partnerships and other entities treated as partnerships, including limited liability companies. The course will examine partnership formations, contributions to and distributions from partnerships, partnership operations, including special allocations of income and losses among partners, transfers of partnership interests, and partnership dissolution. This course will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5820: Patent Law and Policy**

This course will provide comprehensive coverage of the U.S. Patent Laws for those interested in obtaining general information about patents, as well as for those interested in practicing before the Patent and Trademark

Office. The course will trace an invention through the application, examination, reconsideration, re-examination and litigation processes. If time permits, there may also be coverage of international treaties that affect U.S. Patent Laws as well as some comparison of U.S. Patent Laws and the Patent Laws of select countries. There are no course prerequisites and a technical background is not required because the course primarily focuses on the Patent Act, its requirements and its jurisprudence. Thus, students need only be familiar with applying statutes and cases to a fact pattern. In lieu of an examination or a paper, up to six written projects, between 3-10 pages each (approx. 40 pages overall), will be due at the semester, giving students an intensive writing experience. The professor will review drafts of some of these projects during the semester and all of the projects will be discussed in class. These projects will allow students to help solve a clients hypothetical patent problem as we work through the Patent Act and its jurisprudence. Students may also have the opportunity to engage in client interviewing and counseling in order to complete the projects. There are no prerequisites and a technical background is not required.

**Credit Hour:** 1-3

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#### **LAW 5830: Pretrial Litigation**

Focus on the study of the legal principles, techniques, strategies and skills which pertain to civil pretrial practice, including: Professional and Ethical Considerations, Case Selection Case Investigation, Development of a case theory, Pleading, Discovery, Pretrial Conference, Motion Practice, Settlement Processes and Alternative Dispute Resolution.

**Credit Hour:** 1-3

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#### **LAW 5835: Products Liability**

A study of civil liability for personal injury, property damage, and economic loss caused by defective products. The study includes actions for negligence, strict liability, misrepresentation and the effect of state and federal legislation on those actions.

**Credit Hour:** 1-3

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#### **LAW 5837: Property, Life, Disability and Health Insurance Law**

This course will explore the legal issues that arise in connection with the purchase and ownership of "first-party" insurance policies, which includes the categories of personal and commercial property insurance, life insurance, accidental death insurance, disability insurance, and health insurance. The course will examine the law from a national perspective but will give special attention to Missouri law when appropriate. The emphasis will be on the legal issues that typically arise when the consumer comes into contact with the insurance industry with respect to these products. The coverage of health insurance will focus on the provision and regulation of private insurance, as distinct from government programs providing access to the health care system through insurance or insurance-like benefits.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5635 Insurance Law

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#### **LAW 5845: Publicly Held Corporation**

This course focuses on legal issues most relevant to large public corporations. Recommended for students interested in pursuing a career in corporate law or for students desiring study in corporate law beyond the Business Organizations course.

**Credit Hours:** 3

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#### **LAW 5855: Real Estate Transactions and Finance**

Real estate mortgages and financing substitutes--theory and practice; receivers; redemption; foreclosure; priorities; the Missouri Deed of Trust; subdivision development; leasehold mortgages; shopping centers; government intervention in the mortgage market.

**Credit Hours:** 4

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#### **LAW 5856: Real Estate Finance**

This course examines legal and transactional issues relating to the financing of real estate. The course covers mortgage documentation; the use of mortgagee prior to foreclosure; transfers of mortgaged property; transfers of mortgages and securitization; payment and discharge of mortgages; default and impact of bankruptcy on real estate transactions. The grade will be based upon a final examination.

**Credit Hour:** 1-3

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#### **LAW 5858: Real Estate Transactions**

This course examines issues relating to the transfer of real estate and the practice of transactional real estate law. The course covers conveyance documentation, the recording system, title and survey review, title insurance, purchase and sale transactions, basis entity structure and tax considerations, environmental review, commercial leasing, valuation of real estate, and project cash flow. The grade will be based on a final examination.

**Credit Hour:** 1-3

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#### **LAW 5859: Real Estate Transaction Skills Project**

Students will participate in a weekly seminar class focused on contract drafting, negotiation, due diligence, and client management in the context of a transactional real estate law practice. The grade for the course will be based upon student performance on drafting and practice skills assignments. Projects may include the negotiation and drafting of a purchase contract; the negotiation and modification of a commitment for title insurance; survey review; review and evaluation of lease; lease drafting and negotiation. Student projects will include both individual and group work.

**Credit Hour:** 1

**Corequisites:** Concurrent registration in LAW 5858 Real Estate Transaction is required

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#### **LAW 5861: Regulation of Drugs and Medical Devices**

This course examines the U.S. Food and Drug Administration (FDA) interpretation and implementation of the federal Food, Drug, and Cosmetic Act (FDCA) and the Public Health Service Act (PHSA). FDA regulates food, drugs, animal drugs and feed, cosmetics, medical devices, tobacco products, and biological products (broadly speaking "food and drugs"). The course considers not only the substantive regulations and policies applicable to food and drugs, but also issues of administrative law (agency practice and procedure, as well as judicial review), enforcement authority (powers and priorities), the agency's place within our federal system, and the place of food and drug law in the larger legal environment. The scope of the class will vary from semester to semester, usually covering at least drugs and devices.

**Credit Hour:** 1-3



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**LAW 5870: Remedies**

Survey of damages, history of equity; coverage of various equitable remedies and their adequacy, practicability, defenses, procedural problems, enforcement of decrees, merger of law and equity, contempt.

**Credit Hour:** 1-3

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**LAW 5875: Research in Law**

Independent Research with a faculty member is available during the Summer, Fall and Spring Semesters. Any student enrolling for Research credit must designate at the time of enrollment the professor who will supervise the research project. Credit is earned at the rate of 20 pages per credit hour. No more than three hours of Research may be taken or counted toward the law degree. Enrollment in LAW 5875 may, but need not, be structured so as to satisfy the upper-level writing requirement. Enrollment in LAW 5875 Research satisfies the Law School's writing requirement only if the project culminates in an individually authored paper of at least 20 pages, based on independent research, through a process that involves an initial draft, critique by the supervising faculty members, and rewrite.

**Credit Hour:** 1-3

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**LAW 5885: Secured Transactions**

The course focuses on the rights of secured creditors and debtors under Article 9 of the Uniform Commercial Code, and includes coverage of creditors with special rights (such as taxing authorities and artisans), documentary exchanges under Article 7, and bulk sales under Article 6.

**Credit Hour:** 1-3

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**LAW 5890: Securities Regulation**

Financing of business through the sale of securities. Emphasis on federal securities acts, with some consideration of state statutes. Consideration of the registration process; exemptions from registration; the special antifraud rules; liabilities and criminal penalties; reporting; insider trading; and, proxy solicitation problems.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5395 Business Organizations

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**LAW 5905: Sports Law**

Substantive areas of concentration include sports litigation, labor law, NCAA regulations, legal relationships in professional sports, anti-trust aspects of sports activities, and collective bargaining.

**Credit Hour:** 1-3

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**LAW 5914: Tax Planning**

This course will examine the application of corporate and partnership tax planning principles to accomplish common business objectives. Students will interview hypothetical clients, prepare written planning documents, present their tax plans to the class, and analyze associated substantive tax and business issues in a seminar format. The grade in this course will be based on written planning documents, a class presentation, and class participation. There will be no final exam.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**Recommended:** Students are strongly encouraged to have taken or be concurrently enrolled in LAW 5465 Corporate Taxation or LAW 5815 Partnership Taxation

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**LAW 5915: Tax Research**

This course provides students with an in-depth exploration of methods and sources for researching tax issues. The course provides students an opportunity to gain experience in using tax research tools. While primarily applicable to tax research, the knowledge gained by students will be helpful in future practice, regardless of practice area. Grades will be based on written assignments to be completed throughout the semester and one final project.

**Credit Hour:** 1-2

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**LAW 5916: Taxation of Property Transactions**

This course will examine tax laws and policies fundamental to real estate investment. Topics include depreciation and recapture, cash and accrual methods of accounting, installment sales, non-recognition transactions, including like-kind exchanges and bad involuntary conversions, and discharge of indebtedness issues arising out of real estate transactions. This course is designed to provide a detailed analysis of complex tax provisions necessary for advanced tax planning and will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5917: Topics in Law**

Various topics in law are explored in depth. Topics change each semester.

**Credit Hour:** 1-5

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**LAW 5918: Tax Policy**

This seminar examines issues of federal tax policy and theory made critically important by the budget deficit and projected shortfalls. We will discuss the major features of the U.S. tax system, identify significant problems, and analyze current reform proposals. Topics will include income distribution, tax treatment of the family, corporate tax reform, capital gains taxation, the alternative minimum tax, the estate tax, taxation of health benefits, consumption or value-added taxes, and tax expenditures.

**Credit Hour:** 1-3

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**LAW 5919: Title Insurance Practice**

This course will examine the application of corporate and partnership tax planning principles to accomplish common business objectives. Students will interview hypothetical clients, prepare written planning documents, present their tax plans to the class, and analyze associated substantive tax and business issues in a seminar format. The grade in this course will be based on written planning documents, a class presentation, and class participation. There will be no final exam. Title Insurance is integral to the real estate market in the United States. Students will be exposed to the development and need for title insurance. They will learn what is necessary to become a title insurance producer and how to run a practice that incorporates both title insurance issuance and how to work within an agency and an underwriter.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5855 Real Estate Transactions and Finance, or LAW 5856 Real Estate Finance, or LAW 5858 Real Estate Transactions

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**LAW 5920: Trademark Law**

Nature of trademark law; common law and statutory trademarks and trade-names; Lanham Act of 1946; distinctiveness; types of marks; qualification of marks for registration (use in commerce, intent-to-use certification, secondary meaning, abandonment); registration procedures; exclusive rights of trademark owner; scope of protection; concurrent use; infringement (including "gray market" use); international protection; remedies; state trademark acts; related common law doctrines; trademark usage on the Internet; domain name issues.

**Credit Hour:** 1-3

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**LAW 5923: Transnational Litigation**

This course addresses common areas of concern in private transnational litigation and provides students with an understanding of litigation tactics in this growing area of law. Topics include jurisdictional issues, forum selection, international service of process, international discovery, international choice of law, proving foreign law in U.S. courts, multiple proceedings (including parallel proceedings and interim/interlocutory assistance) and enforcement of foreign judgments. Although international in nature, the course covers many of the same sorts of concerns that arise in other sorts of complex civil litigation and emphasizes practical strategy points and transactional considerations.

**Credit Hour:** 1-3

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**LAW 5925: Trial Practice**

Skills based course that focuses on the techniques of pleading, discovery, jury selection, opening statements, direct/cross examination of witnesses, preparing jury instructions, closing arguments. Each student participates in classroom problems selected from various phases of litigation, and in one complete trial. Some sections of this course may be offered as a graded section or graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence

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**LAW 5927: Veterans Clinic**

In this clinical program, students will help veterans in need and/or their dependents secure disability related benefits after an initial denial from the Regional VA office. This work will be done at the board of Veterans' Appeals level or before the Court of Appeals for Veterans' Claims, both located in Washington D.C. The BVA and CAVC are federal tribunals, specially created to handle veterans' claims. Students will have the opportunity to work with the client, in a law firm type atmosphere, and prepare and argue appeals relating to the denial of benefits.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5930: Voir Dire**

This course is designed to provide the students with hands-on experience in selecting a jury. Students will act as lawyers, jurors and one student presiding as judge in the concluding 2-1/2 hour courtroom simulation where a jury is selected after making challenges for cause and end exercising preemptory strikes. An actual case involving a badly injured young plaintiff and a large corporate defendant--where liability is

questionable--will be the basis for this exercise. The course will outline the purpose of voir dire and the law pertaining to jury selection. Students will learn active listening skills and how to interpret non-verbal behavior. Examples from prominent, practicing lawyers will be presented. The ultimate purpose of the course is to bring recognition that jury selection is an art--not a science-- and should be tailored to the facts of the case and the witnesses the attorney expects to present. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5940: White Collar Crime**

Study of what are generally considered to be business or organizational crimes. General topics to be explored may include: mail and wire fraud, conspiracy, securities fraud, tax fraud, government contracting fraud (with particular emphasis on the False Claims Act), the Hobbs Act and the Racketeer Influenced and Corrupt Organizations Acts.

**Credit Hour:** 1-3

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**LAW 5945: Will and Trust Drafting**

Building on Estates and Trusts, applies substantive law of wills and trusts to actual drafting of documents typical of those used in law practice. Grade based entirely on student projects.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trust

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**LAW 5946: Wrongful Convictions**

This course offers students an insider's look into the operation of the criminal justice system. It should be of particular interest to any student interested in working in a prosecutor's office, public defender's office or for a firm doing defense work. It is a prerequisite for any student wishing to enroll in the Innocence Project clinic. The course is designed to help students gain insight into features of the criminal justice system that have a tendency to produce wrongful convictions. In addition to examining the causes of wrongful convictions, the course will consider systemic reforms that might minimize convicting the innocent. We will also work with the Midwestern Innocence Project on cases of possible actual innocence. Finally, the class will also focus on recurring ethical issues that confront prosecutors and criminal defense lawyers.

**Credit Hour:** 1-4

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**LAW 5947: Workers' Compensation Law and Practice**

This course will cover the law and practice of Workers' Compensation Law both in general and in Missouri. About two-thirds of the class time will be spent studying and discussing the doctrinal basis of workers' compensation. In the balance of the time students will work on a simulation in which they will have the opportunity to work through difference steps of a workers' compensation claim.

**Credit Hour:** 1-3

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**LAW 6500: London Program**

Students enrolled in classes in London. Credit will count toward graduation requirements. Zero billing hours.

**Credit Hour:** 1-16

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**LAW 6710: Comparative Dispute Resolution**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6720: Comparative Constitutional Law**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6730: Comparative Criminal Justice**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6905: LLM Arbitration Seminar**

(same as LAW 6805). This course would cover law, policy, and practices relating to the arbitration in the U.S. under modern arbitration statutes as well as arbitration of international commercial disputes under international conventions and arbitral rules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6920: LL.M. Externship**

Student will be placed (or secure placement) with attorney, professional mediator or arbitrator, or dispute resolution agency (government-based or private) for an externship ranging three to nine weeks. Students will observe and, to the extent possible, participate in dispute resolution activities of mentor. Journal entries form basis for credit. Externship placements will be local, national or international. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** LL.M. students only

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**LAW 6925: LL.M. Independent Study**

Substantial research project on selected topic of choice.

**Credit Hour:** 1-3

**Prerequisites:** LL.M. students only

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**LAW 6930: LL.M. Major Research Project**

(same as LAW 6830). Development and presentation of substantial research paper on current topic in dispute resolution. Supervision of this work by appropriate faculty will be determined according to the topic selected.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6935: Dispute System Design**

(same as LAW 6835). Analysis of system design principles and the management of multi-party complex disputes. Course will include overview of statutes, regulations, court rules and general policy considerations for the development of systematic approaches to the resolution of disputes as well as the consultation process inherent in system design work. An underlying theme for this course will be issues of program quality. Students will review scholarly work evaluating the ADR field and study basic research/evaluation methodologies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6940: Negotiation and Mediation Perspectives and Skills**

Interactive training program that focuses on the role of the mediator in facilitating settlement. Topics include: theories of competitive and problem solving orientations to negotiation; strengths/weaknesses of mediation as a dispute resolution process; and overview of mediator tasks and responsibilities, such as framing issues, understanding party interest, generating options, and reaching agreement. This course is required for LL.M. students without mediation background and will be delivered in an intensive format during August before regularly scheduled courses begin. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**LAW 6945: Non-Binding Methods of Dispute Resolution**

(same as LAW 6845). Negotiation and mediation of disputes, focusing on the theory, strategy, and skills, and public policy issues involved in using non-binding methods of dispute resolution. The course addresses the role of attorneys in unassisted and mediated negotiation as well as the role of mediators. The course considers the professional responsibility of advocates negotiating for clients and of mediators.

**Credit Hour:** 3-4

**Prerequisites:** instructor's consent

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**LAW 6950: Practicum on Dispute Resolution Training and Education**

Structured training experience through participation in the first-year curriculum project; service as judges in J.D. student competitions, such as negotiation and client counseling; and assignments to appropriate upper division courses to assist with development of dispute resolution modules. Credit is earned for work over the entire academic year. Graded on a S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LL.M. students only

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**LAW 6955: Topics**

Special and emerging topics in dispute resolution. Subject, content and credit varies, depending on available faculty and student interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LAW 6960: Understanding Conflict**

(same as LAW 6860). Study of the origins, nature, and functions of conflict, using perspectives from a variety of disciplines and from literature and religion. The course will include special attention to the idea of conflict as opportunity and will draw on contemplative practices, of the kind that have been developed in many religious traditions, to aid in understanding the relationship between inner and outer conflict. It will focus persistently on the connections between one's assumptions about conflict and one's attitudes and practices about dispute resolution and lawyering. Prerequisite: instructor's consent.

**Credit Hours:** 3

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**LAW 6970: Mediation Clinic**

(same as LAW 5770). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Limited to J.D. or LL.M. students in Designated semesters. Graded on S/U basis only.

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**Credit Hour:** 1-2

**Prerequisites or Corequisites:** LAW 5765 (or concurrent enrollment), or completion of an approved training

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## Learning, Teaching, & Curriculum Courses

### LTC 1100: Orientation

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1110: Orientation: Art Education

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Art Education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1115: Orientation: Social Studies

The course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing Social Studies education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1120: Orientation: Math Education

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Math Education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1130: Orientation: Middle School Education

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Middle School Education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1150: Learning Strategies for College Students

Students' learning strategies are assessed, and their needs are given greatest emphasis. Learning through reading and listening are given major consideration as are the corollary skills of vocabulary expansion, studying and note taking.

**Credit Hours:** 3

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### LTC 1155: Orientation: Science Education

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Science Education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1160: Orientation: Special Education

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Special Education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1170: Orientation: English/Language Arts

This course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing English/Language Arts education. Graded on S/U only.

**Credit Hour:** 1

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### LTC 1180: Orientation: Early Childhood Education

The course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing Early Childhood education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1190: Orientation: Elementary Education

The course familiarizes and orients students with MU resources, college of Education programs, expectations and career options, emphasizing Elementary Education. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 1300: First Aid

Study of the theory and practice of first aid procedures. Certification available.

**Credit Hours:** 2

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### LTC 1320: Scuba Theory

The curriculum of the class includes bio-physics, hydrostatic pressures, physiology, fundamentals of compressed gases, environmental conditions, mechanics, first aid as it relates to diving, and planning speciality dives such as decompression, night, cave, ice, salvage and wreck diving.

**Credit Hours:** 3

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### LTC 2040: Inquiring into Schools, Community and Society I

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hours:** 3

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### LTC 2044: Inquiry into Schools, Community and Society: Field

This field experience course supports the Inquiring into Schools, Community and Society (ISCS), component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

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### LTC 2200: School Health and Student Wellbeing

This course will explore and analyze the critical role schools and teachers play to address students' physical, social, and emotional wellbeing. Research indicates that a healthy school environment can improve both academic and social outcomes. Focus areas include school safety, nutrition policy and health education.

**Credit Hours:** 3

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**LTC 3600: Aiding: Nursery/Day Care Programs**

Instructionally related duties in the preschool classroom during semesters and summer. Student works 30 hours with supervision for each credit.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3610: Aiding: Kindergarten**

Instructionally related activities in kindergarten classroom during semesters and summers. Student works 30 hours with supervision for each credit. Graded on an S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3620: Aiding: Primary Grades**

Instructionally related activities in primary grades. Student works 30 hours with supervision for each credit. Graded on an S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3630: Aiding: Intermediate Grades**

Instructionally related activities in intermediate grade classrooms. Student works 30 hours with supervision for each credit. Graded on an S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3640: Aiding: Secondary Schools**

Instructionally related clinical/administrative and monitorial activities in the secondary classroom during semesters and summer. Student works 30 hours with supervision for each credit. Graded on a S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 4010: Student Teaching**

Hours, credit must be arranged with director of student teaching. Must apply during February for following year.

**Credit Hour:** 1-99

**Recommended:** special methods courses in area of specialization

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**LTC 4085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4085W: Problems in Curriculum and Instruction - Writing Intensive**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 7091). Strategies for effectively observing and assessing young children and strategies for building positive family and

community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 4110: Working with Infants and Toddlers**

Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hour:** 2-3

**Recommended:** Admittance to Phase II

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**LTC 4120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4120W: Early Childhood Education Literacy Methods & Assessment I - Writing Intensive**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4124: Emergent and Developing Literacy Early Childhood Field Experience**

This field experience supports the LTC 4120 component of Phase II. Field experience expectations are delineated in the LTC 4120 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4210

**Recommended:** Admittance to Phase II

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**LTC 4130: Teaching and Learning Math, Science and Social Studies w/ Young Children**

(cross-leveled with LTC 7130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Corequisites:** LTC 4134

**Recommended:** Admittance to Phase II

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**LTC 4134: Teaching & Learning Math, Sci & Soc Studies w/Young Children Field Experience**

This field experience supports the LTC 4130 component of Phase II. Field experience expectations are delineated in the LTC 4130 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4130

**Recommended:** Admittance to Phase II

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**LTC 4140: Curriculum, Theory and Classroom Management in Early Childhood Education**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 4140W: Curriculum, Theory and Classroom Management in Early Childhood Education - Writing Intensive**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 4150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 7150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field experience and admittance to the ECE certification program in Phase II of the College of Education required

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**LTC 4160: Motor Development in Young Children**

For Early Childhood majors. Study of young children's motor development.

**Credit Hours:** 2

**Recommended:** Admission to Phase II

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**LTC 4170: Program Management & Environmental Organization in PreKindergarten**

Strategies for working with children aged 2-6 and their families. Emphasis on planning and implementing developmentally appropriate practice, designing effective learning environments, and managing programs.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II, and completion of first 2 semesters of Phase II)

**Recommended:** Co-enrollment in LTC 4971 (Early Childhood section)

---

**LTC 4194: Elementary Education Field Experience I**

Seminars and diverse 1-5 grade classroom experience focus is on the learner and learning in the elementary school. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

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**LTC 4200: Young Children's Emergent Language**

For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Corequisites:** LTC 4120, LTC 4124, and LTC 4210

**Recommended:** Admittance to Phase II

---

**LTC 4210: Children's Language and Literature**

(cross-leveled with LTC 7210). For Early Childhood Education majors. Examines children's oral language development and surveys the field of children's literature for children ages birth to eight. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4124

**Recommended:** Admittance to Phase II

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**LTC 4211: Literacy Assessment and Development**

Focus is on the development, assessment, and instruction of reading and writing motivations, skills, and strategies of diverse learners with emphasis on data interpretation and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4220: Emergent Literacy**

Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4221: Contexts and Methods for Elementary Reading Instruction**

Students will closely explore the different contexts, methods, and materials for reading instruction in diverse settings. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231: Contexts and Methods for Writing Instruction**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4231W: Contexts and Methods for Writing Instruction - Writing Intensive**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4240: Art for Children**

This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Recommended:** Admittance to Phase II

---

**LTC 4241: Diverse Literature for Children and Youth**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4241W: Diverse Literature for Children and Youth - Writing Intensive**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4250: Music for Children**

Preparation of early childhood and elementary education students with the skills, knowledge, and philosophical foundations necessary to integrate music into the early childhood and elementary curricula.

**Credit Hours:** 2

**Recommended:** MUSIC\_NM 1608, MUSIC\_NM 1612, MUSIC\_NM 1618 or competency test; Admittance to Phase II

---

**LTC 4260: Elementary Social Studies**

To develop knowledge of social studies and the skills to teach social studies in the elementary school. The course is designed to provide the student with the skills to plan, implement, and evaluate both the teaching and learning processes for the elementary social studies classroom.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4280: Teaching Science in Elementary Schools**

Concepts, materials, methods in the elementary school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4294: Elementary Education Field Experience II**

Seminars and diverse 1-5 grade classroom experiences focus is on the teacher and instruction in the elementary school. Graded on S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

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**LTC 4300: Learning and Teaching Number and Operation in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of number and operation, (b) connect the mathematical knowledge of number as described in (a) to the learning and teaching of number in elementary school.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4310: Learning and Teaching Geometry in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of geometry and measurement, (b) critically examine content and issues of the complexities in teaching and learning fundamental concepts of geometry and measurement in elementary schools.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4320: Middle School Social Studies I**

Curriculum decision making, instructional planning, techniques and strategies, materials selection, approaches to assessment in middle level social studies, all based upon early adolescent growth and development principles.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4324: Middle School Social Studies Field I**

This field experience supports the Learning, Teaching and Curriculum 4320 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4320 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4334: Middle School Social Studies Field Experience II**

This field experience supports the LTC 4550 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4340: Middle School Science I**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

---

**LTC 4340W: Middle School Science I - Writing Intensive**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

---

**LTC 4344: Middle School Science Field I**

This field experience supports the Learning, Teaching and Curriculum 4340 component of Phase II. Field experience expectations are delineated in the LTC 4340 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4350: Middle School Science II**

Concepts, materials, methods in the middle school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4354: Middle School Science Field Experience**

This field experience supports the LTC 4350 component of Phase II. Field experience expectations are delineated in the LTC 4350 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4364: Intro. Teaching Math in Middle and Secondary School Field Experience**

This field experience supports the LTC 4360 component of Phase II. Field experience expectations are delineated in the LTC 4360 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4370: Teaching and Modeling Middle School Mathematics**

Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4370W: Teaching and Modeling Middle School Mathematics - Writing Intensive**

Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical

modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4374: Teaching and Modeling Middle School Mathematics Field Experience**

This field experience supports the LTC 4370 component of Phase II. Field experience expectations are delineated in the LTC 4370 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4380: Teaching Middle School Language Arts I**

Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4384: Teaching Middle School Language Arts I Field Experience**

This field experience supports the LTC 4380 component of Phase II. Field experience expectations are delineated in the LTC 4380 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4390: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4390W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4394: Teaching Middle School Language Arts II Field Experience**

This field experience supports the LTC 4390 component of Phase II. Field experience expectations are delineated in the LTC 4390 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4400: Teaching Middle and Secondary English/Language Arts III**

Prepare prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390

**Recommended:** Admittance to Phase II

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**LTC 4404: Teaching Middle School Language Arts III Field Experience**

This field experience supports the LTC 4400 component of Phase II. Field experience expectations are delineated in the LTC 4400 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4410: Teaching, Engaging and Assessing Middle-Level Students**

In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4410W: Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive**

In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4414: Teaching, Engaging & Assessing Mid-Level Students Field Experience**

This field experience supports the LTC 4410 component of Phase II. Field experience expectations are delineated in the LTC 4410 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4420: Adolescent Literacy**

(cross-leveled with LTC 7420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4424: Middle School Literacy Field Experience**

This field experience supports the LTC 4420 component of Phase II. Field experience expectations are delineated in the LTC 4420 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4460: Teaching English to Speakers of Other Languages**

(same as LINGST 4650; cross-leveled with LTC 7460, LINGST 7650). Linguistic and pedagogical principles of teaching English to speakers of other languages. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Consent required

---

**LTC 4470: Teaching Secondary English/Language Arts I**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, Primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4474: Teaching Secondary English/Language Arts I Field Experience**

This field experience supports the LTC 4470 component of Phase II. Field experience expectations are delineated in the LTC 4470 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4480: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4480W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4484: Teaching Secondary English/Language Arts II Field Experience**

This field experience supports the LTC 4480 component of Phase II. Field experience expectations are delineated in the LTC 4480 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4490: Teaching Middle and Secondary English/Language Arts III**

Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480

**Recommended:** Admittance to Phase II

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**LTC 4494: Teaching Secondary English/Language Arts III Field Experience**

This field experience supports the LTC 4490 component of Phase II. Field experience expectations are delineated in the LTC 4490 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4500: Emergent Language in Early Childhood**

Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 4510: Assessment in Early Childhood Education**

A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate curriculum for children in early childhood settings.

**Credit Hours:** 3

**Recommended:** H\_D\_FS 3420 or equivalent child development or child psychology course

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**LTC 4520: Literature in the Elementary School**

Surveys the field of literature for children and adolescents, with emphasis on selected readings of various types of literature.

**Credit Hours:** 3

**Recommended:** junior standing or instructor's consent

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**LTC 4530: Introduction to Social Studies**

Will introduce prospective teachers to the profession of social studies teaching; to the bases for making curriculum choices in social studies and the process of choosing content; and the process of planning curriculum and instruction in social studies classrooms.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4534: Secondary Social Studies I Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4530 component of Phase II. Field experience expectations are delineated in the LTC 4530 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4540: Teaching of Reading**

Materials, methods used in teaching reading in elementary grades.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

**Recommended:** Admittance to Phase II

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**LTC 4541: Reading and Writing in the Social Studies**

(cross-leveled with LTC 7541). Focuses on the teaching of reading and writing strategies for social studies teachers. Students review literacy

interventions related to reading and writing historical texts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4544: Secondary Social Studies II Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4541 component of Phase II. Field experience expectations are delineated in the LTC 4541 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4550: Assessment in Social Studies**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4550W: Assessment in Social Studies - Writing Intensive**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4554: Secondary Social Studies III Field Experience**

This field experience supports the LTC 4550 component of Phase II. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4560: Reading and Writing in the Content Areas**

(cross-leveled with LTC 7560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Recommended:** Phase II admittance

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**LTC 4565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 7565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 4570: Organization of Public School Art**

Purposes, practices of art experiences in elementary and secondary schools. Designed for teachers, supervisors, administrators.

**Credit Hours:** 2

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**LTC 4571: Introduction to Teaching Mathematics in Middle and Secondary Schools**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding. Recommended: Admittance to Phase II

**Credit Hours:** 3

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**LTC 4574: Intro. Teaching Math in Middle and Secondary School Field Experience**

Field experience supporting the LTC 4571 component of Phase II. Field experience expectations are delineated in the LTC 4571 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4580: Social Studies in the Elementary School**

Problems in preparation, teaching of units with suitable materials, techniques.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

**Recommended:** Phase II admittance

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**LTC 4581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 7581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate use of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 or LTC 4360 or LTC 7360

**Recommended:** Admittance to Phase II

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**LTC 4584: Teaching Math in Middle and Secondary Schools: Algebra and Technology Field**

This field experience supports the Learning, Teaching and Curriculum 4581/7581 component of Phase II. Field experience expectations are delineated in the LTC 4581/LTC 7581 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 4587: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction

**Credit Hour:** 1-3

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**LTC 4590: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics**

Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

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**LTC 4590W: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics - Writing Intensive**

Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

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**LTC 4594: Teach Math in Sec Sch: Focus on Geometry/Probability**

This field experience supports the LTC 4590 component of Phase II. Field experience expectations are delineated in the LTC 4590 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4600: Diagnosis and Remediation of Learning Problems in Math - Middle**

The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies.

**Credit Hours:** 3

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**LTC 4610: Teaching Techniques and Curriculum in Elementary School Math**

The mathematics program in the elementary school from viewpoint of goals, content, techniques and evaluation.

**Credit Hours:** 3

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**LTC 4620: Information Literacy in Teaching and Learning**

Discusses the nature, value, and power of information as product and process; organization, retrieval, and evaluation of information; explores the Internet and information superhighway; develops skills for resource based learning for classroom instruction; policy issues.

**Credit Hours:** 3

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**LTC 4630: Health Education in the Elementary School**

Defines teacher's role in school health program; investigates health needs of school children; focuses on teaching strategies, health resources and development of elementary school health education curricula and materials.

**Credit Hours:** 3

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**LTC 4631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4631W: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4634: Teaching Middle and Secondary Science I Field**

This field experience supports the Learning, Teaching and Curriculum 4631 component of Phase II. Field experience expectations are delineated in the LTC 4631 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4640: Motor Development in Early Childhood**

Motor development of infants and children with emphasis on: study of interaction between biological and environmental factors affecting development, motor assessment techniques, and designing programs to enhance motor development.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC 4641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631

**Recommended:** Admittance to Phase II

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**LTC 4644: Teaching Middle and Secondary Science II Field**

This field experience supports the LTC 4641 component of Phase II. Field experience expectations are delineated in the LTC 4641 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4650: Education in Human Sexuality**

The biological, psychosocial and educational aspects of human sexuality with special emphasis on instructional activities related to interpersonal communication, decision-making ability and clarification of values, course is designed for both teachers and health-care personnel.

**Credit Hours:** 3

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**LTC 4651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech III**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631 and LTC 4641

**Recommended:** Admittance to Phase II

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**LTC 4654: Teach Sci Second Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld**

This field experience supports the LTC 4651 component of Phase II. Field experience expectations are delineated in the LTC 4651 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4660: Drug Education**

The psychosocial, legal and pharmacological aspects of the recreational use of over-the-counter and street drugs are investigated with emphasis being placed on personal decision making, principles of school and community drug education, rehabilitation and community health services.

**Credit Hours:** 3

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**LTC 4680: Teaching Legal Rights and Responsibilities of Citizenship**

An introductory course for teachers and undergraduate students dealing with the teaching of the basic legal concepts which underlie effective citizenship.

**Credit Hours:** 2

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**LTC 4730: Overview of Art Education**

This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4734: Overview of Art Education Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4730 component of Phase II. Field experience expectations are delineated in the LTC 4730 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4740: Inquiry into Art Education: Pre-School Through Middle School**

The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4740W: Inquiry into Art Education: Pre-School Through Middle School - Writing Intensive**

The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience**

This field experience supports the LTC 4740 component of Phase II. Field experience expectations are delineated in the LTC 4740 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4750: Inquiry into Art Education: Secondary**

The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** LTC 4740 or LTC 7740

**Recommended:** Admittance to Phase II

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**LTC 4754: Inquiry into Art Education: Secondary Field Experience**

This field experience supports the LTC 4750 component of Phase II. Field experience expectations are delineated in the LTC 4750 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4960: Special Readings in Curriculum and Instruction**

Directed study of literature and research reports in education.

**Credit Hour:** 1-3

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**LTC 4970: Standardized Assessments**

This non-credit course will provide resources to assist with standardized assessments required to become a Missouri certified teacher. Graded on S/U basis only.

**Credit Hours:** 0

**Recommended:** Admittance to Phase III

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**LTC 4971: Internship and Capstone Seminar**

Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects, reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 10-16 credit hours. Admittance to College of Education required.

**Credit Hour:** 1-16

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 4981: Internship I**

This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 7010: Student Teaching**

Hours, credit must be arranged with director of student teaching. Must apply during February for following year.

**Credit Hour:** 1-99

**Prerequisites:** special methods courses in area of specialization

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**LTC 7040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hour:** 2-3

**Prerequisites:** TDP 2020 and completion of Phase I or enrollment in a graduate level program in the College of Education

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**LTC 7085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC 7091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 4091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

---

**LTC 7110: Working with Infants and Toddlers**

Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hours:** 3

**Prerequisites:** course in child development and admission to Phase II; admittance to College of Education required

---

**LTC 7120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 4120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**Recommended:** Admittance to College of Education required and co enrollment in LTC 4200 and LTC 4210 and K-3 field experience

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**LTC 7124: Emergent & Developing Literacy Early Childhood Field Experience**

This field experience supports the LTC 7120 component of Phase II. Field experience expectations are delineated in the LTC 7120 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Phase II admittance required

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**LTC 7130: Teaching & Learning Math, Sci. & Social Studies w/Young Children**

(cross-leveled with LTC 4130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Prerequisites:** Consent required (enrollment is limited to students admitted to the College of Education and have completed of ECE Language/Literacy block)

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**LTC 7134: Teach & Learn Math, Sci & Soc Studies w/Young Children Fld Exp**

This field experience supports the LTC 7130 component of Phase II. Field experience expectations are delineated in the LTC 7130 course syllabi. . Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Phase II admittance required

---

**LTC 7140: Curriculum, Theory and Classroom Management in Early Childhood Education**

Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

---

**LTC 7150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 4150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field Experience and admittance to the ECE certification program in Phase II of the College of Education

---

**LTC 7160: Motor Development in Young Children**

For Early Childhood majors. Study of young children's motor development. Must be taken as part of the TDP ECE Motor/Art/Music block. Prerequisites: Admission to Phase II

**Credit Hours:** 2

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**LTC 7200: Young Children's Emergent Language**

For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Prerequisites:** admittance to Phase II; admittance to College of Education required

**Corequisites:** LTC 4120, LTC 4210, and K-3 field experience

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**LTC 7210: Children's Language and Literature**

(cross-leveled with LTC 4210) For Early Childhood majors. Examines children's oral language development and surveys the field of children's literature for children ages birth to eight. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II; admittance to College of Education required

**Corequisites:** LTC 7120 and K-3 field experience

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**LTC 7220: Emergent Literacy**

Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3.

**Credit Hours:** 3

**Prerequisites:** completion of Phase I

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**LTC 7224: Emergent Literacy Field Experience**

This field experience supports the Learning, Teaching and Curriculum 7220 component of Phase II. Field experience expectations are delineated in the LTC 7220 course syllabi. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Phase II admittance required

---

**LTC 7240: Art for Children**

This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Prerequisites:** admittance to College of Education

---

**LTC 7340: Middle School Science I**

(cross-leveled with LTC 4340). Concepts, materials, methods in middle school science.

**Credit Hours:** 4

**Prerequisites:** Consent required. (enrollment limited to Phase I admittance; admittance to the College of Education required)

---

**LTC 7350: Middle School Science II**

Concepts, materials, methods in the middle school program.

**Credit Hours:** 3

**Prerequisites:** Phase I; admittance to College of Education required

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**LTC 7360: Intro. Teaching Mathematics in Middle & Secondary**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching

mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing, MATH 1360; admittance to College of Education required

---

**LTC 7370: Teaching and Modeling Middle School Mathematics**

Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and at least 18 hours of required mathematics; admittance to College of Education required

---

**LTC 7380: Teaching Middle School Language Arts I**

Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7384: Middle School Language Arts I Field Experience**

This field experience supports the Learning, Teaching and Curriculum 7380 component of Phase II. Field experience expectations are delineated in the LTC 7380 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

---

**LTC 7390: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7394: Middle School Language Arts II Field Experience**

This field experience supports the LTC 7390 component of Phase II. Field experience expectations are delineated in the LTC 7390 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7400: Teaching Middle and Secondary English/Language Arts III**

Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390; admittance to Phase II of College of Education

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**LTC 7404: Middle School Language Arts III Field Experience**

This field experience supports the LTC 7400 component of Phase II. Field experience expectations are delineated in the LTC 7400 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7410: Teaching, Engaging and Assessing Middle-Level Students**

In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7414: Teaching, Engaging & Assessing Mid-Level Students**

This field experience supports the LTC 7410 component of Phase II. Field experience expectations are delineated in the LTC 7410 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7420: Adolescent Literacy**

(cross-leveled with LTC 4420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7424: Middle School Literacy Field Experience**

This field experience supports the LTC 7420 component of Phase II. Field experience expectations are delineated in the LTC 7420 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7460: Teaching English to Speakers of Other Languages**

(same as ENGLISH 7650). Linguistics and pedagogical principles of teaching English to speakers of other languages. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 7600 and ENGLISH 7610 or equivalent and acceptance into Phase II

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**LTC 7470: Teaching Secondary English/Language Arts I**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ Language Arts, primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7474: Teaching English/Language Arts I Field Experience**

This field experience supports the LTC 7470 component of Phase II. Field experience expectations are delineated in the LTC 7470 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7480: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7484: Teaching English/Language Arts II Field Experience**

This field experience supports the Learning, Teaching and Curriculum 7480 component of Phase II. Field experience expectations are delineated in the LTC 7480 course syllabi. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7490: Teaching Middle and Secondary English/Language Arts III**

Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480; admittance to Phase II of College of Education

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**LTC 7494: Language Arts III Field Experience**

This field experience supports the LTC 7490 component of Phase II. Field experience expectations are delineated in the LTC 7490 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7500: Emergent Language in Early Childhood**

Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 7510: Assessment in Early Childhood Education**

A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate curriculum for children in early childhood settings.

**Credit Hours:** 3

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**LTC 7520: Literature in the Elementary School**

Surveys the field of literature for children and adolescents, with emphasis on selected readings of various types of literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LTC 7540: Teaching of Reading**

Materials, methods used in teaching reading in elementary grades.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400 and professional standing

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**LTC 7541: Teaching Social Studies**

Is designed for the secondary social studies teachers to develop knowledge of social studies and the skills to teach social studies. The student will plan implement, and evaluate both the teaching and learning processes for secondary social studies classroom.

**Credit Hours:** 3

**Prerequisites:** acceptance into Phase II, admittance to College of Education required

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**LTC 7550: Assessment in Social Studies**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Prerequisites:** acceptance into Phase II, admittance to College of Education required

---

**LTC 7560: Reading and Writing in Content Areas**

(cross-leveled with LTC 4560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment is limited to College of Education admitted to Phase II with 60+ credit hours)

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**LTC 7565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 4565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 7570: Organization of Public School Art**

Purposes, practices of art experiences in elementary and secondary schools. Designed for teachers, supervisors, administrators.

**Credit Hours:** 2

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**LTC 7571: Introduction Teaching Mathematics in Middle and Secondary**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing and MATH 2300

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**LTC 7580: Social Studies in the Elementary School**

Problems in preparation, teaching of units with suitable materials, techniques.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400, professional standing

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**LTC 7581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 4581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate uses of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 7571 or LTC 7360

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**LTC 7587: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction.

**Credit Hour:** 1-3

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**LTC 7590: Teach.Math in Sec.Schools: Focus on Geometry, Probability & Stat.**

Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4570 or LTC 7570; admittance to College of Education required

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**LTC 7600: Diagnosis and Remediation of Learning Problems in Math-Middle**

The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies.

**Credit Hours:** 3

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**LTC 7610: Teaching Techniques and Curriculum in Elementary School Math**

The mathematics program in the elementary school from viewpoint of goals, content, techniques and evaluation.

**Credit Hours:** 3

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**LTC 7620: Information Literacy in Teaching and Learning**

Discusses the nature, value, and power of information as product and process; organization, retrieval, and evaluation of information; explores the Internet and information superhighway; develops skills for resource based learning for classroom instruction; policy issues.

**Credit Hours:** 3

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**LTC 7630: Health Education in the Elementary School**

Defines teacher's role in school health program; investigates health needs of school children; focuses on teaching strategies, health

resources and development of elementary school health education curricula and materials.

**Credit Hours:** 3

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**LTC 7631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr.,Assm., & Tech 3**

(cross-leveled with LTC 4631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required (professional standing; admittance to College of Education required)

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**LTC 7640: Motor Development in Early Childhood**

Motor development of infants and children with emphasis on: study of interaction between biological and environmental factors affecting development, motor assessment techniques, and designing programs to enhance motor development.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC 7641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** professional standing and Teaching Science in the Secondary School, Part I; admittance to College of Education required

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**LTC 7650: Education in Human Sexuality**

The biological, psychosocial and educational aspects of human sexuality with special emphasis on instructional activities related to interpersonal communication, decision-making ability and clarification of values, course is designed for both teachers and health-care personnel.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent

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**LTC 7651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech 2**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** professional standing and Teaching Science in the Secondary School, Parts 1 and II; admittance to College of Education required

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**LTC 7660: Drug Education**

The psychosocial, legal and pharmacological aspects of the recreational use of over-the-counter and street drugs are investigated with emphasis being placed on personal decision making, principles of school and community drug education, rehabilitation and community health services.

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**Credit Hours: 3**

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**LTC 7680: Teaching Legal Rights and Responsibilities of Citizenship**

An introductory course for teachers and undergraduate students dealing with the teaching of the basic legal concepts which underlie effective citizenship.

**Credit Hours: 2**

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**LTC 7730: Overview of Art Education**

This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours: 3**

**Prerequisites:** admittance to College of Education required

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**LTC 7740: Inquiry into Art Education: Pre-School Through Middle School**

The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours: 3**

**Prerequisites:** admittance to College of Education required

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**LTC 7750: Inquiry into Art Education: Secondary**

The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours: 3**

**Prerequisites:** admittance to College of Education required

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**LTC 7960: Special Readings in Curriculum and Instruction**

Directed study of literature and research reports in education.

**Credit Hour: 1-3**

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**LTC 7971: Internship and Capstone Seminar**

Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects, reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 1-16 credit hours. Admittance to College of Education required.

**Credit Hour: 1-16**

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060 and admittance into Phase III

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**LTC 8085: Problems in Curriculum and Instruction**

Problems in Curriculum and Instruction.

**Credit Hour: 1-99**

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**LTC 8520: Tests and Measurements for Elementary and Secondary Schools**

Educational tests, measurements from points of view of teachers, supervisors, administrators.

**Credit Hours: 3**

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**LTC 8600: Home-School Partnerships: Working with Families**

Examination of theoretical and philosophical foundations of parent involvement, social and cultural influences on contemporary families, current research on parent involvement, and characteristics of effective home-school-community partnerships. Graded on A-F basis only.

**Credit Hours: 3**

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**LTC 8610: Issues in Early Childhood Education and Curriculum Practices**

Focuses on historical and contemporary societal and educational issues affecting current curriculum decisions and practices in kindergarten and primary grades.

**Credit Hours: 3**

**Prerequisites:** Classroom teaching experience or instructor's consent

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**LTC 8612: Advanced Early Childhood Curriculum**

Study of early childhood curriculum in contemporary educational settings along with selection of appropriate materials and development of instructional strategies for children, prekindergarten through early primary grades.

**Credit Hour: 2-3**

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8613: Advanced Assessment in Early Childhood**

(same as SPC\_ED 8490). Procedures and instruments used in assessment of young children, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans. Graded on A-F basis only.

**Credit Hours: 3**

**Prerequisites:** Departmental consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8614: Language and Early Literacy Development**

Investigation of the language and early literacy development of young children from birth through age 8. Graded on A-F basis only.

**Credit Hours: 3**

**Prerequisites:** Department consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8615: The Missouri Writing Project**

Focus on 1) current theory and research in teaching writing; 2) development of effective practice in teaching, writing and reading; and 3) experimentation with writing and response.

**Credit Hour: 3-4**

**Prerequisites:** successful application to MWP

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**LTC 8616: The Teaching of Journalism**

The course focuses on the learning and teaching of middle, secondary, and post-secondary journalism/mass media course. Major strands of study include the theory and practice of journalism instruction, curriculum, and assessment.

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**Credit Hours:** 3

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**LTC 8617: Teaching Writing in Middle and Secondary Classroom**

This course will encourage the student as a writer and as a teacher of writing, especially in the middle and high school setting. We will explore various types of writing, with emphasis in English Education, including addressing national and state standards.

**Credit Hours:** 3

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**LTC 8618: Writing, Reading and Teaching Nonfiction**

Students will get more than their feet wet as they read and write a variety of nonfiction texts, explore nonfiction's value and relationship to other genres, and investigate its potential for learning.

**Credit Hours:** 3

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**LTC 8619: Media Literacy**

Teachers will learn how to incorporate visual images in the classroom while helping students "read" the images of our media-rich culture. Teachers will pair media with literature; analyzed and evaluate different media; and design several assignments.

**Credit Hours:** 3

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**LTC 8620: Whole Language Curriculum**

Whole Language Curriculum inquires into whole language theory, beliefs and practices. Students will explore and participate in classroom based inquiry projects, theme cycles, reflective practices, holistic assessment, and other learner-centered experiences such as literature study and writers workshop.

**Credit Hours:** 3

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**LTC 8621: Talk in the Curriculum**

This survey of oracy examines talk's essential role in learning and the connections among language, power and cultural identity.

**Credit Hours:** 3

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**LTC 8625: Language Acquisition and Development**

You will explore theories of language acquisition and development, and examine how language acquisition impacts reading and writing. Ideas for creating a language rich curriculum, second language learning, and cultural aspects of language will be addressed.

**Credit Hours:** 3

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**LTC 8630: Teaching Reading Through Literature Response**

Teaching Reading Through Literature Response focuses on 1) reading as a personal and social process and 2) multiple responses to literature. Students will examine, use and critique; personalized reading, text sets (conceptually related materials), literature groups and other reading instruction experiences.

**Credit Hours:** 3

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**LTC 8635: Literature for Children and Youth**

Systematic study of selected areas of particular importance to students of literature, teachers, librarians, supervisors, and school administrators.

**Credit Hours:** 3

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**Prerequisites:** instructor's consent

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**LTC 8636: Teaching Literature**

This course involves exploration of theory, research, and practice in the teaching and learning of literature to students in Grades 9-12. It is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on an integrated approach to the teaching of literature and some nonfiction. Texts include novels, short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course promotes the use of various teaching and learning practices. The course is divided into the following major sections: 1) Introductions of Class Members; 2) Theories of Teaching Literature in the Classroom; and 3) Trying Out Theories on Selected Literature. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** This is a recommended course for early in a master's program

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**LTC 8637: Teaching Communication**

This course explores the theory, research, and practice in the teaching and learning of communication. This course is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on the teaching of speaking, listening, and language, as they occur within the best practices of English/Language Arts classrooms. The course involves variety of texts such as short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course encourages the use of various teaching and learning practices. The course is divided into the following major themes: 1) Introductions of Class Members; 2) Overview of Communication: Theory, Research, Practice; and 3) Teaching Communication in Context: Speaking, Listening, Reading, Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** We recommended, but do not require, that you take this course early in your program

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**LTC 8640: Studies in English Education**

Exploration of the theory, research, and application of topics in the teaching of English, such as Writing/Thinking, Media, Literature, Language, and Creative Nonfiction. Topics announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**LTC 8641: Foundations of English Education**

This course focuses on foundational readings in the teaching and learning of English/Language Arts. The course requires intensive reading, writing, and discussion focusing on four subcategories of English Education: writing, literature, language and critical thinking. In addition, the course situates these topics within a historical perspective of the field. An additional focus of this course is on professional networking and development. It is expected that as students develop a greater understanding of the foundations of English Studies in Language Arts, they will see where their areas of expertise and knowledge join them to the profession as a leader. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8642: Teaching Writing and Reading in Content Areas**

Theory and practice of teaching reading and writing. Specific ways teachers can help students use writing to communicate about the course content, as well as to learn course concepts. Class also focuses on how to teach reading in reading classes, how to help students improve reading skills in content areas, and how reading and writing skills can reinforce each other.

**Credit Hours:** 3

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**LTC 8643: Teaching ESL/EFL to Adult Learners**

This course explores the characteristics of adult learners, theories of adult learning, and the contexts in which adults learn English as a second or foreign language. Students apply this knowledge in the design of language learning curricula and activities for adult learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8644: Teaching English Grammar and Pronunciation**

This course develops teachers' knowledge of the structure of the English language (its grammar and its sound system) and provides them with pedagogical skills in teaching grammar and pronunciation to second/foreign language learners. Graded on A-F basis only. Prerequisites: LTC 8645 and LTC 8648

**Credit Hours:** 3

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**LTC 8645: Second Language Acquisition**

This course examines theories of how humans develop first and second languages in childhood and adulthood and how this knowledge can be used to educate language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8646: Materials for and Assessment of English Language Learners**

This course will examine the appropriate classroom materials, methods, reasons, and tools for the formal and informal assessment of English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8647: Language and Culture for Educators**

This course will examine how to prepare educators to effectively educate students from a range of linguistic and cultural backgrounds by developing a broad understanding of the definition and nature of culture and appropriate teaching strategies and materials for diverse students. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8648: Linguistics for Educators**

This course focuses on the form, meaning, and use of language in context and applying knowledge of linguistics to the teaching of English language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8649: Methods of Teaching English Language Learners**

This course will examine how to prepare teachers to develop the investigative, decision-making, and reflective teaching skills needed to work with English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8650: English to Speakers of Other Languages Practicum**

This culminating course will allow students to apply the theory and practice of teaching English to non-native speakers in an educational setting. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8651: Working with English Language Learners with Special Needs**

The course will assist educators with the decision to refer or not to refer an English language learner to special education services while helping identify the general framework for considering their special needs and preparing a comprehensive continuum of services. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8652: Seminar: English: Its Grammar and Place in the World**

The course will familiarize learners with the grammatical features of English that have contributed to the its global proliferation, explore the varieties of English used around the world, and delve into the concept of English as a global means of communication. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as ED\_LPA 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**LTC 8660: Reading Miscue Analysis**

The process in which readers construct meaning by relating their socio-psycholinguistic backgrounds to discourse. 15 studied miscues (text deviations) are analyzed at several linguistic levels. A comprehension centered reading program is developed.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 and LTC 7560, or equivalent

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**LTC 8664: Practicum in Child Study I**

Practicum experiences in diagnosing educational problems of school children.

**Credit Hour:** 3-5

**Prerequisites:** LTC 7540 or LTC 7560 or LTC 8670

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**LTC 8665: Practicum in Child Study II**

Practicum experiences in applying remedial procedures to children with educational problems.

**Credit Hour:** 3-5

**Prerequisites:** LTC 8664

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**LTC 8670: Analysis & Correction of Reading Disabilities**

Diagnostic and corrective procedures in reading instruction that may be used for clinical study.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 or instructor's consent

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**LTC 8675: Foundations of Reading Instruction**

This online course examines principles and practices of teaching reading to PK-12 students; the nature of reading and literacy learning, the foundations of reading acquisition and development; and reading instructional across grade levels. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8680: Issues and Trends in Reading Instruction**

Provides intensive study of significant issues and current trends in reading on all instructional levels.

**Credit Hours:** 3

**Prerequisites:** LTC 7540, LTC 7560 or equivalents or instructor's consent

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**LTC 8681: Making a Difference for the Struggling Reader**

Will help explore ways to help readers who have been unable to achieve success in reading--will learn how to access and evaluate strategies students are currently using.

**Credit Hours:** 3

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**LTC 8682: Focus on Writing in the Classroom**

The course focuses on theory, research and practices in teaching writing in the elementary classroom (K-6) while developing a critical understanding of process methods to teach writing.

**Credit Hours:** 3

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**LTC 8683: Celebrating Reading Through Good Books**

Many people can read but do not. This course will explore ways to make reading a joyful, exciting experience. Assignments will include reading journal articles that will help students meet self determined goals. Sharing books will be an important part of this course.

**Credit Hours:** 3

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**LTC 8684: Integrating Literacy and Technology**

This will be a seminar course in which the students explore definitions of literacy, theoretical frameworks of educational technology, and literature that investigates the effectiveness of integrating literacy and technology. The students will also examine and evaluate a range of software used to integrate literacy and technology.

**Credit Hours:** 3

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**LTC 8685: Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom**

This class examines genres in children's and young adult literature (grades 1-9). In-depth look at the work of children's authors and illustrators; explore issues of censorship, gender, and culture.

**Credit Hours:** 3

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**LTC 8686: Theory of Instructional Strategies**

The course investigates instructional strategies in K-12 and higher education classrooms and the theories behind those strategies. Content includes large and small group strategies, inquiry-based learning, student-centered and direct instruction, and differentiated instruction.

**Credit Hours:** 3

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**LTC 8687: Literacy and the Internet (Grades K-12)**

The internet offers a myriad of opportunities to engage K-12 students in meaningful, purpose-driven reading and writing. Students examine their own literacy programs, examine ways they can incorporate the internet, and create a classroom web site.

**Credit Hours:** 3

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**LTC 8688: Nature of Literacy in a Digital World**

New literacies are required to successfully engage in professional, civic, and personal lives that are imbued with technology. Students examine the literacy skills required to proficiently read and write with text messages, blogs, wikis, social networks, and virtual worlds.

**Credit Hours:** 3

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**LTC 8710: Nature of Science and Science Teaching**

Examines philosophical, historical and sociological views of the nature of science and implications for science education policy and science instruction.

**Credit Hours:** 3

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**LTC 8712: Inquiry and the Science Curriculum**

Examines inquiry as the foundation of the science curriculum. Includes study of exemplary programs and curriculum materials, and provides models for curriculum development in science education.

**Credit Hours:** 3

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**LTC 8714: Research in Science Education**

Studies appropriate research methodologies and reviews research and selected readings in science education. Allows option for elementary or secondary emphasis for specific areas: life, physical or earth sciences.

**Credit Hours:** 3

**Prerequisites:** undergraduate course in Science Education

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**LTC 8716: Trends and Issues in Science Education**

Provides intensive study of current trends and significant issues of science affecting both the elementary and secondary levels of science education.

**Credit Hours:** 3

**Prerequisites:** undergraduate course in Science Education

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**LTC 8717: Teaching, Learning, & Research in Middle & Secondary School Sci.I**

Course I is for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8718: Teaching, Learning & Research Middle & Secondary School Sci.: II**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8719: Teaching, Learning, & Research Middle & Secondary**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8720: Advanced Teaching of Elementary Science**

A study of science curriculum and teaching in elementary school from viewpoint of research teaching strategies, evaluation, and developing trends.

**Credit Hours:** 3

**Prerequisites:** teaching experience and science methods course

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**LTC 8722: Advanced Teaching of Secondary Science**

Studies secondary science curriculum and teaching from viewpoint of research strategies, teaching strategies, conceptual formats.

**Credit Hours:** 3

**Prerequisites:** secondary science methods course

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**LTC 8724: College Science Teaching**

(same as BIO\_SC 8724, PHYSCS 8310 and ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**LTC 8725: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**LTC 8726: Integrating Science with Outreach**

(same as BIO\_SC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**LTC 8730: Survey of Art Education**

Provides survey of the development of art education and problems in the field by means of a critical inquiry.

**Credit Hours:** 3

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**LTC 8735: Visual Literacy and Visual Culture**

This course will investigate the intersection between art and language, exploring the connections between visual media and the written word-how these two areas inform and enrich each other.

**Credit Hours:** 3

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**LTC 8740: Curriculum in Art Education**

Advanced study of art education curricula, with option for elementary or secondary emphasis. Study of exemplary art programs, standards of quality, curriculum models, curriculum design and construction, concomitant instructional methods and evaluation.

**Credit Hours:** 3

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**LTC 8745: Visual Thinking Strategies I**

This course will introduce regular classroom and art educators to Visual Thinking Strategies theory and methodology, building practical VTS facilitation skills through structured guidance and feedback as each participant implements VTS lessons within his/her own teaching context.

**Credit Hours:** 3

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**LTC 8746: Visual Thinking Strategies II**

Visual Thinking Strategies II students will build upon the basic facilitation skills acquired during VTS I as they design an image-based studio curriculum tailored to their own students and classrooms. Action research and peer coaching are key features of the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8745

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**LTC 8750: Review of Research in Art Education**

Studies appropriate research methodologies and reviews research and selected readings in art education.

**Credit Hours:** 3

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**LTC 8760: The Secondary School Curriculum**

For secondary school principals, teachers, superintendents. Presents trends in curricular change, methods of curricular investigation.

**Credit Hours:** 3

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**LTC 8765: Artistic Thinking: Multimedia Applications for Teaching Art**

This course is designed to keep pace with contemporary trends in technology and digital media literacies. Students will deeply explore current applications and develop curriculum implementation strategies for K-12 instruction in visual arts classrooms.

**Credit Hours:** 3

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**LTC 8766: Illuminating Process and Product: Making Learning Visible**

This course focuses on the evaluative processes that surround and are embedded in art education. Due to the subtle, nuanced, and product based nature of visual arts, evaluative practices should be studied, understood, and implemented in an effective and encouraging manner. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8767: The Art of Teacher Reflection**

This course investigates reflective practices making deep inquiries into theoretical teaching practices. Students will examine their educational heritage, cultural beliefs and the implications these beliefs have on their current and future classrooms. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8770: Curriculum Construction for Secondary Schools**

Designed for those engaged in curriculum revision work and construction of new secondary school courses.

**Credit Hours:** 3

**Prerequisites:** LTC 8760 or instructor's consent

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**LTC 8780: Managing Classrooms for Learning**

Theoretical assumptions, goals, and research that inform various approaches to classroom management advocated for practitioners. Includes strategies for conducting action research on classroom management.

**Credit Hour:** 1-3

**Prerequisites:** An educational psychology course or instructor's consent

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**LTC 8790: Patterns for Instruction in Social Studies**

Presents and evaluates strategies for planning, teaching, and evaluating social studies in elementary and secondary schools.

**Credit Hours:** 3

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**LTC 8800: Secondary Social Studies Curriculum**

Examines current theory, trends and practices in secondary social studies curriculum with a practicum in curriculum development.

**Credit Hours:** 3

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**LTC 8805: Inquiry into K-12 History and Social Science**

this course is designed as a directed study on a topic in social studies content for the K-12 classroom. The focus of the course is on what is taught in social studies. Graded on A-F basis only

**Credit Hours:** 3

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**LTC 8806: Issues in the Social Studies Classroom**

This course is designed to provide an intensive study of current trends and significant issues in social studies that affect the social studies classroom.

**Credit Hours:** 3

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**LTC 8810: Elementary Social Studies Curriculum**

An in-depth study of objectives, goals, patterns and practices in elementary social studies curriculum. Focus will be upon instructional strategies and materials and current trends influencing curriculum development.

**Credit Hours:** 3

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**LTC 8860: Mathematics Curriculum**

Evolution of the mathematics curriculum during the 20th century will be studied. Emphasis will be given to examining major factors influencing the changing mathematics curriculum and their impact.

**Credit Hours:** 3

**Prerequisites:** teaching experience or the instructor's consent

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**LTC 8861: Teaching, Learning & Research in Middle & Secondary School Math I**

Course I for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8862: Teaching, Learning & Research Middle & Secondary School Math: II**

Course II for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8861

**Corequisites:** LTC 8942

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**LTC 8863: Teaching, Learning, and Research Middle and Secondary Math III**

Course III for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only. Prerequisites: LTC 8861, and LTC 8862; Co-Requisites: LTC 8942.

**Credit Hours:** 3

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**LTC 8865: Assessment in Mathematics Education**

Examination of assessment practices and the accountability movement. Emphasis is placed on significant research findings in assessment and implications for planning, implementing, and evaluating mathematics instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7100 and teaching experience

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**LTC 8866: Contemporary Curriculum Issues in Mathematics Education**

Mathematics curriculum is a concern to students, parents, school districts, business leaders, and government officials. This course examines current trends in mathematics curriculum from the perspective of mathematics educators, policymakers, and the public. Factors influencing changes in mathematics curriculum are examined. Graded on an A-F basis only.

**Credit Hours:** 2

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**LTC 8870: Mathematics Teaching and Teacher Education**

Recent developments and research findings in mathematics teaching and mathematics teacher education will be studied.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8871: Teaching and Learning Number/Operations Advanced**

Course will develop understanding of learning and teaching pre-number concepts, counting and cardinality, numbers and operations in base ten. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8881

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**LTC 8872: Teaching and Learning Rational Number Advanced**

The course is designed to develop an understanding of the learning and teaching of rational numbers and the ratio and proportional relationships. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only. Corequisites: LTC 8882

**Credit Hours:** 3

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**LTC 8873: Teaching and Learning Geometry and Measurement Advanced**

This course is designed to develop an understanding of the teaching and learning of geometry and measurement. Emphasis will be given to how children think about and learn these concepts and how they fit into an elementary mathematics curriculum. Graded on an A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8883

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**LTC 8874: Teaching and Learning Algebraic Reasoning Advanced**

Course focuses on the content and complexities of teaching and assessing algebraic reasoning in grades 1-6. Includes examinations of representation, analysis of mathematical structures, patterns, functions, and the transition from arithmetic to algebra. Graded on A-F basis only. Corequisites: LTC 8884

**Credit Hours:** 3

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**LTC 8875: Technology and Mathematics Education**

This course will focus on effective uses of technology in mathematics teaching and learning. Participants will experience different electronic technologies including computers, graphing calculators, and calculator based laboratories.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8876: Teaching Data Analysis and Mathematical Modeling**

The course will develop understanding of data analysis and mathematical modeling. Emphasis will be given to how children think and learn about these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8877: Foundations of Mathematics Leadership in Elem Schools**

This course provides opportunities for participants to develop knowledge and understanding of leadership principles and the process of continuous improvement as it related to the roles and responsibilities of elementary mathematics specialists. Graded on A-F basis only.

**Credit Hours:** 2

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**LTC 8878: Mathematical Leadership for Elementary Schools Advanced**

This advanced leadership course focuses on research and practice related to teamwork, interaction, communication, conflict resolution, and leadership in K-5 schools. Candidates will examine effective strategies for influencing and facilitating school/district improvement. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8880: Advanced Survey of Theories of Learning Mathematics**

This course is designed for students to explore historical and current cognitive theories that frame research in teaching and learning of mathematics.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7350 or instructor's consent

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**LTC 8881: Internship - Number and Operations in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (parents and teachers) on number and operations concepts. Graded on A-F basis only. Corequisites: LTC 8871

**Credit Hour:** 1

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**LTC 8882: Internship - Rational Numbers in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on rational number and proportional thinking concepts. Graded A-F basis only. Corequisites: LTC 8872

**Credit Hour:** 1

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**LTC 8883: Internship - Geometry/Masurement in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with students and adult learners (teachers and parents) on geometry and measurement concepts appropriate for K-5 students. Graded on A-F basis only.

**Credit Hour:** 1

**Corequisites:** LTC 8873

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**LTC 8884: Internship - Algebraic Reasoning in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on concepts related to algebraic reasoning appropriate for K-5 students. Course graded on A-F basis only. Corequisites: LTC 8874



**Credit Hour:** 1

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**LTC 8885: Using Manipulative Materials in Teaching Mathematics III**  
Mathematics laboratory is developed and integrated with experiences in setting. Emphasis on materials for primary and intermediate grades.

**Credit Hour:** 2-3

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**LTC 8886: Contemporary Equity Issues in Mathematics Education**  
Certain student populations (e.g., socioeconomically disadvantaged, racial minorities, English Language Learners, students with disabilities) have been traditionally underserved by the U.S. mathematics education system. This course explores the fundamental issues underlying this situation and explores mathematics teaching techniques that can be used to make students' learning opportunities more equitable. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8890: Mathematics Education Research**  
Examination of major research efforts and significant findings on learning and teaching mathematics. Emphasis will be placed on becoming knowledgeable of research and on developing wise consumers of research in mathematics education.

**Credit Hours:** 3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8893: Integrating Instruction in Science and Mathematics, Grades 5-12**

This course is designed to help middle and secondary mathematics and science teachers enhance student understanding of mathematics and science through integration of the disciplines.

**Credit Hours:** 2

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**LTC 8895: Advanced Methods of Teaching Secondary School Mathematics**

Discussion and application of theories of learning, strategies of instruction, curriculum development, evaluation techniques and research to secondary mathematics programs.

**Credit Hours:** 3

**Prerequisites:** Mathematics Secondary School Teaching Experience or equivalent

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**LTC 8896: Secondary Mathematics from an Advanced Perspective**  
This course deepens understanding of the mathematics underlying the secondary school curriculum. It addresses high school content from the viewpoint of advanced mathematics. Connections are explored within high school content and between high school and college content. Content strands include analysis, algebra, and Euclidean and non-Euclidean geometry. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8900: Seminar in Curriculum and Instruction**  
Seminar in Curriculum and Instruction

**Credit Hour:** 1-3

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**LTC 8910: Individual Research**

Independent research not leading to thesis.

**Credit Hour:** 1-3

**Prerequisites:** consent required

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**LTC 8915: Classroom Research-Learning, Teaching and Curriculum**  
Study of original classroom research and theories of instruction leading to plans for personal research and theory development.

**Credit Hour:** 1-3

**Prerequisites:** advanced graduate standing

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**LTC 8920: Classroom Research-Early Childhood and Elementary**  
Study of original classroom research and theories of instruction leading to plans for personal research and theory development.

**Credit Hours:** 3

**Prerequisites:** advanced graduate standing

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**LTC 8930: Ethnographic Research in Education**

Investigate practical aspects, nature, and assumptions of ethnographic research in education. Pilot study required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or equivalent

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**LTC 8940: In-Service Course in Curriculum and Instruction**

Course work adapted to current vocational needs.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LTC 8941: Internship in Curriculum and Instruction**

Provides internship experience under supervision in advanced levels of curriculum and instruction.

**Credit Hour:** 1-99

**Prerequisites:** departmental chairman's consent

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**LTC 8942: Advanced Internship in Curriculum and Instruction**

This internship is for students enrolled in MU COE Post-Baccalaureate Certification Programs. Graded on A-F basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**LTC 8950: Case Study Research Methods**

This course introduces graduate students to the advanced qualitative techniques related to case study research, within and across case coding strategies, and theoretical/philosophical underpinnings of case study research methodology.

**Credit Hours:** 3

**Prerequisites:** Previous introductory course in qualitative research methods is required

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**LTC 8951: Grounded Theory and Situated Inquiry**

For qualitative researchers attempting to understand social processes, Grounded Theory (GT) offers a way of developing theory empirically, 'from the bottom up.' In fact, this is what most distinguishes GT from other methods. It is explicitly emergent. It does not test a hypothesis.

It provides useful tools to learn about participants' understandings and experiences of a social issue, process, or phenomena and to discover and construct theory to account for the social processes being studied. In this course, we will consider the theoretical underpinnings and practices of classic and contemporary GT methodologies. Importantly, we will conduct research and a GT analysis of data.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8952: Narrative Inquiry Theory and Research Methods**

Narrative inquiry has gained popularity amongst researchers specifically in education and other social science fields with various theoretical and analytical approaches. In this advanced qualitative course, students will learn about these approaches and develop critical perspectives toward narrative inquiry. The purpose of this course is to expose students, in various disciplines, to the theoretical underpinnings of narrative inquiry and provide space to "have a try" at several analytical methods for narrative research (i.e. thematic, structural, dialogic/performative, and image analysis). This course will equip students with narrative research method experiences that could be used for dissertation research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8953: Poststructural Theory and Research Methods**

Poststructural perspectives call into question the universals and/or structures of society. The purpose of this course is to expose students, in various disciplines, to poststructural theory and provide space to "have a try" at thinking with theory for data analysis. This course provides space for students to read poststructural scholars' original writings. Readings for the course also allow students to read secondary sources and research studies that apply poststructural ideas. Students are encouraged to think of ways that poststructural theory can become a methodology and/or method for research in their discipline.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8954: Multimodal Analysis**

Multimodal analysis examines how multiple modes such as language, images, sound, symbols, gestures, body posture/position, space, and architecture are deployed for communication purposes in social science research. Students will learn about multimodal theoretical frameworks, key concepts, and procedures in order to critically engage with semiotic resources in a variety of research contexts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8955: Discourse Analysis in Education**

(same as ED\_LPA 8955). This course introduces the theories and methods of discourse analysis, including conversation, critical discourse, and multimodal. Students will analyze the role of context and ethics, as they transcribe and analyze discourse, especially from educational settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8956: Collaborative Inquiry Through Photovoice**

Photovoice is a participatory action research method that invites participants to explore and document their lived experiences in order to spark dialogue with others to bring about change. In this course, students experience the process of Photovoice in order to learn how to use this process in future research.

**Credit Hours:** 3

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**LTC 8957: Qualitative Methods in Educational Research I**

(same as ESC\_PS 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8970: The Supervision of Student Teaching-Masters**

Theory, knowledge and practices involved in supervision of student teaching and other professional lab experiences. Offers assistance in all major aspects of supervision of student teaching.

**Credit Hours:** 3

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**LTC 9050: Curriculum Theories**

Examines key ideological orientations in curriculum theory, explores the notion of curriculum as more than "a course of study" or "structured knowledge," and asserts that curriculum is embedded within historical discourses and practices of race, class, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9060: Theories of Learning and Implications for Education**

The course will familiarize students with the learning theories most widely drawn upon in educational research. Students will examine how theories are used and the range of interpretations of these theories. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9070: Philosophical Perspectives in Education Research**

An examination of the history and philosophy of social science research, including perspectives on ontology, epistemology, and axiology. Students will consider how various philosophical assumptions shape research paradigms, purposes, interests, and methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9080: Teacher Education Research**

This course is designed to prepare doctoral students as researchers who understand current trends and challenges for teacher education across the professional continuum, and who have the ability to formulate, compare, and problematize relevant research in the field.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9090: Research in Curriculum and Instruction**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LTC 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and ESC\_PS 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 9750: Doctoral Research Seminar in Art Education**

This course focuses on art education research and is designed to offer doctoral students an opportunity to investigate, through readings, reflective thinking, writing, and discussion, the issues that impact art education research. Graded on A-F basis only.

**Credit Hour:** 1

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**LTC 9970: The Supervision of Student Teaching-Doctoral**

Theory, knowledge and practices involved in supervision of student teaching and other professional lab experiences. Offers assistance in all major aspects of supervision of student teaching.

**Credit Hours:** 3

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## Learning, Teaching, & Curriculum - Vocational Courses

**LTC\_V 1050: Principles of Sales**

Provide the student with the concepts, tools and skills to become a professional salesperson. Emphasis is placed upon participation and performance of sales skills.

**Credit Hours:** 3

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**LTC\_V 1070: Word Processing and Presentation Concepts**

Instruction on preparing written documents and creating presentations for business, legal, medical, and social service career areas using word processing and presentation software; Special emphasis on the use of advanced features of computer business application software. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 1110: Principles of Retailing**

Examines problems, opportunities and trends in retailing. Problems and cases deal with store organization, budgeting, control, personnel and operation.

**Credit Hours:** 3

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**LTC\_V 1210: Introduction to Microcomputers**

An overview of the hardware and software components of a microcomputer system.

**Credit Hour:** 1

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**LTC\_V 2050: Merchandising**

Develop basic competencies essential to successful merchandising. Studies skills essential in merchandising, and analysis of merchandising functions and activities.

**Credit Hours:** 3

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**LTC\_V 2110: Business and Interpersonal Communications**

Study of communication theory and principles as applied to business situations and practices; development of communications skills in the area of communication such as speaking, writing, listening, and nonverbal communication.

**Credit Hours:** 3

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**LTC\_V 2150: The Virtual Workplace**

Encompasses the management of alternative work environments and the unique situations that arise by addressing the use of email, computerized meetings, virtual office design, web page issues for business, and other technology for virtual work.

**Credit Hours:** 3

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**LTC\_V 3110: Field Experiences in PAVTE**

Supervised observational and instructionally related activities within one of the PAVTE program areas at the secondary or postsecondary level. Student participates 30 clock hours for each semester hour of credit. Graded on S/U basis only.

**Credit Hour:** 1-4

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**LTC\_V 3150: Directed Occupational Experience**

Reports based on employment experience in selected occupations combined with related conferences and/or seminars. May repeat until four semester hours accumulated.

**Credit Hour:** 1-4

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**LTC\_V 3510: Human Relations in Organizations**

Principles, theory, processes and problems of effective human relations in marketing organizations

**Credit Hours:** 3

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**LTC\_V 4085: Problems in Curriculum and Instruction - CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 4210: Foundations of Adult Workforce Education**

Study of workforce education and human resource development; emphasis on the foundational concepts of adult learning theory and its application to the development and use of instructional methods, curriculum design, and procedures for adult workforce and professional education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 4350: Curriculum Development for Workforce and Professional Education**

Curriculum development course focused on competencies, curriculum selection, organization, development, and assessment for instructors of workforce and professional education courses and human resource training programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 4387: Seminar in Workforce Education**

Seminar experiences for students in any workforce education discipline area; meets the capstone requirement for students in the Bachelor of Educational Studies program (minimum 2.0 credit hours).

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC\_V 4510: Coordination of Cooperative Occupational Education**

Problems and procedures in the operation of cooperative occupational education programs. Especially designed for those who can qualify as coordinators of occupational education programs of a cooperative nature.

**Credit Hours:** 3

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**LTC\_V 4550: Utility Software for Microcomputers**

An introduction to major types of microcomputer utility programs, including desktop publishing, presentation, spreadsheet, and data base.

**Credit Hours:** 2

---

**LTC\_V 4570: Career Guidance**

Problems, methods, and procedures involved in assisting individuals in choosing, preparing for, entering upon, and progressing in their career. For workforce development and human resource professionals, employment counselors, and teachers, counselors, and school administrators.

**Credit Hour:** 2-3

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**LTC\_V 4610: Field Study in Occupational Education**

Directed observation in a cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

**Credit Hour:** 1-4

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**LTC\_V 4650: Document Planning and Design**

Using the hands-on approach, students will develop skills in the planning, design layout, and creation of various business documents, as well as the ability to evaluate various types of documents.

**Credit Hours:** 3

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**LTC\_V 4710: Business Software Applications**

Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications.

**Credit Hours:** 3

---

**LTC\_V 4750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

---

**LTC\_V 4770: Methods in Vocational Education for the Disabled and Disadvantaged**

(same as SPC\_ED 4390). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hours:** 3

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**LTC\_V 4790: Laboratory Planning and Management**

This course is designed to acquaint the student with the procedures, techniques and skills necessary for proper organization, management, care, and utilization of career and technical education facilities, programs, equipment, and materials.

**Credit Hours:** 3

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**LTC\_V 4801: Topics in Career and Technical Education**

Topics in the field of career and technical education and the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 4805: Principles of Leadership in the Workplace**

Course explores the foundational concepts of leadership and its impact on the organizational behavior of individuals in the workplace. Theories of leadership will be examined, and concepts will be applied to workplace situations based on differing organizational factors. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 4811: Workforce Education Teaching Methods**

Develops specialized organization and administration capabilities for workforce education subjects. Topics include managing activities, individualized instruction, nontraditional students, students with disabilities, and emerging technologies.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**LTC\_V 4830: Curriculum Content in Marketing Education**

Curricular development process, knowledge of core area and competencies of Marketing Education Program. Selection of instructional material.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 4840: Methods of Teaching Marketing Education**

Instructional materials, methods and techniques used to teach the marketing education curriculum. Includes evaluating delivery of instruction.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 4780 and LTC\_V 4830

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**LTC\_V 4910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 7910). Course introduces students to the foundational concepts of adult learning theory, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4115; junior standing

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**LTC\_V 4920: Workforce Education and the Community College**

(cross-leveled with LTC\_V 7920). This course provides an overview of the philosophy, history, and development of the community college in America, and reviews the social, economic, and political forces affecting these institutions. It also explores the rationale and techniques for keeping instructional and organizational functions responsive to the changing educational and workforce needs of the community, with an emphasis on collaboration with public-sector economic development and workforce training programs and customized training services for private sector organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or instructor approval

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**LTC\_V 7083: Teaching Personal Finance Literacy**

(same as FINPLN 7083) Principles and practices of teaching personal finance with particular emphasis on income, money management, spending and credit, and savings and investing. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 7085: Problems in Curriculum and Instruction-CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 7387: Seminar in Career and Technical Education**

Seminar experiences for students within one of the career and technical education areas.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**LTC\_V 7510: Coordination of Cooperative Occupational Education**

Problems and procedures in the operation of cooperative occupational education programs. Especially designed for those who can qualify as coordinators of occupational education programs of a cooperative nature.

**Credit Hours:** 3

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**LTC\_V 7550: Utility Software for Microcomputers**

An introduction to major types of microcomputer utility programs, including desktop publishing, presentation, spreadsheet, and data base.

**Credit Hours:** 2

**Prerequisites:** LTC\_V 1210 or equivalent

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**LTC\_V 7570: Career Guidance**

(cross-leveled with LTC\_V 4570). Problems, methods, procedures involved in assisting individuals in choosing, preparing for, entering upon, progressing in their vocation. For teachers, counselors, school administrators. Graded on A-F basis only.

**Credit Hour:** 2-3

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**LTC\_V 7610: Field Study in Occupational Education**

Directed observation in a cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

**Credit Hour:** 1-4

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**LTC\_V 7650: Document Planning and Design**

Using the hands-on approach, students will develop skills in the planning, design layout, and creation of various business documents, as well as the ability to evaluate various types of documents.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7550 or equivalent

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**LTC\_V 7710: Business Software Applications**

Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7550 or equivalent

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**LTC\_V 7750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

---

**LTC\_V 7770: Methods in Vocational Education for the Disabled & Disadvantaged**

(same as SPC\_ED 4390). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hours:** 3

---

**LTC\_V 7780: Development & Assessment of Vocational-Technical Curriculum**

Curriculum development/assessment course focused on competencies, curriculum selection, organization, development, and assessment in the context of the Missouri Vocational Instructional Management System.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 7790: Laboratory Planning and Management**

This course is designed to acquaint the student with the procedures, techniques and skills necessary for proper organization, management, care, and utilization of career and technical education facilities, programs, equipment, and materials.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 1210 and LTC\_V 7550

---

**LTC\_V 7801: Topics in Career and Technical Education**

Topics in the field of career and technical education and the CTE program areas.

**Credit Hour:** 1-99

---

**LTC\_V 7810: Technology and Industry Education Methods**

Develops specialized organization and administration capabilities for Industrial and Technology Education. Topics include managing activities, individualized instruction, nontraditional students, students with disabilities, and emerging technologies.

**Credit Hours:** 3

**Prerequisites:** professional standing

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**LTC\_V 7830: Curriculum Content in Marketing Education**

Curricular development process, knowledge of core area and competencies of Marketing Education Program. Selection of instructional material.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 7840: Methods of Teaching Marketing Education**

Instructional materials, methods and techniques used to teach the marketing education curriculum. Includes evaluating delivery of instruction.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7780 and LTC\_V 7830

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**LTC\_V 7910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 4910). Course introduces students to the foundational concepts of adult learning theories, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8085: Problems in Workforce and Professional Education**

Independent, directed study on a topic in the areas of workforce, professional, or technology education.

**Credit Hour:** 1-99

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**LTC\_V 8190: Research Applications for Career and Technical Education**

Interpretation, evaluation, and application of research methodologies and findings in career and technical education.

**Credit Hours:** 3

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**LTC\_V 8210: Program Development in Adult Workforce Education**

The adult workforce and professional education movement; characteristics of and learning principles applied to adult students; instructional materials, methods and procedures in organizing and

operating adult vocational education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8250: Methods of Business and Marketing Education**

Organization, curriculum, problems, and trends of business and marketing education in secondary and post-secondary adult education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8287: Seminar in Career and Technical Education**

Seminar in Career and Technical Education

**Credit Hour:** 1-3

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**LTC\_V 8310: Foundations of Career and Technical Education**

Philosophy, background, nature, purpose, and role of career and technical education programs in secondary and post-secondary education and workforce development. For teachers and administrators working with career and technical education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8350: Curriculum Development for Workforce and Professional Education**

In-depth investigation of curriculum development theory, research, issues, and procedures for workforce and professional education in the public and private sectors.

**Credit Hours:** 3

---

**LTC\_V 8410: Improvement of Instruction in Using Technology**

Incorporates recent development in application of technology to methods, techniques, and materials of instruction in career and technical education classrooms and laboratories.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7550 or instructor's consent

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**LTC\_V 8420: Improvement of Instruction in Business Skills Subjects**

Developments and trends in the instructional program of business skills courses.

**Credit Hours:** 3

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**LTC\_V 8501: Topics in Workforce and Professional Education**

Topics in the field of workforce, professional, or technology education in the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 8510: Evaluation in Workforce and Professional Education**

Development of evaluation procedures and the construction of evaluation devices for workforce and professional education. Emphasizes performance evaluation, improvement of instruction, and program review.

**Credit Hours:** 3

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**LTC\_V 8520: Implementation of Career and Technical Education Programs**

Types of organization, approved administrative and supervisory practices, and state and federal guidelines for programs of career and technical education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8940: In-Service Course in Vocational-Technical Education**  
In-Service Course in Vocational-Technical Education

**Credit Hour:** 1-99

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**LTC\_V 9090: Research in Practical Arts and Vocational Technology Education**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Linguistics Courses

**LINGST 1060: Human Language**

(same as ANTHRO 1060, C\_S\_D 1060, ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**LINGST 2001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 2040: Anthropological Linguistics**

(same as ANTHRO 2040). Language in relation to other aspects of human behavior. Introduction to description and analysis of the basic units of language. Emphasis on non-Indo-European and preliterate languages.

**Credit Hours:** 3

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**LINGST 2601: Languages of Africa**

(same as BL\_STU 2601 and ENGLSH 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**LINGST 2700: Elementary Logic**

(same as PHIL 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations.

**Credit Hours:** 3

**Prerequisites:** grade of C or higher in MATH 1100 or MATH 1120

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**LINGST 2820: Introduction to Cognitive Science**

(same as PSYCH 2820 and PHIL 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

**Recommended:** PSYCH 1000

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**LINGST 3001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 3010: American Phonetics**

(same as C\_S\_D 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

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**LINGST 3210: Anatomy and Physiology of the Speech Mechanism**

(same as C\_S\_D 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

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**LINGST 3220: Speech Acoustics**

(same as C\_S\_D 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

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**LINGST 3470: Culture as Communication**

(same as ANTHRO 3470, COMMUN 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and FRENCH 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in context of ethnic, cultural, and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3721: Spanish Phonetics**

(same as SPAN 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation,

phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160

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**LINGST 4001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4001W: Topics in Linguistics-General - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4100: Philosophy of Language**

(same as PHIL 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700 or instructor's consent

**Recommended:** one other course in Philosophy

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**LINGST 4110: Advanced Logic**

(same as PHIL 4110; cross-leveled with LINGST 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700; or instructor's consent

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**LINGST 4200: Introduction to Old English**

(same as ENGLSH 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4400: Language and Culture**

(same as ANTHRO 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis.

**Credit Hours:** 3

**Recommended:** ANTHRO 2040 or LINGST 2040

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**LINGST 4412: Gender, Language and Communication**

(same as COMMUN 4412 and ANTHRO 4412). Relationships among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**LINGST 4415: Language and Discourse**

(same as COMMUN 4415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

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**LINGST 4420: Historical Linguistics**

(same as ANTHRO 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior/senior standing

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**LINGST 4600: Structure of American English**

(same as ENGLSH 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**LINGST 4610: History of the English Language**

(same as ENGLSH 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**LINGST 4620: Regional and Social Dialects of American English**

(same as ENGLSH 4620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Recommended:** LINGST 4600 and LINGST 4610 or equivalent

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**LINGST 4630: Phonology**

(same as ENGLSH 4630). Survey of the sound patterns of English, with some comparison to other languages. Prerequisites: ENGLSH 4600 or equivalent

**Credit Hours:** 3

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**LINGST 4640: Syntax**

(same as ENGLSH 4640). Study of the properties of phrase and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600

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**LINGST 4650: Principles of Teaching English as a Second Language**

(same as LTC 4460). Linguistic and pedagogical principles of teaching English to speakers of other languages.

**Credit Hours:** 3

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**LINGST 4710: History of the French Language**

(same as FRENCH 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external, social, political, and historical factors that have affected the development of



French, followed by diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**LINGST 4711: History of the Spanish Language**

(same as SPAN 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**LINGST 4720: Structure of Modern French**

(same as FRENCH 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**LINGST 4721: Structure of Modern Spanish**

(same as SPAN 4721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4722: Spanish Across the Continents**

(same as SPAN 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4723: Language and Society: Spanish in the U.S.**

(same as SPAN 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in Education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4730: Linguistic Theory and Language Acquisition**

The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4720, LINGST 4721, or LINGST 4600

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**LINGST 4740: Interdisciplinary Introduction to NLP**

(same as CMP\_SC 4740; cross-leveled with LINGST 7740). The goal of this course is to enable students to develop substantive NLP applications.

Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**LINGST 4810: Psycholinguistics**

(same as C\_S\_D 4810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 4820: Speech Perception**

(same as C\_S\_D 4820). Selected topics in the perceptual processing of spoken language.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**LINGST 4850: Practical Phonetics for Fieldwork**

(same as ANTHRO 4850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4860: Techniques in Linguistic Analysis**

(same as ANTHRO 4860). Problems in analyzing data from various languages.

**Credit Hours:** 3

**Recommended:** introductory course in Linguistics

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**LINGST 4870: Field Methods in Linguistics**

(same as ANTHRO 4870 and ENGLSH 4670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**LINGST 4870W: Field Methods in Linguistics - Writing Intensive**

(same as ANTHRO 4870 and ENGLSH 4670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**LINGST 4960: Special Readings in Linguistics**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LINGST 4970: Studies in Linguistics**

Topic varies according to instructor.

**Credit Hours:** 3

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**LINGST 4991: Honors Thesis in Linguistics**

Based on an original research project in theoretical or applied linguistics. Topic, director, and second reader approved by Linguistics Committee, College of Arts and Science.

**Credit Hours:** 3

**Prerequisites:** qualification for Honors degree

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**LINGST 7100: Philosophy of Language**

(same as PHIL 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**LINGST 7110: Advanced Logic**

(same as PHIL 7110; cross-leveled with LINGST 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness for formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**LINGST 7200: Introduction to Old English**

(same as ENGLSH 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**LINGST 7400: Language and Culture**

(same as ANTHRO 7400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis. Prerequisites: ANTHRO 2040 or LINGST 2040 or equivalent

**Credit Hours:** 3

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**LINGST 7412: Gender, Language, and Communication**

(same as COMMUN 7412 and ANTHRO 7412). Relationships among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**LINGST 7415: Language and Discourse**

(same as COMMUN 7415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

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**LINGST 7420: Historical Linguistics**

(same as ANTHRO 7420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**LINGST 7600: Structure of American English**

(same as ENGLSH 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**LINGST 7610: History of the English Language**

(same as ENGLSH 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**LINGST 7620: Regional and Social Dialects of American English**

(same as ENGLSH 7620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600 or LINGST 7600 and LINGST 7610 or equivalent

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**LINGST 7630: Phonology**

(same as ENGLSH 7630). Survey of the sound patterns of English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 7600 or another introductory course in linguistics or phonetics

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**LINGST 7640: Syntax**

(same as ENGLSH 7640). Study of the properties of phrase- and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600 or another comparable linguistics course

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**LINGST 7650: Principles of Teaching English as a Second Language**

(cross-leveled with LINGST 4650). Linguistic and pedagogical principles of teaching English to speakers of other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 7600 and LINGST 7610 or equivalent

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**LINGST 7710: History of the French Language**

(same as FRENCH 7710).

**Credit Hours:** 3

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**LINGST 7711: History of the Spanish Language**

(same as SPAN 7711). Diachronic analysis of Spanish phonology, morphology, and syntax from Vulgar Latin to modern period.

**Credit Hours:** 3

**Prerequisites:** completed with passing grade any Linguistics course 3000 or above or by instructor's consent

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**LINGST 7720: Structure of Modern French**

(same as FRENCH 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

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**Credit Hours:** 3

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**LINGST 7721: Structure of Modern Spanish**

(same as SPAN 7721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

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**LINGST 7730: Linguistic Theory and Language Acquisition**

(same as RM\_LAN 7730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** LINGST 7720, LINGST 7721, LINGST 7600 or LINGST 7860

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**LINGST 7740: Interdisciplinary Introduction to Natural Language Processing**

(same as CMP\_SC 7740; cross-leveled with LINGST 4740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of text.

**Credit Hours:** 3

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**LINGST 7810: Psycholinguistics**

(same as C\_S\_D 7810). Examines the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 7820: Speech Perception**

(same as C\_S\_D 7820). Selected topics in the perceptual processing of speech sounds and spoken language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 7850: Practical Phonetics for Fieldwork**

(same as ANTHRO 7850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

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**LINGST 7860: Techniques in Linguistic Analysis**

(same as ANTHRO 7860). Problems in analyzing data from various languages. Prerequisites: introductory course in Linguistics or instructor's consent

**Credit Hours:** 3

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**LINGST 7870: Field Methods in Linguistics**

(same as ANTHRO 7870 and ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

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**Credit Hours:** 4

**Prerequisites:** 9 hours in Linguistics

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**LINGST 8000: Problems**

Independent study through readings, analysis of special linguistic problems, reports.

**Credit Hours:** 3

**Prerequisites:** one Advanced Linguistics course and instructor's consent

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**LINGST 8100: Speech Science**

(same as C\_S\_D 8100). Introduction to the physiological and acoustic aspects of speech production; instrumentation for speech analysis including computer-based speech processing techniques.

**Credit Hours:** 4

**Prerequisites:** C\_S\_D 3010, C\_S\_D 3210, and C\_S\_D 3230 or equivalents

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**LINGST 8110: Speech Physiology**

(same as C\_S\_D 8110). Analysis of physiological features associated with speech subsystems; theories of encoding with special emphasis on speech motor control mechanisms.

**Credit Hours:** 3

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**LINGST 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and FRENCH 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in Eng.).

**Credit Hours:** 3

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**LINGST 8487: Seminar in Anthropological Linguistics**

(same as ANTHRO 8487). Topics: Ethnolinguistics, linguistic prehistory, pidgin and Creole languages, linguistic theories and cultural and cultural analysis. French structural anthropology. May be repeated for 9 hours maximum.

**Credit Hours:** 3

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**LINGST 8600: Seminar in the English Language**

(same as ENGLSH 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May be repeated up to twelve hours with departmental approval.

**Credit Hours:** 3

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**LINGST 8615: History of the German Language**

(same as GERMAN 8615).

**Credit Hours:** 3

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**LINGST 8625: Middle High German**

(same as GERMAN 8625).

**Credit Hours:** 3

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## Listening and Speaking (Intensive English Program) Courses

### IEPL\_0001: Listening and Speaking I

Students will develop the listening and speaking skills required to comprehend and talk about basic information and everyday situations. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL\_0002: Listening and Speaking II

Students will develop the listening and speaking skills required to comprehend and talk about simple familiar topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL\_0030: Listening and Speaking for Academic Purposes III

Students will develop the listening and speaking skills required to comprehend and discuss adapted academic topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL\_0040: Listening and Speaking for Academic Purposes IV

Students will develop the listening and speaking skills required to comprehend and discuss academic topics and adapted university lectures. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL\_0050: Listening and Speaking for Academic Purposes V

Students will develop the listening and speaking skills required to comprehend and discuss university lectures and academic interactions. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Management Courses

### MANGMT 1010: Contemporary Business Practices

Course coverage includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields as well as the integrated nature of business. Graded on A-F basis only.

**Credit Hour:** 1

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### MANGMT 1030: Vasey Academy on Leadership Issues

Business seminar course restricted to Vasey Academy scholars. Focus on leadership issues and on career opportunity exploration in key areas of business. Graded on A-F basis only.

**Credit Hour:** 1

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### MANGMT 1050: Contemporary Leadership Issues in Business

Course focuses on contemporary business leadership practices and includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### MANGMT 3000: Principles of Management

Introduction to the basic concepts of management and organization; their application to operations and personnel management.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours

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### MANGMT 3000H: Principles of Management - Honors

Introduction to the basic concepts of management and organization; their application to operations and personnel management.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours. Honors eligibility required

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### MANGMT 3100: Job Search Strategies

Provides relevant information and skills to help students interested in careers in business conduct an effective job search. Topics covered include self-assessment, company research, preparing a resume, interview skills, networking skills, and negotiation skills.

**Credit Hour:** 1

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### MANGMT 3200: Business and Society

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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### MANGMT 3200H: Business and Society - Honors

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program; Honors eligibility required

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### MANGMT 3200HW: Business and Society - Honors/Writing Intensive

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program; Honors eligibility required

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**MANGMT 3200W: Business and Society - Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

---

**MANGMT 3300: Introduction to Business Processes and Technologies**

Introduces students to cross-functional business processes including both transactional and decision making forms. Current and emerging technologies used to facilitate efficient and effective action in these processes are explored.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

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**MANGMT 3540: Introduction to Business Law**

The legal aspects of business related to society--introduction to the legal system; constitutional, criminal, tort law; contracts and sales law cases and problems; administrative regulation of business and consumer issues.

**Credit Hours:** 3

**Prerequisites:** completion of 30 semester hours

---

**MANGMT 3700: Diversity and Inclusion in Management**

Discuss elements of diversity including race, gender, ethnicity, religion, sexual orientation, socioeconomic status, and age, among others, as these impact effective management in the workplace through a variety of workplace performance-related outcomes. Explore ways to contribute to, learn from, and benefit from a more diverse and inclusive work environment. Examine methods of optimizing human performance and potential in organizations. Create personal action plan to increase awareness, knowledge, skills and global perspective relative to diversity and inclusion. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3901: Special Topics in Management**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MANGMT 3901H: Special Topics in Management - Honors**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent. Honors eligibility required

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**MANGMT 3910: Managing Across Cultures**

Applying cultural dimensions to developing cross-cultural behavioral competencies utilizing code-switching training methods. For all persons interested in improving international person-to-person interactions.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3920: Managing People in the Global Enterprise**

Focuses on management of people in global organizations- especially for-profit enterprises. Topics include differences across countries in recruitment and selection, training and development, leadership and motivation, compensation, cross-cultural negotiation, and employment relations. The use of expatriates and host country nationals as managers is contrasted. Challenges involved in repatriating expatriates and their families after lengthy terms of service in foreign countries are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3975: Current Issues in International Management**

Study of current issues and practices in international management taken as part of an organized short term study abroad program. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MANGMT 4010: Operations Management**

(cross-leveled with MANGMT 7010). Managerial analysis of operating problems, with emphasis on planning and control systems. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4020: Human Resource Management**

(cross-leveled with MANGMT 7020) Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4030: Organizational Behavior**

(cross-leveled with MANGMT 7030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4050: Management of Service Operations**

Managing services, especially the operation's activity in service firms. Includes determining the service package, forecasting service demand, managing demand, capacity analysis and management, scheduling, cost control, service quality, and human resource management. Standardization, franchising, and service automation addressed.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4060: Project Management Fundamentals**

Practical methods and techniques for managing projects with selective attention to human resource issues. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4110: Total Quality Management**

Introductory, comprehensive approach to quality planning, analysis, and control. Applications orientation. Integrates customer needs, product and service design and delivery, and continuous improvement into all organizational activities. Examines full range of behavioral, technical, and organizational aspects relating to quality.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4120: Human Resource Management Law**

Analysis and evaluation of legal and administrative regulations of terms of employment; Fair Labor Standards, discriminatory practices, safety and health regulations, other regulations.

**Credit Hours:** 3

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**MANGMT 4130: Advanced Organizational Behavior**

Based upon behavioral science concepts and research findings directed toward understanding and explaining human behavior within organizations. Case studies, individual or team projects.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4030

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**MANGMT 4140: Business Communication**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a methods to communicate with important stockholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to upper level

**Corequisites:** MANGMT 3000

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**MANGMT 4140W: Business Communication - Writing Intensive**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a methods to communicate with important stockholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to upper level

**Corequisites:** MANGMT 3000

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**MANGMT 4185: Problems in Management**

Undergraduate students may select topics for study and investigation. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**MANGMT 4201: Topics in Management**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4201H: Topics in Management**

Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites:** will vary with different topics. Honors eligibility required

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**MANGMT 4201W: Topics in Management - Writing Intensive**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4220: Compensation Theory and Practice**

Examines the empirical research and theory relating to the effect of compensation administration systems upon employee satisfaction and performance. Analysis of financial compensation systems and benefit programs in use in modern organizations.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4020

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**MANGMT 4310: Modern Manufacturing**

Contemporary qualitative and quantitative analysis of automation systems for production and inventory; robotics, digital data matrix and Q/R coding, PLC overview; uncertainty, risk, and policy considerations; analysis of networks; management problems in application.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4010

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**MANGMT 4320: Selected Problems in Human Resource Management**

Advanced studies in selected administrative and technical policies, practices in employee relations, with individual and group project work, research. Focuses on policy issues, research findings, advanced techniques.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4020

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**MANGMT 4330: Organizational Theory**

(cross-leveled with MANGMT 7330). Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4330H: Organizational Theory - Honors**

Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Corequisites:** MANGMT 3000

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**MANGMT 4340: Crisis Management**

Management strategies for media relations, image and identify building, internal communication, government relations, and crisis communication are explored through case studies, film, literature, and current popular culture.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4350: Leadership Development**

Provides a comprehensive understanding of leadership development within the corporate environment. Examines causes and outcomes of different styles of leadership that are designed to fit the needs of individuals and/or specific situations.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4420: Collective Bargaining**

Content, negotiation, administration of collective labor agreements and settlement of disputes.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4450: Management of Electronic Commerce**

An introduction to electronic commerce. Topics covered include definition and scope of e-commerce, tools and technologies used, strategies, and understanding of this dynamic field.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4460: Electronic Commerce Security**

Comprehensive introduction to the concepts, technologies, and applications of security in electronic commerce. Topics include security policy, privacy, cryptography, types of attacks, protection, detection and response strategies.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

---

**MANGMT 4480: Business Data Communication and Networking**

Introduction to fundamental principles of technical and managerial aspects of business data communications and networks. Basic concepts and principles, protocol layers, content distribution, routing, LAN, wireless, security, network management, multimedia networking, and new developments.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

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**MANGMT 4520: Change Management in Business**

Provides a comprehensive understanding of the processes of change in the corporate environment. Examines antecedents of change such as acquisitions, mergers, technology and new leadership as well as approaches to managing change using tools from organization development (OD).

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4540: Legal Aspects of Business Organization and Operation**

Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540

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**MANGMT 4560: The Law of Commercial Credit Transactions**

Purchase and sale of goods, services and real property-discussion includes drafts, notes, security agreements under the Uniform Commercial Code, and credit financing of real estate.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540

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**MANGMT 4610: Database Management**

This is an introductory course on database (DB) technology. It introduces such technology and provides hands-on experience in designing and developing DBs to meet organizational goals. Topics include database concepts such as entity-relationship modeling, data modeling, relational database development, SQL, application of popular database systems software, data warehousing, and selected advanced topics in business use of DBs. Students work in groups to develop a database system project for an organization of their choice. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4620: Web Development Fundamentals**

An introduction to the fundamentals of design, technology and project management aspects of developing websites. Some web based programming languages including HTML, CSS, JavaScript and ASP/VBScript and an introduction to Adobe Photoshop and Macromedia Dreamweaver.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

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**MANGMT 4700: Principles of Entrepreneurship**

An introductory course designed to provide a solid foundation of the role of entrepreneurship. The focus is on the creation of new ventures, the decisions leading to their development, and the factors that lead to their success.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4710: The Entrepreneurial Process**

This course deals with critical thinking, logic, emotional intelligence, ethics and a problem solving/decision making frame in the context of the entrepreneurial business phases: opportunity identification; launch after gathering resources; managing growth and harvesting rewards.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4720: Experiential Entrepreneurship**

The course will engage students in experiences that develop entrepreneurial characteristics such as a passion for business, tenacity despite failure, self-determination, management of risk, self-confidence, creating opportunities, creativity, initiative, and detail orientation.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4730: New Business Planning and Management**

Analysis of the major functional areas of the start-up firm including accounting, finance, human resources, information systems, logistics, management, marketing, production/operations, purchasing and sales. Focus is also placed on generating ideas, scanning for environmental trends, and critically evaluating opportunities.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4750: Entrepreneurial Innovation Management: Enterprise Conception**

(same as IMSE 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**MANGMT 4760: Entrepreneurial Innovation Management: Enterprise Design**

(same as IMSE 4760). Expand on Management 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4750; sophomore standing or instructor's consent

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**MANGMT 4770: Entrepreneurial Innovation Management: Enterprise Operation**

(same as IMSE 4770). Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Prerequisites: Junior Standing

**Credit Hours:** 3

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**MANGMT 4940: Professional Management Internship**

Provides experience with management activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and to complete written assignments detailed in the plan. Course only satisfies a professional elective requirement of the program. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** COB student with a management concentration, and Internship Coordinator's consent

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**MANGMT 4970: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 4970W: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 7010: Operations Management**

(cross-leveled with MANGMT 4010). Managerial analysis of operating problems, with emphasis on planning and control systems.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7020: Human Resource Management**

(cross-leveled with MANGMT 4020) Introduction to strategies and best practices in attracting, selecting, retaining developing, and compensating employees.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7030: Organizational Behavior**

(cross-leveled with MANGMT 4030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7201: Topics in Management**

(cross-leveled with MANGMT 4201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000



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**MANGMT 7330: Organizational Theory**

(cross-leveled with MANGMT 4330). Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7380: Organizational Behavior and Management: The Individual**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on the individual within the organizational context.

**Credit Hour:** 1.5

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**MANGMT 7390: Organizational Behavior and Management: Dyadic, Group and Organizational Processes**

An examination of factors influencing behavior in organizations. An Analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on dyadic, group and system-wide processes. Prerequisites: MANGMT 7380

**Credit Hour:** 1.5

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**MANGMT 7410: Management Information Systems**

A managerially-oriented, case-based introduction to information systems. Emphasizes how information systems technology can aid managers in improving organizational performance, group work, and personal productivity, thus providing competitive advantage.

**Credit Hour:** 1.5

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**MANGMT 7420: Managerial Statistics**

Overview of statistics as an aid in decision making. Emphasis on summarizing data, statistical inference, sampling techniques, and regression based forecasting as applied to problems in business.

**Credit Hour:** 1.5

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**MANGMT 7430: Operations Strategy**

Introduction to Operations Management function within an organization- the function which controls key resources necessary to produce and deliver a firm's goods or services to customers. Surveys strategic problems common to operations within complex organization. Emphasizes planning, control, and decision making to gain competitive advantage through operations-related activities. Stresses concepts, models, and behaviors across technologies, sectors, and industries, rather than emphasizing a few specific conversion technologies.

**Credit Hour:** 1-3

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**MANGMT 7450: Business Analytics**

This course focuses on two areas of knowledge. One focus is on developing relevant statistical thinking skills, including an awareness and management of risk, and recognizing the type of statistical analysis that is appropriate for a given managerial problem. The other is on developing an understanding of the role of business analytics in the organization, at the managerial, tactical and strategic level. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7470: Data Analysis for Managers**

Statistical thinking approaches to address common business data and problems. Analysis of real-world cases and unstructured data using statistical features of spreadsheet software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students ONLY

**Corequisites:** MANGMT 7420

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**MANGMT 7480: Managerial Analytics**

Spreadsheet modeling procedures to address common business problems. Analysis of real-world cases and unstructured problems using basic and advanced features software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420 and MANGMT 7470. Open to Crosby MBA students ONLY

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**MANGMT 7540: Legal Aspects of Business Organization and Operation**

Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540. Restricted to COB students

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**MANGMT 7970: Introduction to Strategic Management**

Examines through case analysis and simulation how business-level managers overseeing a profit center in a specific industry set direction for a firm's activities in that industry and develop policies to implement that direction. Emphasis is on aligning business strategy with overarching corporate strategy (in diversified firms) and integrating functional perspectives (marketing, operations, finance, R&D, purchasing, human resources, etc.) by effectively resolving conflicts in these perspectives when formulating effective strategy. Focus is also placed on balancing short-term efficiency in a business unit with long-term effectiveness through cultivating continuous innovation processes that redefine the business unit over time.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students only

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**MANGMT 8001: Topics in Management**

Selected current topics in management.

**Credit Hour:** 1-6

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**MANGMT 8054: Entrepreneurship and Media of the Future**

(same as JOURN 8054). This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Us and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem,

and to present these ideas in a competitive, symposium environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Journalism or MBA program

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**MANGMT 8085: Problems in Management**

Graduate students may select topics for study and investigation. Selected sections of the course may be offered either on A-F or S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 8100: Exploring the Digital Globe**

Impacts of technological change and globalization are explored from the perspective of business, law and journalism. The first course required for the "CDiG certificate". Issues involving electronic commerce, digitization and globalization will be analyzed through online and in-class projects, class discussion and guest lectures.

**Credit Hours:** 3

**Prerequisites:** enrollment in CDiG Graduate Certificate Program or instructor's consent

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**MANGMT 8200: Commercialization of Life Science Innovations**

This course will provide educational content and experiences that equip course participants to navigate the main pathways for commercialization of biomedical innovations. Students will also learn how to access sources of capital for R&D and develop an understanding of the role of FDA approval and the processes for approval of different types of biomedical products. Students will become familiar with quality assurance programs required in the biomedical industry. Students will also become familiar with the most common business models for biomedical companies and the importance of product development and commercialization alliances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** admitted to certificate program; director approval

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**MANGMT 8300: Business and Society**

Interdependence of the business firm and its social, political, and legal environment; interrelationships with governments, interest groups, and the larger society; role of business in formulation of community, regional, national, and foreign policy.

**Credit Hours:** 3

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**MANGMT 8310: Strategic Human Resource Management**

Analysis of research and practice in planning for attracting, selecting, developing, and disciplining of employees at work.

**Credit Hours:** 3

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**MANGMT 8320: Management of Labor Relations**

Managerial approaches to collective bargaining. Negotiation, grievances, agreement administration; emphasis on recent developments.

**Credit Hours:** 3

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**MANGMT 8330: Current Issues in Human Resource Management**

Exploration of current trends, issues, and controversies involving the managing of human resources in organizations, with an emphasis on

how human resources can provide competitive advantage. Considers multiple perspectives, including that of employers, employees, and other stakeholders.

**Credit Hours:** 3

**Prerequisites:** MANGMT 8310 or MANGMT 7380 and MNGMT 7390

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**MANGMT 8335: Human Resource Law**

The study of best HR practices from a legal point of view, including avoiding employer liability related to recruiting, interviewing, hiring, classifying, supervising and terminating employees.

**Credit Hours:** 3

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**MANGMT 8340: Organizational Design**

Principles of effective organizational design contingent upon contextual factors such as an organization's size, technology, and environment; dimensions of organizational structure; overall forms of organizational design.

**Credit Hour:** 1.5

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**MANGMT 8345: Organizational Culture**

Concept of culture in an organizational context; models of organizational culture; culture's relationships with individual behavior, organizational effectiveness, and organizational change, especially change related to strategy implementation and to mergers and acquisitions.

**Credit Hour:** 1.5

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**MANGMT 8350: Organizational Analysis and Change in the Public Sector**

Investigates the social and psychological dynamics of organizational diagnosis, feedback and learning, intervention, planned change. Students study organizational life from the viewpoint of experienced organizational analysts and consultants. The predominant theoretical approach offered in this course is clinical and psychodynamic.

**Credit Hours:** 3

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**MANGMT 8360: Negotiations**

A structured overview of negotiations; includes the development of improved negotiation skills. Topics include power, distributive negotiations, integrative negotiations, maneuvers, tactics, strategies, conflict, complex negotiations, mediation, and negotiation ethics.

**Credit Hours:** 3

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**MANGMT 8370: Managerial Leadership**

An examination of the historical conceptions, definitions, theories, and research findings in the managerial leadership literature. The application of this literature to the development of analytical and leadership skills.

**Credit Hours:** 3

**Prerequisites:** MANGMT 7380 and MANGMT 7390

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**MANGMT 8400: Management Science Modeling**

Application of management science modeling procedures to organizational decision making. Topics include mathematical programming, queuing, and network models. Stresses managerial

point of view with analysis of problems and interpretation of computer solutions.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420

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**MANGMT 8410: Decision Making and Risk**

Managerial approaches to decision making under risk and uncertainty with emphasis on decision analysis, spreadsheet simulation, and computer solutions via other management science models. Discussion of rational and behavioral decision making and procedures for assessing risk and uncertainty.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7400 or equivalent

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**MANGMT 8420: Decision Support Systems**

The theory, methodology and implementation of Decision Support Systems (DSS). Topics include the DSS concept, applications, organizational issues, hardware and software technology, developmental methodology, data-model-user relationships, user interfaces, implementation strategies, and evaluation procedures. Includes hands-on building of a DSS.

**Credit Hours:** 3

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**MANGMT 8430: Database Management**

Data management, including database development, access, and administration. A focus on key issues and principles of managing organizational data, such as developing data models, creating relational databases, and formulating and executing queries.

**Credit Hours:** 3

**Prerequisites:** completion of or concurrent enrollment in MANGMT 7410

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**MANGMT 8440: Topics in Electronic Commerce**

Fundamental principles of the technical and managerial aspects of business telecommunications. Basic concepts of telecommunication technology, TCP/IP architecture, LAN, WAN, VoS, client/server, security, wireless, issues related to the operational and strategic use of the technology, networked applications, and new developments in the area.

**Credit Hours:** 3

**Prerequisites:** MANGMT 7410 and one other MIS course; departmental consent

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**MANGMT 8450: Information Resource Management**

Management issues and techniques involving information system/resource activities, with a focus on computer-based resources and IS development activities. Includes management of IS professionals and project teams, user relationships, emerging technologies, and planning processes. Prerequisites: completion of one required E-Commerce (MANGMT 8440, MANGMT 8430) or IT (MANGMT 8460, MANGMT 8001: Web Programming) MBA concentration course.

**Credit Hours:** 3

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**MANGMT 8460: Systems Approach to Business Application Development**

Design and implementation of transaction-based business applications systems, utilizing structured analysis and design concepts. Course will

emphasize database development and implementation and computer programming.

**Credit Hours:** 3

**Prerequisites:** completion of or concurrent enrollment in MANGMT 7410

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**MANGMT 8470: Business Telecommunications**

Fundamental principles of the technical and managerial aspects of business telecommunication. Basic concepts of telecommunication technology, TCP/IP architecture, LAN, WAN, QoS, client/server, security, wireless, issues related to the operational and strategic use of the technology, networked applications, and new developments in the area.

**Credit Hours:** 3

**Prerequisites:** MANGMT 7410 and one other MIS course; departmental consent

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**MANGMT 8480: Web Development**

An advanced introduction to the fundamentals of design, technology and project management aspects of developing websites. Several programming languages including HTML, CSS, JavaScript, CGI/Perl, PHP and ASP/VBScript and on introduction to Adobe Photoshop and Macromedia Dreamweaver. Requires Visual Basic knowledge.

**Credit Hours:** 3

**Prerequisites:** Visual Basic knowledge; departmental consent

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**MANGMT 8510: Project Management**

An advanced introduction to methods and techniques for managing projects, with selective attention to human resource issues as required. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**MANGMT 8540: Entrepreneurial Ventures**

Analysis of management challenges facing entrepreneurial startups and alternative strategic responses to those challenges. Views issues from multiple functional perspectives to design cross-functional solutions to entrepreneurial problems.

**Credit Hours:** 3

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**MANGMT 8550: Launching a High-Growth Venture**

An experiential learning course using a business plan competition to simulate planning and securing capital for high-growth ventures. Participants with management, marketing or finance interests learn skills for preparing and presenting business plans to investors.

**Credit Hours:** 3

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**MANGMT 8560: Legal Strategies for Entrepreneurs**

The study of how legal decisions affect a business organization of various transitional states of development, from start up to going public. Designed for both MBA and Law students, who work together planning legal transitions of a business.

**Credit Hours:** 3

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**MANGMT 8900: Corporate Governance and Professional Accountability**

Corporate governance (CG) is the set of processes, customs, policies, laws, and institutions affecting how a company is directed, administered or controlled. CG includes the relationships among the many stakeholders involved and the goals by which the corporation is governed. In contemporary business corporations, the main external stakeholder groups are shareholders, debtholders, trade creditors, suppliers, customers and communities affected by the corporation's activities. Internal stakeholders are the board of directors, executives, and other employees. This course will illustrate some of these key relationships, including how they can go wrong and the trade-offs managers have to make to manage all of these relationships. This course can be seen as a course on the professional responsibilities of business leaders. It is based on the assumption that business, like law and medicine, is a profession whose practitioners carry out essential functions in society. When individuals enter the profession, they undertake to fulfill a distinctive set of responsibilities that go with their chosen role. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 8970: Strategy and Global Competitiveness**

Investigates alternative goals of business enterprises relative to internal resources and external environment; development and implementation of policies and strategies to achieve objectives. Cases, computer simulations, and/or field research may supplement published materials.

**Credit Hour:** 1-3

**Prerequisites:** MANGMT 7970 for the 1.5 credit hour version of the course. Open to MBA Students only

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**MANGMT 9010: Research Methods in the Organization Sciences**

Identifying research questions, critiquing research ideas, planning, conducting, and communicating research using experimental, cross-sectional, survey and qualitative methods.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9020: Seminar in Micro Organizational Behavior**

Examination of theory and research on individuals within an organizational context, including individual perceptions, personality, attitudes, motivation, affect and behavior, and influences on outcomes such as job satisfaction and performance.

**Credit Hours:** 3

**Prerequisites:** PhD students and instructor's consent

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**MANGMT 9030: Seminar in Macro Organizational Behavior**

This course is designated to introduce students to content areas within the organizational behavior literature. Topics in "macro" organizational behavior will be covered, including groups and teams, organizational culture, and national culture. We will also cover a number of topics outside of traditional organizational behavior topics, including negotiation and social conflict, creativity, empowerment, and other topics as the instructor sees fit. Readings will consist of a combination of recent and classic journal articles on the topics.

**Credit Hours:** 3

**Prerequisites:** PhD Students and instructor's consent

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**MANGMT 9040: Seminar in Human Resource Management**

Intensive study of current research, issues and methodology of the applied science of human resource management. Topics include recruitment and selection, training, job performance and performance feedback, and career success.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9050: Seminar in Organization Theory**

Focuses on the organization as the subject of analysis with coverage of the effectiveness structure, environment, culture, and development of organizations.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9060: Seminar in Corporate Strategy**

The doctoral seminar in strategy focuses on the topics of strategy content research (what strategies are used by firms, and what is their effect on performance, corporate and competitive strategy, etc.) but also considering important related research streams of strategy process and implementation.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9080: Seminar in Entrepreneurship**

The doctoral seminar in Entrepreneurship is intended to provide students with a broad coverage of the literature. It focuses on the foundations and "cutting edge" research in entrepreneurship content research. Topics covered in the course include: a theoretical overview of entrepreneurship, identification of opportunities, the decision to exploit opportunities, resource assembly and new markets, founders and entrepreneurial teams, venture capital and venture capitalists, entrepreneurship and efficient governance, initial public offerings (IPOs), new ventures (strategy, growth, performance), entrepreneurial networks and alliances, and international entrepreneurship.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9087: Seminar in Management**

Intensive studies of current research and issues. Readings, independent investigations, reports.

**Credit Hour:** 1-99

**Prerequisites:** open to Ph.D. students, or instructor's consent

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**MANGMT 9090: Research in Management**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 9101: Topics Seminar in Management**

Reading and critical evaluation of selected current management literature and research. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## Marketing Courses

### **MRKTNG 3000: Principles of Marketing**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 1014, ECONOM 1024, ECONOM 1051, or AG\_EC 1041

**Prerequisites:** 45 semester hours

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### **MRKTNG 3000H: Principles of Marketing - Honors**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites:** 45 semester hours; ECONOM 1014, ECONOM 1024, ECONOM 1051, or AG\_EC 1041; Honors eligibility required

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### **MRKTNG 3901: Special Topics in Marketing**

Study of a selected topic in Marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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### **MRKTNG 3942: International Business Internship**

Internship in an international setting; Marketing Independent Study Coordinator must approve internship plan. Student and mentor reports required. See Marketing website for request form, internship requirements and details. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent; MRKTNG 3000

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### **MRKTNG 3975: Current Issues in International Marketing**

Study of current issues and practices in international marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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### **MRKTNG 3985: Problems in International Business**

Independent study associated with a course taken for credit as part of an organized study abroad program. See Marketing website for request form. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent; MRKTNG 3000

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### **MRKTNG 4000: Marketing Management**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, and ACCTCY 2010 or ACCTCY 2026, or ACCTCY 2036 or ACCTCY 2136H. During early registration, some

sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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### **MRKTNG 4000H: Marketing Management - Honors**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000; ACCTCY 2010 or ACCTCY 2026 or ACCTCY 2036 or ACCTCY 2136H; Honors eligibility required

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### **MRKTNG 4050: Marketing Research**

Procedures for defining marketing research problems; specifying information requirements; collecting, analyzing, interpreting, and presenting data for use in marketing decision making. Utilizes student projects and research-related computer assignments.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, STAT 3500. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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### **MRKTNG 4185: Problems in Marketing**

In-depth independent study of marketing topic(s). Student must have course plan (assignments, evaluation criteria, etc.) approved by faculty sponsor. Contact Marketing Department office for details and enrollment permission. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent, MRKTNG 3000

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### **MRKTNG 4201: Topics in Marketing**

Selected marketing-related topics. Subjects may vary across semesters. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000

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### **MRKTNG 4220: Consumer Behavior**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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### **MRKTNG 4220H: Consumer Behavior - Honors**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4250: Retail Marketing**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4250H: Retail Marketing - Honors**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4350: Business-to-Business Relationships**

Strategies, tactics, and challenges involved in developing, organizing, and managing interfirm relationships in business/ industrial markets. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and junior standing

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**MRKTNG 4380: Buying and Supply Chain Management**

Strategies, tactics, challenges, and issues involved in buying, industrial purchasing, and supply chain management. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and junior standing

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**MRKTNG 4410: Personal Selling**

Modern selling methods that focus on solving customer problems rather than using manipulative techniques. Principles underlying the sale process. Practical methods for building long-term customer relationships in business-to-business contexts are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4420: Sales Management**

Methods and tools employed by salespeople and field sales managers; emphasis on underlying behavioral and quantitative theory.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4440: Services Marketing**

Challenges, problems, and strategies specific to marketing in service industries. Topics include the unique characteristics of services and managing service-oriented businesses; service design and service

recovery; service quality and customer satisfaction service pricing issues and demand management; and management of service customers and employees. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4450: Marketing Channels**

Development and management of the interorganizational or internal networks through which goods and services are provided to consumer and business markets. Particular emphasis on the relationship between channel activities and the implementation of market strategy. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and junior standing

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**MRKTNG 4550: Integrated Marketing Communications**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4550H: Integrated Marketing Communications - Honors**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4650: e-Marketing**

Strategic and managerial challenges and issues related to use of the Internet and other electronic channels as marketing tools.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4720: Global Marketing**

Strategic and managerial issues associated with international trade and international marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some section may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4720H: Global Marketing - Honors**

Strategic and managerial issues associated with international trade and international marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and honors eligibility required

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**MRKTNG 4880: Contemporary Issues in Marketing**

Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis on marketing

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**MRKTNG 4880H: Contemporary Issues in Marketing - Honors**

Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and honors eligibility required

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**MRKTNG 4940: Marketing Practicum**

Course providing experience within ongoing business. Study plan, meeting, and written assignments required. See Marketing website for application, qualifications, requirements and details. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Marketing and international business-marketing majors only; MRKTNG 3000 and junior standing

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**MRKTNG 7201: Topics in Marketing**

The study of selected topics in Marketing. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** MRKTNG 3000 or instructor's consent; departmental consent for repetition

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**MRKTNG 7460: Managerial Marketing**

Introduces concepts and theories for marketing decision making. Provides an overview of principles and tools to analyze and understand marketing situations in order to develop and execute appropriate marketing initiatives.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required

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**MRKTNG 7470: Advanced Marketing Management**

Develops knowledge and skills to manage marketing activities at the strategic and tactical levels. Course utilizes case studies, interactive class exercises, and advanced marketing readings. Students will learn to apply relevant concepts for effective marketing strategy development, marketing planning, and implementation of marketing mix decisions.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required; MRKTNG 7460

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**MRKTNG 8001: MBA Topics in Marketing**

Advanced study of selected marketing-related topics. Subjects vary across semesters.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8050: Marketing Strategy**

Builds on the foundations of Marketing 7460. This course focuses on how a firm can formulate a market-driven business strategy in a competitive environment and the planning and implementation of marketing programs based on this strategy.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8060: Competitive Marketing Strategy**

Builds on the foundations of Marketing 7460 and 7470. Focuses on quantitative market intelligence-based design, execution, and adaptation of a market-drive business strategy to improve a firm's financial performance over time in a competitive environment. Uses a competitive, multi-period, marketing simulation game in which students are assigned to manage one of several firms competing in an industry. Prerequisites: MBA Program consent required: MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8060.

**Credit Hour:** 1-3

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**MRKTNG 8070: Marketing Business Models**

Builds on the foundations of Marketing 4760 and 7470. Focuses on the formulation and analysis of marketing strategy and contemporary business models for creating and capturing value in different industries such as consumer goods, services, retailing, media, sports, entertainment, and online businesses. Business revenue and profit models will be evaluated in conjunction with marketing performance.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8070

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**MRKTNG 8085: MBA Independent Study in Marketing**

Advanced independent study of marketing topics(s). Student must have a course plan (assignments, evaluation criteria, etc.) approved by a marketing faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental and MBA Program consent required; MRKTNG 7460, MRKTNG 7470

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**MRKTNG 8180: Applied Statistics in Marketing Analytics**

This course is designed to increase students' understanding of essential statistical methods, focusing primarily on interpretation and application in marketing contexts. During the course, students will apply statistical concepts and analyses in diverse marketing settings with a variety of data sets. By the end of the course, students will know when and how to apply fundamental statistical techniques in marketing situations, how to

interpret the results of statistical analysis, and how to present results in a managerially useful manner. Graded on A-F basis only.

**Credit Hour:** 1.5

**Prerequisites:** Consent of Instructor Required

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**MRKTNG 8220: Customer Analysis**

Concepts and approaches for understanding customer needs and wants. Emphasis is on analyzing and predicting customer responses to marketing actions.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8280: Research for Marketing Decisions**

Methods for generating and using information related to marketing decisions. The course is aimed at the manager who designs, conducts, and/or uses the research. Emphasizes the design of research studies to inform managers' decisions and techniques for gathering and analyzing primary and secondary data.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8350: Business-to-Business Marketing**

Advanced study of the marketing of goods and services to business customers; customer relationship management, and functionally integrated approaches to solving business problems.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8420: Sales Force Management**

Basic tasks of sales management as well as the application of theories and concepts to effectively manage that function. Topics covered include salesperson effectiveness, deployment, motivation, organizational design, compensation and evaluation.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8480: Relationship Marketing**

Focuses on the development of relationship marketing strategies and programs. The course examines relevant business models, the concept of customer lifetime value and financial as well as behavioral aspects of managing customer relationships. Database marketing methods and interactive tools for profitably managing customer relationships are also discussed.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8520: Services Marketing**

Focuses on service marketing problems and strategies of goods and service organizations. Subjects covered include the nature of services,

organizing for service delivery, managing demand, tailoring the customer mix and managing supply.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8580: Product Management**

Focus is on new product/service decisions and development processes. Discussion emphasized analytical approaches to new product portfolio decisions and the research needed as input to such decisions. Program strategy, opportunity creation, concept development, product testing, demand estimation, and results evaluation are stressed.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8620: Marketing Decision Models**

Quantitative tools and models used to analyze and solve marketing problems.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8650: Digital Marketing**

The use of the Internet and other electronic channels as marketing tools. Emphasis on integration of digital interactions and communication into the overall marketing strategy.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8680: Database Marketing**

A quantitatively-oriented, hands-on course regarding the use of customer data for making decisions about marketing campaigns and targeting of individual customers. Concepts and applications in this course emphasize statistical analysis of large datasets involving customer records. The analytical and statistical programming skills learned in the course should be useful in any data-oriented business environment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460, MRKTNG 7470, MANGMT 7400, MANGMT 7420, and MANGMT 7470

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**MRKTNG 8720: International Marketing**

Strategic and managerial issues associated with international trade and international marketing. The course focuses on managerial decision making in the differing and complex environments across foreign markets, alternative methods by which firms enter foreign markets and the development and implementation of international marketing strategies.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8750: Brand Management**

Focuses on the creation and execution of profitable brand strategies. Examines the practice of branding, the key components of brand equity, and how firms can build and sustain successful brands in competitive markets.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8760: Marketing Engineering**

A systematic, analytical approach to marketing decision-making. Students will be able to build their analytical skills through a combination of lectures, Excel-based software tools, and business case studies. Emphasis is on hands-on approaches for solving real-world marketing problems in domains such as segmentation, targeting, positioning, and resource allocation. The course will help students understand the financial impact of marketing expenditures including ROI assessment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460, MRKTNG 7470 and MANGMT 7400

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**MRKTNG 8770: Marketing Databases and SQL**

A user/analyst perspective to relational databases used in marketing applications. Fundamentals of relational databases, including database concepts, table design, views, normalization, and security. Hands-on training in SQL (Structured Query Language) on database tables and views to retrieve, change, join, filter, sort, group, and summarize data. Data analysis with SQL and Excel combined. Presentation of SQL results sets. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required, MANGMT 7410

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**MRKTNG 8780: Advanced Marketing Analytics**

Analytical methods for solving marketing problems. Emphasis on use of multivariate statistical techniques (e.g. regression models, time series models, principal components analysis, cluster analysis, discriminant analysis, ANOVA, survival/duration models, etc.) to aid marketing tasks and decisions in areas such as customer classification, segmentation, profiling, and targeting; prospecting with archival data; customer response to marketing interventions; customer acquisition/retention tactics; customer relationship management (CRM); sales forecasting; media allocation decisions; market basket analysis; etc. Graded on an A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required, MRKTNG 8680

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**MRKTNG 8880: Markets in Transition**

Analysis of selected industries with emphasis on marketing activities and environments. Particular emphasis given to forecasting major trends or changes anticipated in markets over the next decade.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 9010: Introduction to Research Methods in Marketing**

Introduces students to the research process. Examines philosophy of science, constructs and measurement issues regarding validity, and hypothesis-testing. Provides an overview of experimental and survey research methods, with introduction to qualitative research, model-building, and research using secondary data.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9020: Seminar in Advanced Research Methods in Marketing**

Familiarizes students with advanced research methods in marketing, emphasizing problem developmental and conceptualization, operationalization of research questions, measurement, and survey research.

**Credit Hour:** 1-3

**Prerequisites:** MRKTNG 9010 or equivalent; Ph.D. students only; instructor's consent

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**MRKTNG 9030: Seminar in Applied Multivariate Analysis in Marketing**

Familiarizes students with multivariate analysis of data used for research in marketing. Emphasizes application of multivariate methods, presentation of set, performing preliminary assessment of data quality and distribution, assessing measurement quality, and conducting a variety of multivariate and structural equation models, regression, logistic regression, discriminate analysis, cluster analysis, multi-way frequency analysis, and ANOVA.

**Credit Hour:** 1-3

**Prerequisites:** basic course in multivariate statistical methods; Ph.D. students only; instructor's consent

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**MRKTNG 9090: Research in Marketing**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Ph.D. students only

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**MRKTNG 9101: Current Topics Seminar in Marketing**

Reading and critical evaluation of selected current marketing literature and research. Graded on S/U basis only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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**MRKTNG 9185: Doctoral Independent Study in Marketing**

Independent study of a marketing topic or research project. Arranged in consultation with a graduate faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

---

**MRKTNG 9210: Seminar in Marketing Strategy**

Focuses on research topics that pertain to strategic marketing programs and decisions, such as marketing productivity, services marketing, product innovation management, and pricing, among others. Coverage is also given to defining the domain of research in marketing and to the development and use of related theories.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9220: Seminar Marketing Models**

Familiarizes students with quantitative modeling approaches to address a variety of marketing problems. The focus is on the nature, relevance, and properties of mathematical models and analytical methods that are employed to address various types of marketing decisions. Students will gain an understanding of the process of model-building, testing and implementation.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D students only; instructor's consent

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**MRKTNG 9230: Seminar in Consumer Behavior**

Exposes doctoral students to perspectives on consumer behavior that draw from a variety of disciplines, including marketing, psychology, decision theory, sociology, and cultural anthropology. Students also learn about the different methods researchers employ to study consumers. Covers both classic and contemporary literature. Students are encouraged to evaluate and synthesize existing literature in the pursuit of new research ideas.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9600: Seminar in Marketing**

Readings, independent investigations and reports. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## Mathematics Courses

**MATH \_0110: Intermediate Algebra**

MATH \_0110 is a preparatory course for college algebra that carries no credit towards any baccalaureate degree. However, the grade received in MATH \_0110 does count towards a student's overall GPA. The course covers operations with real numbers, graphs of functions, domain and range of functions, linear equations and inequalities, quadratic equations; operations with polynomials, rational expressions, exponents and radicals; equations of lines. Emphasis is also put on problem-solving.

**Credit Hours:** 3

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**MATH 1050: Quantitative Reasoning**

Promotes mathematical literacy among students. This course will cover important mathematical ideas and problem solving skills in the context of science, technology, and/or society. Topics may include: logic and critical thinking, Venn Diagrams, problem solving, sets, units of measure, percentages and ratios, counting and probability, exponential growth and decay, linear and exponential models. Quantitative Reasoning is designed to stimulate interest in and appreciation of mathematics and quantitative reasoning as valuable tools for comprehending the world in which we live. This course does not satisfy the prerequisite of any other math course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the ALEKS (or MMT) exam

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**MATH 1100: College Algebra**

A review of exponents, order of operations, factoring, and simplifying polynomial, rational, and radical expressions. Topics include: linear, quadratic, polynomial, rational, inverse, exponential, and logarithmic functions and their applications. Students will solve equations involving these functions, and systems of linear equations in two variables, as well as inequalities. See the Math website for specific requirements. A student may receive at most 5.0 credit hours among MATH 1100, MATH 1120, MATH 1140, MATH 1160.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the ALEKS exam or MyMathTest Intermediate Algebra score of 70% or higher

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**MATH 1140: Trigonometry**

A student may receive only 5 credits from among MATH 1100, MATH 1140, and MATH 1160. A Student may receive at most 5.0 credit hours from MATH 1100, MATH 1120, MATH 1140, and MATH 1160.

**Credit Hours:** 2

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS score or MyMathTest College Algebra score of 70% or higher

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**MATH 1160: Precalculus Mathematics**

Review of elementary algebra. Background material for MATH 1500, including algebraic, trigonometric, logarithmic, exponential functions. A student may receive at most 5 credits from among MATH 1100, MATH 1140, and MATH 1160.

**Credit Hours:** 5

**Prerequisites:** B+ or higher in MATH \_0110 (at MU), or C- or higher in MATH 1100, or sufficient ALEKS score or MyMathTest College Algebra score of 60% or higher

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**MATH 1300: Finite Mathematics**

A selections of topics in finite mathematics such as: basic financial mathematics, counting methods and basic probability and statistics, systems of linear equations and matrices. Warning: without a College Algebra exemption, a sufficient ALEKS score will not suffice unless it is a proctored exam (for MATH 1100 credit).

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1100, or MATH 1160, or both a College Algebra exemption and sufficient ALEKS score

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**MATH 1320: Elements of Calculus**

Introductory analytic geometry, derivatives, definite integrals. Primarily for Computer Science BA candidates, Economics majors, and students preparing to enter the College of BUS. No credit for students who have completed a calculus course. A student may receive credit for MATH 1320, or MATH 1400 but not both. A student may receive at most 5 credit hours among MATH 1320 or MATH 1400 or MATH 1500.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, or MATH 1160, or sufficient ALEKS score

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**MATH 1360: Geometric Concepts**

This course is primarily for education majors. This course covers topics of Euclidean geometry such as the study of points, lines, angles, polygons, circles, congruence, similarity, transformations, symmetry, area, surface

area, arc length, and volume. Polyhedra, spheres, cones, and other solids are discussed. The course includes constructions and proofs, and uses inductive and deductive reasoning throughout. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS exam score or MATH 1160 or equivalent

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#### **MATH 1400: Calculus for Social and Life Sciences I**

The real number system, functions, analytic geometry, derivatives, integrals, maximum-minimum problems. No credit for students who have completed a calculus course. A student may receive credit for MATH 1320 or MATH 1400 but not both. A student may receive at most 5 units of credit among the MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or higher in MATH 1100, or MATH 1160, or sufficient ALEKS score

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#### **MATH 1500: Analytic Geometry and Calculus I**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. A student may receive at most 5 units of credit among the Mathematics courses MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** grade of C- or higher in MATH 1160 or C- or higher in both MATH 1100 and MATH 1140 or sufficient ALEKS score or MyMathTest PreCalculus score of 70% or higher

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#### **MATH 1500H: Analytic Geometry and Calculus I - Honors**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Honors eligibility required. A student may receive at most 5 units of credit among MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** C- or higher in MATH 1160 or C- in both MATH 1100 and MATH 1140 and sufficient ALEKS score. Honors Eligibility required

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#### **MATH 1601: Selected Topics in Mathematics-General**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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#### **MATH 1602: Selected Topics in Mathematics-Biological/Physical/Math**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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#### **MATH 1700: Calculus II**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Proficiency Reasoning course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500

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#### **MATH 1700H: Calculus II - Honors**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500. Honors eligibility required

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#### **MATH 1800: Introduction to Analysis I**

This course will cover the material taught in a traditional first semester calculus course at a more rigorous level. The focus of this course will be on proofs of basic theorems of differential and integral calculus. The topics to be covered include axioms of arithmetic, mathematical induction, functions, graphs, limits, continuous functions, derivatives and their applications, integrals, the fundamental theorem of calculus and trigonometric functions. Students in this class will be expected to learn to write clear proofs of mathematical assertions. Some previous exposure to calculus is helpful but not required. No credit for MATH 1800 and MATH 1320, MATH 1400 or MATH 1500. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** ACT mathematics score of at least 31 and ACT composite of at least 30 or instructor's consent

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#### **MATH 1900: Introduction to Analysis II**

This course is a continuation of MATH 1800. In this course we shall cover uniform convergence and uniform continuity, integration, and sequences and series. The topics will be covered in a mathematically rigorous manner. No credit for MATH 1900 and MATH 1700 or MATH 2100. Graded on A/F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1800 or instructor's consent

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#### **MATH 2100: Calculus for Social and Life Sciences II**

Riemann integral, transcendental functions, techniques of integration, improper integrals and functions of several variables. No credit for students who have completed two calculus courses. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1320 or MATH 1400 or MATH 1500

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#### **MATH 2140: Geometric Axioms and Structures**

Euclidean Geometry, Axiom systems, spherical geometry, finite geometries, and explorations with technology.

**Credit Hours:** 3

**Prerequisites:** MATH 1340 or MATH 1360

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#### **MATH 2300: Calculus III**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1700

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**MATH 2300H: Calculus III - Honors**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in MATH 1700. Honors eligibility required

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**MATH 2320: Discrete Mathematical Structures**

Sets, functions, logic, relations, induction, recursion, counting techniques, graphs, trees, algorithms. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1700

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**MATH 2340: Algebraic Structures**

Introduction to axiomatic mathematics with emphasis on rings and groups. Applications to elementary number theory.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 and MATH 1320 or instructor's consent

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**MATH 3000: Introduction to Advanced Mathematics**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 3000W: Introduction to Advanced Mathematics - Writing Intensive**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 4001: Topics in Mathematics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Grade of C- of higher in MATH 2300

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**MATH 4002: Topics in Mathematics-Biological/Physical/Math**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 7060). Euclidean foundations, logic, Euler Characteristic, congruence, area, Pick's Theorem, volume, Cavalieri's Principle, surface area, similarity, symmetry, transformations, matrices, introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required

**Recommended:** MATH 1360 or MATH 1500

---

**MATH 4070: Connecting Algebra to Middle and Secondary Schools**

A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1320, enrollment is restricted to Math Education majors

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**MATH 4080: Calculus Connections**

Course topics include: sequences, series, functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, areas of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids.

**Credit Hours:** 3

**Prerequisites:** MATH 1160, enrollment is restricted to Math Education majors

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**MATH 4100: Differential Equations**

Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or above in MATH 2300

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**MATH 4110: Advanced Calculus With Applications**

Linear mappings, Jacobi matrices and determinants, change of variables, vector fields, line and surface integrals, theorems of Green, Gauss and Stokes, sequences and series of functions, uniform convergence, special functions.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4120: Combinatorics**

Study of a variety of topics from combinatorial mathematics, especially graph theory and enumerative combinatorics. Topics include graph coloring, matchings and coverings, generating functions, recurrence relations, Polya's Enumeration Theorem, introduction to Ramsey theory.

**Credit Hours:** 3

**Prerequisites:** MATH 2320, or instructor's consent

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**MATH 4140: Matrix Theory**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLSH 1000

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**MATH 4140W: Matrix Theory - Writing Intensive**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLSH 1000

---

**MATH 4150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLSH 1000.

**Credit Hours:** 3

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**MATH 4150W: History of Mathematics - Writing Intensive**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLSH 1000.

**Credit Hours:** 3

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**MATH 4300: Numerical Analysis**

Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 and MATH 4100

---

**MATH 4310: Numerical Linear Algebra**

Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and familiarity with software such as Mathematica, MatLab, Maple, etc

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**MATH 4315: Introduction to Mathematical Statistics**

(same as STAT 4710). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 4320: Introduction to Probability Theory**

(same as STAT 4750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 4325: Linear Programming**

Linear dependence and rank in vector spaces in  $R^n$ , Farkas' Lemma, Polyhedral Decomposition. Strong duality and complementary theorems. The simplex method, revised simplex, and sensitivity analysis. Primal Dual simplex method and network simplex methods. Computational Complexity and Karmarkar's Algorithm.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 or instructor's consent

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**MATH 4330: Theory of Numbers**

Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300. Recommended MATH 2320

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**MATH 4335: College Geometry**

Euclidean geometry from an advanced viewpoint. Synthetic and coordinate methods will be used. The Euclidean group of transformations will be studied.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4340: Projective Geometry**

Basic ideas and methods of projective geometry built around the concept of geometry as the study of invariants of a group. Extensive treatment of collineations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4345: Foundations of Geometry**

Coordination of affine, projective planes by means of various kinds of algebraic structures: planar ternary rings, Veblen-Wedderburn systems, division rings, skew fields, and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4350: Introduction to Non-Euclidean Geometry**

Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4355: Introduction to Financial Derivatives and Options**

(cross-leveled with MATH 7355). Long and short positions, forward contracts, exchange traded index futures, European and American

call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

---

**MATH 4360: Actuarial Mathematics**

(cross-leveled with MATH 7360). Basic actuarial methods, mathematical population studies and models of population growth. Compound interest and annuities certain. Values of endowment and annuities, calculation of premiums, surrender values. Stochastic models of populations growth.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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**MATH 4370: Actuarial Modeling I**

This course covers the concepts underlying the theory of interest and their applications to valuation of various cash flows, annuities certain, bonds, and loan repayment. This course is designed to help students prepare for Society of Actuaries exam FM (Financial Mathematics). It is oriented towards problem solving techniques applied to real-life situations and illustrated with previous exam problems.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MATH 2300

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**MATH 4371: Actuarial Modeling II**

(cross-leveled with MATH 7371). The goal of this course is to teach the basic theory of life contingent actuarial models and the application of those models to insurance and other financial risks. The topics covered are part of the readings for the Society of Actuaries exam MLC (Models for Life Contingencies) and are illustrated with past exam questions.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or STAT 4750, and MATH 4370

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**MATH 4400: Introduction to Topology**

Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4500: Applied Analysis**

Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4100

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**MATH 4510: Higher Algebra**

Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 or MATH 2320

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**MATH 4520: Statistical Inference I**

(same as STAT 4760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** MATH 4320

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**MATH 4540: Mathematical Modeling I**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and MATH 4100

**Recommended:** Familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 4560: Nonlinear Dynamics, Fractals and Chaos**

Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100, MATH 4140 or MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 4570: Fluid Dynamics**

Mathematical theory of fluid dynamics and applications. Prerequisites: MATH 2300

**Credit Hours:** 3

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**MATH 4580: Mathematical Modeling II**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models. More general classes of problems than in Mathematics 4540 will be considered.

**Credit Hours:** 3

**Prerequisites:** 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent. MATH 4540 is not a prerequisite

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**MATH 4590: Mathematics of Financial Derivatives**

Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility. Recommended: MATH 4355

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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**MATH 4700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 7700). Basic topology of the real line, numerical sequences and series, continuity, differentiability, Riemann integration, uniform convergence, power series.

**Credit Hours:** 3

**Prerequisites:** Grade of C - or higher in MATH 3000

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**MATH 4720: Introduction to Abstract Algebra I**

Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 3000

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**MATH 4800: Advanced Calculus for One Real Variable II**

(cross-leveled with MATH 7800). Continuation of Advanced Calculus for functions of a single real variable. Topics include sequences and series of functions, power series and real analytic functions, Fourier series.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or permission of the instructor

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**MATH 4900: Advanced Multivariable Calculus**

(cross-leveled with MATH 7900). This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700

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**MATH 4920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 7920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4720

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**MATH 4940: Introduction to Complex Variables**

Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110 or MATH 4700

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**MATH 4960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** Consent of Department required

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**MATH 4970: Senior Seminar in Mathematics**

Seminar with student presentations, written projects, and problem solving. May be used for the capstone requirement.

**Credit Hours:** 3

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**MATH 4980: Mathematics Problem Solving**

Creative advanced problem solving bringing together methods such as integration, probability and Euclidean geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 and another 4000 level Mathematics course, or instructor's consent

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**MATH 4996: Honors in Mathematics**

Special work for senior B.A. Honors and B.S. Honors candidates.

**Credit Hours:** 2

**Prerequisites:** Consent of Department required

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**MATH 7001: Topics in Mathematics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing and MATH 2300 and instructor's consent. Departmental consent for repetition

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**MATH 7060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 4060). Euclidian foundations, basic concepts of symbolic logic, polyhedra, Euler Characteristic, congruence, area, Picks Theorem, volume, Cavalier's Principles, surface area, similarity, reflections, translations, rotations, symmetry, vectors, general transformations, determinants, matrices, transformations using matrices, brief introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 1360 or MATH 1500, enrollment is restricted to Math Education majors

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**MATH 7070: Connecting Algebra to Middle and Secondary Schools**

A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures. Prerequisites: MATH 1320, enrollment is restricted to Math Education majors

**Credit Hours:** 3

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**MATH 7080: Connect Calculus to Middle and Secondary Schools**

Course topics include: sequences, series functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, area of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids,

**Credit Hours:** 3

**Prerequisites:** MATH 1160, enrollment is restricted to Math Education majors

---

**MATH 7100: Differential Equations**

Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7110: Advanced Calculus With Applications**

Linear mappings, Jacobi matrices and determinants, change of variables, vector fields, line and surface integrals, theorems of Green, Gauss and

Stokes, sequences and series of functions, uniform convergence, special functions.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7140: Matrix Theory**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** graduate standing and one of MATH 2300, MATH 2320, MATH 2120 or MATH 2340

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**MATH 7150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Pre- or Co-requisite: MATH 2300 or MATH 2340 and graduate standing.

**Credit Hours:** 3

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**MATH 7300: Numerical Analysis**

Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300 and MATH 4100 or equivalent

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**MATH 7310: Numerical Linear Algebra**

Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and prior experience writing programs in Mathematica and /or in a computer language such as Fortran, Pascal, or C

**Recommended:** MATH 4140

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**MATH 7315: Introduction to Mathematical Statistics**

(same as STAT 7710). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300 or instructor's consent

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**MATH 7320: Introduction to Probability Theory**

(same as STAT 7750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 7330: Theory of Numbers**

Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** MATH 2300; recommended MATH 2320 or MATH 2340, and MATH 4940 or MATH 7940

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**MATH 7335: College Geometry**

Euclidean geometry from an advanced viewpoint. Synthetic and coordinate methods will be used. The Euclidean group of transformations will be studied.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7340: Projective Geometry**

Basic ideas and methods of projective geometry built around the concept of geometry as the study of invariants of a group. Extensive treatment of collineations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7345: Foundations of Geometry**

Coordination of affine, projective planes by means of various kinds of algebraic structures: planar ternary rings, Veblen-Wedderburn systems, divisions rings, skew fields, and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7350: Introduction to Non-Euclidean Geometry**

Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7355: Introduction to Financial Derivatives and Options**

(cross-leveled with MATH 4355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and STAT 2500 or STAT 4710/ MATH 4315, or instructor's consent

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**MATH 7360: Actuarial Mathematics**

(cross-leveled with MATH 4360). Basic actuarial methods, mathematical population studies and models of population growth. Compound interest and annuities certain. Values of endowment and annuities, calculation of premiums, surrender values. Stochastic models of populations growth.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710/ MATH 4315, or instructor's consent



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**MATH 7370: Actuarial Modeling I**

This course covers the main probability tools applied to financial risk modeling, and the financial mathematics concepts used in calculating present and accumulated values for various cash flows. It is a helpful tool in preparing for the Society of Actuaries exams P (Probability) and FM (Financial Mathematics), and it is oriented towards problem solving techniques illustrated with previous exam problems. Students are encouraged to take MATH 4355 prior to this course.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, MATH 4320/ STAT 4750

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**MATH 7371: Actuarial Modeling II**

(cross-leveled with MATH 4371). The goal of this course is to teach the basic theory of life contingent actuarial models and the application of those models to insurance and other financial risks. The topics covered are part of the readings for the Society of Actuaries exam MLC (Models for Life Contingencies) and are illustrated with past exam questions.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or STAT 4750, and MATH 4370

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**MATH 7400: Introduction to Topology**

Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7500: Applied Analysis**

Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** MATH 4100/ MATH 7100

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**MATH 7510: Higher Algebra**

Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 OR MATH 2320

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**MATH 7520: Statistical Inference I**

(same as STAT 7760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** MATH 4320/ MATH 7320

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**MATH 7540: Mathematical Modeling I**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** graduate standing and 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent

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**MATH 7560: Nonlinear Dynamics, Chaos and Fractals**

Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 4100/ MATH 7100, MATH 4140/ MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 7570: Fluid Dynamics and Geophysical Applications**

Mathematical theory of fluid dynamics and applications to meteorology and oceanography.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 7580: Mathematical Modeling II**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models. More general classes of problems than in MATH 7540 will be considered.

**Credit Hours:** 3

**Prerequisites:** 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent. MATH 7540 is not a prerequisite

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**MATH 7590: Mathematics of Financial Derivatives**

Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound, gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

**Recommended:** MATH 4355

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**MATH 7620: Differential Geometry I**

Metric properties of restricted portions of curves and surfaces in three-dimensional Euclidean space.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 4700). Series of real numbers, limits of functions, continuity and uniform continuity, differentiability, and Riemann integration.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Recommended:** MATH 4140 and one other mathematics course number above MATH 2300

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**MATH 7720: Introduction to Abstract Algebra I**

Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**Recommended:** MATH 4140 and one other Mathematics course numbered above 2300

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**MATH 7800: Advanced Calculus of One Real Variable II**

(cross-leveled with MATH 4800). Continuation of Advanced Calculus for functions of a single real variable. Topics include sequences and series of functions, power series and real analytic functions, Fourier series.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or permission of the instructor

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**MATH 7900: Advanced Multivariable Calculus**

(cross-leveled with MATH 4900). This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700/ MATH 7700

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**MATH 7920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 4920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7940: Introduction to Complex Variables**

Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110/ MATH 7110 OR MATH 4700/ MATH 7700

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**MATH 7960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 7970: Senior Seminar in Mathematics**

Seminar with student presentations, written projects, and problem solving. May be used for the capstone requirement.

**Credit Hours:** 3

**Prerequisites:** 12 hours of mathematics courses numbered 4000 or above

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**MATH 7980: Mathematics Problem Solving**

Creative advanced problem solving bringing together methods such as integration, probability and Euclidean geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 and another 4000 level Mathematics course, or instructor's consent

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**MATH 8085: Problems in Mathematics**

Problems in Mathematics

**Credit Hours:** 3

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**MATH 8090: Master's Thesis Research in Mathematics**

Students will be required to complete an independent project. Topics are chosen in consultation with a faculty advisor and are subject to departmental consent. Graded on S/U basis only.

**Credit Hours:** 3

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**MATH 8102: Topics in Algebra**

Advanced topics in algebra.

**Credit Hours:** 3

**Prerequisites:** MATH 8410

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**MATH 8190: Masters Project in Mathematics**

Masters Project in Mathematics

**Credit Hours:** 3

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**MATH 8202: Topics in Functional Analysis**

Topics in Functional Analysis

**Credit Hours:** 3

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**MATH 8210: Basic Algebra**

Accelerated problem solving course in linear and abstract algebra. Will prepare students for the algebra qualifying exam.

**Credit Hours:** 3

**Prerequisites:** MATH 4720, MATH 4920, or instructor's consent, or equivalent

**Corequisites:** MATH 8220 and MATH 8250

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**MATH 8220: Basic Analysis**

Accelerated problem-solving course in advanced calculus and complex analysis. Will prepare students for the analysis qualifying exam.

**Credit Hours:** 6

**Prerequisites:** MATH 4700, MATH 4900, MATH 4940, instructor's consent or equivalent

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**MATH 8250: Basic Topology and Geometry**

Topological spaces, differential manifolds, differential forms, integration of vector fields.

**Credit Hours:** 3

**Prerequisites:** MATH 4700, MATH 4900, MATH 4140, or instructor's consent, or equivalent

**Corequisites:** MATH 8210 and MATH 8220

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**MATH 8302: Topics in Harmonic Analysis**

Topics in Harmonic Analysis

**Credit Hours:** 3

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**MATH 8402: Topics in Mathematical Physics**

Topics in Mathematical Physics

**Credit Hours:** 3

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**MATH 8410: Algebra I**

Theory of algebraic structures--groups, rings, fields, algebraic and transcendental extensions of fields.

**Credit Hours:** 3

**Prerequisites:** MATH 4720 and MATH 4920, or equivalent

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**MATH 8411: Algebra II**

Theory of modules, Galois theory and additional topics to be selected by the instructor.

**Credit Hours:** 3

**Prerequisites:** MATH 8410 or equivalent

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**MATH 8420: Theory of Functions of Real Variables I**

Properties of functions of one real variable. Lebesgue measure and integration on the line.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 and MATH 4900 or MATH 7900, or equivalent

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**MATH 8421: Theory of Functions of Real Variables II**

Continuation of MATH 8420. General measure and integration theory. Elements of the theory of Hilbert and Banach spaces, linear functions and linear operators.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8425: Complex Analysis I**

Rigorous introduction to the theory of functions of a complex variable.

**Credit Hours:** 3

**Prerequisites:** MATH 4940 or MATH 7940 or equivalent

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**MATH 8426: Complex Analysis II**

Analytic continuation, Riemann surfaces, entire and meromorphic functions, selected topics.

**Credit Hours:** 3

**Prerequisites:** MATH 8425

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**MATH 8440: Advanced Ordinary Differential Equations I**

Topics from existence and uniqueness theorems, plane autonomous systems, periodicity and boundedness of solutions of second order nonlinear equations, perturbation theory, Sturm-Liouville systems, behavior of solutions at singularities.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or equivalent

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**MATH 8441: Advanced Ordinary Differential Equations II**

Continuation of MATH 8440.

**Credit Hours:** 3

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**MATH 8442: Calculus of Variations I**

Development of necessary conditions and of sufficient conditions for nonparametric and parametric problems. Hamilton's principle, related topics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MATH 8445: Partial Differential Equations I**

Fourier and integral transforms, first and second order partial differential equations, methods of characteristics, Laplace's equation, Dirichlet and Neumann problems, Green's functions and maximum principles.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or instructor's consent required

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**MATH 8446: Partial Differential Equations II**

The Cauchy-Kovalevski theorem, the Lewy example, the heat operator, the wave operator, Sobolev spaces, local regularity of elliptic boundary value problems.

**Credit Hours:** 3

**Prerequisites:** MATH 8445

**Recommended:** MATH 8420

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**MATH 8450: Differential Geometry for Scientists and Engineers**

Tensors and multilinear forms. Connections, covariant differentiation, geodesics and curvature on Riemannian and pseudo Riemannian manifolds. Applications to special relativity and general relativity.

**Credit Hours:** 3

**Prerequisites:** MATH 4110 and some knowledge of Matrix Theory

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**MATH 8460: Mathematical Finance I**

(same as FINANC 8340). Financial instruments and derivative: stocks, bonds, futures option prices on interest rates, swaps, etc. Mathematical models of stock price fluctuations. Interest rates and options on interest rates. Swaps. Open markets and properties of stock option prices. Stochastic models. Binomial trees. Continuous time stochastic modeling. No arbitrage modeling. European and American options. BlackScholes model and differential equation, for the price of European option. Exotic options. Interest rate models.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Mathematics. Knowledge of elementary probability or instructor's consent

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**MATH 8461: Mathematical Finance II**

Diffusion Processes as models for stock price fluctuations. Contingent claims and arbitrage. Mathematical analysis of risk neutral valuation of contingent claims. Self-financing portfolios and hedging. Hedging contingent claims. Partial differential equations for valuation of derivative securities. Completeness of the markets and hedging. Parity relations and delta hedging. Several underlying assets.

**Credit Hours:** 3

**Prerequisites:** knowledge of advance probability/stochastic processes or instructor's consent

**Recommended:** MATH 8460

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**MATH 8465: Mathematical Methods of Risk Theory**

Probability aspects of Risk. Claim number processes. Accumulated claim number processes. Retentions and Reserves. Mathematics of reinsurance. Ruin probability calculations. Stability and dividends policy. Utility as criterion of stability. The problem of risk exchange.

**Credit Hours:** 3**Prerequisites:** knowledge of elementary probability or instructor's consent**MATH 8470: Advanced Numerical Analysis**

Analysis and implementation of numerical algorithms selected from approximation theory, splines, quadrature, nonlinear systems, ordinary differential equations, and optimization.

**Credit Hours:** 3**Prerequisites:** MATH 4700, MATH 4300 or equivalent, and MATH 4140**MATH 8480: Advanced Probability**

(same as STAT 9810). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3**Prerequisites:** MATH 4320 or MATH 8220; or instructor's consent**MATH 8502: Topics of Geometry**

Topics of Geometry.

**Credit Hours:** 3**Prerequisites:** instructor's consent**MATH 8587: Topology Seminar**

Topology Seminar

**Credit Hours:** 3**MATH 8602: Topics in Financial Mathematics and Insurance**

Topics in Financial Mathematics and Insurance

**Credit Hours:** 3**MATH 8615: Algebraic Geometry I**

Affine and projective varieties and schemes; nullstellensatz; Zariski topology, morphisms and rational maps; divisors and linear systems; topics from curves, surfaces, Grassmann varieties; commutative algebra and homological algebra as needed.

**Credit Hours:** 3**Prerequisites:** MATH 8410**MATH 8616: Algebraic Geometry II**

Continuation of MATH 8615.

**Credit Hours:** 3**Prerequisites:** MATH 8615**MATH 8618: Introduction to Algebraic Topology**

Development of singular homology theory; reference to other homology and cohomology theories. Introduction to homological algebra.

**Credit Hours:** 3**Prerequisites:** MATH 8250**MATH 8628: Functional Analysis I**

Linear topological spaces, Banach spaces, Hilbert spaces. Operator theory, including the Hahn-Banach, uniform boundedness and closed graph theorems.

**Credit Hours:** 3**Prerequisites:** MATH 4900 and instructor's consent or MATH 8420**MATH 8629: Functional Analysis II**

Topological vector spaces, duality theory, Banach algebras.

**Credit Hours:** 3**Prerequisites:** MATH 8628**MATH 8630: Harmonic Analysis I**

An introduction to Fourier Analysis in one and higher Dimensions. Topics include Fourier Series, conjugate functions, Fourier transforms, distributions, interpolation, and maximal functions.

**Credit Hours:** 3**Prerequisites:** MATH 8420**MATH 8631: Harmonic Analysis II**

Singular integrals, Littlewood-Paley theory, Hardy spaces, bounded mean oscillation, weighted norm inequalities, boundary value problems, and analysis on groups.

**Credit Hours:** 3**Prerequisites:** MATH 8630**MATH 8642: Nonlinear Differential Equations**

Existence theorems; criteria for periodic solutions; boundedness of solutions; perturbation theory. Emphasizes second order equations.

**Credit Hours:** 3**Prerequisites:** MATH 4100 and MATH 4110 or MATH 4700**MATH 8648: Advanced Mathematics for the Physical Sciences**

Study of selected topics in quantum and statistical mechanics. Schrodinger operators and their self-adjointness. Semi-classical methods and their application to estimation of eigenvalues. Partition functions in many body problems and methods of estimation.

**Credit Hours:** 3**Prerequisites:** instructor's consent**Recommended:** MATH 4110, MATH 4700, PHYSCS 8660**MATH 8650: Differentiable Manifolds and Riemannian Geometry**

Tensor product spaces and tensor fields on manifolds. Differentiation and integration of differential forms. Riemannian geometry and applications.

**Credit Hours:** 3**Prerequisites:** MATH 4700 or MATH 4400**MATH 8655: General Topology I**

Introduction to axiomatic theory of general topology. Continuous functions and homeomorphisms. Convergence in abstract topological spaces.

Compact and locally compact spaces. Connectedness. Metrizable spaces.

**Credit Hours:** 3

**Prerequisites:** MATH 4900, MATH 4400 or instructor's consent

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**MATH 8680: Stochastic Processes**

(same as STAT 9820). Markov processes, martingales, orthogonal sequences, processes with independent and orthogonal increments, stationary, linear prediction.

**Credit Hours:** 3

**Prerequisites:** MATH 8480

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**MATH 8702: Topics in Applied Mathematics**

Selected topics in applied mathematics drawn from variety of areas: partial differential equations, tensor analysis, calculus of variations, asymptotic methods, integral equations, advanced theory of transforms and distributions, numerical analysis.

**Credit Hours:** 3

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**MATH 8787: Numerical Mathematics Seminar**

Numerical Mathematics Seminar

**Credit Hours:** 3

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**MATH 9090: Doctoral Dissertation Research in Mathematics**

Doctoral Dissertation Research in Mathematics. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**MATH 9187: Algebra Seminar**

Algebra Seminar

**Credit Hours:** 3

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**MATH 9287: Functional Analysis Seminar**

Functional Analysis Seminar

**Credit Hours:** 3

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**MATH 9387: Harmonic Analysis Seminar**

Harmonic Analysis Seminar

**Credit Hours:** 3

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**MATH 9487: Mathematical Physics Seminar**

Mathematical Physics Seminar

**Credit Hours:** 3

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**MATH 9502: Topics in Topology**

Advanced topics in topology or topological algebra.

**Credit Hours:** 3

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**MATH 9587: Geometry Seminar**

Geometry Seminar

**Credit Hours:** 3

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**MATH 9687: Financial Mathematics Seminar**

Financial Mathematics Seminar

**Credit Hours:** 3

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**MATH 9702: Topics in Numerical Mathematics**

Topics in Numerical Mathematics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MATH 9787: Applied Mathematics Seminar**

Applied Mathematics Seminar

**Credit Hours:** 3

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**MATH 9887: Analysis Seminar**

Analysis Seminar

**Credit Hours:** 3

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## Mechanical And Aerospace Engineering Courses

**MAE 1000: Introduction to Mechanical Engineering**

Introduction to the mechanical engineering profession, the Mechanical and Aerospace Engineering Department and curriculum, and the core disciplines of mechanical engineering. Introduction to engineering problem solving, ethics, and design.

**Credit Hour:** 1

**Prerequisites:** Restricted to engineering students only

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**MAE 1001: Experimental Course**

Experimental course. For freshmen-level students. Content and credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**MAE 2001: Experimental Course**

Experimental course. For sophomore-level students. Content and credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**MAE 2100: Programming and Software Tools**

Introduction to the use of computers, programming, and software. Topics include MATLAB syntax and programming techniques, algorithm design, and programming with Excel spreadsheets.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MATH 1700. Restricted to Mechanical Aerospace Engineering students only

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**MAE 2300: Thermodynamics**

(same as ENGINR 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in PHYSCS 2750

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**MAE 2600: Dynamics**

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 1200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3100: Computational Methods for Engineering Design**

Introduction to numerical methods for linear system analysis, curve-fitting, integration and differentiation, and optimization. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 4

**Prerequisites or Corequisites:** MATH 4100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2100; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3200: Engineering Materials**

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in ENGINR 2200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3200W: Engineering Materials - Writing Intensive**

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in ENGINR 2200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3400: Fluid Mechanics**

A basic course in fluid mechanics. Topics include: fluid properties, hydrostatics, conservation laws, infinitesimal and finite control volume analysis, Navier-Stokes equations, dimensional analysis, internal and external flows.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 2300 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3600: Dynamic Systems and Control**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3600H: Dynamic Systems and Control - Honors**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better  
**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only. Honors eligibility required

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**MAE 3800: Instrumentation and Measurements Laboratory**

Design and reporting of experimental investigations. Topics include instrument design equations, sources of error, and calibration. Survey of instruments to measure: voltage, resistance, current, time, frequency, displacement, velocity, acceleration, strain, force, and torque.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 3600 grade of C- or better  
**Prerequisites:** grade of C- or better in ENGINR 2100 and ENGINR 2200 and Physics 2760; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3900: Mechanism Design**

Analysis of kinematics and dynamics of machinery. Topics include design and selection of various mechanisms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering. Enrollment limited to Mechanical and Aerospace Engineering students only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MAE 4085: Problems in Mechanical and Aerospace Engineering**

Special design, experimental and analytical problems in mechanical and aerospace engineering.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

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**MAE 4210: Aerospace Structures**

(cross-leveled with MAE 7210). Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200

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**MAE 4220: Materials Selection**

(cross-leveled with MAE 7220). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4230: Nanomaterials**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200 or equivalent

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**MAE 4230W: Nanomaterials - Writing Intensive**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200 or equivalent

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**MAE 4231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**MAE 4232: Ceramic Materials and Processing**

(cross-leveled with MAE 7232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200

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**MAE 4240: Diffraction Methods in Materials Science**

(cross-leveled with MAE 7240). Introduction to crystal structure and the use of x-rays and neutrons to study materials aspects including phase analysis, structure determination, residual stress and texture.

**Credit Hours:** 3

**Prerequisites:** Senior standing in Mechanical and Aerospace Engineering

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**MAE 4250: Composite Materials**

(cross-leveled with MAE 7250). A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4260: Experimental Stress Analysis**

(cross-leveled with MAE 7260). The course introduces basic concepts of stress and strain using elasticity theory. Single point and full-field experimental methods for stress and strain measurement, such as strain gages and photoelasticity, are discussed. Application of experimental methods in transducer development and design of structures will be covered.

**Credit Hours:** 3

**Prerequisites:** senior standing in MAE

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**MAE 4270: Nondestructive Evaluation of Materials**

(cross-leveled with MAE 7270). The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200, Mechanical and Aerospace Engineering students only

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**MAE 4280: Introduction to Finite Element Methods**

(cross-leveled with MAE 7280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3100, MAE students only

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**MAE 4290: Welding Engineering**

(cross-leveled with MAE 7290). Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure to welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing in Mechanical and Aerospace Engineering

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**MAE 4300: Heat Transfer**

Fundamentals of conduction, convection and radiation. Use of nondimensional parameters. Theory and design of simple heat exchangers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2300 and MAE 3400. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4310: Intermediate Heat Transfer**

(cross-leveled with MAE 7310). Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and Mechanical Engineering students only

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**MAE 4320: Design of Thermal Systems**

(cross-leveled with MAE 7320). Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300

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**MAE 4320W: Design of Thermal Systems - Writing Intensive**

Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Recommended:** MAE 4300

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**MAE 4325: Nanoscale Energy Transport**

(cross-leveled with MAE 7325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing in MAE

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**MAE 4340: Heating and Air Conditioning**

(cross-leveled with MAE 7340). General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and MAE students only

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**MAE 4350: Industrial Energy Analysis**

(cross-leveled with MAE 7355). Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

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**MAE 4380: Intermediate Thermodynamics**

(cross-leveled with MAE 7380). Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2300

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**MAE 4390: Aerospace Propulsion**

(cross-leveled with MAE 7390). Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4420: Intermediate Fluid Mechanics**

(cross-leveled with MAE 7420). Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4430: Introduction to Computational Fluid Dynamics and Heat Transfer**

(cross-leveled with MAE 7430). Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4440: Aerodynamics**

(cross-leveled with MAE 7440). Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4450: Gas Dynamics**

(cross-leveled with MAE 7450). One dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** C- or better MAE 3400

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**MAE 4460: Microfluidics**

(cross-leveled with MAE 7460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MAE 3400

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**MAE 4500: Manufacturing Methods**

Introduction to manufacturing processes with emphasis on those aspects most relevant to methods, problems in force analysis, and practicum and experimentation in machine tool applications.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 1110 and MAE 3200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4550: Integrated Production Systems**

(same as IMSE 4550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 3

**Prerequisites:** Junior Standing

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**MAE 4600: Advanced Mechanics of Materials**

(same as CV\_ENG 4600; cross-leveled with MAE 7600 and CV\_ENG 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Recommended:** ENGINR 2200

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**MAE 4620: Aircraft Flight Performance**

(cross-leveled with MAE 7620). Analysis of aircraft flight and aircraft performance metrics. Topics include airplane aerodynamics and propulsion, steady flight, range, endurance, take-off and landing, and aircraft maneuvers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, MAE 3400, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4630: Space Flight Mechanics**

(cross-leveled with MAE 7630). Analysis of spacecraft orbits and trajectories. Topics include orbital mechanics, orbital maneuvers, interplanetary missions, and entry flight mechanics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4650: Synthesis of Linkages**

(cross-leveled with MAE 7650). Type, number and dimensional synthesis of linkages to produce a given input-output motion and/or force.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3100, MAE 3900, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4660: Vibration Analysis**

(same as CV\_ENG 4660). Vibration theory and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems.

**Credit Hours:** 3

**Recommended:** MAE 2600 and MATH 4100

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**MAE 4670: Vehicle Dynamics**

(cross-leveled with MAE 7670). Analysis and prediction of the dynamic behavior of ground vehicles utilizing computer simulation. Mechanics of various suspension systems, tire-roadway interaction, vehicle aerodynamics, vehicle handling and steering characteristics. Special topics including nonholonomic constraint formulation and stability of motion.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4680: Introduction to MEMS**

(cross-leveled with MAE 7680). The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific process will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special

attention is on mechanical issues encountered in MEMS design and fabrication.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4710: Hydraulic Control System**

(cross-leveled with MAE 7710). Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400, MAE 3600, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4720: Modern Control**

(cross-leveled with MAE 7720). Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4730: Mechatronics**

(cross-leveled with MAE 7730). Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4740: Digital Control**

(cross-leveled with MAE 7740). Design and analysis of control systems using discrete-time methods. Topics include z-transforms, sampling and reconstruction, stability analysis, and digital controller design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4750: Classical Control**

(same as BIOL\_EN 4310, ECE 4310; cross-leveled with MAE 7750, BIOL\_EN 7310, ECE 7310). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100

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**MAE 4800: Applied Thermal/Fluids Laboratory**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in MAE 4300. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4800W: Applied Thermal/Fluids Laboratory - Writing Intensive**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in MAE 4300. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4820: Experimental Methods in Fluid Flow and Heat Transfer**

(cross-leveled with MAE 7820). Laboratory experiments involving fundamental mechanisms and phenomena associated with fluid flow and heat transfer. Current experimental methods and techniques employed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4800

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**MAE 4900: Machine Element Design**

Application of stress and fatigue analyses to the design of machine elements such as fasteners, springs, shafts, and gears. Topics include selection of appropriate materials and machine elements.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 3200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4930: Applied Mechanical Optimization**

(cross-leveled with MAE 7930). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3100, Mechanical and Aerospace Engineering students only

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**MAE 4940: Aircraft Design**

(cross-leveled with MAE 7940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization and trade studies. Fundamental theories for aircraft design including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGR 2200, MAE 3400, MAE 3600, and Junior standing in MAE

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**MAE 4980: Senior Capstone Design**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or greater in MAE 3600, MAE 3900, MAE 4500, MAE 4900 and STAT 4710 or IMSE 2110; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4980W: Senior Capstone Design - Writing Intensive**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or greater in MAE 3600, MAE 3900, MAE 4500, MAE 4900 and STAT 4710 or IMSE 2110; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4990: Undergraduate Research in Mechanical and Aerospace Engineering**

Independent investigation or project in Mechanical Engineering. Enrollment limited to senior Mechanical and Aerospace Engineering students only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**MAE 4995: Undergraduate Honors Research Mechanical & Aerospace Engineering**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 4995W: Undergraduate Honors Research Mechanical & Aerospace Engineering - Writing Intensive**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 7001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MAE 7210: Aerospace Structures**

Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in ENGINR 2200

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**MAE 7220: Materials Selection**

Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 7230: Nanomaterials**

The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or equivalent

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**MAE 7231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 7231) Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200, MAE 3400, MAE 4300 (or equivalent courses) and MATH 4100

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**MAE 7232: Ceramic Materials and Processing**

(cross-leveled with MAE 4232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or equivalent course

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**MAE 7240: Diffraction Methods in Materials Science**

Introduction to crystal structure and the use of x-rays and neutrons to study materials aspects including phase analysis, structure determination, residual stress and texture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MAE 7250: Composite Materials**

A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 7260: Experimental Stress Analysis**

(cross-leveled with MAE 7260).. The course introduces basic concepts of stress and strain using elasticity theory. Single point and full-field experimental methods for stress and strain measurement, such as strain gages and photoelasticity, are discussed. Application of experimental methods in transducer development and design of structures will be covered.

**Credit Hours:** 3

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**MAE 7270: Nondestructive Evaluation of Materials**

The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 7280: Introduction to Finite Element Methods**

(cross-leveled with MAE 4280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses. Prerequisites: ENGINR 2200, MAE 3100, MAE students only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Mechanical and Aerospace Engineering students only

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**MAE 7290: Welding Engineering**

Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure to welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate level

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**MAE 7310: Intermediate Heat Transfer**

Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7320: Design of Thermal Systems**

Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7325: Nanoscale Energy Transport**

(cross-leveled with MAE 4325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7330: Solar Energy Utilization**

Thermal aspects of solar radiation applied to human and industrial needs. Solar energy availability: hourly, daily, and seasonally. Space and water heating. Thermal storage. Passive and active solar design of buildings and homes.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7340: Heating and Air Conditioning**

General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and

cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7350: Power Plant System Design**

Preliminary component and system design. Optimum design of boilers, steam turbines, condensers and cooling towers and their integration into a system to minimize production costs and impact on the environment.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7355: Industrial Energy Analysis**

Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MAE 4300 or instructor's consent

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**MAE 7356: Renewable Energy**

Basic principles and technical details of various renewable energy technologies (solar, biomass, wind, hydroelectric, geothermal) for a sustainable energy supply. Process design, energy analysis, and environmental assessment of renewable energy systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent and Bachelor's in Engineering

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**MAE 7360: Internal Combustion Engines**

Gas and oil engines. Thermodynamics of ideal and actual cycles, fuels and combustion, carburetor and injection systems, performance, construction.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7370: Combustion Fundamentals**

Introduction to combustion principles.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7380: Intermediate Thermodynamics**

Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**MAE 7390: Aerospace Propulsion**

Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7420: Intermediate Fluid Mechanics**

Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

---

**MAE 7430: Introduction to Computational Fluid Dynamics and Heat Transfer**

Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 4300 and MAE 4420

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**MAE 7440: Aerodynamics**

Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 3400

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**MAE 7450: Gas Dynamics**

One-dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7460: Microfluidics**

(cross-leveled with MAE 4460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7600: Advanced Mechanics of Materials**

(same as CV\_ENG 7600; cross-leveled with MAE 4600 and CV\_ENG 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**MAE 7610: Experimental Stress Analysis**

(same as CV\_ENG 7610). Photo elastic, electric strain gage, brittle lacquer methods of experimental stress analysis for static loads. Strain gage work includes strain rosettes.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**MAE 7620: Aircraft Flight Performance**

(cross-leveled with MAE 4620). Analysis of aircraft flight dynamics and aircraft performance. Topics include airplane aerodynamics and propulsion, steady flight, flight performance, aircraft maneuvers, aircraft stability, and an introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7630: Space Flight Mechanics**

(cross-leveled with MAE 4630). Analysis of spacecraft motion. Topics include orbital dynamics, spacecraft attitude dynamics, satellite trajectory design, and spacecraft control system design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7640: Analysis of Mechanisms**

Kinematics and dynamic (bearing force, shaking force, and time response) design analysis of mechanisms: graphical, analytical and computer assisted techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 2600

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**MAE 7650: Synthesis of Linkages**

Type, number and dimensional synthesis of linkages to produce a given input-output motion and/or force.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 2600

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**MAE 7660: Vibration Analysis**

(same as CV\_ENG 7660). Vibration theory and its application to Mechanical systems. Topics include free and forced vibration analysis of single and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MAE 2600 and MATH 4100

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**MAE 7670: Vehicle Dynamics**

Analysis and prediction of the dynamic behavior of ground vehicles utilizing computer simulation. Mechanics of various suspension systems, tire-roadway interaction, vehicle aerodynamics, vehicle handling and steering characteristics. Special topics including nonholonomic constraint formulation and stability of motion.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7680: Introduction to MEMS**

The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific processes will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7710: Hydraulic Control Systems**

Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems.

**Credit Hour:** 1-3

**Prerequisites:** MAE 3400 and MAE 3600

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**MAE 7720: Modern Control**

Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7730: Mechatronics**

Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7740: Digital Control**

Design and analysis of control systems using discrete-time methods. Topics include Z-transformation, sampling and reconstruction, stability analysis, and digital controller design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7750: Classical Control**

(same as ECE 7310, BIOL\_EN 7310; cross-leveled with MAE 4750, ECE 4310, BIOL\_EN 4310). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

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**MAE 7820: Experimental Methods in Fluid Flow and Heat Transfer**

(cross-leveled with MAE 4820). Laboratory experiments involving fundamental mechanisms and phenomena associated with fluid flow and heat transfer. Current experimental methods and techniques employed.

**Credit Hours:** 3

**Prerequisites:** MAE 4800

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**MAE 7930: Applied Mechanical Optimization**

Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** MAE 3100

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**MAE 7940: Aircraft Design**

(cross-leveled with MAE 4940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization, and trade studies. Fundamental theories for aircraft design, including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout, payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 3600, MAE 3600

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**MAE 8001: Advanced Topics in Mechanical and Aerospace Engineering**

Advanced Topics in Mechanical and Aerospace Engineering.

**Credit Hours:** 3

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**MAE 8085: Problems in Mechanical and Aerospace Engineering**

Supervised investigation in mechanical and aerospace engineering to be presented in the form of a report.

**Credit Hour:** 1-99

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**MAE 8087: Graduate Seminar in Mechanical and Aerospace Engineering**

Reviews recent investigations, projects of major importance in mechanical and aerospace engineering. Graded on S/U basis only.

**Credit Hour:** 1

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**MAE 8210: Physical Metallurgy**

Treatment of fundamentals of physical metallurgy, including metallurgical thermodynamics, macroscopic and atomic diffusion, interfaces, nucleation, solidification theory, and solid state transformations.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 8220: Fracture Mechanics**

Mechanics of flawed structure. Concepts include Griffith theory, Barenblatt's theory, Irwin analysis, energy analysis of cracked bodies, fracture toughness testing, plane strain, plane stress, transition temperature concepts, subcritical flaw growth.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or instructor's consent

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**MAE 8230: Advanced Ceramic Materials**

(same as CH\_ENG 8230 and BIOL\_EN 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8240: Mechanical Behavior of Materials**

This course will cover the mechanical behavior of metallic, ceramic, polymeric, and composite materials and their relationships to the underlying microstructures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 and graduate standing in engineering, or instructor's consent

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**MAE 8270: Aeroelasticity**

Deformations of aerospace structures under static and dynamic loads, natural mode shapes and frequencies, aerodynamic and inertial loads, flutter analysis, dynamic response phenomena, and critical speeds and frequencies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MAE 8280: Finite Element Methods**

(same as CV\_ENG 8208). The concepts and fundamentals of the finite element method with applications to problems in solid and fluid mechanics.

**Credit Hours:** 3

**Prerequisites:** MAE 4280

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**MAE 8300: Microscale Heat Transfer**

Review of existing models. Concept of thermal lagging and the second-law admissibility. Applications to low temperatures, thermal processing of thin-film devices; amorphous materials; advanced composites.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8310: Thermal Management in Electronic Systems**

Advanced heat transfer course focusing on the problems of cooling electronic systems such as microprocessors and other electronic devices where thermal management is needed. The advanced cooling technologies are introduced.

**Credit Hours:** 3

**Prerequisites:** Mechanical and Aerospace Engineering [MAE] 4300. Graded on A/F basis only

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**MAE 8311: Heat Transfer-Convection**

Principles of heat transfer by convection, review of boundary layer theory, laminar and turbulent heat transfer, temperature-dependent fluid properties, high velocity heat transfer and an introduction to mass transfer.

**Credit Hours:** 3

**Prerequisites:** MAE 4300 and MAE 8410

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**MAE 8312: Heat Transfer-Radiation**

Advanced study of engineering radiation heat transfer. Concepts of electromagnetic theory. Development of thermal radiation laws from thermodynamic laws. Analysis of grey and non-grey systems with intervening gases. Study of recent literature.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8313: Heat Transfer-Conduction**

Distribution of temperature and temperature history within solids by the four essential methods of evaluation of these temperature fields.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8315: Multiphase Heat Transfer**

Fundamentals and application of heat and mass transfer and fluid flow with phase change; melting and solidification, sublimation and vapor deposition, condensation, evaporation, nucleate and film boiling, two-phase flow. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8320: Continuum Mechanics**

(same as CV\_ENG 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MATH 4100, ENGINR 2200

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**MAE 8330: Theory of Elasticity**

(same as CV\_ENG 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**MAE 8332: Thermal Stresses**

General equations of thermoelasticity, Constitutive equations of thermoelastoplasticity; Analytical and numerical analyses of thermal stresses in bars, beams, 3D media, 2D plane stress and strain media, cylinders, and spheres. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300, or instructor's consent

**Recommended:** MAE 8330

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**MAE 8340: Theory of Plates and Shells**

(same as CV\_ENG 8340). Rectangular and circular plates. Variational methods in the analysis of plates and shells. Plates of unusual shape. Shear deformation effects. Large deformation analysis. Analysis of cylindrical shells.

**Credit Hours:** 3

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**MAE 8350: Theory of Elastic Stability**

(same as CV\_ENG 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**MAE 8360: Theory of Plasticity**

(same as CV\_ENG 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** MAE 8330 or instructor's consent

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**MAE 8370: Advanced Combustion**

Numerical modeling of combustion systems and advanced diagnostic techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 4370

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**MAE 8380: Advanced Thermodynamics**

Advanced topics from classical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 4380

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**MAE 8390: Statistical Thermodynamics**

Statistical methods of evaluating thermodynamic properties. Elements of quantum mechanics, statistical mechanics and kinetic theory applied to topics of engineering thermodynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 4380 and STAT 4710

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**MAE 8392: Dynamics of Structures**

(same as CV\_ENG 8392). Study of the dynamic behavior of structures. Analysis of equivalent lumped parameter systems for the design of structures in a dynamic environment.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8390 or equivalent, proficiency in digital computer programming, or instructor's consent

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**MAE 8410: Boundary Layer Theory**

Fluid motion at high Reynolds Number. Derivation of Navier-Stokes equations and boundary layer equations. Methods of solution. Transition to turbulent flow. Completely developed turbulent flow.

**Credit Hours:** 3

**Prerequisites:** MAE 4420

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**MAE 8420: Computational Heat Transfer and Fluid Dynamics**

Introduction to numeric analysis techniques applied to heat transfer and fluid dynamics problems. Coverage will include, the development of discretization equations for the control volume approach and solution strategies of those equations. Results from numeric simulations will be compared with close form analytic solutions and commercial numeric code output.

**Credit Hours:** 3

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**MAE 8430: Introduction to Two Phase Flow**

An introduction to the analysis of the mechanics and transport processes in two phase flows.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 8440: Physical Gas Dynamics**

Study of the flow of chemically reacting gases of interest in mechanical and aerospace engineering.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8450: Introduction to Turbulence**

An introduction to the physical phenomena of turbulence, supported by mathematical and statistical descriptions. Especially appropriate for engineers involved in research of momentum, heat, and mass transport.

**Credit Hours:** 3

**Prerequisites:** MAE 4420

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**MAE 8510: Manufacturing Design**

Design for manufacture methods, their capabilities and applications. Design of intelligent manufacturing systems using sensory systems and artificial intelligence techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 4500

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**MAE 8520: Computer Integrated Manufacturing**

Modeling and simulation of manufacturing processes and advanced computer applications in manufacturing systems and machining processes, NC-programming.

**Credit Hours:** 3

**Prerequisites:** MAE 4500 and MAE 4750

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**MAE 8620: Advanced Dynamics**

(same as CV\_ENG 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** MAE 2600

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**MAE 8630: Vibrations of Distributed Parameter Systems**

(same as CV\_ENG 8630). Vibration analysis of strings, cables, bars, rods, shafts, beams, membranes, plates, circular rings, frames; free and forced oscillation; miscellaneous loading; various boundary conditions; effect of damping; energy methods; method of difference equations.

**Credit Hours:** 3

**Prerequisites:** MAE 4660

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**MAE 8660: Advanced Vibration Analysis**

Advanced topics in vibration theory and its application to Mechanical Systems. Topics include vibration analysis of multi-degree of freedom, distributed and nonlinear systems, random vibration analysis, and vibration control.

**Credit Hours:** 3

**Prerequisites:** MAE 4660 or instructor's consent

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**MAE 8670: Advanced Vehicle Dynamics**

Applications of advanced dynamics, sensitivity analysis, and stability methods to analysis of complex vehicle dynamic systems. Modeling of pneumatic tire behavior, development and experimental validation of advanced vehicle computer simulations.

**Credit Hours:** 3

**Prerequisites:** MAE 4670

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**MAE 8710: Advanced Hydraulic Control Systems**

The course will focus on the study of hydraulic systems and the design and analysis of controls for these systems. Multivariable as well as single input single output techniques will be considered. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Undergraduate system dynamics and controls course, experience or coursework in basic hydraulic control systems such as MAE 4710 or MAE 7710

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**MAE 8740: Robust Control**

Definition of the robust performance problem with the goal of achieving specified signal levels in the face of plant uncertainty; uncertainty and robustness, stabilization, design constraints, loopshaping, model matching and design for robust performance.

**Credit Hours:** 3

**Prerequisites:** MAE 4750, and MAE 8780 or instructor's consent

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**MAE 8750: Nonlinear Control**

Nonlinear systems analysis techniques including phase plane analysis, Lyapunov theory. Control design including feedback linearization, sliding control, and adaptive control.

**Credit Hours:** 3

**Prerequisites:** MAE 4750 and MAE 8780

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**MAE 8760: Optimal Control**

The course will study optimization under dynamic constraints and optimal control theory. Topics include calculus of variation, Pontryagin's minimum principle, dynamic programming, and linear quadratic optimal control. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8780: State Variable Methods in Automatic Control**

(same as CH\_ENG 8780, ECE 8780, NU\_ENG 8408). State variables for continuous and discrete-time dynamic control systems; controllability and observability; optimal control of linear systems.

**Credit Hours:** 3

**Prerequisites:** MAE 4700

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**MAE 8910: Modular Machine Tool Design**

This course introduces necessary concepts and tools for modular machine tool design. Students will learn how to apply mechanical design knowledge and commercially available subassemblies and parts to design modular machine tools for mass production application.

**Credit Hours:** 3

**Prerequisites:** MAE 4980 or instructor's consent

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**MAE 8920: Reliability-Based Design of Engineering Systems**

Introduction to the methods that identify the ability of a system to perform its required functions for a specified period of time. Topics include failure mode and effects analysis, reliability prediction, Weibull distribution analysis, reliability testing, and accelerated life testing.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Engineering

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**MAE 8930: Advanced Mechanical System Modeling and Optimization**

Calculus of variations is introduced as a basic tool. Hamilton's Principle is used for system modeling. Numerical solution methods are used for dynamic simulation. Genetic algorithm and other algorithms are applied for system optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 and MAE 4980. Seniors will require consent

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**MAE 8990: Research-Masters Thesis in Mechanical and Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MAE 9990: Research-Doctoral Dissertation Mechanical & Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**Medical Pharmacology and Physiology Courses**

**MPP 2010: The Science of Sex, Drugs and Rock'n'Roll**

This course will examine the data and theories for how drugs affect the body, for the physiology of reproduction and, for how sound affects the body. These topics will be used to motivate an understanding, and provide training in applying, the key scientific principles. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 2015: Toxins, The Good, The Bad, and the Beautiful**

In this course, the students will explore toxins. We will discuss how toxins are formed, the "value" of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

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**MPP 2015W: Toxins, The Good, The Bad, and the Beautiful - Writing Intensive**

In this course, the students will explore toxins. We will discuss how toxins are formed, the "value" of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

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**MPP 2020: Bodily Fluids and Functions**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3

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**MPP 2020W: Bodily Fluids and Functions - Writing Intensive**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3

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**MPP 3202: Elements of Physiology**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body.

**Credit Hours:** 5

**Prerequisites:** sophomore standing

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**MPP 3290: Undergraduate Research**

Laboratory experience and opportunity to explore research in medical pharmacology and physiology.

**Credit Hour:** 1-3

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**MPP 3333: Fundamentals of Human Physiology**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed.

**Credit Hours:** 3

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**MPP 3337: Human Physiology Laboratory**

This lab course will involve experiments to illustrate basic physiology concepts.

**Credit Hours:** 2

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**MPP 3500: Introduction to Human Physiology**

This is an online course that will introduce students to basic concepts in human physiology, with a focus on the integrated function of organ system in homeostasis/human health. The final section of the course will expose students to important issues in exercise physiology, specifically the impact of exercise on cardiovascular and metabolic functions.

**Credit Hours:** 3

**Recommended:** Cell Biology, Biochemistry

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**MPP 4001: Undergraduate Topics in Medical Pharmacology and Physiology**

Selected topics not in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085: Undergraduate Problems in Medical Pharmacology and Physiology**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085W: Undergraduate Problems in Medical Pharmacology and Physiology - Writing Intensive**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4202: Medical Physiology**

Medical Physiology is intended for health scientists. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventative medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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**MPP 4204: Medical Pharmacology**

(cross-leveled with MPP 7424). Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 4204H: Medical Pharmacology-Honors**

Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology. Prerequisites or

**Credit Hours:** 5

**Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges; Honors eligibility required

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 4310: Mammalian Cell Function**

An overview of the structure and function of mammalian cells including topics in membrane physiology and transport, cell signaling, compartmentalization and metabolism, cell proliferation and differentiation and the structure and function of certain specialized cells (e.g. muscle cells, epithelial cells and neurons). Laboratory and/or discussion sessions will be included as part of the course with laboratory topics to be determined. We will devote approximately 75% of the lecture to generalized cell functions, and 25% to deal with topics concerning specialized cells. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. For graduate credit, students will be required to participate in laboratory exercises

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**MPP 4417: Diagrams, Figures and Graphs**

(cross-leveled with MPP 7717). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 6525: Pharmacology**

Pharmacology

**Credit Hours:** 5

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**MPP 7300: Physics in Cell and Developmental Biology**

(same as PHYSICS 7310 and BIO\_SC 7310). Introduction to physical mechanisms and their modeling in cellular processes and development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MPP 7302: Drug Discovery and Action**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hour:** 1

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**MPP 7310: Mammalian Cell Function**

An integrated course covering the structure and function of mammalian cells as relevant to clinical translational research including topics in membrane physiology and transport, cell signaling, cell proliferation, differentiation, compartmentalization and metabolism. Graded on A-F basis only.

**Credit Hour:** 3-5

**Prerequisites:** instructor's consent

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**MPP 7422: Medical Physiology**

Medical Physiology is intended for health scientist. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventative medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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**MPP 7424: Pharmacology and Translational Medicine**

(cross-leveled with MPP 4204). Pharmacology teaches the science of drug actions in medicine today and principles of pharmacokinetics/dynamics. Future medical researchers will learn molecular probes for medical research and translational science to improve health care.

An online laboratory will teach drug database information technology. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 7717: Diagrams, Figures, and Graphs**

(cross-leveled with MPP 4417). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 8000: Scientific Discovery Leading to Life Science Innovations**

(same as BIOL\_EN 8000). This course explains the scientific discovery process from idea to product release, examining problem identification, need validation, and commercialization. Clinical, business and engineering perspectives are examined to understand translating innovation into clinical practice. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** must be enrolled in a graduate degree program

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**MPP 8001: Graduate Topics in Medical Pharmacology and Physiology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 8004: Regulatory Issues in Clinical Research and Clinical Trials**

The goal of the course is to highlight key FDA regulatory issues for conducting human clinical trials and clinical research. For clinical trials, FDA has set up several compliance programs and guidance documents as a part of human subject protection (HSP)/ Bioresearch Monitoring (BIMO) initiatives. The aim of the program was to strengthen FDA oversight and protection of subjects in clinical trials and to preserve confidentiality of data. The HSP/BIMO initiative comprehends all FDA regulated clinical trials including human drugs and biological drug products, devices, foods, and veterinary medicine. The course is designed for students in medical professions, management, biomedical engineering, and related areas. Adequate knowledge regarding FDA guidance in conducting human clinical trials and clinical research will help professionals steer drug/device development and commercialization in their respective field. This course will be offered online only. An introduction to essential disciplines for conducting clinical trials and clinical research will be provided. The basics of good clinical practices (GCPs), biostatistics and clinical epidemiology in relation to clinical trials will be presented. Several relevant case studies for conducting clinical trials, both nationally and internationally, will be discussed. The importance of data collection and data management while conducting clinical trials will be explained. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Knowledge in biomedical sciences, clinical sciences

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**MPP 8050: Non-Thesis Research in Medical Pharmacology and Physiology**

Opportunities for graduate research in physiology or pharmacology not leading to dissertation. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MPP 8085: Graduate Problems in Medical Pharmacology and Physiology**

Guided study to strengthen knowledge in physiology and pharmacology. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 8090: Thesis Research in Medical Pharmacology and Physiology**

Research for Master's Students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 8410: Neural Control**

An integrated course covering the physiology and pharmacology of the autonomic nervous system and the central nervous system. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MPP 8411: Mammalian Pharmacology and Physiology**

An integrated course covering the basic concepts in physiology and pharmacology of the cardiovascular, gastrointestinal, endocrine, renal, and respiratory systems with an emphasis of applying the key concepts to clinically relevant examples. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** instructor's consent

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**MPP 8412: Seminar in Medical Pharmacology and Physiology**

Instruction in critical evaluation, review, and summary of scientific data and practice in oral presentation of scientific research seminar. Taught in conjunction with weekly department seminar series.

**Credit Hour:** 1

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**MPP 8415: Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age**

The emphasis is on the scientific research ethics problems in interdisciplinary work. Student involvement can include designing mock misconduct trials or writing advocacy letters to change current policy.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8417: Scientific Communication**

A course to foster and improve students ability to communicate orally and in writing. Student enrolled in the course will be expected to write a report and present a seminar on a topic related to one of the lab

rotation projects to the mentor of the rotation and other interested faculty members and students. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8420: Skills in Biomedical Research**

This course focuses on introducing graduate students to the basics of biomedical research. Course objectives are to provide new graduate students with a basic understanding of laboratory safety issues and fundamental skills that are integral to research including principles of experimental design, theory and practical application of modern research techniques, written and oral communication of research information, and scientific record keeping standards. Graded on S/U basis only.

**Credit Hours:** 2

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**MPP 9090: Thesis Research in Medical Pharmacology and Physiology**

Research for PhD students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 9421: Neural Pharmacology**

Biochemical and behavioral actions of drugs affecting the nervous system. Effects of drugs on synaptic mechanism including neurotransmitter metabolism and receptor interactions. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 9422: Medical Pharmacology and Physiology Journal Club**

On a weekly basis, individual students are assigned current high profile journal articles to present to their fellow students and faculty in a journal club setting. Each student in the course is required to read the paper in advance and participate in discussions of the figures and general topics that is being presented. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrolled in MPP PhD graduate program

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**MPP 9423: Oncological Pharmacology**

An in-depth study of the causes and treatments of cancers including discussions of mutagenesis and carcinogenesis, principles of cancer chemotherapy and recent developments with targeted therapeutics. The basis for genetic differences in cancer drug responsiveness including genetics predisposition's to disease and drug toxicity (pharmacogenetics) and genetic polymorphism's associated with disease susceptibility, adverse drug responses and drug resistance (pharmacogenomics) will also be discussed.

**Credit Hour:** 1-3

**Prerequisites:** MPP 8411

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**MPP 9425: Receptor Pharmacology**

The goal of this course is to facilitate the student's efforts to obtain a solid working knowledge of receptor pharmacology, physiology and molecular biology that can be of benefit in the future. The course will explore a

variety of receptor issues, primarily in a discussion format organized by the faculty members involved in the course. The course is divided into two related components. The first component will cover general principles of quantifying ligand - receptor interactions and subsequent responses, summarize some of the methods of receptor identification and characterization and evaluate the various schemes of receptor typing and subtyping. The second component will explore specific characteristics of receptors from some of the major receptor families with an emphasis on understanding mechanisms of receptor activation and regulation as well as exploring concepts about the structural basis for discrete receptor functions. A typical list of receptors to be covered in the course may include the tyrosine kinase receptors, G protein-coupled receptors, cytokine receptors, ligand activated transcription factors (nuclear receptors), adhesion receptors such as integrins, and ligand activated ion channels.

**Credit Hour:** 1-2

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**MPP 9426: Transmembrane Signaling**

This course is for advanced level graduate students. The course is designed to develop state of the art knowledge and understanding of current research issues in the cell signaling. The major emphasis is on receptor and non-receptor mediated transmembrane signaling events underlying physiological and pharmacological responses of the cells. Students are also involved in class presentations, and the development and critical review of new research proposals, all focused on cellular signaling.

**Credit Hours:** 4

**Prerequisites:** basic courses in biochemistry and or cell and molecular biology or equivalent

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**MPP 9427: Drug Metabolism**

(same as V\_BSCI 9427). The course is concerned with the absorption, distribution, metabolism and elimination of drugs using a comparative approach. The pharmacokinetic aspects of elimination are stressed.

**Credit Hour:** 1-3

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**MPP 9428: Clinical Biodetection**

Interdisciplinary approach to clinical translational applications of physiology and pharmacology and related life, physical, chemical, and engineering sciences.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 9429: Principles and Frontiers of Molecular Pharmacology**

An in-depth examination of pharmacodynamics, structure-activity relationships, pharmacokinetics/drug metabolism, and toxicology, followed by a consideration of emerging concepts regarding membrane receptors and channels and their role in biology and medicine.

**Credit Hours:** 5

**Prerequisites:** Students must have completed a physiology, biochemistry or cell biology course

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**MPP 9430: Cardiovascular Physiology**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1,

3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hours:** 3

**Prerequisites:** MPP 4310 and MPP 8411 or the equivalent (e.g., UM first year medical school curriculum, V\_BSCI 8421, or BIO\_SC 3700 with supporting courses)

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#### **MPP 9431: Control of Energy Metabolism**

(same as V\_BSCI 9431). This advanced elective is in a lecture/discussion format using primary literature to explore how cells organize and regulate metabolism to meet energy demands.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **MPP 9432: Mammalian Membrane Physiology**

This course is designed to stimulate active learning of the concepts of modern membrane physiology. Throughout the course, a balance will be maintained between examining classic papers in the field and current literature, including not only theories that have held up over time, but areas in which there is current dispute as the best model that describes the observations.

**Credit Hour:** 1-3

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#### **MPP 9434: Microvascular Circulatory Function**

(same as V\_BSCI 9425). An in-depth study of microcirculatory structure and function in various tissues with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function and fluid balance.

**Credit Hours:** 4

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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#### **MPP 9435: Skeletal Muscle**

(same as V\_BSCI 9435). Skeletal muscle mechanics, contractions theories, transgenic models, development, gene expression regulation, adaptation to exercise, aging, metabolic functions, and inactivity induced chronic diseases.

**Credit Hour:** 1-3

**Prerequisites:** course director's consent required for enrollment

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#### **MPP 9436: Renal Physiology**

Mechanisms in mammalian renal physiology presented with particular emphasis on current techniques and concepts.

**Credit Hour:** 1-3

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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#### **MPP 9437: Neural Control of the Circulation**

(same as V\_BSCI 9467). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods used to study CNS cardiovascular regulation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### **Medicine-Interdisciplinary Courses**

#### **MED\_ID 5041: Structure and Function of the Human Body I**

Biochemical principles, cell biology, human development, histology and gross anatomy with clinical correlates utilizing patient examples and non-invasive techniques.

**Credit Hours:** 6

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#### **MED\_ID 5042: Interviewing**

Development of skills needed to obtain a history of the patient's present illness, past medical history and other pertinent background information. Vitally important to medical practice, these skills are role modeled, practiced and evaluate with detailed feedback. Additional emphasis is placed on the doctor-patient relationship, ethics and the role of the physician as a therapeutic agent.

**Credit Hours:** 3

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#### **MED\_ID 5043: Structure and Function of the Human Body II**

Study of the structure and function of the body's metabolic, nervous and muscular systems.

**Credit Hours:** 6

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#### **MED\_ID 5044: Physical Examination**

Introduction to the doctor-patient relationship and systematic physical examination of the patient. Certification in basic life support is also included.

**Credit Hours:** 3

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#### **MED\_ID 5045: Structure and Function of the Human Body III**

Study of the structure and function of the body's cardiovascular, gastrointestinal, and urinary systems.

**Credit Hours:** 6

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#### **MED\_ID 5046: Psychosocial Aspects of Medicine**

A brief study of the history of medicine and the impact of key events on current medical practice. Study of the biopsychosocial model, biomedical ethics and specific psychosocial problems encountered by physicians such as compliance, problems based in human sexuality, substance abuse and death and dying.

**Credit Hours:** 3

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#### **MED\_ID 5047: Structure and Functions of the Human Body IV**

Study of the structure and function of the endocrine, reproductive, vascular systems. The classification of pathogenic and non-pathogenic

organisms, mechanisms of infection, the immune response and the interaction between pharmacologic agents and exogenous organisms.

**Credit Hours:** 6

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**MED\_ID 5048: Clinical Epidemiology and Preventive Medicine**

Application of clinical epidemiology to understanding measurement of population characteristics and to the critical analysis of the literature through analysis of study designs and interpretation of the results and causal relationships. Study of prevention, screening and health maintenance as important aspects of health care.

**Credit Hours:** 3

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**MED\_ID 5051: Ambulatory Clinical Experience I**

Ambulatory Clinical Experience I

**Credit Hour:** 1

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**MED\_ID 5052: Ambulatory Clinical Experience II**

Ambulatory Clinical Experience II

**Credit Hour:** 1

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**MED\_ID 5053: Ambulatory Clinical Experience III**

Ambulatory Clinical Experience III

**Credit Hour:** 1

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**MED\_ID 5054: Ambulatory Clinical Experience IV**

Ambulatory Clinical Experience IV

**Credit Hour:** 1

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**MED\_ID 5180: FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS**

FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS

**Credit Hours:** 18

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**MED\_ID 5201: Summer Clinical Practicum Family Medicine**

Summer Clinical Practicum Family Medicine

**Credit Hours:** 0

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**MED\_ID 5205: Individualized Study**

Individualized Study

**Credit Hour:** 1-5

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**MED\_ID 5207: Summer Clinical Practicum Internal Medicine**

Summer Clinical Practicum Internal Medicine. 4 week course. Zero credit hours, 4 FA hours.

**Credit Hours:** 0

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**MED\_ID 5209: Summer Clinical Fellowship**

Summer Clinical Fellowship

**Credit Hours:** 0

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**MED\_ID 5213: Leadership Practicum**

Leadership Practicum

**Credit Hours:** 0

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**MED\_ID 5215: Summer Clinical Practicum - Medical Education**

Summer Clinical Practicum - Medical Education- Zero billing hours and 4 FA hours

**Credit Hours:** 0

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**MED\_ID 5217: Summer Clinical Practicum - Rural Track**

This represents non-credit clinical and research experiences that medical students may take during the summer following their first (M1) year of medical school. 8 weeks. Zero Credit.

**Credit Hours:** 0

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**MED\_ID 5253: Post-Sophomore Fellowship**

Post-Sophomore Fellowship

**Credit Hours:** 3

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**MED\_ID 5341: Structure/Function Human Body I - Remediation**

Structure/Function Human Body I - Remediation

**Credit Hours:** 6

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**MED\_ID 5342: Interviewing - Remediation**

Interviewing - Remediation

**Credit Hours:** 3

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**MED\_ID 5343: Structure/Function Human Body II - Remediation**

Structure/Function Human Body II - Remediation

**Credit Hours:** 6

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**MED\_ID 5344: Physical Exam - Remediation**

Physical Exam - Remediation

**Credit Hours:** 3

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**MED\_ID 5345: Structure/Function Human Body III**

Structure/Function Human Body III

**Credit Hours:** 6

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**MED\_ID 5346: Psychosocial Aspects Med - Remediation**

Psychosocial Aspects Med - Remediation

**Credit Hours:** 3

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**MED\_ID 5347: Structure/Function Human Body IV - Remediation**

Structure/Function Human Body IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5348: Clinical Epidemiology and Preventive Medicine - Remediation**

Clinical Epidemiology and Preventive Medicine - Remediation

**Credit Hours:** 3

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**MED\_ID 5351: Ambulatory Clinical Experience I- Remediation**

Ambulatory Clinical Experience I- Remediation

**Credit Hour: 1**

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**MED\_ID 5352: Ambulatory Clinical Experience II- Remediation**

Ambulatory Clinical Experience II- Remediation

**Credit Hour: 1**

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**MED\_ID 5353: Ambulatory Clinical Experience III-Remediation**

Ambulatory Clinical Experience III-Remediation

**Credit Hour: 1**

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**MED\_ID 5354: Ambulatory Clinical Experience IV- Remediation**

Ambulatory Clinical Experience IV- Remediation

**Credit Hour: 1**

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**MED\_ID 5551: Pathophysiology I**

Pathophysiologic mechanisms of cell injury, inflammation and repair, hemodynamic disturbances, genetic disorders, autoimmune response, immune deficiency and hypersensitivity reactions.

**Credit Hours: 6**

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**MED\_ID 5552: Diagnostic Tests and Medical Decisions**

Assessment of the appropriate use and interpretation of common diagnostic tests and their contribution to medical decisions and the care of patients. Includes emphasis on the review of systems, interactive hypothesis testing, differential diagnosis probability, sensitivity and specificity, and cost benefit and cost effectiveness analysis.

**Credit Hours: 3**

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**MED\_ID 5553: Pathophysiology II**

Pathophysiologic mechanisms of cardiovascular disease, diseases of the respiratory system, disorders of the blood, and nutritional diseases.

**Credit Hours: 6**

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**MED\_ID 5554: Psychopathology and Behavioral Medicine**

Presentation and discussion of the U.S. health care system and health care reform, financing and resource allocation, and the impact of change on individuals, communities, employers and the government. Included are analyses of the ethical and legal implications of health care and health care reform.

**Credit Hours: 3**

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**MED\_ID 5555: Pathophysiology III**

Pathophysiologic mechanisms of the digestive, endocrine and urogenital systems.

**Credit Hours: 6**

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**MED\_ID 5556: Clinical Practicum**

A continuation of Block 6 objectives and a clinical practicum and review comprise this block.

**Credit Hours: 3**

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**MED\_ID 5557: Pathophysiology IV**

Pathophysiology of infectious diseases, reproductive disorders, musculoskeletal and soft tissues diseases, diseases affecting the nervous system and skin diseases.

**Credit Hours: 6**

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**MED\_ID 5558: Physician as a Person**

Exploration of the physician as a person, the balance between professional and personal demands, family life, membership in a community, the stresses and rewards of the medical profession, professional ethics and the doctor-patient relationship. A four week clinical review completes this block.

**Credit Hours: 3**

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**MED\_ID 5561: Advanced Physical Diagnosis I**

Advanced Physical Diagnosis I

**Credit Hour: 1**

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**MED\_ID 5562: Advanced Physical Diagnosis II**

Advanced Physical Diagnosis II

**Credit Hour: 1**

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**MED\_ID 5563: Advanced Physical Diagnosis III**

Advanced Physical Diagnosis III

**Credit Hour: 1**

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**MED\_ID 5564: Advanced Physical Diagnosis IV**

Advanced Physical Diagnosis IV

**Credit Hour: 1**

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**MED\_ID 5570: Advanced Clinical Skill Practicum**

This course is designed for MD/PhD students and other medical students away on research or post-sophomore fellowship leave. Approval to enroll must be obtained from the Director of the MD/PhD program or the Faculty Director of Clinical curriculum. Graded on S/U basis only.

**Credit Hours: 0**

**Prerequisites:** Advanced Physical Diagnosis; must have satisfactorily completed the second year of medical school

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**MED\_ID 5751: Pathophysiology I - Remediation**

Pathophysiology I - Remediation

**Credit Hours: 6**

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**MED\_ID 5752: Diagnosis Test/Med Decision - Remediation**

Diagnosis Test/Med Decision - Remediation

**Credit Hours: 3**

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**MED\_ID 5753: Pathophysiology II - Remediation**

Pathophysiology II - Remediation

**Credit Hours: 6**

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**MED\_ID 5754: Psychopathology/Behavioral Med - Remediation**

Psychopathology/Behavioral Med - Remediation

**Credit Hours:** 3

---

**MED\_ID 5755: Pathophysiology III - Remediation**

Pathophysiology III - Remediation

**Credit Hours:** 6

---

**MED\_ID 5756: Clinical Practicum - Remediation**

Clinical Practicum - Remediation

**Credit Hours:** 3

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**MED\_ID 5757: Pathophysiology IV - Remediation**

Pathophysiology IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5758: Physician as a Person - Remediation**

Physician as a Person - Remediation

**Credit Hours:** 3

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**MED\_ID 5761: Advanced Physical Diagnosis I- Remediation**

Advanced Physical Diagnosis I- Remediation

**Credit Hour:** 1

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**MED\_ID 5762: Advanced Physical Diagnosis II- Remediation**

Advanced Physical Diagnosis II- Remediation

**Credit Hour:** 1

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**MED\_ID 5763: Advanced Physical Diagnosis III- Remediation**

Advanced Physical Diagnosis III- Remediation

**Credit Hour:** 1

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**MED\_ID 5764: Advanced Physical Diagnosis IV- Remediation**

Advanced Physical Diagnosis IV- Remediation

**Credit Hour:** 1

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**MED\_ID 5850: Contemplating Medicine, Patients, Self and Society**

The purpose of the longitudinal COMPASS course is to foster the development of patient-centered physicians in relation to patients, self and society. This is accomplished through an innovative longitudinal small group experience using a variety of learning methods including group discussion, reflective writing, storytelling, reading and case problem solving. The small group membership includes students from each of the 4 medical school classes and 2 faculty Guides. Curricular themes and small group session titles for the 4 year course recur on a two year cycle. The content and focus of each session is unique. Students in the first, second and third years of medical school will receive a final course grade (satisfactory or unsatisfactory) at the end of their M4 year. The final course grade will reflect the student's performance in the small group sessions and performance on the capstone assignment.

**Credit Hour:** 1-5

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**MED\_ID 5950: Remediation of MED\_ID 5850**

Medical Students who receive an unsatisfactory grade in MED\_ID 5850 Contemplating Medicine, Patients, Self and Society will enroll for this course in order to remediate their grade.

**Credit Hours:** 3**Prerequisites:** MED\_ID 5850

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**MED\_ID 6030: SCC Advanced Biomedical Sciences Elective**

Students will work under the supervision of an MU faculty member at MU's Springfield Clinical Campus in a pre-approved learning experience. Activities that fulfill this requirement may include, but are not limited to: Anatomy dissection at Missouri State University (MSU), research project at a Springfield based clinical location or lab (Cox, Mercy, MSU), PBL case writing, and cross cultural medicine (global health study abroad). ABS elective content and requirements will be similar to those offered at MU's Columbia Clinical Campus.

**Credit Hours:** 5

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**MED\_ID 6031: SCC Advanced Clinical Selective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6032: SCC General Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6100: Advanced Elective**

Advanced Elective - 0 Credit

**Credit Hours:** 3

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**MED\_ID 6200: ABS Advanced Basic Science**

ABS Advanced Basic Science



**Credit Hours:** 5

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**MED\_ID 6235: ABS DERMATOLOGY RSCH&REV**

ABS Dermatology Research and Review

**Credit Hours:** 5

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**MED\_ID 6243: ABS EMERGENCY MED RSCH**

ABS Emergency Medicine Research

**Credit Hours:** 5

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**MED\_ID 6244: ABS Quality Improvement and Patient Safety Elective**

The 4th year student will work with leaders in the Office of Clinical Effectiveness to identify an improvement project to be conducted during the elective. Students will have self-paced readings/didactic expectations, and will be expected to review and report on medical literature relevant to the care process(es) targeted for improvement. To complete their project, the student will present the improvement work to patient safety and quality improvement leaders, as well as stakeholders in the care process(es) identified for improvement efforts.

**Credit Hours:** 5

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**MED\_ID 6390: ABS Individualized Study in Medicine-M1**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Review the literature appropriate to each case. Update one PBL case that is used in the course of the block OR update a problem solving exam OR write a new problem solving exam. Students must submit the case or exam electronically to the course coordinator. Evaluation: Student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During a four-week block, the fourth year student will tutor an M-1 PBL group (Monday, Wednesday, & Friday mornings) under the supervision of a senior faculty member. Contact course coordinator for case update details. Submission date for case update is set two weeks after the tutoring session ends. The student will attend all tutor preparation meetings and prepare for PBL through reading, self-directed study and discussions with faculty. Complete student mid-block and end-of-block evaluation as directed.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6391: ABS Individualized Study in Medicine-M2**

ABS Individualized Study in Medicine-M2

**Credit Hours:** 5

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**MED\_ID 6393: ABS Interdisciplinary Research**

ABS Interdisciplinary Research

**Credit Hour:** 5-10

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**MED\_ID 6394: ABS Cross-Cultural Medicine**

ABS Cross-Cultural Medicine

**Credit Hours:** 5

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**MED\_ID 6395: ABS Interdisciplinary Research and Review**

ABS Interdisciplinary Research and Review

**Credit Hour:** 5-10

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**MED\_ID 6396: ABS Medical Practice Organization**

ABS Medical Practice Organization

**Credit Hour:** 5-10

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**MED\_ID 6397: ABS Academic Tutoring for M1/M2 Students**

ABS Academic Tutoring for M1/M2 Students

**Credit Hours:** 5

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**MED\_ID 6398: ABS County Public Health**

ABS County Public Health

**Credit Hours:** 5

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**MED\_ID 6399: ABS Case Writing**

ABS Case Writing

**Credit Hours:** 5

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**MED\_ID 6690: Elective Individual Study in Medicine - M1**

Elective Individual Study in Medicine - M1

**Credit Hours:** 5

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**MED\_ID 6691: Elective Individual Study in Medicine - M2**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Evaluations: the student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During the four-week block, the fourth year student will tutor a M-2 PBL group (Tuesday and Thursday afternoons) under the supervision of a senior faculty member.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6692: Case/Exam Writing Elective**

The fourth year medical student will work as part of a team in order to develop learning materials for the first and second year students. Students will work closely with faculty advisors and clinical mentors to develop educationally sound learning materials. Under the guidance of faculty preceptors, medical students will author one original PBL case including a comprehensive tutor guide and multiple choice examination questions covering the case objectives, AND one original Clinical Reasoning Exam including an annotated key.

**Credit Hours:** 5

**Prerequisites:** fourth year medical student in good standing

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**MED\_ID 6693: Simulation Preparation for Internship**

This course is meant to increase the medical students' knowledge and skillsbase in preparation for the first year of internship. In order to accomplish this, the students will be exposed to a variety situations common to first year residents through activities created with simulation. Throughout the course, students will demonstrate how to provide

effective and efficient patient-centered care, while improving their communication skills and professionalism with patients and other healthcare providers. Students will understand the role of simulation in medical education and develop skills in debriefing of scenarios throughout the course. At the end of the course, students will be expected to complete a simulation capstone project. Prerequisites: Class level: 4th year medical student. Approval by Simulation Director and Completion of all Core Clerkship Requirements.

**Credit Hours:** 5

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**MED\_ID 6890: Computer Applications in Medicine**

Computer Applications in Medicine

**Credit Hours:** 5

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**MED\_ID 6924: Rural Track Clinical Elective**

Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**MED\_ID 6925: Springfield Clinical Campus Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**MED\_ID 6933: Joint Commission Tracers: Assessing Quality Patient Care Using Joint Commission Criteria**

Quality patient care is the core of the academic medical center's mission, accomplished through exemplary education, research, and clinical care. In order to assure that patients receive quality care, the Center for Medicare and Medicaid Services (CMS) requires that health care organizations demonstrate quality through a process of accreditation, which has been delegated to The Joint Commission (TJC), an independent, non-for-profit organization. TJC promotes the continuous improvement of health care by evaluating organizations and "inspiring them to excel in providing safe and effective care of the highest quality and value." Failure of a health system to meet TJC requirements can result in loss of an organization's ability to participate in Medicare/Medicaid programs, which has a crippling effect on delivering patient care. Tracers are the tool TJC utilizes to evaluate the quality of patient care in an organization. During the two-week course, the student will: 1) attend tracer orientation. 2) conduct ten tracers (approximately 1 hour each) in inpatient and invasive procedure areas. 3) conduct a literature search on tracers and quality care, and prepare 3 to 4 page synthesis. 4) complete a pre- and post- survey on the tracer process. 5) complete a

one-page written reflection of the student's tracer experience at the end of each week.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**MED\_ID 6934: Sexual and Gender Minority Health Issues Across the Lifecourse**

The purpose of this course is to increase student's familiarity with sexual and gender minority health issues likely to be seen in practice. Integral to the course structure is improved cultural competency in not only appropriate language and terms used within the community but also a sense of the social-cultural issues each generation has faced growing up in America.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Medieval Renaissance Studies Courses

**MDVL\_REN 2004: Topics in Medieval and Renaissance Studies-Social Science**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**MDVL\_REN 2005: Topics in Medieval and Renaissance Studies-Humanities**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**MDVL\_REN 3004: Topics in Medieval and Renaissance Studies-Social Science**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 3005: Topics in Medieval and Renaissance Studies-Humanities**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 4104: Studies in Medieval and Renaissance Cultures-Social Science**

(cross-leveled with MDVL\_REN 7104). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing or Instructor's consent

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**MDVL\_REN 4105: Studies in Medieval and Renaissance Cultures-Humanities**

(cross-leveled with MDVL\_REN 7105). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing or Instructor's consent

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**MDVL\_REN 4411: Studies in Medieval and Renaissance Languages**

(cross-leveled with MDVL\_REN 7411). Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructors consent

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**MDVL\_REN 7104: Studies in Medieval and Renaissance Cultures-Social Science**

(cross-leveled with MDVL\_REN 4104). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**MDVL\_REN 7105: Studies in Medieval and Renaissance Cultures-Humanities**

(cross-leveled with MDVL\_REN 4105). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**MDVL\_REN 7411: Studies in Medieval and Renaissance Languages**

(cross-leveled with MDVL\_REN 4411). Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 7535: Monastic Worlds**

(same as REL\_ST 7535; cross-leveled with MDVL\_REN 4535, REL\_ST 4535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology,

history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A/F basis only.

**Credit Hours:** 3

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**MDVL\_REN 8411: Studies in Medieval and Renaissance Languages**

Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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## Microbiology Courses

**MICROB 2800: Microbiology for Nursing and Health Professions**

This course will provide basic principles for understanding microbial growth, function, and control. This includes a survey of microbial cellular structure/functions, immunology concepts, epidemiology, specimen handling, and causes of microbial disease (bacterial, viral, and parasitic). Material is presented in lecture and corresponding laboratory exercises that will allow students to explore the microbial world around them.

**Credit Hours:** 4

**Prerequisites:** The overall content is "restricted to Freshman and sophomore Nursing and Health Related Professional students only". Other inquires contact department

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**MICROB 3200: Medical Microbiology and Immunology**

Focus on medically important viruses, bacteria, fungi and parasites with emphasis on their disease causing potential and mechanisms. Introduction to cells and molecules of the immune system with emphasis on their role in fighting infectious diseases. Discussion of treatment and prevention strategies. Lecture material will be reinforced with laboratory demonstrations and hands-on exercises. The course is intended for preprofessional students.

**Credit Hours:** 4

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**MICROB 3800: Case-Based Microbiology: Assembling Systemic Health Connections**

Detailed infectious diseases across organ systems. The biological characteristics and pathologic mechanisms of infectious diseases caused by bacteria, viruses, fungi and parasites are explored in a case-based learning. Student-driven learning objectives for each case (to include microbiology, anatomy, physiology, pharmacology, technology and clinical LO's each case) help groups connect scientific information across disciplines.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** MICROB 2800 or MICROB 3200, MPP 3202, and PTH \_AS 2201

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**MICROB 4300: Bacterial Pathogenesis**

(cross-leveled with MICROB 7404). This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic diseases. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 2

**Prerequisites:** MICROB 3200 or equivalent. Consent from Course Director is required to insure academic readiness

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**MICROB 4303: Fundamental Virology**

Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 4304: Immunology**

This is a comprehensive team-taught, basic immunology course covering cells and organs of the immune system, lymphocyte development, innate immunity, antibody production, antibody-antigen presentation, CD4+ and CD8+ T lymphocyte responses, cytokines, autoimmunity and immunodeficiency among other immunologically relevant topics. Completion of a biochemistry, genetics, or molecular biology course would be helpful.

**Credit Hours:** 2

**Recommended:** MICROB 3200 or BIOCHM 4270

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**MICROB 4305H: Honors Bacterial Pathogenesis**

This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic diseases. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 2

**Prerequisites:** MICROB 3200 or equivalent; Honors eligibility required. Consent from Course Director required to insure academic readiness

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**MICROB 6291: ABS Microbiology Mechanism of Disease**

ABS Microbiology Mechanism of Disease

**Credit Hour:** 5-10

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**MICROB 6293: ABS Microbiology Research**

ABS Microbiology Research

**Credit Hour:** 5-10

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**MICROB 6295: ABS Microbiology Research and Review**

ABS Microbiology Research and Review

**Credit Hour:** 5-10

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**MICROB 7101: Structure and Synthesis of Macro Molecules**

This multiple-instructor course is designed to provide students with a detailed understanding of the structure, function, and biophysical properties of bio-molecules. Principles and techniques of molecular biology related to the study of recombinant DNA and genetic analysis, protein structure, function and basic immunological principles will be covered. Admission is dependent on approval by course director.

**Credit Hours:** 2

**Prerequisites:** consent required

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**MICROB 7303: Fundamental Virology**

Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** Undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 7304: Immunology**

Covers innate immunity, antibodies, antigens, MHC, antigen presentation, lymphocyte development, antigen specific receptors, lymphocyte activation and differentiation, immune effector mechanisms, hypersensitivities, tolerance, autoimmunity, immunodeficiencies.

**Credit Hours:** 2

**Recommended:** MICROB 3200 or BIOCHM 4270 or BIOCHM 4272 or instructor's consent

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**MICROB 7404: Foundations in Bacteriology and Pathogenesis**

This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic disease. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 3

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**MICROB 8050: Graduate Student Survival Skills**

This course is an introduction to inform new graduate students about the Microbiology program and provide them with the knowledge to access resources and information needed for a successful transition into their course work and research. The course will also focus on guidelines in selecting mentors and their relationships, time management, good notebook practices, presentation and posters, comprehensive exams, and computer skills needed. Graded on S/U basis only.

**Credit Hour:** 1

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**MICROB 9001: Topics in Microbiology**

Current topics, highly specialized topics taught infrequently, or courses taught by visiting professors.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9085: Problems in Microbiology**

Students assigned individual problems in microbiology for library or lab investigation. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9087: Seminar in Microbiology**

Presentation and critical discussion of student and faculty research, current literature, and guest lectures on subjects in various areas of microbiology. Graded on A-F basis only.

**Credit Hour:** 1

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**MICROB 9090: Research in Microbiology**

Original investigations in various areas of microbiology related to bacteria, fungi, rickettsia, viruses, and animal parasites, or immunology relating to antigens and antibodies of infectious and noninfectious nature designed for graduate thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9403: Advanced Medical Microbiology**

Similar to MICROB 4300 but treats medical microbiology and immunology in a more advanced manner. Methods of preparation and instruction stressed. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MICROB 9404: Advanced Bacterial Pathogenesis**

Literature based lectures and discussions covering current issues in bacterial pathogenesis. Focus is on understanding host-pathogen interactions that lead to disease. Topics include bacterial toxins and secreted virulence factors, intracellular bacterial growth and survival, host cell death and inflammatory pathways. Course will focus on a few model pathogens and discuss the molecular mechanisms of the pathogen and host that contribute to virulence. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MICROB 7404

**Recommended:** MICROB 4304 or MICROB 7304

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**MICROB 9407: Advanced Immunology**

Literature based lectures and discussions covering current issues in molecular and cellular immunology. Topics include innate immunity; lymphocyte development; inflammation; tolerance, infection, and autoimmunity; mucosal immunity; asthma and allergy and tumor immunology.

**Credit Hours:** 4

**Prerequisites:** MICROB 4304 or MICROB 7304, or instructor's consent

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**MICROB 9411: Responsible Conduct of Research**

Ethical, legal and sociological ramifications of research including data management, authorship, human and animal use, conflict of interest and misconduct. Round table discussions and interactive forums. Grading based on participation in discussions and assignments. Graded on S/U basis only.

**Credit Hour:** 1

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**MICROB 9430: Molecular Biology I**

(same as BIOCHM 9430). Detailed examination of current fundamental concepts of molecular genetics of bacteria, bacteriophages and yeast. Experimental approaches to analysis of the physical structures of genomic nucleic acids, the biochemistry and genetics of mutations, replications, gene transfer and gene expression will be examined in depth from reports in the current literature.

**Credit Hours:** 4

**Prerequisites:** Biochemistry, genetics

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**MICROB 9432: Molecular Biology II**

(same as BIOCHM 9432 and BIO\_SC 9432). Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**MICROB 9449: Infection and Immunity**

Writing, discussion, literature driven course, covering topics that focus on the interface between infectious diseases, cancer and the immune system. May be repeated for credit. Graded A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 2nd year Graduate student with bacteriology, virology, microbial pathogenesis and immunology background only. 1st year graduate students require instructor approval

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## Military Science Courses

**MIL\_SC 1100: Foundations of Officership**

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establish framework for understanding officership, leadership, and Army values followed and "life skills" such as physical fitness and time management.

**Credit Hour:** 1

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**MIL\_SC 1110: Introductory Military Science Laboratory I**

Field application of skills taught in MIL\_SC 1100, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1100

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**MIL\_SC 1120: Basic Leadership**

Establishes foundation of basic leadership fundamentals such as problem solving, communication, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling.

**Credit Hour:** 1

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**MIL\_SC 1130: Introductory Military Science Laboratory II**

Field application of skills taught in MIL\_SC 1120, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1120

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**MIL\_SC 2200: Individual Leadership Studies**

Students identify successful leadership characteristics through observation of others and self through experimental learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

**Credit Hours:** 2

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**MIL\_SC 2210: Intermediate Military Science Laboratory I**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as squad-level offensive and defensive operations. First aid topics and drill and ceremony are also taught.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2200

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**MIL\_SC 2220: Leadership and Teamwork**

Study examines how to build successful teams, various methods for influencing action, effective communication in selling and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

**Credit Hours:** 2

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**MIL\_SC 2230: Intermediate Military Science Laboratory II**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as platoon-level offensive and defensive operations. Practical application of night land navigation.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2220

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**MIL\_SC 3160: Death by a Thousand Cuts: Counterinsurgency/Insurgency the American Experience**

This course explores the problem of insurgency and counterinsurgency in terms of what we can learn from these conflicts. It examines counterinsurgency theory and practice, the Philippine Insurrection, Banana Wars, Vietnam War, Afghanistan, and Iraq.

**Credit Hours:** 3

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**MIL\_SC 3161: The American Experience in Vietnam**

This course was developed to provide students the opportunity to examine the American experience in the Vietnam War, to search for meanings in this experience, and to arrive at their own conclusions concerning the impact of the war upon the nation. Moreover, it challenges the students to think critically about war and the use of military power to settle differences between nations. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3162: Counterinsurgency in Asia**

This course explores the problem of insurgency and counterinsurgency in Asia in terms of what we can learn from these conflicts. The course examines the insurgency in the Philippine Insurrection 1899-1902, the Vietnam War, the Soviet-Afghan War, in Thailand, Sri Lanka and Malayan Emergency. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3163: U.S. Military History in the Western Tradition**

Analysis of United States military history from the Colonial period to the present, (1609-2012). It is a comprehensive look into the evolution of warfare in America, military traditions and heritage, and technology. This course analyzes the following: American Revolution, War of 1812, Mexican American War, Civil War, Indian Wars, Spanish American War, World War I, Inter War Period, World War II, Korean War, Vietnam War, Gulf War, Afghanistan and Iraq. All cadets are required to take this course for commissioning. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3164: Nation Building through a Barrel of a Gun**

(same as POL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**MIL\_SC 3165: "Chasing Ghost", The History of Irregular Warfare**

(same as POL\_SC 3165). This course explores the history of Irregular Warfare from the guerrilla perspective. The course examines the works of Mao Tse-Tung, Che Guevara, T.E. Lawrence and several other Guerrilla Leaders. You will analyze the evolution of Irregular Warfare through history and understand the complexities associated with the difficulties of countering and defeating Irregular Warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**MIL\_SC 3230: Leadership and Problem Solving**

Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities.

**Credit Hours:** 3

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**MIL\_SC 3240: Leadership and Ethics**

Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, considerations of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication ability.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3230

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**MIL\_SC 3250: Leadership and Management**

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring

subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3240

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#### **MIL\_SC 3250W: Leadership and Management**

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3240

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#### **MIL\_SC 3260: Officership**

Study includes case study analysis of military law and practical exercises on establishing an ethical command climate, service as an officer; capstone exercise. Leadership lab Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3250

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#### **MIL\_SC 3270: Advanced Transition to Lieutenant I**

Independent research, analysis and monthly discussion on related military topics. Personal, academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3

**Prerequisites:** MIL\_SC 1100, MIL\_SC 2200, MIL\_SC 3230, and MIL\_SC 3250

**Recommended:** department head permission

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#### **MIL\_SC 3280: Advanced Transition to Lieutenant II**

Independent research, analysis and monthly discussion on related military topics. Personal academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3

**Prerequisites:** MIL\_SC 1100, MIL\_SC 2200, MIL\_SC 3230, and MIL\_SC 3250

**Recommended:** department head permission

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## **MU Informatics Institute Courses**

### **INFOINST 7001: Topics in Informatics**

This course provides the overview to the informatics foundations as well as introduces topics regarding the current informatics-driven areas of science. Graded on A-F basis only.

**Credit Hours:** 3

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### **INFOINST 7002: Introduction to Informatics**

This course provides an overview to informatics foundations in addition to introducing topics regarding the current informatics-driven areas of science. Topics to include: recent trends in informatics; database management and Big Data analytics; data visualization, bioinformatics,

health informatics, geoinformatics, nursing informatics, social informatics, and legal informatics. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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### **INFOINST 7010: Computational Methods in Bioinformatics**

(same as CMP\_SC 7010). Fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis placed on computational aspect of bioinformatics including formulation of a biological problem, design of algorithms, confidence assessment of software development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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### **INFOINST 7430: Introduction to Health Informatics**

(same as HMI 7430). Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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### **INFOINST 8001: Topics in Informatics**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department. Graded A-F basis only.

**Credit Hours:** 3

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### **INFOINST 8005: Applications of Bioinformatics Tools in Biological Research**

This service course is designed for bioinformatics non-major students from life sciences, biological sciences, plant sciences, animal sciences, biochemistry, medicine fields and others. This course will provide an introduction to the current state of the art topics in bioinformatics and the computational tools available to the research community for application to biological research questions. Students will learn how to effectively utilize the tools and software packages to analyze data and visualize the results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** Graduate students are expected to have basic knowledge in algorithms, databases, and molecular biology

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### **INFOINST 8010: Problem Solving in Bioinformatics**

(same as CMP\_SC 8110). The course covers a variety of bioinformatics research topics such as biological sequence comparison, protein structure prediction, protein and gene function prediction, and inference and modeling of biological networks. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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### **INFOINST 8085: Problems in Informatics**

Independent, directed study on a topic in the area of informatics. Some sections may be graded A-F or S/U.

**Credit Hour:** 1-6

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**Prerequisites:** Instructor's consent required

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**INFOINST 8087: Seminar in Informatics**

Students attend and/or present at informatics seminars approved by the institute. Graded on S/U basis only.

**Credit Hour:** 0.5-1

**Prerequisites:** instructor's consent required

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**INFOINST 8088: Lab Rotations in Informatics**

This course is designed to train students in both computational/informatics and life science/hospital laboratories to foster critical research collaborations in biomedical informatics. Students are expected to write reports with their advisors and the mentor of the rotation. Graded on S/U basis only.

**Credit Hour:** 1-3

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**INFOINST 8090: Dissertation (pre-candidacy) Research in Informatics**

Research leading to dissertation before comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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**INFOINST 8150: Integrative Methods in Bioinformatics**

(same as CMP\_SC 8150). With biology entering the Big Data era, scientists are overwhelmed with the amount and the diversity of the experimental, statistical, and omics data about the biological objects they study. As a result, the frontier bioinformatics and computational genomics methods have started to utilize a so-called integrative approach, where the computational and informatics methods are used to combine the high-throughput and low-throughput data. The main objective of this course is to teach students how to utilize bioinformatics and programming techniques for such multi-omics data integration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 or instructor's permission

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**INFOINST 8180: Machine Learning Methods for Biomedical Informatics**

(same as CMP\_SC 8180). Teaches statistical machine learning methods and applications in biomedical informatics. Covers theories of advanced statistical machine learning methods and how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 7005

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**INFOINST 8190: Computational Systems Biology**

(same as CMP\_SC 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**INFOINST 8210: Structural Bioinformatics of Proteins, Complexes, System**

(same as CMP\_SC 8120). Main course objective is to provide an introduction to the state-of-the-art methods in structural bioinformatics. The course will cover the methods that are applied to a wide range of biomolecular objects from protein domains and small proteins to large biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

**Recommended:** CMP\_SC 4050 or CMP\_SC 7050

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**INFOINST 8310: Computational Genomics**

(same as CMP\_SC 8130). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8350: Integrative Methods in Bioinformatics**

Course objective is to introduce the most popular experimental methods from the point of view of the information sources that can be used in. Students will learn to use data obtained directly from biological experiments and how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8390: Computational Systems Biology**

This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of casual relations from experimental data and reverse engineering of cellular systems. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010 or instructors consent

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**INFOINST 8450: Precision Medicine Informatics**

(same as PTH\_AS 7450). This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**INFOINST 8810: Research Methods in Informatics**

(same as HMI 8810). Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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**INFOINST 8860: Content Management in Biomedical Informatics**

(same as CMP\_SC 8160). This course introduces theory and techniques for content extraction, indexing, and retrieval of biomedical media databases. Topics include biomedical media databases, feature extraction methods, advanced database indexing structures, query methods, and result visualization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380 and INFOINST 7010

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**INFOINST 8870: Knowledge Representation in Biology and Medicine**

(same as HMI 8870) The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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**INFOINST 8880: Machine Learning Methods for Biomedical Informatics**

(same as CMP\_SC 8180) This course teaches statistical machine learning methods and their applications in biomedical informatics. The course covers theories of advanced statistical machine learning methods and teaches how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 7005

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**INFOINST 9090: Dissertation (post-candidacy) Research in Informatics**

Research leading to Ph.D. dissertation after comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Applied Music Courses

**MUS\_APMS 1435: Studio Instruction for Majors**

Acceptable as a secondary applied subject on B.S. in music education and B.M. degrees. Materials varies according to educational purpose. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_APMS 2455: Studio Instruction**

Credit accepted toward all undergraduate music and music education degrees. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MUS\_APMS 3455: Studio Instruction**

Accepted as upperclass credit only in Music Education, music theory, history, or composition. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455 or equivalent; audition by committee, and instructor's consent

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**MUS\_APMS 3970: Junior Recital**

Preparation and presentation of Junior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**MUS\_APMS 4455: Studio Instruction**

For B.M. degrees in performance. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455; audition; instructor's consent

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**MUS\_APMS 4970: Senior Recital**

Preparation and presentation of Senior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**MUS\_APMS 7435: Studio Instruction**

For music teachers needing instruction in secondary instruments or voice. Maybe repeated for credit.

**Credit Hour:** 1

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**MUS\_APMS 7455: Studio Instruction**

For graduate credit on M.A., M.Ed., and Ph.D. degrees. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** audition; instructor's consent

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**MUS\_APMS 8455: Studio Instruction**

Required for graduate credit as major applied study on M.M. degree. Acceptable for graduate credit on M.A., M.Ed., Ed.D., and Ph.D. degrees. Maybe repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** audition by committee and instructor's consent

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**MUS\_APMS 8970: Graduate Recital**

Preparation and presentation of Graduate Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each

recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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## Music-Courses for Non-Majors Courses

### **MUSIC\_NM 1005: Topics in Music-Humanities**

Organized study of selected topics. Subjects vary from semester to semester. May be repeated once for additional credit with departmental consent.

**Credit Hour:** 1-3

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### **MUSIC\_NM 1029: Music Travel Course**

Study tour designed to broaden perspective of persons interested in music. Stresses relationship of music to art and ideas in a variety of social and cultural contexts. Participant bears cost of course.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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### **MUSIC\_NM 1085: Problems in Music**

Independent investigation leading to a paper project. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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### **MUSIC\_NM 1211: Fundamentals of Music I**

Introduction to rhythmic, melodic, harmonic, and structural elements of music. Designed for non-music majors. No credit for music majors or minors.

**Credit Hours:** 2

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### **MUSIC\_NM 1212: Fundamentals of Music II**

Continuation of MUSIC\_NM 1211. No credit for music majors or minors.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUSIC\_NM 1211

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### **MUSIC\_NM 1300: Experiencing Music Through Concert Attendance**

Development of music listening skills through concert attendance, reading and class attendance.

**Credit Hour:** 1

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### **MUSIC\_NM 1310: Masterpieces of Western Music**

Introduction to the Western fine-art tradition through the study of representative masterworks, emphasis on developing listening skills; directed to non-majors.

**Credit Hours:** 3

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### **MUSIC\_NM 1311: Jazz, Pop, and Rock**

Historical introduction to jazz (to approximately 1970) and the American popular song, including rock and roll (to approximately 1980); directed to non-majors.

**Credit Hours:** 3

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### **MUSIC\_NM 1312: History of Jazz**

Historical survey of American jazz from its origin to the present. No credit for students who have taken MUSIC\_NM 1311.

**Credit Hours:** 2

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### **MUSIC\_NM 1313: Introduction to World Music**

Introduction to the musical traditions of selected non-Western societies; emphasis on developing listening skills; directed to non-majors, but music majors may enroll.

**Credit Hours:** 3

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### **MUSIC\_NM 1314: Orchestral Masterpieces**

In-depth study of selected symphonic works of masters from Joseph Haydn to Aaron Copland. Students develop critical listening skills to identify orchestral instruments and perceive the structure and character of selected orchestral works. Directed to non-music majors. Graded on A-F basis only.

**Credit Hours:** 3

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### **MUSIC\_NM 1315: Musical Profile-Bach**

Systematic study of the music of J.S. Bach directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1316: Music Profile--Wolfgang A. Mozart**

A systematic introduction to the music of Wolfgang Amadeus Mozart. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1317: Musical Profile-Beethoven**

Systematic study of the music of Ludwig van Beethoven directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1318: Music Profile--Claude Debussy**

A systematic introduction to the music of Claude Debussy. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1319: Music Profile--Igor Stravinsky**

A systematic introduction to the music of Igor Stravinsky. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1320: Musical Profile-Copland**

Systematic study of the music of Aaron Copland directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1330: Introduction to African-American Music**

Introduction to the history and scholarship of African American music from eighteenth through twentieth centuries. Focus on African legacies and retentions, slave culture, the black church, minstrelsy, folk traditions, spirituals, ragtime, blues, jazz, soul, R&B, and hip hop.

**Credit Hours:** 3

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**MUSIC\_NM 1335: Introduction to Soul and Country**

(same as BL\_STU 1335). Examination of musical cultures signified by "soul" and "country". Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**MUSIC\_NM 1340: Music of Love and Death**

Exploration of musical expression surrounding love and death in specific works of diverse styles and sociological contexts. Students will learn to listen to and appreciate music with informed ears and minds, develop strong perceptual skills, and cultivate a musical vocabulary.

**Credit Hours:** 3

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**MUSIC\_NM 1341: Drama Through Western Music**

Introduction to the musical culture of the theater through the ages by examining specific works of diverse styles and sociological contexts. Students learn to listen to and appreciate music with informed ears and minds, develop perceptual skills, and cultivate musical vocabulary.

**Credit Hours:** 3

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**MUSIC\_NM 1445: Studio Instruction**

Acceptable for non-majors and majors requiring a half-hour lesson with instructor's consent. May be repeated for credit.

**Credit Hour:** 1

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**MUSIC\_NM 1608: Beginning Piano Class**

For non-music majors only.

**Credit Hour:** 1

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**MUSIC\_NM 1609: Intermediate Piano Class**

For non-music majors only. Continuation of MUSIC\_NM 1608.

**Credit Hour:** 1

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**MUSIC\_NM 1612: Elementary Folk Guitar Class**

Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and folk songs.

**Credit Hour:** 1

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**MUSIC\_NM 1615: Beginning Classical Guitar Class**

Beginning Classical Guitar Class

**Credit Hour:** 1

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**MUSIC\_NM 1617: Beginning Drumset**

Fundamentals of the drumset, including an historical survey and biographical sketch of several performers. Also can be used as a pedagogical outline for future music teachers.

**Credit Hour:** 1

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**MUSIC\_NM 1618: Basic Musicianship**

Development of musicianship through music reading, playing, creating, and perceptive listening, including study of pitch, rhythm, structure, style, expressive and interpretive elements, and related vocabulary. No credit for music majors or minors or students who have completed MUSIC\_NM 1211 or MUSIC\_NM 1212.

**Credit Hours:** 3

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**MUSIC\_NM 1651: Voice Class I**

Fundamentals of singing: posture, breath support, control, vocalization, concepts of tone quality, placement and resonance. Literature selected for students with no previous vocal training. Adapted to needs of drama and other interdisciplinary students.

**Credit Hour:** 1

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**MUSIC\_NM 1652: Voice Class II**

Continuation of MUSIC\_NM 1651.

**Credit Hour:** 1

**Prerequisites:** MUSIC\_NM 1651

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**MUSIC\_NM 2306: Perceiving Musical Traditions and Styles**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** open only to Journalism majors with sophomore standing or higher

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**MUSIC\_NM 2306H: Perceiving Musical Traditions and Styles - Honors**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** open only to Journalism majors with sophomore standing or higher. Honors eligibility required

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**MUSIC\_NM 2310: Live Music: Up Close and Personal**

Study of classical chamber music from 1770-present through live performances. Artistic, cultural and historical contexts; development of listening skills and basic music vocabulary. No credit for music majors and music minors.

**Credit Hour:** 1

**Recommended:** Humanities credit for non-music students

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**MUSIC\_NM 2320: History of the Classical Guitar**

Historical development of the classical guitar and guitar music from 1400 to today.

**Credit Hours:** 2

**Recommended:** Humanities credit for any and all non-music majors

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**MUSIC\_NM 2445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 4445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 7029: Travel Seminar**

Selected topics for directed study in music undertaken in context of the tour. Emphasis on subjects with cross-disciplinary implications. Participant bears cost of course.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**MUSIC\_NM 7445: Studio Instruction for Non-Majors**

Acceptable for graduate s credit for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent

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## Music-Ensemble Courses Courses

**MUS\_ENS 1841: Instrumental Ensemble**

Provides experience in instrumental performance and repertory. Open to all MU students by audition. May be repeated for credit. Enrollment in Marching Band is limited to a maximum of five semesters. Sections are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Varsity Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** Audition

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**MUS\_ENS 1842: Choral Ensemble**

Provides experience in choral performance and repertory. Open to all MU students. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Chorale, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition required for all but Choral Union

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**MUS\_ENS 1846: Chamber Music**

Preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble. Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 1865: Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre work in staged or concert versions. Open to all MU students by audition. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 2843: Piano Ensemble**

Study, preparation, and performance of ensemble literature for piano. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_ENS 4866: Musical Theatre Performance**

(same as THEATR 4460). A practical study for the actor of theatrical songs through character analysis, lyric interpretation, and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_ENS 8841: Instrumental Ensemble**

Research, preparation and performance of instrumental compositions. May be repeated for credit. Sections and credit hours are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8842: Choral Ensemble**

Research, preparation and performance of choral compositions. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Choral, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8843: Advanced Piano Ensemble**

Study, preparation and performance of standard piano literature for four hands. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_ENS 8846: Advanced Chamber Ensemble**

Study, preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble, Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8865: Advanced Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre works in staged or concert versions. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-2

**Prerequisites:** audition and instructor's consent

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## Music-General Courses

**MUS\_GENL 1091: Recital Attendance for Undergraduate Music Majors**

Required attendance of eleven music events from the Music Department listing. 0 credit, and may be repeated until the total degree requirement is satisfactorily met. No tuition charged. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Undergraduate music or music education majors only

---

**MUS\_GENL 3005: Topics in Music-Humanities**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

---

**MUS\_GENL 3005H: Topics in Music-Humanities - Honors**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent. Honors eligibility required

---

**MUS\_GENL 3085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 3085W: Problems in Music - Writing Intensive**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

---

**MUS\_GENL 4005: Topics in Music-Humanities**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

---

**MUS\_GENL 4005H: Topics in Music-Humanities - Honors**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent. Honors eligibility required

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**MUS\_GENL 4005W: Topics in Music-Humanities - Writing Intensive**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

---

**MUS\_GENL 4029: Music Travel Course**

(cross-leveled with MUS\_GENL 7029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 4510: Career Development for Musicians**

Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** sophomore standing and instructor's consent

---

**MUS\_GENL 4512: Principles of Entrepreneurship for Musicians**

Provisions of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

---

**MUS\_GENL 4514: Arts Marketing for Musicians**

Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; Sophomore standing or instructor's consent

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**MUS\_GENL 4516: Grant Writing for Musicians**

(cross-leveled with MUS\_GENL 7516). Exploration of the nuts and bolts of grant writing, including resources for freelance performers and

teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

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**MUS\_GENL 4518: Music Industry Survey**

In-depth survey of the commercial Music industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

---

**MUS\_GENL 4520: Non-Profit Management in the Arts**

Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

---

**MUS\_GENL 4522: Community Engagement in the Arts**

Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing, or instructor's consent

---

**MUS\_GENL 4530: Entrepreneurship, Leadership and Advocacy in the Arts**

Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

---

**MUS\_GENL 4540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 7540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

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**MUS\_GENL 4550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 7550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 7005: Topics in Music**

Organized study of selected topics in music. Subjects and credit variable. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

---

**MUS\_GENL 7029: Music Travel Course**

(cross-leveled with MUS\_GENL 4029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7510: Career Development for Musicians**

Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7512: Principles of Entrepreneurship for Musicians**

Provision of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

---

**MUS\_GENL 7514: Arts Marketing for Musicians**

Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

---

**MUS\_GENL 7516: Grant Writing for Musicians**

(cross-leveled with MUS\_GENL 4516). Explorations of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510; instructor's consent

---

**MUS\_GENL 7518: Music Industry Survey**

In-depth survey of the commercial music industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

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---

**MUS\_GENL 7520: Non-Profit Management in the Arts**

Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7522: Community Engagement in the Arts**

Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7530: Entrepreneurship, Leadership and Advocacy in the Arts**

Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 4540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

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**MUS\_GENL 7550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 4550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 8085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 8090: Research in Music**

Thesis course. May be repeated for additional credit. Sections are: Music Theory, Music Composition, Music History. Performance/Pedagogy. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Instrumental And Vocal Repertory Courses

**MUS\_I\_VR 3753: Piano Literature I**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3753W: Piano Literature I - Writing Intensive**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3754: Piano Literature II**

Survey of keyboard music from Beethoven's time to the present.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 3753 or instructor's consent

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**MUS\_I\_VR 4767: Vocal Literature I**

Introduction to and study of song literature with emphasis on style and interpretation. Prerequisites: junior standing

**Credit Hours:** 2

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**MUS\_I\_VR 4768: Vocal Literature II**

Continuation of MUS\_I\_VR 4767.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 4767 or instructor's consent

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**MUS\_I\_VR 4776: Orchestral Excerpts**

Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent required

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**MUS\_I\_VR 4780: Classical Guitar Repertory I**

Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VR 4781: Classical Guitar Repertory II**

Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 4780; instructor's consent

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**MUS\_I\_VR 7767: Advanced Vocal Literature I**

Study of specific aspects of vocal repertory. Individual projects in research, analysis and performance.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VR 7455 or instructor's consent

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**MUS\_I\_VR 7768: Advanced Vocal Literature II**

Continuation of MUS\_I\_VR 7767.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VR 7767 or instructor's consent

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**MUS\_I\_VR 7776: Orchestral Excerpts**

Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7780: Graduate Classical Guitar Repertory I**

Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7781: Graduate Classical Guitar Repertory II**

Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 7780. Instructor's consent required

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**MUS\_I\_VR 8753: Piano Repertory I**

Study of specific aspects of Baroque and Classical keyboard music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 7455 or instructor's consent

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**MUS\_I\_VR 8754: Piano Repertory II**

Study of specific aspects of nineteenth- and twentieth century piano music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 8753 or instructor's consent

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**MUS\_I\_VR 8765: Choral Repertory**

Survey of choral works from selected periods with an emphasis on various aspects of choral performance. May be repeated once for additional credit.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_I\_VR 8770: Band Repertory**

To survey band and wind ensemble repertoire with emphasis on various aspects of performance practice in order to prepare the student for a career which includes conducting advanced high school and college bands and wind ensembles.

**Credit Hours:** 3

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**MUS\_I\_VR 8773: String Instrument Repertory I**

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 7455 or instructor's consent

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**MUS\_I\_VR 8774: String Instrument Repertory II**

Continuation of MUS\_I\_VR 8773.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 8773

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**MUS\_I\_VR 8775: Orchestral Repertory**

A survey of orchestral repertory, emphasizing various aspects of performance practice. Appropriate for graduate music conducting majors who wish to pursue a career which includes conducting orchestras at the advanced high school, college, and professional levels. May be repeated.

**Credit Hours:** 2

**Prerequisites:** Conducting experience at the high school or college level and instructor's consent

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## Music-Instrumental And Vocal Techniques Courses

**MUS\_I\_VT 1610: Group Piano for Music Majors I**

Beginning piano for music majors and concentrations only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 1611: Group Piano for Music Majors II**

Continuation of MUS\_I\_VT 1610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 1620: Jazz Piano Class**

Beginning piano technique and study of common jazz piano voicings for accompaniment and solo performance.

**Credit Hour:** 1

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_I\_VT 2610: Group Piano for Music Majors III**

Continuation of MUS\_I\_VT 1611.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1611 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2611: Group Piano for Music Majors IV**

Continuation of MUS\_I\_VT 2610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2631: Basic Conducting and Score Reading**

To develop the basic psychomotor and score reading skills prerequisite to the art of conducting.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 2220

---

**MUS\_I\_VT 2632: Rehearsal Clinic: String Orchestra Conducting**

To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of string ensembles.

**Credit Hours:** 2



**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 and either MUS\_I\_VT 2640 or MUS\_I\_VT 2641

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**MUS\_I\_VT 2633: Rehearsal Clinic: Choral Conducting I**

To develop musical and interpersonal skills requisite for successful leadership of a choral ensemble, emphasizing rehearsal strategies and repertoire.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2634: Rehearsal Clinic: Band Conducting I**

To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of wind and percussion ensembles.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2635: Rehearsal Clinic: Choral Conducting II**

Continuation of MUS\_I\_VT 2633.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2633

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**MUS\_I\_VT 2636: Rehearsal Clinic: Band Conducting II**

Continuation of MUS\_I\_VT 2634.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2634

---

**MUS\_I\_VT 2637: Woodwinds I**

Class instruction in clarinet and saxophone; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2638: Woodwinds II**

Class instruction in flute and double reeds; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2640: Strings I**

Class instruction in violin and viola; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2641: Strings II**

Class instruction in violoncello and string bass; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2645: Brass I**

Class instruction in trumpet and horn; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2646: Brass II**

Class instruction in trombone, euphonium, and tuba; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

---

**MUS\_I\_VT 2648: Percussion**

Class instruction in percussion instruments; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music Education

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**MUS\_I\_VT 2649: Percussion II**

Extension of MUS\_I\_VT 2648. Topics include marching percussion, drumset, Latin accessory instruments, and percussion ensemble literature.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2648

---

**MUS\_I\_VT 2661: Keyboard Skills for Piano Majors I**

Study of sightreading, harmonization, transposition, figured bass realization, and duet skills.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 1221 and MUS\_THRY 1231; instructor's consent

---

**MUS\_I\_VT 2662: Keyboard Skills for Piano Majors II**

Study of score reading, duet performance, and collaborative experiences with voice and instruments.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_I\_VT 2661; instructor's consent

---

**MUS\_I\_VT 3640: Undergraduate Seminar in Vocal Techniques**

Discusses accepted techniques of singing, practical application to posture, breath support, tone placement, musicianship, diction, interpretation, stage deportment. Recognizing and solving specific vocal problems. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

---

**MUS\_I\_VT 3642: Seminar in String Techniques**

In-depth study of publications, philosophies, repertory, grading, specific problems for the string player. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2640 and MUS\_I\_VT 2641, or instructor's consent

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**MUS\_I\_VT 3643: Symposium in Instrumental Music**

Study of procedures, techniques and literature for variable combinations of wind, string, and percussion classes and the administration of instrumental music programs.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education or instructor's consent

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**MUS\_I\_VT 3644: Jazz Methods and Materials**

Training and supervised practice in conducting Jazz Ensembles; study of administration, methods, and materials pertinent to teaching Jazz, Rock, and Commercial Music in high school and college.

**Credit Hour:** 1

**Prerequisites:** junior standing or instructor's consent

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**MUS\_I\_VT 3646: Marching Band Techniques**

Study of techniques and procedures used in the development of field and street marching.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education

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**MUS\_I\_VT 3670: Diction in Singing: Italian**

Study of the correct principles and application of Italian diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3671: Diction in Singing: German**

Study of the correct principles and application of German diction in singing the solo vocal, operatic and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3672: Diction in Singing: French**

Study of the correct principles and application of French diction in singing the solo vocal, operatic, and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature. Prerequisites: sophomore standing

**Credit Hour:** 1

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**MUS\_I\_VT 3673: Diction in Singing: English**

Study of the correct principles and application of English diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** Sophomore standing

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**MUS\_I\_VT 4640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 7640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

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**MUS\_I\_VT 4645: Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220, instructor's consent

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**MUS\_I\_VT 4661: Piano Pedagogy Survey I**

Study of approaches for teaching young beginning and intermediate student; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4662: Piano Pedagogy Survey II**

Study of approaches for teaching older, more advanced and class piano students; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4663: Piano Pedagogy Laboratory**

Supervised instruction in private and class piano . May be repeated once for additional credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 4661 and MUS\_I\_VT 4662

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**MUS\_I\_VT 4680: Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level, and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition required and instructor's consent

---

**MUS\_I\_VT 7640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 4640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

---

**MUS\_I\_VT 7645: Graduate Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_I\_VT 7680: Graduate Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition and approval of instructor

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**MUS\_I\_VT 8646: Jazz Pedagogy I**

Study of historical and current trends in jazz education and pedagogy, including administration and curriculum, through assigned readings, supervised teaching, classroom discussion, survey of materials, and formation of an annotated bibliography. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MUS\_I\_VT 8647: Jazz Pedagogy II**

Continuation of MUS\_I\_VT 8646; formulation of an extensive philosophy of jazz education. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VT 8646 and instructor's consent

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**MUS\_I\_VT 8671: Principles of Singing I**

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8673: Advanced Choral Conducting**

Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2633 or instructor's consent

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**MUS\_I\_VT 8674: Advanced Instrumental Conducting**

Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2634 or instructor's consent

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**MUS\_I\_VT 8681: Advanced Piano Pedagogy I**

A survey of materials and techniques of instruction for teaching the young beginner and the intermediate piano student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8682: Advanced Piano Pedagogy II**

A survey of materials and techniques of instruction for teaching class piano, the older beginner, and the advanced student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8683: Piano Pedagogy Internship**

Supervised teaching of individual and group lessons. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 8681 and MUS\_I\_VT 8682 and instructor's consent

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**MUS\_I\_VT 8684: Group Piano Pedagogy**

Preparation of graduate students to teach group piano to both college level music majors and adult beginners.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8686: Choral Techniques**

Study of techniques for developing choral singing and musical interpretation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8689: Band Techniques**

To develop individual conducting techniques as well as instrumental ensemble techniques. Emphasis is placed on the learning process to give the student a perspective to improve the techniques of others.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Music-Music Education Courses

**MUS\_EDUC 1100: Orientation: Music Education**

This course familiarizes and orients students with MU resources, Music Education degree expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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**MUS\_EDUC 4140: Teaching Music I**

Study of skills, knowledge, and philosophical foundations necessary to teach general music to children in grades preK - 5, including methods, philosophies, and teacher and learner behaviors.

**Credit Hours:** 3

**Prerequisites:** junior standing; music education major or instructor's consent

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**MUS\_EDUC 4141: Teaching Music I Field Experience**

This field experience supports the MUS\_EDUC 4140 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior standing; music education major or instructor's consent

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**MUS\_EDUC 4142: Teaching Music II**

Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom.

**Credit Hours:** 2

**Prerequisites:** MUS\_EDUC 4140

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**MUS\_EDUC 4142W: Teaching Music II - Writing Intensive**

Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom.

**Credit Hours:** 2

**Prerequisites:** MUS\_EDUC 4140

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**MUS\_EDUC 4143: Teaching Music II Field Experience**

This field experience supports the MUS\_EDUC 4142 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4141

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**MUS\_EDUC 4143W: Teaching Music II Field Experience - Writing Intensive**

This field experience supports the MUS\_EDUC 4142 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4141

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**MUS\_EDUC 4144: Teaching Music III**

A study of various strategies for the successful teaching of middle and high school music programs.

**Credit Hours:** 3

**Prerequisites:** MUS\_EDUC 4142

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**MUS\_EDUC 4144W: Teaching Music III - Writing Intensive**

A study of various strategies for the successful teaching of middle and high school music programs.

**Credit Hours:** 3

**Prerequisites:** MUS\_EDUC 4142

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**MUS\_EDUC 4145: Teaching Music III Field Experience**

This field experience supports the MUS\_EDUC 4144 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4143

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**MUS\_EDUC 4145W: Teaching Music III Field Experience - Writing Intensive**

This field experience supports the MUS\_EDUC 4144 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4143

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**MUS\_EDUC 8140: Advanced Techniques in Music Education-General**

A review and evaluation of teaching/learning strategies in general music instruction.

**Credit Hour:** 2-5

**Prerequisites:** Music methods or instructor's consent

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**MUS\_EDUC 8141: Advanced Techniques in Music Education-Early Childhood**

A review and evaluation of teaching/learning strategies in early childhood music instruction.

**Credit Hour:** 2-5

**Prerequisites:** Music methods or instructor's consent

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**MUS\_EDUC 8142: Curriculum Materials in Music Education-General**

A development of critical abilities in evaluation and selection of music education materials for general music.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8143: Curriculum Materials in Music Education-Vocal**

A development of critical abilities in evaluation and selection of music education materials for secondary vocal music.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8144: Techniques in Instrumental Music Teaching**

A practical study of the organization and instruction of class teaching, with demonstrations by instructor and class.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8145: Teaching Vocal Music**

Studies in voice development techniques and the organization of choral programs.

**Credit Hours:** 3

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**MUS\_EDUC 8150: Foundations of Music Education**

A study of the history, philosophy and rationale of music education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8151: Measurement and Research in Music Education**

Introduction to measurement and research strategies and techniques employed by music educators to assess music achievement, aptitude, perception, performance, cognition, and affective development. Emphasis on reading with understanding and applying research to pedagogical practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in music education

---

**MUS\_EDUC 8152: Psychology of Music Instruction and Performance**

Introduction to the study of psychological factors, theories and research related to the musical development and performance of children, adolescents, and adults, with implications and applications for music education programs and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in music education

---

**MUS\_EDUC 8160: Current Issues in Music Education**

This course is designed to stimulate thinking about current issues related to the field of music education and the influences of these issues on approaches to music teaching and learning.

**Credit Hour:** 1-3

**Prerequisites:** Graduate standing in music education

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**MUS\_EDUC 8163: Administration and Supervision of Music Programs**

A study of the organization, management, and supervision of music programs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_EDUC 8170: Doctoral Seminar in Music Education**

Emphasis on knowledge, strategies, and skills necessary for doctoral students to be prepared to make contributions to the profession as successful college teachers, researchers, master teachers in K-12 schools, and arts administrators. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Admission to doctoral study in music education

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**Music-Music History And Literature Courses****MUS\_H\_LI 1322: Introduction to Music in the United States**

Historical overview of American folk, popular, and fine-art music; emphasis on listening skills.

**Credit Hours:** 2

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**MUS\_H\_LI 2307: History of Western Music I**

Historical survey of selected European practices up to 1700 following a consideration of the major fine-art traditions of the world.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 1322

---

**MUS\_H\_LI 2308: History of Western Music II**

Historical survey of Western fine-art music from approximately 1700 to the present.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307

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**MUS\_H\_LI 4311: Historical Studies in Art Song**

Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4311W: Historical Studies in Art Song - Writing Intensive**

Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312: Historical Studies in Choral Music**

Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4312W: Historical Studies in Choral Music - Writing Intensive**

Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4313: Historical Studies in Opera**

(cross-leveled with MUS\_H\_LI 7313). Historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4313W: Historical Studies in Opera - Writing Intensive**

Historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4314: Historical Studies in Large Ensemble Music**

Historical survey of works for large instrumental ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4315: Historical Studies in Chamber Music**

Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4315W: Historical Studies in Chamber Music - Writing Intensive**

Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4316: Historical Studies in Keyboard Music**

Historical survey of works for solo keyboard instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4317: Historical Studies in Jazz and Popular Music**

Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4317W: Historical Studies in Jazz and Popular Music - Writing Intensive**

Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4318: Studies in World Music**

Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

---

**MUS\_H\_LI 4318W: Studies in World Music - Writing Intensive**

Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

---

**MUS\_H\_LI 4320: Historical Studies in African-American Music**

(cross-leveled with MUS\_H\_LI 7320). Exploration of history and current scholarship in African-American music from the eighteenth to twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and Instructor's consent

---

**MUS\_H\_LI 4320W: Historical Studies in African-American Music - Writing Intensive**

Exploration of history and current scholarship in African-American music from the eighteenth to twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and Instructor's consent

---

**MUS\_H\_LI 4330: Music of the Postmodern Era**

(cross-leveled with MUS\_H\_LI 7330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

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**MUS\_H\_LI 4335: Music of the Middle Ages and the Renaissance**

Systematic study of European musical practice before 1600.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4336: Music in the Baroque Era**

Systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4337: Music of the Classic Era**

Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4337W: Music of the Classic Era - Writing Intensive**

Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4338: Music of the Romantic Era**

Systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4339: Music of the Modern Era**

Systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

---

**MUS\_H\_LI 4340: Focal Composers**

Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4340W: Focal Composers - Writing Intensive**

Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4341: Advanced Studies in American Music**

(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341W: Advanced Studies in American Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4342: Contemporary Issues in Musicology**

Systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4350: Introduction to Ethnomusicology**

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

---

**MUS\_H\_LI 4350W: Introduction to Ethnomusicology - Writing Intensive**

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

---

**MUS\_H\_LI 4352: Historical Studies in African Music**

(same as BL\_STU 4352) Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

---

**MUS\_H\_LI 4352W: Historical Studies in African Music - Writing Intensive**

(same as BL\_STU 4352) Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4376: American Musicals**

(same as THEATR 4720). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**MUS\_H\_LI 4397: Honors in Music History I**

Special readings, directed research for graduation with Honors in music history.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4398: Honors in Music History II**

Continuation of MUS\_H\_LI 4397 leading to Honors thesis in music history.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 4397

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**MUS\_H\_LI 4399: Graduate History Review**

Review of history for graduate students. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7307: Graduate Review of Music History I**

Survey of the history of Western music from ca. 600 A.D. to ca. 1750. Special readings; individual projects.

**Credit Hours:** 2

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**MUS\_H\_LI 7308: Graduate Review of Music History II**

Survey of the history of Western music from ca. 1750 to the present. Special readings; individual projects.

**Credit Hours:** 2

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**MUS\_H\_LI 7311: Historical Studies in Art Song**

Advanced historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7312: Historical Studies in Choral Music**

Advanced historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7313: Historical Studies in Opera**

Advanced historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7314: Historical Studies in Large Ensemble Music**

Advanced historical survey of works for large instrumental ensembles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7315: Historical Studies in Chamber Music**

Advanced historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7316: Historical Studies in Keyboard Music**

Advanced historical survey of works for solo keyboard instruments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7317: Historical Studies in Jazz and Popular Music**

Advanced historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7318: Studies in World Music**

Advanced systematic study of musical activities in selected world cultures, with emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7320: Historical Studies in African-American Music**

Exploration of history and current scholarship in African-American music from the eighteenth to the twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7330: Music of the PostModern Era**

(cross-leveled with MUS\_H\_LI 4330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**MUS\_H\_LI 7335: Music of the Middle Ages and the Renaissance**

Advanced systematic study of European musical practice before 1600.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7336: Music in the Baroque Era**

Advanced systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7337: Music of the Classic Era**

Advanced systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7338: Music of the Romantic Era**

Advanced systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7339: Music of the Modern Era**

Advanced systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7341: Advanced Studies in American Music**

(cross-leveled with MUS\_H\_LI 4341). Advanced systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7342: Contemporary Issues in Musicology**

Advanced systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7350: Introduction to Ethnomusicology**

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7352: Historical Studies in African Music**

Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are



explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8313: Introduction to Graduate Study**

Introduction to library procedures, basic sources of information in music and techniques for research.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8314: Introduction to Graduate Studies in Music II**

The application of basic music bibliography, research techniques, and conventions of music scholarship.

**Credit Hour:** 1

**Prerequisites:** MUS\_H\_LI 8313 or instructor's consent

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**MUS\_H\_LI 8340: Focal Composers**

Advanced systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Music-Music Theory Courses

**MUS\_THRY 1210: Introduction to Computer Technology and Music**

Introduces Finale, music engraving and playback software, and introduces sequencing and other software applications that may impact students while they are in school and as professional musicians.

**Credit Hours:** 2

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**MUS\_THRY 1213: Introduction to Music Theory**

Introduction to music notation and to rhythmic, melodic, harmonic, and structural elements of music. Emphasis on written skills, but ear training, sight singing, and keyboard components included as well. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** consent required. Placement by exam

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**MUS\_THRY 1220: Syntax, Structure and Style of Music I**

Review of fundamentals. Study of rhythm, melody, harmonic, structure and stylistic characteristics of various periods. Application through original composition projects. Prerequisites: none for Music majors; others: instructor's consent.

**Credit Hours:** 2

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**MUS\_THRY 1221: Syntax, Structure and Style of Music II**

Continuation of MUS\_THRY 1220. Study of smaller forms and introduction to chromatic harmony.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1220

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**MUS\_THRY 1230: Aural Training and Sight Singing I**

Development of aural and sight singing skills.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1220

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**MUS\_THRY 1231: Aural Training and Sight Singing II**

Continuation of MUS\_THRY 1230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1221

**Prerequisites:** Grade of C- or better in MUS\_THRY 1230

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**MUS\_THRY 2215: Composition I**

Fundamentals of composition and writing in small forms.

**Credit Hours:** 2

**Prerequisites:** grade of B- or better in MUS\_THRY 1220, MUS\_THRY 1221, MUS\_THRY 1230, MUS\_THRY 1231, and instructor's consent

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**MUS\_THRY 2216: Composition II**

Continuation of MUS\_THRY 2215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2215

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**MUS\_THRY 2220: Syntax, Structure and Style of Music III**

Chromatic harmony, variation techniques and contrapuntal genres. Study of traditional forms in instrumental, vocal and choral compositions. Applications through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1221

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**MUS\_THRY 2221: Syntax, Structure and Style of Music IV**

Continued study of chromatic harmony and compositions in larger forms. Application through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2220

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**MUS\_THRY 2230: Aural Training and Sight Singing III**

Continuation of MUS\_THRY 1231. Further development of aural and sight singing skills with an emphasis on chromatic harmony and decorative pitches. Introduction of structural perception.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1231 and MUS\_THRY 2220 or MUS\_THRY 2220 concurrently

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**MUS\_THRY 2231: Aural Training and Sight Singing IV**

Continuation MUS\_THRY 2230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 2221

**Prerequisites:** Grade of C- or better in MUS\_THRY 2230

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**MUS\_THRY 3215: Composition III**

Further development of creative writing in traditional forms.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216

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**MUS\_THRY 3216: Composition IV**

Continuation of MUS\_THRY 3215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3215

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**MUS\_THRY 4210: Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 7210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_THRY 4211: Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 7211). Continuation of MUS\_THRY 4210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 4210; instructor's consent

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**MUS\_THRY 4212: Jazz Theory I**

Comprehensive study of the grammar and syntax of jazz harmony.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUSIC\_NM 1211 or MUS\_THRY 1220

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**MUS\_THRY 4213: Jazz Theory 2**

Continuation of MUS\_THRY 4212.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_THRY 4212

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**MUS\_THRY 4215: Composition V**

Writing of works in larger forms for a solo instrument or chamber ensemble.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3216

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**MUS\_THRY 4216: Composition VI**

Continuation of MUS\_THRY 4215. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4215

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**MUS\_THRY 4220: 20th Century Composition Techniques**

(cross-leveled with MUS\_THRY 7220). The study and application of analytical procedures to 20th century music literature. Special readings; individual projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4221: Analysis of Music**

An analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221 or equivalent

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**MUS\_THRY 4222: Computer Technology and Music**

The introduction of music software for educational and professional use. Music notation software will be learned. Sequencing software will be studied in depth. Hands-on experience with Macintosh computers, multi-timbral synthesizers and various CD-ROMS.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4220

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**MUS\_THRY 4223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7223). Study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7225). Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4227: Orchestration**

(cross-leveled with MUS\_THRY 7227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4229: Band Arranging**

Transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4230: Choral Arranging**

Transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4231: Schenkerian Analysis**

Techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4232: Rhythmic Analysis of Tonal Music**

Introduction to rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4233: Acoustics of Music**

(cross-leveled with MUS\_THRY 7233). The study of tuning systems and the properties, production and reception of musical sound.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 4241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 7241). Continuation of MUS\_THRY 4231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231, or equivalent at another institution

---

**MUS\_THRY 4245: Introduction to Electronic Music**

Techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4220

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**MUS\_THRY 4247: Introduction to Digital Synthesis**

Introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 4250: Analysis of Musical Styles**

Analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or MUS\_THRY 4221 or equivalent. May be repeated for credit with departmental consent.

**Credit Hours:** 2

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**MUS\_THRY 4252: Keyboard Harmony and Score Reading**

Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221; instructor's consent

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**MUS\_THRY 4267: Advanced Orchestration I**

(cross-leveled with MUS\_THRY 7267). Transcription for full orchestra of large works from different style periods. Scoring of original works for orchestra. Seminar, private lessons.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4227

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**MUS\_THRY 4268: Advanced Orchestration II**

(cross-leveled with MUS\_THRY 7268). Survey of original works for orchestra.

**Credit Hours:** 2

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**MUS\_THRY 4271: Pedagogy of Music Theory I**

Techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

---

**MUS\_THRY 4272: Pedagogy of Music Theory II**

Techniques and materials for advanced college courses in music theory.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4271

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**MUS\_THRY 4284: Contemporary Analytical Techniques**

Study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4299: Graduate Theory Review**

Review of music theory for graduate students in music. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7210: Advanced Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 4210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7211: Advanced Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 4211). Continuation of MUS\_THRY 7210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7215: Composition I**

Fundamentals of Composition: Writing in small forms. For non-composition graduate students in music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7216: Composition II**

Continuation of MUS\_THRY 7215.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7215

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**MUS\_THRY 7220: 20th Century Composition Techniques**

(cross-leveled with MUS\_THRY 4220). Graduate review in the study and application of analytical procedures to 20th century music literature. Special readings; individual projects.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7221: Analysis of Music**

Graduate review in the analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7222: Computer Technology and Music**

Graduate-level introduction of music software for educational and professional use. Music notation software will be learned. Sequencing software will be studied in depth. Hands-on experience with Macintosh computers, multi-timbral synthesizers and various CD-ROMS.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4223). Advanced study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue. Prerequisites: instructor's consent

**Credit Hours:** 3

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**MUS\_THRY 7225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4225). Advanced analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7227: Advanced Orchestration**

(cross-leveled with MUS\_THRY 4227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7229: Band Arranging**

Advanced transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7230: Choral Arranging**

Advanced transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7231: Schenkerian Analysis**

Advanced techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7232: Rhythmic Analysis of Tonal Music**

Advanced study of rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7233: Acoustics of Music**

(cross-leveled with MUS\_THRY 4233). Advanced study of tuning systems and the properties, production and reception of musical sound.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 4241). Continuation of MUS\_THRY 7231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231 or MUS\_THRY 7231, or equivalent at another institution

---

**MUS\_THRY 7245: Introduction to Electronic Music**

Advanced techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7247: Introduction to Digital Synthesis**

Graduate-level introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7250: Analysis of Musical Styles**

Advanced analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7252: Keyboard Harmony and Score Reading**

Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

**Prerequisites:** demonstrable keyboard proficiency at level of Bach invention; instructor's consent

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**MUS\_THRY 7267: Advanced Orchestration I**

(cross-leveled with MUS\_THRY 4267). Advanced transcription for full orchestra of large works from different style periods. Scoring of original works for orchestra. Seminar, private lessons.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7227 or instructor's consent

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**MUS\_THRY 7268: Advanced Orchestration II**

(cross-leveled with MUS\_THRY 4268). Survey of original works for orchestra.

**Credit Hours:** 2

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**MUS\_THRY 7271: Pedagogy of Music Theory I**

Advanced techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7272: Pedagogy of Music Theory II**

Advance techniques and materials for advanced college courses in music theory.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7271

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**MUS\_THRY 7284: Contemporary Analytical Techniques**

Advanced study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 8215: Composition VII**

Intensive work in larger forms. Seminar, private lessons. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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## Natural Resources Courses

**NAT\_R 1040: Conservation Studies**

A one-week field experience in natural resource management issues—soil and water conservation, air pollution, fish and wildlife habitat requirements, importance of forest ecosystems. Limited to high school students who have completed their junior year and taken the PSAT or equivalent. Graded on S/U basis only.

**Credit Hour:** 1

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**NAT\_R 1060: Ecology and Conservation of Natural Resources**

Introduction to the principles of resource and conservation describing the foundation of the variety of natural resources and conservation practices used to protect and maintain these resources.

**Credit Hours:** 3

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**NAT\_R 1070: Ecology and Renewable Resource Management**

Introduction to ecological principles and their relationship to resource use and management.

**Credit Hours:** 3

**Prerequisites:** restricted to Natural Resources majors

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**NAT\_R 2002: Topics in Natural Resources - Biological/Physical/Mathematical**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 2004: Topics in Natural Resources - Social Science**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 2080: Outdoor Recreation Consortium**

Outdoor Recreation Consortium is a collaborative course taught by MU, North Carolina State University, Penn State University, East Carolina University, Texas A&M University and Western Illinois University. The course uses Great Smoky Mountains National Park as a case study for understanding the relationship between ecosystem management, natural resource management, tourism, and outdoor recreation. This course is based around a one week trip to the Smokies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NAT\_R 1070 or P\_R\_TR 2111 or ENV\_SC 1100 and permission of instructor

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**NAT\_R 2160: Issues in Natural Resources and the Environment**

This course provides an introduction to ecological and environmental challenges in natural resource management in our rapidly changing world. Topical discussions will provide students with informed perspectives of several contemporary issues that affect the sustainability of our natural resources.

**Credit Hours:** 3

**Recommended:** This course is recommended as an introductory course for non-science majors

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**NAT\_R 3001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 3110: Natural Resource Biometrics**

Sampling methods and analysis as applied to a variety of natural resources, including fisheries, range, recreation, forests, water and wildlife.

**Credit Hours:** 3

**Recommended:** a course in Statistics

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**NAT\_R 3220: Public Relations for Natural Resource Managers**

Introduction to the practical nature of public relations for those entering natural resources careers, emphasis on communication with target audiences through news media, publications and exhibits.

**Credit Hours:** 3

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**NAT\_R 3290: Hydrologic Measurement Techniques**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 3290W: Hydrologic Measurement Techniques - Writing Intensive**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 4000: Problems in Natural Resources**

Problems in Natural Resources

**Credit Hour:** 1-99

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**NAT\_R 4001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 4024: Foundations of Environmental Education**

(same as ENV\_SC 4024; cross-leveled with NAT\_R 7024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**NAT\_R 4320: Hydrologic and Water Quality Modeling**

(same as ENV\_SC 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100

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**NAT\_R 4325: Introduction to Geographic Information Systems**

(cross-leveled with NAT\_R 7325). The course will cover basic theoretical and technical issues in GIS, discuss processing geographic information for research and application, emphasis on the nature of spatial information, data models, input, manipulation and storage, and spatial analytic techniques.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1070 or GEOG 2840; NAT\_R 1080 and NAT\_R 1090; instructor's consent

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**NAT\_R 4353: Natural Resource Policy/Administration**

Principles of policy formation and analysis; relationship of organizational goals to structure, planning and budgeting. Historical background of present natural resource policies; examines current policy issues.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NAT\_R 4365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Covers general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, NAT\_R 1080 and NAT\_R 1090

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**NAT\_R 4385: Landscape Ecology and GIS Analysis I**

(same as GEOG 4810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040

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**NAT\_R 4940: Natural Resources Internship**

Supervised professional experience with an approved public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** School of Natural Resources majors only, instructor's consent

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**NAT\_R 4970: Resource Practicum in Natural Resources**

Multidisciplinary planning of a natural resource management program.

**Credit Hours:** 3

**Prerequisites:** School of Natural Resources majors only and senior standing

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**NAT\_R 7001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 7024: Foundations of Environmental Education**

(cross-leveled with NAT\_R 4024, ENV\_SC 4024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

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**NAT\_R 7320: Hydrologic and Water Quality Modeling**

(same as ENV\_SC 7320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on Missouri watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1080 and NAT\_R 1090 and SOIL 2100 or equivalent

---

**NAT\_R 7325: Introduction to Geographic Information Systems**

(cross-leveled with NAT\_R 4325). The course will cover basic theoretical and technical issues in GIS, discuss processing geographic information for research and application, emphasis on the nature of spatial information, data models, input, manipulation and storage, and spatial analytic techniques.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1070 or GEOG 2840; NAT\_R 1080 and NAT\_R 1090; instructor's consent

---

**NAT\_R 7353: Natural Resource Policy/Administration**

Principles of policy formation and analysis; relationship of organizational goals to structure, planning and budgeting. Historical background of present natural resource policies; examines current policy issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**NAT\_R 7365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Cover general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, NAT\_R 1080 and NAT\_R 1090, or instructor's consent

---

**NAT\_R 7385: Landscape Ecology and GIS Analysis I**

(same as GEOG 7810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, or instructor's consent

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**NAT\_R 8001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 8050: Masters Non-Thesis Research in Natural Resources**

Research credits associated with a non-thesis M.S. project. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** restricted to Masters students in the School of Natural Resources

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**NAT\_R 8090: Master Thesis Research in Natural Resources**

Research credits leading to M.Sc. thesis. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to Masters students in the School of Natural Resources

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**NAT\_R 8290: Hydrologic Measurement and Synthesis**

Students are introduced to methods fundamental to measuring hydrologic processes, and assessing physical data, including field measurement, and data logging and acquisition information systems. Students will gain experience analyzing and synthesizing hydrologic data using tools commonly used by water resource professionals. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MATH 1100, STAT 2530, PHYSCS 1210. If deficient in prerequisite courses, or unsure of qualification, contact instructor for consent

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**NAT\_R 8395: Landscape Ecology and GIS Analysis II**

(same as GEOG 8815). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4365; FOREST 4320 or equivalent; basic statistics; instructor's consent

**Recommended:** GEOG 4810 or GEOG 7810

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**NAT\_R 8416: Applied Research Methodology**

Interrelated roles or logic, observation experiment in scientific method, research components, ethical aspects, scientific publication and communication, and research direction.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**NAT\_R 8448: Society and Ecosystems Research Seminar**

(same as AG\_EC 8448 and RU\_SOC 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**NAT\_R 9001: Topics in Natural Resources**

Organized study of selected topics. Subjects and topics may vary from semester to semester. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent. Restricted to School of Natural Resources Graduate Students

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**NAT\_R 9087: Graduate Seminar in Natural Resources**

Graduate seminar in Natural Resources. May be repeated for credit. Graded on S/U basis only. Prerequisites: restricted to PhD students in the School of Natural Resources

**Credit Hour:** 1-10

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**NAT\_R 9090: Dissertation Research in Natural Resources**

Research leading to a dissertation and Ph.D. in the School of Natural Resources. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to PhD students in the School of Natural Resources

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**NAT\_R 9490: Ecohydrology: Contemporary Topics**

A series of discussions centered on primary literature within disciplines relevant to the participants. All Natural Resources disciplines are encouraged to participate (e.g., ecology, wildlife, fisheries, recreation/tourism, hydrology, atmospheric sciences, soils, etc.) with emphasis on interdisciplinary research (i.e. integrated natural, social and/or physical scientific research). May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

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## Naval Science Courses

**NAVY 1100: Introduction to Naval Science**

This course serves as an introduction to the organization of the Naval Service, the varied career opportunities available, the long held customs and traditions of the service, and the duties of a Junior Officer.

**Credit Hours:** 3

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**NAVY 1200: Seapower and Maritime Affairs**

Seminars examine the application of seapower as an instrument of foreign policy by the major nations of the world. Emphasis placed on role of the Navy.

**Credit Hours:** 3

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**NAVY 2110: Naval Ship Systems I**

Ship construction, stability and damage control, basic thermodynamics, the steam cycle and engineering plant, including introduction to gas turbine, diesel and nuclear powered systems.

**Credit Hours:** 3

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**NAVY 2130: Evolution of Warfare**

Evolution of strategy, tactics, weapons and leadership from earliest beginning through the Vietnam period. Development of military policy, the impact of warfare on the political, social and economic structure of nations.

**Credit Hours:** 3

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**NAVY 2210: Naval Ship Systems II**

Naval weapons systems, their employment and control, including the basic fire control problem, with emphasis on new systems.

**Credit Hours:** 3

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**NAVY 3120: Marine Navigation**

Theoretical and practical application of the principles of marine navigation. Includes fundamentals of dead reckoning, piloting, tides and current, celestial navigation, electronic navigation.

**Credit Hours:** 3

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**NAVY 3130: Amphibious Warfare**

History and development of amphibious warfare, principles of amphibious warfare techniques; their application in selected examples from modern.

**Credit Hours:** 3

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**NAVY 3140: Leadership and Management**

This course will provide a basic understanding of the interrelationship between authority, responsibility and accountability within a task oriented organization. Students will learn to apply leadership and management skills to prioritize competing demands and to attain mission objectives; the importance of planning and follow-up; and develop a basic understanding of communication and counseling as it pertains to personnel management.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or by consent of Professor of Naval Science

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**NAVY 3220: Naval Operations**

Principles and concepts of naval operations: rules of the road, command and control in naval operations, communications, ASW warfare, international maritime law, and practical solution of relative motion problems.

**Credit Hours:** 3

**Prerequisites:** NAVY 3120

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**NAVY 4940: Leadership and Ethics**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas



include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

---

**NAVY 4940W: Leadership and Ethics - Writing Intensive**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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## Neurology Courses

**NEUROL 6003: Neurology Clerkship**

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

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**NEUROL 6013: Rural Neurology Clerkship**

Rural Neurology Clerkship

**Credit Hours:** 4

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**NEUROL 6023: Springfield Neurology Clerkship**

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

**Prerequisites:** successful completion of the first two years of medical school

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**NEUROL 6103: Remediation Neurology Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 4

**Prerequisites:** NEUROL 6003 Neurology Clerkship, received unsatisfactory grade

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**NEUROL 6301: ABS Neurology Mech of Disease**

ABS Neurology Mech of Disease

**Credit Hour:** 5-10

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**NEUROL 6303: ABS Neurology Research**

ABS Neurology Research

**Credit Hours:** 5

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**NEUROL 6305: ABS Neurology Research and Review**

ABS Neurology Research and Review

**Credit Hours:** 5

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**NEUROL 6755: Adult Neurology - Rural**

Adult Neurology - Rural

**Credit Hours:** 5

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**NEUROL 6756: Neurology - Rural**

Rural Neurology general elective.

**Credit Hours:** 5

**Prerequisites:** NEUROL 6003. Restricted to fourth year medical students

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**NEUROL 6829: PEDIATRIC NEUROLOGY**

Pediatric Neurology

**Credit Hours:** 5

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**NEUROL 6845: Neurology**

Neurology

**Credit Hours:** 5

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**NEUROL 6850: Advanced Neurology**

Advanced Neurology

**Credit Hours:** 5

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**NEUROL 6918: Epilepsy and Clinical Neurophysiology**

The medical student will work as part of the ambulatory and inpatient epilepsy team. One week will be spent in the outpatient unit and one inpatient. The inpatient rotation will consist of rounding on epilepsy patients and being an integral part of patient care. A significant portion of the inpatient week will be spent in the Epilepsy Monitoring Unit. During the outpatient rotation, the student will rotate with one of two epileptologists and participate in their care.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**NEUROL 6921: Neurology Outpatient Experience**

The student will work as part of the ambulatory neurology team. During the outpatient rotation, the student will have an opportunity to participate in the care of patients with physicians specializing in the following: Epilepsy, Movement Disorders, Neuromuscular Disorders, Dementia and Behavioral Neurology, Multiple Sclerosis, Sleep Disorders, and Vascular Neurology.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

---

**NEUROL 6922: Neurology/Stroke Inpatient Experience**

The student will work as part of the inpatient neurology team. During the rotation, the student will have an opportunity to participate in the care of patients on the general and stroke inpatient services. Students may elect to spend one week on each service or both weeks on either.

Opportunities may be available to students in the following areas:  
Intensive/Critical Care Unit and Neuro-Interventional procedures.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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#### **NEUROL 6923: Neuromuscular Disorders**

One week will be spent in the outpatient unit and one inpatient. The inpatient experience will consist of rounding on neuromuscular patients and being an integral part of patient care. A significant portion of the experience will be spent in Electromyography (EMG). During the outpatient experience, the student will rotate with one of three neuromuscular specialists and participate in patient care, and participate in MDA clinic.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## **Nuclear Engineering Courses**

#### **NU\_ENG 2201: Topics in Nuclear Engineering**

Current and new developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; PHYSCS 1210 and PHYSCS 1220 and MATH 1100 or MATH 1120 or instructor's consent

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#### **NU\_ENG 2303: Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream**

Introduction to applications of nuclear science and technology, utilizing web-based learning scenarios.

**Credit Hours:** 3

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#### **NU\_ENG 4001: Topics in Nuclear Engineering**

Current and new developments in nuclear engineering. May be repeated for credit.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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#### **NU\_ENG 4302: Safe Handling of Radioisotopes**

Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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#### **NU\_ENG 4303: Radiation Safety**

(same as RA\_SCI 4303) Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

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#### **NU\_ENG 4305: Survey of Nuclear Engineering**

Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion.

**Credit Hours:** 3

**Prerequisites:** concurrent with MATH 4100

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#### **NU\_ENG 4306: Advanced Engineering Math**

(same as CH\_ENG 4306; cross-leveled with NU\_ENG 7306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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#### **NU\_ENG 4315: Energy Systems and Resources**

(same as ECE 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

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#### **NU\_ENG 4315W: Energy Systems and Resources - Writing Intensive**

(same as ECE 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

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#### **NU\_ENG 4319: Physics and Chemistry of Materials**

(same as PHYSCS 4190, BIOL\_EN 4480 and CHEM 4490).

Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid term and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

---

#### **NU\_ENG 4320: Natural Resources and Nuclear Energy**

Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications.

**Credit Hours:** 3

**Prerequisites:** high school algebra

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#### **NU\_ENG 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, RADIOL 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

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**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NU\_ENG 4330: Science and Technology of Terrorism and Counter Terrorism**

(same as PEA\_ST 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**NU\_ENG 4331: Nonproliferation Issues for Weapons of Mass Destruction**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4341: Nuclear Chemical Engineering**

Principles and processes of importance in the field of nuclear technology.

**Credit Hours:** 3

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**NU\_ENG 4346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 4030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

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**NU\_ENG 4349: Nuclear Engineering Materials**

Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials.

**Credit Hours:** 3

**Prerequisites:** upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent

---

**NU\_ENG 4350: Nuclear Forensic Analysis**

Principles/applications of nuclear techniques in solution of bioenvironmental problems. Uses of nuclear methods in studies of water/air pollution, biology, medicine, pesticides, geochemistry, ecological transport. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NU\_ENG 4353: Introduction to Fusion**

Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices.

**Credit Hours:** 3

**Prerequisites:** senior standing in Engineering or Science or instructor's consent

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**NU\_ENG 4357: Nuclear Heat Transport**

Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer.

**Credit Hours:** 2

**Prerequisites:** NU\_ENG 4305, NU\_ENG 4346 or instructor's consent

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**NU\_ENG 4365: Nuclear Power Engineering**

Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**NU\_ENG 4369: Principles of Direct Energy Conversion**

Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

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**NU\_ENG 4375: Introduction to Plasmas**

(same as ECE 4550; cross-leveled with NU\_ENG 7375, ECE 7550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

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**NU\_ENG 4379: Particulate Systems Engineering**

An introduction to natural and engineered particulate systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or MAE 4300 or equivalent

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**NU\_ENG 4382: Lasers and Their Applications**

(same as ECE 4570; cross-leveled with NU\_ENG 7382, ECE 7570). Introduction to lasers, from both a conceptual viewpoint and from the application of Maxwell's equation, to develop the optical theory for lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760, and MATH 4110

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**NU\_ENG 4391: Nuclear Radiation Detection**

(same as CHEM 4600). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NU\_ENG 7001: Topics in Nuclear Science and Engineering**

Current and new developments in nuclear engineering.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

---

**NU\_ENG 7080: Medical Ethics for Medical Physics**

This course will start with an introduction into medical ethics then transitions into research procedures with humans and animals. This course will cover research ethics, professional conduct, authorship, publishing, and plagiarism.

**Credit Hour:** 1

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**NU\_ENG 7085: Special Problems in Nuclear Science and Engineering**

Special Problems in Nuclear Science and Engineering.

**Credit Hour:** 1-5

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**NU\_ENG 7087: Seminar in Nuclear Science and Engineering**

Reviews of investigations and projects of importance in nuclear engineering.

**Credit Hour:** 1

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**NU\_ENG 7302: Safe Handling of Radioisotopes**

Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

---

**NU\_ENG 7303: Radiation Safety**

(same as RA\_SCI 7303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

---

**NU\_ENG 7305: Survey of Nuclear Engineering**

Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion.

**Credit Hours:** 3

**Prerequisites:** concurrent with MATH 4100

---

**NU\_ENG 7306: Advanced Engineering Math**

(cross-leveled with NU\_ENG 7306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**NU\_ENG 7313: Nuclear Science for Engineering for Secondary Science Teachers**

This one-week course is for high school science and math teachers, and provides basic of nuclear scheme concepts and their applications, types of radiation (including radiation detection and protection), and industrial, medical and nuclear power generation application.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; actively engaged in STEM teaching at the secondary level

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**NU\_ENG 7315: Energy Systems and Resources**

(same as ECE 7020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

---

**NU\_ENG 7319: Physics and Chemistry of Materials**

(same as PHYSCS 7190, BIOL\_EN 7480 and CHEM 7490).

Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures or laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

---

**NU\_ENG 7320: Natural Resources and Nuclear Energy**

Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications.

**Credit Hours:** 3

**Prerequisites:** high school algebra

---

**NU\_ENG 7328: Introductory Radiation Biology**

(same as BIO\_SC 7328, RADIOL 7328, and V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

---

**NU\_ENG 7330: Science and Technology of Terrorism and Counter Terrorism**

Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

---

**NU\_ENG 7331: Nonproliferation Issues for Weapons of Mass Destruction**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**NU\_ENG 7335: Nuclear Safeguards Science and Technology**

(same as ECE 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**NU\_ENG 7341: Nuclear Chemical Engineering**

Principles and processes of importance in the field of nuclear technology.

**Credit Hours:** 3

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**NU\_ENG 7346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 7030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

---

**NU\_ENG 7349: Nuclear Engineering Materials**

Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials.

**Credit Hours:** 3

**Prerequisites:** upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent

---

**NU\_ENG 7350: Nuclear Forensic Analysis**

Principles/applications of nuclear techniques in solution of bioenvironmental problems. Uses of nuclear methods in studies of water/air pollution, biology, medicine, pesticides, geochemistry, ecological transport. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 7303, instructor's consent

---

**NU\_ENG 7353: Introduction to Fusion**

Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Engineering or Science or instructor's consent

---

**NU\_ENG 7357: Nuclear Heat Transport**

Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer.

**Credit Hours:** 2

**Prerequisites:** NU\_ENG 4305, NU\_ENG 4346 or instructor's consent

---

**NU\_ENG 7365: Nuclear Power Engineering**

Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

---

**NU\_ENG 7369: Principles of Direct Energy Conversion**

Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

---

**NU\_ENG 7375: Introduction to Plasmas**

(same as ECE 7550; cross-leveled with NU\_ENG 4375, ECE 4550).

Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

---

**NU\_ENG 7379: Particulate Systems Engineering**

An introduction to natural and engineered particulate systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or MAE 4300 or equivalent

---

**NU\_ENG 7382: Lasers and Their Applications**

(same as ECE 7570; cross-leveled with NU\_ENG 4382, ECE 4570). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 class-room hours of laboratory work with lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and MATH 4100

---

**NU\_ENG 7391: Nuclear Radiation Detection**

Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

---

**NU\_ENG 7422: Radiation Shielding**

Fundamentals of radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multi-group transport shield design principles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or instructor's consent

---

**NU\_ENG 7470: Fast Reactor Analysis**

Analytical methods for designing fast breeder reactor systems. Graded on a S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412, NU\_ENG 8432, NU\_ENG 8451 or instructor's consent

---

**NU\_ENG 8001: Advanced Topics in Nuclear Science and Engineering**

Advanced developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NU\_ENG 8085: Problems in Nuclear Science and Engineering**

Supervised investigation in nuclear engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**NU\_ENG 8090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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**NU\_ENG 8402: Nuclear Fuel Cycle**

Covers the nuclear fuel cycle from mine through enrichment, fuel element burn-up reactor physics, chemical reprocessing, waste disposal, with special emphasis on the newer proliferation-resistant fuel cycles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 4305 and instructor's consent

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**NU\_ENG 8403: Applied Topics in Medical Physics and Health Physics**

Directed observations and experience in scientific aspects of daily operations in nuclear medicine, diagnostic radiology, radiotherapy and health physics.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

---

**NU\_ENG 8404: Nuclear Reactor Laboratory I**

Application of reactor physics principals to operation of and experiments with the University of Missouri Research Reactor. Neutron activation analysis, instrumentation, reactivity evaluation.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 8411

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**NU\_ENG 8405: Nuclear Reactor Laboratory II**

Advanced experiments to measure diffusion length, Fermi age, material buckling, transfer function, neutron spectrum and other reactor characteristics. Reactor simulation with an analog computer.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or instructor's consent

---

**NU\_ENG 8406: Clinical and Research Application in Medical and Health Physics**

To give students an understanding of the range of clinical practice and medical research involving the practice and nuclear physics/engineering.

**Credit Hour:** 1

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**Prerequisites:** NU\_ENG 8409 and NU\_ENG 4303, college calculus or equivalent and calculus based physics

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**NU\_ENG 8408: State Variable Methods in Automatic Control**

(same as CH\_ENG 8780, ECE 8780, and MAE 8780). State variables for continuous and discrete-time dynamic control systems; controllability and observability; optimal control of linear systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4370, ECE 4310, MAE 4730 or instructor's consent

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**NU\_ENG 8409: Interaction of Radiation with Matter**

Theory/applications of radiation interaction processes. Reviews nuclear physics concepts; radioactive decay; sources/ spectra of ionizing radiation; collision mechanisms for charged particles, electromagnetic radiation, neutrons for interaction with matter.

**Credit Hours:** 3

**Prerequisites:** Entrance requirements

---

**NU\_ENG 8411: Nuclear Reactor Theory I**

Nuclear reactions; nuclear fission; introduces neutron transport; diffusion and slowing down of neutrons; steady-state homogeneous and heterogeneous reactor theory.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**NU\_ENG 8412: Nuclear Reactor Theory II**

Linear and non-linear reactor kinetics; perturbation theory; temperature and fission product effects; control rod theory; transport theory.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346

---

**NU\_ENG 8421: Advanced Radiation Detection Electronics**

Principles of radiation pulse analysis with emphasis on applications. Radiation detection devices; amplifying, shaping and discrimination circuits; nuclear pulse analysis; automated data analysis systems. Lectures and lab.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346, NU\_ENG 4391 or instructor's consent

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**NU\_ENG 8422: Radiation Shielding**

Fundamentals of radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multi-group transport shield design principles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or instructor's consent

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**NU\_ENG 8429: Radiation Dosimetry**

Basis and applications of conventional and microscopic radiation dosimetry. Dose concepts and quantities; biological dose-response models; dose measurement principles; photon, charged particle, and neutron dosimetry.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409

**Recommended:** NU\_ENG 4328

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**NU\_ENG 8432: Nuclear Thermal Hydraulics and Safety**

Engineering topics from reactor heat transfer and thermal stresses, fuel cycle analysis, power plant thermodynamics, shielding, and reactor safety analysis.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346, or instructor's consent

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**NU\_ENG 8434: Fracture Mechanics I**

(same as MAE 8220). Mechanics of flawed structure. Concepts include Griffith theory, Barenblatt's theory, Irwin analysis, energy analysis of cracked bodies, fracture toughness testing, plane strain, plane stress, transition temperature concepts, subcritical flaw growth.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or instructor's consent

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**NU\_ENG 8435: Physics of Diagnostic Radiology**

Principles and applications of X-ray production and interactions. Images production concepts including X-ray film, intensifying screens, grids, fluoroscopy, image intensification and television monitors. Image quality analysis and assessment.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8439: Clinical Physics in Radiotherapy**

Principles and applications of radiation producing units, exposure and dose measurements, and calibration. External beam physics parameters and application to fixed field and rotational field treatment planning.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8444: Fracture and Fatigue Prevention in Engineering Practice**

Practical design problems. Introduction to retrofit design, maintenance, product improvement and new design from a fatigue and fracture prevention philosophy. Fail safe and safe life designs are presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8434

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**NU\_ENG 8450: Superconductivity and Its Applications**

(same as ECE 8020). Phenomenology and theory of superconductivity; cryogenic practice; metallurgy of superconducting elements, alloys and compounds. Applications, present and prospective. Graded on an S/U basis only.

**Credit Hours:** 3

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**NU\_ENG 8451: Computational Methods of Reactor Analysis**

Applies numerical analysis and digital computation to topics from multi-group diffusion theory, transport theory, reactor kinetics, reactor thermal hydraulics, radiation shielding, reactor safety.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 and MATH 4300

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**NU\_ENG 8452: Ultrasound and Magnetic Resonance Imaging**

The physical principles of MRI and ultrasound including clinical instrumentation, artifacts in images, biological effects and quality control. Images obtained with both techniques will be presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4391, NU\_ENG 8409, NU\_ENG 4306 or equivalent

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**NU\_ENG 8453: Advanced Fusion Theory**

Plasma stability theory, charged particle diffusion, slowing down of charged particles, interaction of radiation with matter, direct energy conversion using charged particles, and engineering considerations.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4353 and NU\_ENG 4375 or PHYSICS 8450 or instructor's consent

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**NU\_ENG 8454: Clinical Physics of Nuclear Medicine**

Physical principles, statistics of radionuclide decay and highlights into the most current instrumentation to utilize in vivo radionuclides for both diagnostic imaging and therapy. Also includes brachy therapy.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4306, NU\_ENG 8409 or equivalent

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**NU\_ENG 8455: Growth, Characterization and Appl. of Diamond and Related Materials**

This course explores the development of diamond films. Discussion of other wide band-gap materials are covered. Topics include Chemistry of Diamond Growth, Thermodynamics, Nucleation, Methods of Growth, Methods of Impurity Control, Characterization and Modification, Doping, and Applications.

**Credit Hours:** 3

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**NU\_ENG 8461: Neutron Transport Theory**

The Boltzmann equation; general properties and solution; numerical methods of solving the transport equation; neutron thermalization and neutron spectra.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412; MATH 4940, MATH 4300, or instructor's consent

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**NU\_ENG 8470: Fast Reactor Analysis**

Analytical methods for designing fast breeder reactor systems. Graded on a S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412, NU\_ENG 8432, NU\_ENG 8451 or instructor's consent

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**NU\_ENG 8471: Radiation Protection**

Theory and applications of radiation protection and health physics. Radiation dosimetry methods and calculations, shielding evaluations, equipment surveys and inspection, environmental monitoring, radiation standards and regulations and administration presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 and NU\_ENG 4328

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**NU\_ENG 9090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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**Nuclear Medicine Courses****NUCMED 1000: Orientation to Nuclear Medicine**

An overview using a series of short rotations through local nuclear medicine departments and a self-directed review of a current text. Clinical rotations for this course are arranged on an individual basis. Graded on S/U basis only.

**Credit Hour:** 1

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**NUCMED 3255: Orientation to Clinical Practice**

This course provides an introductory experience to clinical practice. Must be accepted into Nuclear Medicine Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Nuclear Medicine students, junior standing required

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**NUCMED 3256: Clinical Nuclear Medicine I**

Introductory clinical course for senior level students. Introduces instrumentation, administration, procedures, and laboratory techniques. Includes supervised clinical participation.

**Credit Hours:** 2

**Prerequisites:** NUCMED 3263 and restricted to Nuclear Medicine students only

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**NUCMED 3263: Morphological Correlations in Nuclear Medicine I**

Anatomy, physiology, and pathology of the human body as assessed using medicine techniques. The first of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303; restricted to Nuclear Medicine students only

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**NUCMED 3328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NUCMED 4085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hour:** 1-3

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**NUCMED 4232: Clinical In Vitro**

Detailed review of current regulations and procedures governing the use of open sources of radioactivity in a nuclear medicine setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4268: Clinical Nuclear Medicine II**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4268W: Clinical Nuclear Medicine II - Writing Intensive**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4269: Clinical Nuclear Medicine III**

Final course in clinical series. Seminar discussion of the areas of professional ethics, current medical-legal considerations, and future nuclear medicine applications.

**Credit Hour:** 1

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

---

**NUCMED 4299: Morphological Correlations in Nuclear Medicine II**

Anatomy, physiology, and pathology of the human body as assessed using nuclear medicine techniques. The second of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3263, restricted to Nuclear Medicine students

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**NUCMED 4327: Nuclear Medicine Instrumentation**

Radionuclide imaging systems and the use of computers. Topics include Anger camera systems, emission tomography, ultrasound, nuclear magnetic resonance, and bone absorptionmetry.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 and MATH 1400, restricted to Nuclear Medicine students

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**NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine**

Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** CHEM 1320

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**NUCMED 4330: PET in Nuclear Medicine**

Overview of special isotope production techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1210 and NUCMED 4327 or instructor's consent. Restricted to Nuclear Medicine students only

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**NUCMED 4940: Clinical In Vivo I**

Practical experience in the clinical setting with imaging procedures performed in nuclear medicine.

**Credit Hours:** 6

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4941: Clinical In Vivo II**

Practical experience in clinical setting with advanced imaging techniques and instrument quality control.

**Credit Hours:** 7

**Prerequisites:** NUCMED 4940. Restricted to undergraduate Nuclear Medicine students

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**NUCMED 7085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hours:** 3

---

**NUCMED 7329: Radiopharmaceuticals in Nuclear Medicine**

Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and instructor's consent

---

**NUCMED 7330: PET in Nuclear Medicine**

Overview of special isotope production in techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1210 and NUCMED 4327 or instructor's consent

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## Nursing Courses

**NURSE 1000: Advisory Seminar for Nursing**

Orientation to the undergraduate nursing program, professional role development, and introduction to the professional milieu. Graded on an S/U basis only.

**Credit Hour:** 1

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**NURSE 2000: Nursing as a Profession**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic,

professional, occupational and social perspectives. Examines nursing as subsystem of the health care system.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Restricted to pre-nursing majors with a GPA of 2.8 or higher

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**NURSE 2000H: Nursing as a Profession**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational, and social perspectives. Examines nursing as subsystem of the health care system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing with undergraduate GPA of 2.8 or higher; honors eligibility required

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**NURSE 2100: Communication Issues in Nursing**

In this course students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, diversity issues in health care, health literacy and health disparities. Students will learn evidence-based communication techniques.

**Credit Hours:** 2

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only

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**NURSE 2100H: Psychosocial and Communication Issues in Nursing - Honors**

Reviews psychosocial and communication issues. Focuses on improving interpersonal communication skills and learning how to provide therapeutic interventions to people with selected mental health issues. An experiential model emphasizes personal skill development strategies.

**Credit Hour:** 2-3

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only. Honors eligibility required

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**NURSE 3002: Topics in Nursing - Biological, Physical, Mathematical**

Specialized topics in nursing not available through regularly offered courses. . Sections may be offered either on S/U or A-F basis.

**Credit Hour:** 1-4

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**NURSE 3006: Cultural Expeditions in Nursing**

Directed field experiences in varied settings exploring local customs and cultural/ethnic diversities influencing health care delivery. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**NURSE 3080: Communication and Computer Skills**

Introduces RN students to MU and MU Sinclair School of Nursing. Provides education in essential competencies needed for success in the RN-BSN Option including writing skills, computer literacy, library and Internet research.

**Credit Hours:** 2

**Prerequisites:** clinical major

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**NURSE 3080W: Communication and Computer Skills**

Introduces RN students to MU and MU Sinclair School of Nursing. Provides education in essential competencies needed for success in the RN-BSN Option including writing skills, computer literacy, library and Internet research.

**Credit Hours:** 2

**Prerequisites:** clinical major

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**NURSE 3100: Pharmacology for Nursing**

This course will focus on pharmacological classification and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3170: Nursing Skills, Technologies, and Simulation**

Provides laboratory experiences for fundamental to complex nursing skills and procedures. Focuses on application of therapeutic interventions and procedure to provide safe, patient-centered care.

**Credit Hours:** 4

**Recommended:** NURSE 3270

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**NURSE 3180: Role Transitions**

Explores returning-to-school issues important to adult learners. Links previous basic nursing courses with baccalaureate courses and begins building new knowledge on prior nursing education.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3080

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**NURSE 3200: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Enrollment requires admission to the clinical nursing major BSN option.

**Credit Hours:** 4

**Prerequisites:** MPP 3202 or equivalent course and PTH\_AS 2201 and PTH\_AS 2203 or equivalent courses

**Corequisites:** MICROB 2800 or MICROB 3200

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**NURSE 3260: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Course is designed for students applying to the accelerated BSN option.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MICROB 2800 or MICROB 3200

**Prerequisites:** MPP 3202; PTH\_AS 2201 and PTH\_AS 2203

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**NURSE 3270: Foundations of Nursing: Physical Assessment and the Nursing Process**

NURSE 3270 provides knowledge and skills in physical assessment and the application of the Nursing Process. Clinical application of foundational knowledge determines the health status of individuals.

**Credit Hours:** 5

**Prerequisites or Corequisites:** For Clinical BSN, students must have completed NURSE 2000 and NURSE 2100 and be concurrently enrolled in NURSE 3170, NURSE 3200, NURSE 3300; for Clinical BSN Accelerated students must have completed NURSE 3200 or NURSE 3260 and be concurrently enrolled NURSE 3170 and NURSE 3100 or NURSE 3300

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**NURSE 3300: Pharmacology and Nursing Implications**

This course will focus on pharmacological classifications and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Graded on a A-F basis only.

**Credit Hours:** 4

**Recommended:** PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3350: Individual Study**

Independent study for qualified students in specific areas of interest in nursing under faculty guidance. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NURSE 3470: Mental Health Nursing**

Students discover behavioral, social, interpersonal, and neuro-biological aspects of mental health nursing. Therapeutic use of self in designing and implementing nursing care for clients throughout the life cycle is emphasized. Content on psychopathology is included.

**Credit Hours:** 5

**Prerequisites:** NURSE 3270

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**NURSE 3670: Nursing of Adults I**

Application of the nursing process to deliver care for hospitalized adults with health deviations. Evidence, technologies, professional standards and collaboration are used to enhance patient-centered, safe and effective care.

**Credit Hours:** 6

**Prerequisites:** NURSE 3170, NURSE 3270, NURSE 3100 or NURSE 3300, NURSE 3200 or NURSE 3260

**Corequisites:** NURSE 3900

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**NURSE 3750: Nursing of the Childbearing Family**

This course provides learning experiences with childbearing families. Students apply the nursing process to promote health and well-being for the childbearing family. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 3260 or NURSE 3200, and NURSE 3270, NURSE 3100, admission to accelerated BSN option

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**NURSE 3760: Pediatric Nursing**

Provides learning experiences with children and their families from newborn to adolescents. Examines health alterations that interfere with self-care in and for children.

**Credit Hours:** 3

**Prerequisites:** NURSE 3270, admission to accelerated option

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**NURSE 3870: Gerontological Nursing Care**

Emphasis on normal aging processes, health promotion, disease prevention, management of complex health conditions, and evaluation of care for older adults.

**Credit Hours:** 3

**Prerequisites:** NURSE 3270

**Corequisites:** NURSE 3300 or NURSE 3100 or equivalent

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**NURSE 3900: Introduction to Nursing Science**

Introduces nursing as a science from the perspective of knowledge development. Structures nursing knowledge from a theoretical perspective. Presents nursing research as a method of knowledge development and validation.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or ESC\_PS 4170 and Clinical Nursing Major

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**NURSE 4200: Nursing Ethics and Law**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3270 or NURSE 3080

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**NURSE 4200W: Nursing Ethics and Law - Writing Intensive**

Analyzes clinical nursing situations using ethical principles and decision-making models. Examines the basic doctrines and principles foundational for providing legally sound nursing practice.

**Credit Hour:** 3-4

**Prerequisites or Corequisites:** NURSE 3080 or NURSE 3670

**Prerequisites:** Senior Clinical Major

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**NURSE 4201: Legal Concepts in Nursing**

This course examines fundamental legal guidelines for professional nursing practice using content gleaned from nursing and medicine. The student will analyze and apply legal principles pertaining to nursing practice. Enrollment requires a prerequisite of a medical ethics, healthcare ethics or a bioethics course which is subject to instructor approval. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** PHIL 2440 or PHIL 1150 or HLTH\_SCI 4480

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**NURSE 4270: Nursing of Children**

Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants, children and adolescents.

**Credit Hours:** 5

**Prerequisites:** NURSE 3470, NURSE 3670

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**NURSE 4300: Nursing Issues/Leadership and Management**

Examines leadership and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes

societal/political issues and trends related to nursing and contemporary health care.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 3670 or NURSE 3180

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**NURSE 4380: Health Assessment and Pathophysiology**

Examines biologic basis for selected commonly occurring diseases throughout the life-span. Study and performance of health assessments with application of findings to adults and children.

**Credit Hours:** 4

**Prerequisites:** NURSE 4950

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**NURSE 4400: Nursing Leadership and Management**

Examines leadership, management, and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal and political issues and trends related to nursing and contemporary health care. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 3180

**Prerequisites:** NURSE 3080, NURSE 3180, or NURSE 3670

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**NURSE 4470: Nursing of Women and Newborns**

This course examines newborn care, women's reproductive and post reproductive health, and health deviation concerns of women and newborns. This course emphasizes development, implementation, and evaluation of nursing systems for families and their members.

**Credit Hours:** 5

**Prerequisites:** NURSE 3170, NURSE 3270, NURSE 3300, NURSE 3200, NURSE 3900, NURSE 3670, and NURSE 3470

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**NURSE 4600: Women's Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**Credit Hours:** 3

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**NURSE 4870: Nursing of Adults II**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering care for sets of clients.

**Credit Hour:** 4-7

**Prerequisites or Corequisites:** NURSE 4970

**Prerequisites:** NURSE 3470, NURSE 3670, NURSE 3750 or 4470, and NURSE 3760 or NURSE 4270

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**NURSE 4870H: Nursing of Adults II Honors**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering patient care. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** NURSE 4970

**Prerequisites:** NURSE 3470, NURSE 3670, NURSE 3750 or 4470, and NURSE 3760 or NURSE 4270; Honors eligibility required

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**NURSE 4930: Evidence-Based Nursing Practice**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4930W: Evidence-Based Nursing Practice - Writing Intensive**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4950: Nursing Theory and Research**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory, primarily Self-Care Deficit Nursing Theory.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3080

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**NURSE 4950W: Nursing Theory and Research - Writing Intensive**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory, primarily Self-Care Deficit Nursing Theory.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3080

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**NURSE 4970: Nursing in Communities**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hour:** 4-5

**Prerequisites:** NURSE 4270 and NURSE 3470; or NURSE 3760 or NURSE 4930

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**NURSE 4970W: Nursing in Communities - Writing Intensive**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hour:** 4-5

**Prerequisites:** NURSE 4270 and NURSE 3470; or NURSE 3760 or NURSE 4930

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**NURSE 7001: Special Topics in Nursing**

Specialized topics in advanced nursing not available through regularly offered courses.

**Credit Hour:** 1-3

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**NURSE 7010: Biostatistical Foundations for Health Researchers**

Examines basic concepts of data management, study design, descriptive and inferential biostatistics using analytic software. Emphasizes statistical literacy and critical thinking for health researchers. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7085: Problems in Nursing**

Guided readings, special study, and/or a practicum in an area of the student's interest or an area which the student needs to strengthen.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**NURSE 7087: Leadership and Technology Institute**

Introduction to knowledge and skills essential to support research and practice doctorates. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Admission to DNP or PhD program

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**NURSE 7100: Theoretical Basis for Advanced Nursing**

Analysis, application and evaluation of a variety of nursing and non nursing theories used in advanced nursing practice and research.

**Credit Hours:** 3

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**NURSE 7110: Advanced Nursing Role Acquisition**

An overview of the advanced nursing practice role and professional issues. Provides foundational knowledge on which other advanced nursing courses will build.

**Credit Hours:** 3

**Prerequisites:** Admission to the graduate program or faculty consent

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**NURSE 7111: Trends and Issues in Nursing**

Issues and trends involving professional nursing practice are examined from socioeconomic, organizational, legal and ethical perspectives. Past, present and future roles and practice of nurses are examined.

**Credit Hours:** 3

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**NURSE 7120: Advanced Physiology and Pathophysiology**

Focus on the normal and altered physiological functioning of body systems. Provides essential knowledge of human health and disease across the lifespan necessary for advanced nursing practice.

**Credit Hours:** 3

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**NURSE 7130: Advanced Pharmacology and Pharmacotherapeutics**

Advanced practice nurse drug therapy management for health maintenance and treatment of acute episodic and chronic health problems in various populations over the life span.

**Credit Hours:** 3

**Prerequisites:** BSN or instructor's consent

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**NURSE 7140: Advanced Health Assessment and Promotion**

Expands history and physical assessment techniques across lifespan. Addresses diagnostic reasoning, differential diagnosis, selection of common diagnostic test, disease risk factors, and health promotion strategies.

**Credit Hours:** 3.5

**Prerequisites:** BSN or instructor's consent

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**NURSE 7150: Research Basis for Advanced Nursing**

Examines fundamentals of scientific inquiry. Addresses research design issues. Focuses on interpreting, critiquing, and synthesizing research findings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 7211: Stress Management**

Review of contemporary research on the causes, prevention, and treatment of stress. Examination of utility and validity of a variety of stress reduction methods. Development of selected self-management skills.

**Credit Hours:** 3

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**NURSE 7212: Legal Parameters of Nursing**

This course provides the basic doctrines and principles of the law foundational to legally sound nursing practice. Included among significant topics are tort law, nurse practice act, licensure, effect of contract law.

**Credit Hours:** 3

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**NURSE 7310: Advanced Health Assessment for Pediatric Nursing Practice**

Comprehensive assessment of children through adolescence including those with significant health and/or developmental deviations using advanced diagnostic reasoning process. Emphasis on health history, cultural diversity, differentiation, interpretation and documentation of findings.

**Credit Hours:** 3.5

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**NURSE 7330: Pediatric Pharmacology for Advanced Nursing Practice**

Clinical pharmacotherapeutics course that builds on prior pharmacology knowledge. Major focus is pharmacotherapeutics for primary care management of children to age eighteen. Emphasis on clinical critical thinking used to prescribe drugs.

**Credit Hours:** 3

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**NURSE 7600: Women's Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**Credit Hours:** 3

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**NURSE 7750: Physical Function and Older Adults**

(Same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, H\_D\_FS 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an

interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded A-F only.

**Credit Hours:** 3

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**NURSE 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7854: Preparing Nurse Educators**

Explores the role of the nurse educator. Emphasis will be on the development, evaluation, differences and implementation of the nurse educator in the functional roles.

**Credit Hours:** 3

**Prerequisites:** Admission to the Master Science in Nursing Program or instructor's consent

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**NURSE 8001: Topics in Advanced Clinical Nursing**

Specialized topics in advanced clinical nursing not available through regularly offered courses.

**Credit Hours:** 3

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**NURSE 8002: Research Topics in Nursing and Health**

Topics courses are intended for special offerings, or as opportunities to experiment with a new course prior to seeking approval for it as a regular course. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8010: Family Dynamics and Intervention**

(same as H\_D\_FS 8012). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 (Nursing students)

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**NURSE 8020: Intermediate Statistical Methods for Health Researchers**

Examination of generalized linear models, multiple logistic regression, and multilevel modeling as applied to health sciences research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7010 or equivalent

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**NURSE 8030: Interpreting Statistical Evidence in the Health Sciences**

Students learn to critically evaluate statistical designs and data analysis methods used in health sciences research and scientific evidence for health care decision making. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Graduate level statistics course

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**NURSE 8085: Problems in Nursing**

Guided readings, special study and/or a practicum in an area of the student's interest or in an area which the student needs to strengthen. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**NURSE 8090: Research in Nursing**

Original investigation for presentation as thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate statistics, instructor's consent

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**NURSE 8100: Principles of Epidemiology**

Explores key concepts of epidemiology and epidemiologic methods for studying the distribution and determinants of health and disease in populations. Application to public health and population-based practice addressed.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 or faculty consent

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**NURSE 8110: Concepts for Specialization in Public Health Nursing**

Key concepts fundamental to specialization in public health nursing, including core public health functions. Emphasis upon integrating public health science, nursing theory, and methodological/leadership skills.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 7100

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**NURSE 8120: Community-Based Public Health Interventions**

Assessing and Diagnosing health-related needs of at-risk and vulnerable populations. Evaluating outcome-based research. Clinical practice implementing a public health intervention. Prerequisites: NURSE 8100, NURSE 8110, graduate level Statistics course;

**Credit Hour:** 3-4.5

**Prerequisites or Corequisites:** NURSE 7150

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**NURSE 8210: Special Health Care Needs of Children**

Perform developmental, neuro developmental, and psychosocial assessments of chronically ill children. Collaborate with families, schools; health care, community, family services to meet child's needs.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7100 or instructor's consent

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**NURSE 8300: Public Health and Sociocultural Issues**

Explores concepts of public health with a focus on the advanced practice nurse in population-based/primary care practice; core public health functions will be addressed at three service levels--the aggregate, the family, and the individual.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 8310: Health Disparities of Rural and Other Underserved Populations**

In-depth examination of rural and other vulnerable populations and their interactions with the health care system including access, utilization, and outcomes. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087, NURSE 8300 or faculty consent

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**NURSE 8400: Adult and Geriatric Primary Care I**

Advanced practice nursing clinical diagnosis and management of acute and chronic cardiovascular, respiratory, HEENT, renal, metabolic and musculoskeletal problems in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7120, NURSE 7130, NURSE 7140

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**NURSE 8410: Adult and Geriatric Primary Care II**

Advanced practice nursing clinical diagnosis and management of acute and chronic gastrointestinal, endocrine, hematological, neuropsychological problems and bioterrorism and CAM issues in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 8400

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**NURSE 8420: Newborn Through Adolescence Primary Care**

Advanced nursing practice of newborn through adolescence of health maintenance/promotion, clinical diagnosis and management of common childhood illness, behavioral, developmental problems. Advanced knowledge of human growth, development, family dynamics, community resources, collaborative relationships. Integrated clinical practicum.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140 or NURSE 7310

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**NURSE 8425: Participatory Approaches for Health and Health Systems**

(same as F\_C\_MD 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**NURSE 8430: Reproductive and Sexual Health Primary Care**

Reproductive, sexual issues, adolescence through aging. Design, delivery, evaluation of nursing management of women, reproductive health care of men. Stresses personal health promotion.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140, NURSE 8410 or instructor's consent

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**NURSE 8500: Primary Health Care Management of Aging I**

Health promotion, wellness, concepts of normal aging. Design, delivery, evaluation of primary health care management of aging adults from an advanced practice nursing perspective.

**Credit Hours:** 3

**Prerequisites:** NURSE 7130, NURSE 7140, NURSE 8400 or instructor's consent

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**NURSE 8510: Primary Health Care Management of Aging II**

Continuing emphasis on health promotion, wellness, concepts of aging. Primary health care management of complex health care problems in aging adults from advanced practice nursing perspective.

**Credit Hours:** 3

**Prerequisites:** NURSE 8410, NURSE 8500, instructor's consent

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**NURSE 8540: Advanced Diagnostics and Reasoning**

Expands upon knowledge of advanced assessment, diagnostic, and procedural skills; utilizes current technology in a cost-effective and patient-centered manner. Clinical increases specialty-specific knowledge. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** 4th clinical specialty course

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**NURSE 8610: Diagnostics and Psychopharmacology for Mental Health Nurses**

Emphasis is on the neurobiologic basis and diagnosis of mental health problems and advanced nursing management of psychiatric conditions using pharmaceutical agents.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 7120, NURSE 7130 and NURSE 7140

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**NURSE 8620: Brief Individual Psychotherapy for Mental Health Nurses**

Develops advanced skills in assessment, treatment, and follow-up evaluation of individuals experiencing acute mental health problems. Emphasizes brief psychotherapy based on frameworks from nursing and other disciplines.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8640: Group Therapy and Social Skills Training**

Application of group and behavioral methods in mental health prevention, promotion, maintenance, and restoration. Designing, implementing, and evaluating mental health promotion groups and social skills training programs.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8660: Mental Health Nursing Interventions for Families**

Application of nursing and family theories in advanced nursing management of families experiencing a variety of problems. Emphasis on designing, implementing, and evaluating advanced nursing interventions for families.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8620 or consent of instructor

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**NURSE 8680: Pediatric Mental Health Assessment and Treatment**

Develops advanced skills in psychiatric assessment and follow-up evaluation of children and adolescents experiencing mental health problems. Explores diagnosis, treatment, and management of child and adolescent mental health disorders. Graded on A-F basis only.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610 or faculty consent

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**NURSE 8710: Clinical Management of Acute and Critical Care Problems**

Advanced practice nurse management of selected clinical problems across the lifespan commonly encountered in the acute and/or critical care settings. Patient safety, technology, and product selection addressed. Integrated clinical practicum with selected population and setting. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140

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**NURSE 8720: Symptom Management in Acute and Chronic Illness**

Clinical management of symptoms of acute and chronic illness across the lifespan. Preparation for teaching patient self-management strategies. Integrated clinical practicum with selected population and setting.

**Credit Hour:** 3-5

**Prerequisites:** NURSE 7140 and NURSE 7150 or faculty consent

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**NURSE 8800: Leadership and Management in Healthcare Systems**

Prepares nurse leaders who facilitate and integrate complex structures and processes in health care systems. Understanding of partnerships, accountability, continuum-defined health care systems, self-managed teams, and value-based organizations.

**Credit Hours:** 4

**Prerequisites:** NURSE 7100

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**NURSE 8810: Management of Patient Care Services**

Prepares nurses to effectively manage personnel, clinical operations, and quality improvement initiatives. Emphasizes techniques that facilitate sound nursing management across the care continuum. Multiple dimensions of managing patient care operations are considered.

**Credit Hours:** 4

**Prerequisites:** NURSE 7100

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**NURSE 8820: Health Care Financial Management**

Prepares nurses to use the techniques that facilitate financial analysis and decision-making for patient care programs across the healthcare continuum. Focuses on efficient, effective management of resources for delivery of quality healthcare services. Prerequisites: NURSE 7100

**Credit Hours:** 4

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**NURSE 8830: Informatics Applications and Innovations in Health Care Systems**

This course explores informatics from the perspective of health related fields through technology assessment and evaluation, and research and development in technological innovations. The impact of technology on patient privacy will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructor's consent

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**NURSE 8840: Nursing Leadership, Innovation, and Entrepreneurship**

This course will provide an overview of leadership theories and strategies for managing individuals, groups, or systems within rapidly changing

healthcare environments. Innovative and cutting edge phenomena in healthcare will be explored as well as entrepreneurship. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructors consent

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**NURSE 8850: Teaching Nursing**

Principles and methods of teaching, evaluation, and curriculum construction in undergraduate nursing education.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent

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**NURSE 8854: Teaching Strategies in Nursing**

Examines principles, issues, techniques, and evaluation methods in teaching nursing. Focuses on the development of a variety of teaching strategies and evaluation methods for didactic and clinical settings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8860: Organizations & Human Resource Management in Nursing**

This course will examine various organizational theories, organizational behavior, and the impact of change within organizations. Participants will apply and analyze workforce management principles in regard to employee rights, resources, and responsibilities. May be repeated for credit. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructors consent

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**NURSE 8864: Curriculum Development in Nursing**

Examines theoretical foundations, principles, and issues in curriculum design. Explores systematic evaluation of curriculum at all levels.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8890: Clinical/Scholarly Project**

Design, implement and evaluate nursing projects derived from theory, including written report with explanation or justification to support the empirical and/or theoretical basis for the project. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7100, NURSE 7150, graduate statistics

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**NURSE 8900: Research Practicum in Nursing**

Selected independent research activities in conjunction with ongoing research programs of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7150, graduate statistics, instructor's consent

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**NURSE 8910: Translational Evidence-Based Nursing Practice**

Provides essential skills for utilizing research to support practice change: assessing practice based problems, analyzing current evidence, proposing practice changes, and developing plans for implementing evidence-based practice concepts.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or faculty consent

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**NURSE 8920: Quality, Safety, and Performance Outcomes**

Uses information systems to identify and analyze patient safety and other clinical issues and recommend system-wide actions and measurement plans that result in safe, effective, efficient, equitable, patient-centered outcomes.

**Credit Hours:** 3

**Prerequisites:** NURSE 8910

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**NURSE 8930: Health Program Design and Management**

Designing, implementing and evaluating effective health programs. Addresses leadership and organizational change issues.

**Credit Hours:** 3

**Prerequisites:** NURSE 8920 or instructor's consent

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**NURSE 8940: Nursing and Health Policy**

Designed to explore and critically evaluate the role of nursing and nurse leaders/scholars in health policy development and the organization and financing of health care in response to the health and social needs of the public.

**Credit Hours:** 3

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**NURSE 8950: Teaching Nursing Practicum**

Participation in application of principles and methods of teaching, learning, and evaluation to the education of nursing students. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864

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**NURSE 8954: Distance-Mediated Teaching Nursing Practicum**

Faculty-guided application of distance mediated teaching, learning, and evaluation methods with graduate &/or undergraduate nursing students. Course graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864 or equivalents

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**NURSE 8960: Leadership in Nursing and Healthcare Systems Practicum**

Participation in application of principles and methods of leadership, management, and evaluation to facilitate patient care operations in various settings. Graded on an S/U basis only.

**Credit Hours:** 5

**Prerequisites:** NURSE 8800, NURSE 8810, NURSE 8820

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**NURSE 8970: APN Role Transition Course**

Focus on refinement of knowledge and skills required for successful transition into an Advanced Practice Nursing career. Corequisites: NURSE 8980

**Credit Hour:** 1

**Prerequisites:** NURSE 7100, NURSE 7150, NURSE 7110, and instructor's consent

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**NURSE 8980: Advanced Clinical Nursing Practicum**

Intensive preceptor or faculty-guided clinical experience that synthesizes previous theory and clinical coursework. Refines knowledge and skills required to transition to an autonomous advanced nursing practice role. Graded on S/U basis only.

**Credit Hour:** 2-7

**Prerequisites:** NURSE 7110, NURSE 8910 or faculty consent

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**NURSE 9070: DNP Clinical Residency**

Intensive clinical experience. Prepare experts in advanced nursing practice and leadership to effectively evaluate practice problems, translate evidence into practice, monitor outcomes, and implement innovative models of care. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-5

**Prerequisites:** NURSE 8930 and NURSE 8450 or NURSE 8610

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**NURSE 9080: DNP Residency Project**

Final synthesis of DNP coursework culminating in an in-depth practice change project or case analysis impacting a rural or other underserved population or critical healthcare system need. May be repeated for credit. Some sections may be offered on an A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** NURSE 8930 and NURSE 9070

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**NURSE 9087: Leadership and Transformational Role Institute**

Synthesis of advanced nursing practice knowledge and leadership skills. Prepares DNP graduate to implement an advanced nursing practice role that will result in practice and/or policy change at the local, state, or national levels. May be repeated for credit.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 9080 and NURSE 9070

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**NURSE 9090: Research in Nursing and Health**

Original research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**NURSE 9100: State of the Science**

The existing body of research literature is the foundation upon which new scientific knowledge is built. This course will guide the student through the purpose and processes of scholarly writing. Students will conduct a systematic review of the scientific literature on a selected focus area in the health sciences. Students will work with course faculty, with input from the student's advisor, to develop and implement strategies to search, evaluate, and synthesize the literature in the selected area. Scholarly writing will be emphasized in this course. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to a doctoral program or permission of instructor

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**NURSE 9110: Conceptual Structure of Nursing**

Conceptualization and theoretical analysis of nursing phenomena; critical evaluation of nursing theories.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 9120: Philosophical and Theoretical Basis for Research**

Based on an understanding of the philosophy of science, critically appraise and adapt conceptual models and theoretical frameworks for use in research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 or faculty consent

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**NURSE 9130: Philosophy of Science in Nursing**

Overview of foundational concepts of philosophy-history of science; development and evolution of science and philosophical perspectives of nature of science including logical, empiricism, historicism, post-structuralism as related to nursing science/nursing research.

**Credit Hours:** 3

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**NURSE 9131: Responsible Conduct of Research in the Health and Social Sciences**

(same as H\_D\_FS 9131) This course examines professional research ethics including the rights of human subjects. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's permission required

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**NURSE 9132: Writing Research Proposals: Skill Building**

(same as H\_D\_FS 9130) This course teaches the components of writing a research proposal for external funding. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's permission required

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**NURSE 9400: Macro Social Theory**

(Same as SOC\_WK 9400) Building on the foundation laid in Social Work 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with formal organizations, interorganizational combinations, communities and larger political entities. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**NURSE 9410: Advanced Quantitative Methods**

(same as H\_D\_FS 9200). Study of explanatory and predictive quantitative designs in health-related research, including nested, double-blind, time series, casual models, retrospective cohort; secondary database use will be explored.

**Credit Hours:** 3

**Prerequisites:** NURSE 9131, Advanced Statistics Course

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**NURSE 9420: Qualitative Methods**

(same as H\_D\_FS 9420) Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**NURSE 9430: Measurement Issues**

Examines techniques used to estimate the various types reliability and validity of psychological and biological measures of nursing phenomena as well as the appropriate use of existing measures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150, NURSE 9420

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**NURSE 9450: Doctoral Seminar: Social Determinants of Health**

Doctoral seminar on defining, measuring and conducting research on social determinants of health. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 9120 and NURSE 9410

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**NURSE 9460: Theories and Interventions in Health Behavior Science**

Focuses on health behavior science theories, linking theories to measurement, and designing health behavior interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9100, NURSE 9120 or faculty consent

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**NURSE 9470: Technology Evaluation in Health Care Systems Research**

(same as HMI 9440). Examines technology applications and evaluation methods used to determine outcomes, efficiencies, effectiveness, satisfaction, and cost of using technology. Prerequisites: 6 credit hours of graduate statistics;

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410 or faculty consent

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**NURSE 9510: Advances in Health Care Systems**

Guided in-depth exploration, analysis, and evaluation of selected nursing and other current literature in health care systems.

**Credit Hours:** 3

**Prerequisites:** NURSE 9110, doctoral standing or instructor's consent

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**NURSE 9520: Advances in Health Restoration and Support**

Guided in-depth exploration, analysis, and evaluation of selected nursing and other current literature in health restoration and support.

**Credit Hours:** 3

**Prerequisites:** NURSE 9110, doctoral standing or instructor's consent

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**NURSE 9530: Advances in Health Promotion and Protection**

Guided in-depth exploration, analysis, and evaluation of selected nursing and other current literature in health promotion and protection.

**Credit Hours:** 3

**Prerequisites:** NURSE 9110, doctoral standing or instructor's consent

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**NURSE 9540: Seminar in Nursing**

Course content varies. May be repeated to a maximum of six hours.

**Credit Hour:** 1-99

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**NURSE 9550: Meta-Analysis Research**

(Same as H\_D\_FS 9550). Examines quantitative synthesis including research questions, search strategies, coding issues, meta-analysis statistical procedures, and interpretation of findings. Emphasizes conceptual understanding and practical methods.

**Credit Hours:** 3

**Prerequisites:** 6 credit hours of graduate statistics courses, NURSE 9410 or graduate level quantitative methods course

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**NURSE 9560: Qualitative Systematic Reviews**

(Same as SOC\_WK 9560 and H\_D\_FS 9560) Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** NURSE 9420 or equivalent

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**NURSE 9700: Social Welfare Policy Seminar**

(Same as SOC\_WK 9700) Critical examination of comparative models of social policy development.; preparation of a professional social work policy analysis in the student's area of interest/specialization that is suitable for submission to an appropriate referred journal. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NURSE 9710: Advanced Research Practicum**

Mentored research experience designed by student, mentor, and program committee based on student's substantive areas of interest and program of research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites or Corequisites:** NURSE 9120; advisor consent

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## Nutrition Courses

**NUTRIT 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NEP 7020; cross-leveled with AN\_SCI 4312 and NEP 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212 and BIOCHM 3630

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**NUTRIT 7085: Problems in Nutrition**

Problems in Nutrition.

**Credit Hour:** 1-6

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**NUTRIT 7087: Masters Seminar in Nutrition**

Masters Seminar in Nutrition.

**Credit Hour:** 1

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**NUTRIT 7150: Readings in Nutrition**

Readings in current nutrition research. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** 15 hours work in field and instructor's consent

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**NUTRIT 7350: Nutrition During the Life Cycle**

Nutritional, physiological and environmental influences on the aging process of man from conception through senescence.

**Credit Hours:** 3

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**NUTRIT 7390: Medical Dietetics**

Medical dietetics.

**Credit Hour:** 3-12

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**NUTRIT 7650: Amino Acid and Protein Metabolism**

Amino acid and protein metabolism.

**Credit Hours:** 2

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**NUTRIT 8060: Comparative Nutrition and Metabolism**

Comparative Nutrition and Metabolism..

**Credit Hours:** 2

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**NUTRIT 8090: Masters Research in Nutrition**

Investigation in any area of experimental nutrition. Thesis required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**NUTRIT 8310: Nutritional Biochemistry of Lipids**

(same as NEP 8310 and AN\_SCI 8431). Current concepts in the nutritional regulations of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**NUTRIT 8320: Ruminant Nutrition**

(same as AN\_SCI 9432). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, metabolism, utilization of nutrients. Lecture, laboratory, assigned readings.

**Credit Hours:** 3

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**NUTRIT 8340: Nutrition in Human Health**

(same as NEP 8340.) Nutritional aspects of maintaining human health with emphasis on chronic disease prevention. Grades based on classroom participation and four exams.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NUTRIT 8360: Nutritional Biochemistry of Carbohydrates**

(same as BIOCHM 8360 and NEP 8360). Current concepts with in-depth coverage of selected examples of key regulatory steps controlling carbohydrate metabolism; emphasizing molecular mechanisms. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272 and 4000-level nutrition course and departmental consent

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**NUTRIT 8390: Molecular Biology of Mineral Nutrition**

(same as BIOCHM 8390 and NEP 8390). Current concepts of metal ion transport, intracellular metal trafficking and metal-dependent regulation of gene expression. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NUTRIT 8400: Bioenergetics**

(same as AN\_SCI 9441) . Bioenergetics.

**Credit Hours:** 3

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**NUTRIT 8438: Nutrient Regulation of Gene Expression**

(same as AN\_SCI 8438, BIOCHM 8438 and NEP 8438). Current concepts with in-depth coverage of several minerals that illustrate themes in molecular mineral nutrition. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NUTRIT 8500: Investigations in Experimental Nutrition**

Written report required.

**Credit Hour:** 1-6

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**NUTRIT 9087: Doctorate Seminar in Nutrition**

Doctorate seminar in nutrition.

**Credit Hour:** 1

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**NUTRIT 9090: Doctorate Research in Nutrition**

Investigation in any area of experimental nutrition. Thesis required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Nutrition and Exercise Physiology Courses

**NEP 1001: Topics in Nutritional Sciences**

Supervised study in specialized topic of nutritional sciences.

**Credit Hour:** 1-99

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**NEP 1034: Introduction to Human Nutrition**

Basic nutrition principles, including: nutrient functions, food sources, and needs; healthy eating tools; energy balance and weight management; nutrition and fitness; nutrition through the life cycle; food safety; and consumer topics. No credit if taken after NEP 2340.

**Credit Hours:** 3

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**NEP 1034H: Introduction to Human Nutrition - Honors**

Basic nutrition principles, including: nutrient functions, food sources, and needs; healthy eating tools; energy balance and weight management; nutrition and fitness; nutrition through the life cycle; food safety; and consumer topics. No credit if taken after NEP 2340.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**NEP 1310: Food and Cultures of the World**

Trans-disciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition. These ideas will be explored in the context of cuisines and cultures that are found in the US, but originate elsewhere.

**Credit Hours:** 3

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**NEP 1310W: Food and Cultures of the World - Writing Intensive**

Trans-disciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition. These ideas will be explored in the context of cuisines and cultures that are found in the US, but originate elsewhere.

**Credit Hours:** 3

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**NEP 1340: Introduction to Exercise and Fitness**

Provides students with practical information about exercise and physical fitness. After taking this class, students will be prepared to be physically active, understand the "Do's and Don'ts" of exercise, and know how to live a healthy way of life. As part of the course, students will assess their current level of activity/fitness, develop a plan for improvement, and put that plan into action.

**Credit Hours:** 3

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**NEP 1485: Career Exploration in Exercise Science**

Undergraduate course designed to provide an overview of the components important to developing an understanding and appreciation of all aspects of Exercise Science. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 1340

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**NEP 1995: Nutritional Food Science**

The study of components of food systems and how they are affected by processing, preservation, preparation and by techniques that improve taste, texture, flavor, appearance and nutrient retention. This course is 100% online and includes a virtual lab. Graded on A-F basis only.

**Credit Hours:** 3

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**NEP 2001: Topics in Nutritional Sciences**

Supervised study in a specialized topic of Nutritional Sciences.

**Credit Hour:** 1-99

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**NEP 2085: Problems in Nutritional Sciences**

Supervised study in a specialized phase of nutritional sciences.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 2222: Landscape of Obesity**

The societal, economic, medical, behavioral, and psychological causes and results of the obesity epidemic and potential modes of treatment and prevention. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**NEP 2340: Human Nutrition I**

Basic concepts of normal nutrition related to physiological/ chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100 or CHEM 2160H

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**NEP 2340H: Human Nutrition I - Honors**

Basic concepts of normal nutrition related to physiological/chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits. Includes weekly discussion on controversial issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Organic Chemistry, Physiology, or instructor's consent. Honors eligibility required

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**NEP 2380: Diet Therapy for Health Professionals**

Principles underlying normal nutrition and diet for health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**NEP 2420: Biology of Healthy Living**

(same as PH\_THR 2420 and BIOMED 2420). Biology of inactivity as a causal factor in chronic disease.

**Credit Hours:** 2

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**NEP 2450: Nutrition Throughout the Life Span**

Nutritional requirements, challenges, community nutrition programs, and eating patterns throughout the life span with emphasis on health promotion and disease prevention; Role of beliefs, culture, socio-psychological influences, and economic resources in food selection and nutrition/health status. Lecture/discussion course.

**Credit Hours:** 3

**Prerequisites:** NEP 1034 or NEP 2340 or NEP 2380 or equivalent

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**NEP 2460: Eating Disorders**

Definition, etiology, treatment, and research related to eating disorders: anorexia nervosa, bulimia nervosa and binge eating disorder/obesity. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** NEP 1034 or NEP 2340 or NEP 2380 or NEP 4360

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**NEP 3001: Topics in Nutritional Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 3085: Problems in Nutritional Sciences**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 3085W: Problems in Nutritional Sciences - Writing Intensive**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 3131: International Nutrition and Exercise Physiology**

Immersion into and examination of selected cultures - beliefs, practices, policies and social structures around food, physical activity and health. Graded on A-F basis only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NEP 3290: Food Service I: Supervised Practice Experience**

A practicum designed to expose the student to concepts of quantity food production, evaluation of products and resources, personnel administration and application of food microbiological principles. 4 hours of supervised practice per week.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in NEP 3280; open to students enrolled in the Coordinated Program in Dietetics only

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**NEP 3360: Nutritional Assessment Supervised Practice Experience**

Supervised practice to develop skills in screening individuals for nutrition risk; use of dietary, anthropometric, laboratory, clinical and sociocultural criteria to assess nutritional status of individuals, 8 hours of supervised practice per week. Enrollment limited to students who have taken or are concurrently enrolled in NEP 4360; Open to Nutrition and Food majors in the Coordinated Program in Dietetics only.

**Credit Hours:** 2

**Prerequisites:** Departmental consent required

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**NEP 3370: Nutrition Therapy I: Supervised Practice Experience**

Practice and application of principles of nutrition care for selected disease states. 12 hours of supervised practice per week.

**Credit Hours:** 3

**Prerequisites:** Concurrently enrolled in NEP 4370; Open to students enrolled in the Coordinated Program in Dietetics only

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**NEP 3390: Teaching and Counseling Techniques in Nutrition**

Principles and theories of learning; Resources, methods and techniques for teaching food/nutrition principles and dietary guidelines; Group dynamics and facilitation; Introduction to counseling theories and methods used in nutrition care of individuals. Lecture course.

**Credit Hours:** 2

**Prerequisites:** PSYCH 1000 and NEP 2340

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**NEP 3400: Teaching & Counseling Techniques in Nutr. Supervised Practice Exp**

Skill development and practice in counseling individuals for health promotion and disease prevention and the teaching of food and nutrition topics to groups. 4 hours of supervised practice per week.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in NEP 3390; Open to students enrolled in the Coordinated program in Dietetics only

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**NEP 3450: Activity Throughout the Lifespan**

Course is designed to develop knowledge and understanding of the value of physical activity across the lifespan. The physiology, psychology, and guidelines of exercise, along with the integration of nutrition with physical activity, will be explored from pregnancy through early development and into old age. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340; May be restricted to Nutrition and Fitness majors only during early registration

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**NEP 3550: Corporate, Community, and Personal Fitness**

Course is designed to develop the knowledge and understanding of exercise application for corporate wellness, community programs, and personal fitness. Topics covered will include exercise prescription, behavioral and motivational theories, legality, ethics and professionalism, and how these topics relate to corporate, community, and personal fitness clients. Students should be able to understand the various needs of these populations and how to apply the science of physical activity, nutrition, and human performance to each.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 or NEP 2380 and NEP 3450

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**NEP 3590: Community Nutrition Supervised Practice Experience**

A practicum which explores and applies the concepts and techniques of nutrition programming in a community setting. 4 hours of supervised practice per week. Enrollment limited to students who have taken NEP 4590. Open to students enrolled in the Coordinated Program in Dietetics only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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**NEP 3800: Prevention and Care of Athletic Injury**

Theory, practice in prevention, emergency care, rehabilitation of injuries encountered in vigorous games.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201. Restricted from Pre-Nutrition and Fitness majors

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**NEP 3810: Advanced Athletic Training**

Advanced study in areas of prevention, evaluation, care, and treatment and rehabilitation of athletic injuries at high school and college level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 3800 and instructor's consent

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**NEP 3850: Physiology of Exercise**

This is the basic course in exercise physiology, which applies specific principles and concepts of human physiology to the physical work situation. This course will look at ventilation, oxygen transport, cardiovascular physiology, muscle physiology and the metabolic systems; and emphasis will be given to the adaptations to exercise and training. This course will first explore basic exercise physiology and then will explore many of the applied issues pertaining to performance and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201; MPP 3202 or BIO\_SC 3700. Restricted from Pre-Nutritional and Fitness students

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**NEP 3900: Field Training in Nutritional Sciences**

**Credit Hour:** 1-99

**Prerequisites:** junior or senior standing and instructor's consent

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**NEP 4001: Topics in Nutrition and Exercise Physiology**

Instruction in specific subject matter areas in the field of nutrition science and exercise physiology.

**Credit Hour:** 1-3

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**NEP 4020: Monogastric Nutrition**

(same as AN\_SCI 4312; cross-leveled with AN\_SCI 7312, NEP 7020 and NUTRIT 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212 and BIOCHM 3630

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**NEP 4200: Sports Performance and Conditioning**

(cross-leveled with NEP 7200). Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Physiology and Anatomy, Kinesiology; junior or senior standing required

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**NEP 4280: Food Service Management**

(cross-leveled with NEP 7280). Issues related to marketing and financial control in the foodservice sector. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000 or equivalent

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**NEP 4290: Food Serv. II: Adv. Food Service Manage. Supervised Practice Exp**

A practicum tailored to apply marketing and budgetary principles in the foodservice industry. 8 hours of supervised practice per week. Enrollment limited to students with concurrent enrollment in NEP 4280. Open to students admitted to the Dietetics program.

**Credit Hours:** 2

**Prerequisites:** Departmental consent required

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**NEP 4330: Human Nutrition II Laboratory**

(cross-leveled with NEP 7330). A techniques course in nutrition, usually taken concurrently with NEP 4340.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, Biochemistry and instructor's consent

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**NEP 4340: Human Nutrition II Lecture**

(cross-leveled with NEP 7340). Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of NEP 2340.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 and either BIOCHM 3630, BIOCHM 4270 or BIOCHM 4272. Restricted from pre-Nutrition and Fitness majors

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**NEP 4360: Nutritional Assessment**

(cross-leveled with NEP 7360). Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000, NEP 2340. Restricted from Pre-Nutrition and Fitness Majors

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**NEP 4370: Nutrition Therapy I**

(cross-leveled with NEP 7370). In-depth study of physiological/biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course.

**Credit Hours:** 3

**Prerequisites:** NEP 4360

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**NEP 4380: Nutrition Therapy II**

(cross-leveled with NEP 7380). Evaluation, design and monitoring of the nutrition care of complex health disorders such as renal disease, trauma, and multi-system organ failure; emphasis on nutrition support (enteral and parenteral nutrition). Lecture course.

**Credit Hours:** 2

**Prerequisites:** NEP 4370

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**NEP 4381: Nutrition Therapy II: Supervised Practice Experience**

Practice in the nutrition care of complex health disorders with emphasis on nutrition support. 16 hours of supervised practice per week. Enrollment limited to students with concurrent enrollment in NEP 4380. Open to students admitted to Dietetics program only.

**Credit Hours:** 4

**Prerequisites:** Departmental consent required

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**NEP 4385: Professional Development I**

(cross-leveled with NEP 7385). Course designed to provide career exploration and assessment and prepare students for the final rotations in the coordinated program in dietetics. Graded on A-F basis only. Enrollment limited to students enrolled in the coordinated program in Dietetics.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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**NEP 4390: Issues in Dietetic Practice**

Lectures and discussions focus on issues and trends in dietetics. Discussions are used to encourage the development of skills and attitudes which foster life-long professional learning. Lecture/discussion course.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 and NEP 4380; or instructor's consent

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**NEP 4480: Pediatric Exercise Physiology**

Course is designed to develop knowledge and understanding of the value of physical activity in the pediatric population. The physiology, psychology, and guidelines of exercise will be explored in the developmental process of youth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340, NEP 3450 and NEP 3850 or NEP 4850

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**NEP 4590: Community Nutrition**

(cross-leveled with NEP 7590). Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 or NEP 2380. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4750: Cardiopulmonary Rehabilitation - A Multifactorial Process**

A guide to the practice of Cardiopulmonary Rehab in the 21st Century. We will explore the interdisciplinary aspects of a successful approach to the delivery of cardiac and pulmonary rehabilitation throughout a broad spectrum of patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340, NEP 3450 and NEP 3850 or NEP 4850

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**NEP 4860: Exercise Prescription**

Course investigates theory and methods of testing and prescribing exercise for circulatory fitness, body composition, muscle strength, joint and muscle ranges in motion, and posture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MPP 3202 or MPP 3333 and MPP 3337, PTH\_AS 2201 and NEP 4850 or concurrent. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4880: Cardiovascular Exercise Physiology**

A comprehensive study through reading, lectures, discussion and laboratory experiences of the heart and circulatory systems with particular emphasis placed on acute and chronic cardiovascular adaptations to exercise in health and disease. This course will provide advanced knowledge, skills, and applications in exercise physiology necessary for students who desire to pursue careers and further study in the discipline of exercise science. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 4850

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**NEP 4940: Internship in Nutritional Science and Exercise Physiology**

Combines study, observation and employment in an area of exercise physiology and/or nutrition. Written reports, faculty evaluation .

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent required

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**NEP 4950: Capstone: Research in Nutritional Sciences**

Introduction to research, including the types of basic, clinical, and outcomes-based research. Defining research problems related to nutrition and exercise sciences, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course.

**Credit Hours:** 2

**Prerequisites:** NEP 2340 and either STAT 2500 or ESC\_PS 4170 and senior standing. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4951: Nutrition Research Communication**

Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 or instructor's consent

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**NEP 4951W: Nutrition Research Communication - Writing Intensive**

Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 or instructor's consent

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**NEP 4960: Readings in Nutritional Sciences**

**Credit Hour:** 1-99

**Prerequisites:** 8 hours of course work in field of subject and instructor's consent

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**NEP 4970: Nutrition Capstone: Sports Nutrition**

Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, and either MPP 3202 or BIO\_SC 3700, and either STAT 1200, STAT 1300, STAT 1400 or ESC\_PS 4170; Senior Standing, open to Nutrition and Fitness majors only

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**NEP 4975: Practice of Dietetics Supervised Practice Experience**

Supervised practice in providing quality nutrition services in clinical, community, management and specialty settings. 40 hours of supervised practice per week.

**Credit Hours:** 10

**Prerequisites:** NEP 3590, NEP 4280, NEP 4290, NEP 4380, NEP 4381, and NEP 4590; Open to students admitted to the Dietetics Program only

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**NEP 7001: Topics in Nutritional Science and Exercise Physiology**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NUTRIT 7020; cross-leveled with NEP 4020 and AN\_SCI 4312). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212 and BIOCHM 3630

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**NEP 7085: Problems in Nutritional Sciences and Exercise Physiology**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 7150: Readings in Nutritional Sciences and Exercise Physiology**

In this course students will have the opportunity to read the literature in the area of nutrition and exercise physiology, allowing them to get more indepth knowledge in a specific area or areas.

**Credit Hour:** 1-99

**Prerequisites:** 15 hours course work in field of subject and instructor's consent

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**NEP 7200: Sports Performance and Conditioning**

(cross-leveled with NEP 4200). Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Physiology and Anatomy, Kinesiology; junior/senior standing

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**NEP 7330: Human Nutrition II Laboratory**

(cross-leveled with NEP 4330). A techniques course in nutrition, usually taken concurrently with NEP 4340.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, Biochemistry and instructor's consent

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**NEP 7340: Human Nutrition II Lecture**

(cross-leveled with NEP 4340). Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of NEP 2340.

**Credit Hours:** 3

**Prerequisites:** NEP 2340, Biochemistry or instructor's consent

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**NEP 7360: Nutritional Assessment**

(cross-leveled with NEP 4360). Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000, NEP 2340

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**NEP 7370: Nutritional Therapy I**

(cross-leveled with NEP 4370). In-depth study of physiological/biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course.

**Credit Hours:** 3

**Prerequisites:** NEP 4360

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**NEP 7380: Nutrition Therapy II**

(cross-leveled with NEP 4380). Evaluation, design and monitoring of the nutrition care of complex health disorders such as renal disease, trauma, and multi-system organ failure; emphasis on nutrition support (enteral and parenteral nutrition). Lecture course.

**Credit Hours:** 2

**Prerequisites:** NEP 4370

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**NEP 7385: Professional Development I**

(cross-leveled with NEP 4385). Course designed to provide career exploration and assessment and prepare students for the final rotations in the coordinated program in dietetics.

**Credit Hour:** 1

**Corequisites:** Concurrent enrollment in NEP 7380, NEP 7381

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**NEP 7440: The Science and Art of Nutrition**

The science of nutrition including nutrients and other active food compounds; their action, interaction, and balance in relation to human health and disease; and the processes by which they are digested, absorbed, and utilized. Emphasis on nutrient/dietary recommendations, including changing nutrient needs throughout human life span. Covers food/nutrition-related regulations and policies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or equivalent and MPP 3202

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**NEP 7480: Evaluation of Food and Nutrition Research Evidence for the Consumer**

Scientific evidence interpretation/critique techniques and approaches, including research literature searches, research designs and methodology, assessment of statistical validity. Evaluation of food/nutrition and health information sources and publication hierarchy. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 7440

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**NEP 7500: Research in Nutritional Sciences and Exercise Physiology**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required.

**Credit Hour:** 1-99

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**NEP 7590: Community Nutrition**

(cross-leveled with NEP 4590). Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Graded on A-F basis only.



**Credit Hours:** 3

**Prerequisites:** Nutrition course or instructor's consent

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**NEP 7840: Cardiovascular Health and Fitness**

Physiology underlying best methods for obtaining and maintaining cardiovascular health and fitness. Includes exercise and weight control, plasma lipids, energy metabolism, cardiovascular dynamics, and recent research findings.

**Credit Hours:** 3

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**NEP 7950: Research in Dietetics**

(cross-leveled with NEP 4950). Introduction to research, including the relationship of basic, clinical, and outcomes-based research to dietetics practice. Defining research problems in a dietetics practice setting, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course.

**Credit Hours:** 2

**Prerequisites:** statistics course

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**NEP 7970: Sports Nutrition**

(cross-leveled with NEP 4970). Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Statistics, NEP 2340, Physiology; instructor's consent. Not open to Pre-Nutrition and Fitness students

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**NEP 8001: Topics in Nutritional Sciences and Exercise Physiology**

Instruction in specific subject matter areas in the field of nutrition science and exercise physiology. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEP 8030: Etiology of Obesity**

This course is designed to provide an understanding of the cause and implications of human obesity. General topic areas covered will include: methodologies of obesity research, physiology of obesity, behavioral and environmental factors influencing obesity, obesity and disease, therapeutic approaches to obesity, and emerging topics in obesity. The structure of this course will be mixture of lectures and interactive discussions/reviews of primary research articles in these areas. Students will be expected to present and critically evaluate research papers relevant to the field of obesity.

**Credit Hours:** 3

**Prerequisites:** NEP 7340

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**NEP 8085: Problems in Nutritional Sciences and Exercise Physiology**

Individual studies include a minor research problems.

**Credit Hour:** 1-99

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**NEP 8087: Masters Seminar in Nutritional Sciences and Exercise Physiology**

Seminar features expert presentations of current research and issue-based applications that represent the breadth of nutritional sciences and/or exercise physiology. Graded on S/U basis only.

**Credit Hour:** 1

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**NEP 8090: Masters Research in Nutritional Sciences and Exercise Physiology**

Original investigation of advanced nature, leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**NEP 8095: Internship in Exercise Physiology**

The internship experience will take place in professionally supervised settings, and allow students to complement their academic work with employment-related experiences. Organizations, companies and business that offer internships can be selected to match with student interests. This experience will offer the student meaningful learning opportunities that will complement their career goals.

**Credit Hours:** 4

**Prerequisites:** must be accepted into the Exercise Physiology graduate program, 3.0 GPA or higher, completed 50% of the coursework at the masters level

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**NEP 8310: Nutritional Biochemistry of Lipids**

(same as AN\_SCI 8431 and NUTRIT 8310). Current concepts in the nutritional regulation of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**NEP 8340: Nutrition in Human Health**

(same as NUTRIT 8340). Nutritional aspects of maintaining human health with emphasis on micronutrients, basis for dietary recommendations, and nutrition public health initiatives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course; graduate standing or current enrollment in the Masters in Dietetics Program

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**NEP 8360: Nutritional Biochemistry I**

(same as NUTRIT 8360 and BIOCHM 8360). Provides a critical understanding of current developments in lipid metabolism in animals and humans, particularly as it relates to nutrition and health.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; at least one 4000 level nutrition course

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**NEP 8390: Molecular Biology of Mineral Nutrition**

(same as NUTRIT 8390 and BIOCHM 8390). Current concepts of metal ion transport, intracellular metal trafficking and metal-dependent regulation of gene expression. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NEP 8438: Nutrient Regulation of Gene Expression**

(same as AN\_SCI 8438, BIOCHM 8438 and NUTRIT 8438). Current concepts with in-depth coverage of several minerals that illustrate themes in molecular mineral nutrition. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NEP 8850: Advanced Exercise Physiology**

Lectures, laboratory experiences, and readings in current literature to provide reasonable depth in selected areas of physiology as applied to activity and health.

**Credit Hours:** 3

**Prerequisites:** NEP 4850 and Chemistry

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**NEP 8860: Exercise Endocrinology**

The nervous system and the endocrine system integrate to regulate the functions of the body. These systems are tightly linked and frequently one system cannot be considered without consideration of the other system. This course integrates endocrine physiology and the impact that exercise has on the endocrine response. This class will focus on the glands producing hormones, the target organs, mechanisms and how both acute and chronic exercise impacts hormone action. This is an advanced exercise physiology course designed for graduate students in Exercise Physiology or the life sciences and will consist of lectures, readings and discussion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 8850, V\_BSCI 8420 or graduate standing in the Life Sciences

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**NEP 8870: Exercise Metabolism**

Review of major metabolic pathways and the effect of exercise upon them. Special topics include indirect calorimetry, EPOC, anaerobic threshold; weight control, ergogenic aids, and exercise nutrition.

**Credit Hours:** 3

**Prerequisites:** NEP 4850 and Chemistry

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**NEP 9087: Doctorate Seminar in Nutritional Sciences and Exercise Physiology**

Seminar features expert presentations of current research and issue-based topics that represent the breadth of nutritional sciences and exercise physiology. Graded on S/U basis only.

**Credit Hour:** 1

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**NEP 9090: Doctorate Research in Nutritional Sciences and Exercise Physiology**

Original investigation of advanced nature, leading to a dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Obstetrics And Gynecology Courses

**OB\_GYN 6004: Obstetrics/Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

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**OB\_GYN 6014: Rural Obstetrics/Gynecology Clerkship**

Rural Obstetrics/Gynecology Clerkship

**Credit Hours:** 8

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**OB\_GYN 6024: Springfield Obstetrics and Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**OB\_GYN 6104: Remediation OB/GYN Clerkship**

Enrolled students are those who received an unsatisfactory grade in a OB/GYN Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** OB\_GYN 6004 Clerkship, received unsatisfactory grade

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**OB\_GYN 6311: ABS OB/Gynecology Mechanism of Disease**

ABS OB/Gynecology Mechanism of Disease

**Credit Hour:** 5-10

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**OB\_GYN 6313: ABS OB/Gynecology Research**

ABS OB/Gynecology Research

**Credit Hours:** 5

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**OB\_GYN 6315: ABS OB/Gynecology Research and Review**

ABS OB/Gynecology Research and Review

**Credit Hour:** 5-10

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**OB\_GYN 6563: OB/GYN Clinical Reproductive Endocrinology**

OB/GYN Clinical Reproductive Endocrinology

**Credit Hours:** 5

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**OB\_GYN 6564: OB/GYN Reproductive Endocrinology Research**

OB/GYN Reproductive Endocrinology Research

**Credit Hours:** 5

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**OB\_GYN 6565: Reproductive Medicine and Infertility Offsite**

The 4th year student will work as a member of the Reproductive Endocrinology and Infertility team, providing hands-on clinical and surgical services in the inpatient, outpatient and consultative settings.

The medical student will participate in daily outpatient clinic and any observe surgical services related to care of those patients. Students will learn using a variety of evidence-based resources, on-line resources and from clinical dialogue with the members of the care team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school and the OB/GYN Clerkship

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**OB\_GYN 6570: Gynecologic Endoscopy - St. Luke's**  
Gynecologic Endoscopy - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6571: Clinical Reproductive Endocrinology and Infertility - St. Luke's**  
Clinical Reproductive Endocrinology and Infertility - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6572: OB/GYN Ultrasonography - St. Luke's**  
OB/GYN Ultrasonography - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6573: Maternal-Fetal Medicine and Ultrasound - St. Luke's**  
Maternal-Fetal Medicine and Ultrasound - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6574: Clinical GYN Oncology/Pathology - St. Luke's**  
Clinical GYN Oncology/Pathology - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6575: Obstetrics/Gynecology - St. Luke's**  
Obstetrics/Gynecology - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6580: Obstetrics/Gynecology-Moberly Regional**  
Obstetrics/Gynecology-Moberly Regional

**Credit Hours:** 5

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**OB\_GYN 6583: Obstetrics/Gynecology Offsite Advanced Elective**  
Obstetrics/Gynecology Offsite Advanced Elective

**Credit Hours:** 5

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**OB\_GYN 6765: OB/GYN - Rural**  
OB/GYN - Rural

**Credit Hours:** 5

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**OB\_GYN 6766: Gynecology Rural Elective**  
Students will build upon their gynecologic examinations skills and their knowledge of both the common and more unusual gynecologic conditions that they obtain during other clerkships.

**Credit Hours:** 5

**Prerequisites:** OB\_GYN 6004, SURGRY 6006

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**OB\_GYN 6865: Maternal-Fetal Medicine Selective**

Goals/Objectives: To expose the student to high-risk obstetrical experiences in the Maternal Fetal Medicine division. All obstetrical selectives are done at Women's and Children's Hospital.

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship

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**OB\_GYN 6866: Obstetrical**

Goals/Objectives: To provide the student with additional obstetrical experience in the Labor and delivery suite. All obstetrical electives are done at the Missouri Ob/Gyn Associates Clinic and Women's and Children's Hospital. Evaluations: The student will be graded on their ward performance. An evaluation for this rotation will be completed by the appropriate faculty and resident physicians. Notes: While on this rotation students will have exposure to various faculty members, residents, and fellow medical students. Students will participate in the evaluation of patients on labor and delivery including those presenting for evaluation of first trimester problems and labor evaluations. Some participation in operative procedures and labor management is expected. Students will have exposure to antenatal testing and ultrasonography including the interpretation of ultrasounds and limited participation in genetic counseling and invasive ante-partum diagnostic procedures is expected. Night call will be required and can be worked into the core rotation's student call schedule. Teaching will be on an ongoing bases with Dr. Floyd keeping daily routine with the students expected to participate in management decisions.

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship. Core reading for this rotation will include Obstetrics, Normal and Problem Pregnancies, latest edition, edited by Gabbe, Niebyl and Simpson

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**OB\_GYN 6867: Obstetrical/Gynecological Outpatient**  
Obstetrical/Gynecological Outpatient

**Credit Hours:** 5

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**OB\_GYN 6868: Urogynecology Selective**

The 4th year medical student will work as part of a team providing hands-on clinical services in an inpatient, outpatient, and consultative setting. Students will participate in daily morning report, weekly didactic sessions, weekly surgical procedures and Friday afternoon seminars. Students will learn using a variety of evidence-based resources and direct faculty interaction. Successful completion of one of the core Obstetrics and Gynecology Clerkship courses: OB\_GYN 6004 or OB\_GYN 6014, and/or OB\_GYN 6104.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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**OB\_GYN 6930: Obstetrics/Gynecology Outpatient Two-Week Elective**

The 3rd or 4th year medical student will work as part of a team providing hands-on clinical services in an outpatient setting. Students will participate in daily clinic evaluations of patients. Students will learn using a variety of evidence-based resources and direct faculty teaching.

Students will also participate in weekly teaching didactics within the OB/GYN department such as Grand Rounds.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**OB\_GYN 6937: Ultrasound Two Week Elective**

To provide additional clinical ultrasound experience in the outpatient setting. Students will learn how to integrate acquired knowledge and concepts; then apply them in the management of patients in an outpatient OB/GYN setting.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two year of medical school

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**OB\_GYN 6960: Gynecologic/Oncology Surgery**

Goals/Objectives: To provide the student with additional surgical and gynecological clinical experience. All gynecologic surgical electives are performed at Ellis Fischel Cancer Center and the University Hospital. Evaluations: An evaluation for this rotation will be completed by the elective chairmen and appropriate resident physicians. The students will be graded on their clinic, ward, and operating room performance. Notes: While on this rotation, students will have exposure to faculty members, three residents, and other fellow medical students. They will have the opportunity to assist in gynecologic oncology surgical cases, attend tumor clinics where they will encounter various procedures such as colposcopies, cryotherapy, and cervical and endometrial biopsies. A copy of a representative weekly schedule is available from the department student coordinator. In addition, students will be required to make two ten minute presentations with audio-visual aids on assigned topics. The students will not take night call, but are expected to attend patient rounds on weekdays and weekends with the residents. The department also holds conferences on Tuesdays and Thursdays which are to be attended. Core reading for this rotation will include Clinical Gynecologic Oncology by DiSaia and Creasman."

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship

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**OB\_GYN 6964: Obstetrics/Gynecology Offsite Advanced Selective**

Obstetrics/Gynecology Offsite Advanced Selective

**Credit Hours:** 5

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## Occupational Therapy Courses

**OC\_THR 1000: Introduction to Occupational Therapy**

Introductory course to provide students information about the occupational therapy profession. Registered therapists lecture on clinical aspects. Students participate in discussions on program requirements, placement, and trends in the profession.

**Credit Hour:** 1

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**OC\_THR 2001: Topics in Occupational Therapy**

Organized study of selective topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

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**Prerequisites:** instructor's consent

**Recommended:** freshman or sophomore standing

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**OC\_THR 2085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** freshman or sophomore standing

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**OC\_THR 4001: Topics in Occupational Therapy**

Organized study of selective topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** junior standing

---

**OC\_THR 4085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

**Recommended:** Junior standing

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**OC\_THR 4220: Clinical Kinesiology**

(same as PH\_THR 4250). This course for occupational therapy students examines the musculoskeletal system with special emphasis in body movements and the application of laws and biomechanical principles that govern movement in order to select and perform effective occupation-based treatment. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Acceptance into the occupational therapy program

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**OC\_THR 4240: Applied Neurophysiology for Allied Health Students**

(same as PH\_THR 4240; cross-leveled with OC\_THR 7240, PHY\_THR 7240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system. Graded on A-F basis only.

**Credit Hours:** 3

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**OC\_THR 4270: Clinical Pathophysiology**

(same as PH\_THR 4270; cross-leveled with PH\_THR 7270, OC\_THR 7270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** successful completion of prior professional coursework

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**OC\_THR 4310: Foundations and Theory in Occupational Therapy**

(cross-leveled with OC\_THR 7310). History, contemporary practice, conceptual foundations, professional organizations and official documents of the OT profession are presented. Activity analysis, adaptation, and assistive technology are introduced in the context of promoting health and occupational participation. Graded on A-F only basis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 4350: Adult Practice**

(cross-leveled with OC\_THR 7350). Analysis of major disability areas from an occupational perspective. Administration and interpretation of assessments and application of treatment theories and approaches for deficits in movement, sensation, cognition and perception. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 4390: Principles of Assessment**

(cross-leveled with OC\_THR 7390). This course provides foundational knowledge of the occupational therapy evaluation process, including an understanding and application of practice theories and framework, an introduction and overview of psychometric properties of assessments and various types of assessments used throughout occupational therapy practice, and developing and using clinical reasoning to select assessments to determine limitations in occupational performance with individuals throughout the lifespan. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

---

**OC\_THR 4420: Human Development and Occupations I**

(cross-leveled with OC\_THR 7420). Overview of typical development from infancy through adolescence from an occupational perspective. Emphasis on the impact of personal and contextual factors on occupational development in children and adolescents. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Occupational Therapy students only

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**OC\_THR 4422: Fieldwork I - Occupations I**

(cross-leveled with OC\_THR 7422). Development of clinical observation skills via on-site observation of children with typical and atypical development. Opportunities to develop professional behaviors, gather and organize data, plan and implement activities, and develop therapeutic relationships with children, care providers, and other team members. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Occupational Therapy students only

---

**OC\_THR 4450: Pediatric Practice**

Lecture and laboratory course designed which addresses Occupational Therapypediatric frames of reference and theories. Common conditions seen in Occupational Therapy practice as well as interventions such as feeding, positioning, facilitation of movement and sensory strategies are also addressed. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** Admission to the Occupational Therapy professional program

---

**OC\_THR 4620: Human Development and Occupations II**

(cross-leveled with OC\_THR 7620). Overview of biopsychosocial development and the aging process from young adulthood through older adulthood from an occupational perspective. Emphasis on the impact of client and contextual factors on occupational development and loss of occupations throughout the adult lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 4622: Fieldwork I - Occupations II**

(cross-leveled with OC\_THR 7622). Development of evaluation and intervention skills via on-site interaction with older adults in a residential facility. Opportunities to gather data, plan/implement activities, document client performance, and develop therapeutic relationships with older adults and care providers. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Restricted to Occupational Therapy students only

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**OC\_THR 4650: Principles of Intervention**

(cross-leveled with OC\_THR 7650). This course provides a foundation to understanding common frames of reference and theory utilized in occupational therapy. Application of these frames of reference and theories will be utilized to assist students in the program to understand common conditions, their influence on health and wellness, and systematic ways to begin provision of intervention for future clinical practice. Principles of intervention will be discussed across a variety of ages and conditions as a frame to understanding human occupation and ways to support meaningful participation. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** OC\_THR 4310 and OC\_THR 4520

**Recommended:** Occupational Therapy students only

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**OC\_THR 4670: Musculoskeletal Intervention**

(cross-leveled with OC\_THR 7670). To gain entry level skills needed to evaluate and treat common upper extremity conditions, including acute injuries and cumulative trauma disorders. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 4750: Functional Cognition**

(cross-leveled with OC\_THR 7750). This course provides an overview of theoretical models of cognitive function, an overview of an occupational therapy cognitive assessment framework and assessment tools, and an introduction to models of intervention for working with individuals with cognitive disabilities across the lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 4770: Community-Based Practice**

Focus on role of occupational therapy in prevention, health and wellness. Program development and evaluation completed through community needs assessment and completion of health promotion project. Graded on A-F only basis.

**Credit Hours:** 3

**Recommended:** acceptance into major and completion of program year

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**OC\_THR 4920: Clinical Reasoning and Documentation**

(cross-leveled with OC\_THR 7921). Development of observation and assessment skills related to effective documentation of occupational therapy services. Emphasizes exposure to various clinical settings, and third party payers, and legislative policies impacting documentation. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 4943: Fieldwork: Clinical**

Clinical experience in occupational therapy settings. Emphasis on classroom to clinical transition. Exposure to the occupational therapy process; assessment, planning, implementation. Emphasis on professional communication and observational skills. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** completion of 1st semester in major in professional curriculum; junior standing

---

**OC\_THR 4960: Readings in Occupational Therapy**

Directed readings of the literature and research in occupational therapy. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**OC\_THR 4970: Research Methods**

This course will use writing to explore basic concepts in research design and analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Restricted to Occupational Therapy Majors

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**OC\_THR 4970W: Research Methods - Writing Intensive**

This course will use writing to explore basic concepts in research design and analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Restricted to Occupational Therapy Majors

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**OC\_THR 7000: Research Project**

Supervised experience in scientific investigation. In this course students will develop hypotheses, establish protocols/procedures, collect/analyze data, and interpret results.

**Credit Hours:** 2

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**OC\_THR 7001: Topics in Occupational Therapy**

Organized study of selected topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Repeatable upon consent of department. Course may be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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**OC\_THR 7005: Research Project-Mentor Hours**

Hours spent working with research mentor on research proposal. Emphasis on understanding project, designing project and collecting data for project. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** OC\_THR 7000

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**OC\_THR 7060: Professional Issues**

Introduction to the structures of the profession including professional associations, philosophical and ethical perspectives, the meaning of occupation and preparation for client contact. Includes experiential instruction in surface anatomy and infection control. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Acceptance into the occupational therapy program

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**OC\_THR 7085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department. May be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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**OC\_THR 7220: Clinical Kinesiology**

(same as PH\_THR 7250). This course for occupational therapy students examines the musculoskeletal system with special emphasis in body movement and the application of laws and biomechanical principles that govern movement in order to select and perform effective occupation-based treatment. Acceptance into the occupational therapy program. Graded on A-F basis only.

**Credit Hours:** 3

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**OC\_THR 7240: Applied Neurophysiology for the Allied Health Student**

(same as PH\_THR 7240; cross-leveled with OC\_THR 4240, PH\_THR 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system. Graded on A-F basis only

**Credit Hours:** 3

---

**OC\_THR 7270: Clinical Pathophysiology**

(same as PH\_THR 7270; cross-leveled with OC\_THR 4270, PH\_THR 4270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the Occupational Therapy Professional Program required

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**OC\_THR 7310: Foundations and Theory in Occupational Therapy**

(cross-leveled with OC\_THR 4310). History, contemporary practice, conceptual foundations, professional organizations and official documents of the OT profession are presented. Activity analysis, adaptation, and assistive technology are introduced in the context of promoting health and occupational participation. Graded on A-F only basis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7350: Adult Practice**

(cross-leveled with OC\_THR 4350). Analysis of major disability areas from an occupational perspective. Administration and interpretation of assessments and application of treatment theories and approached for deficits in movement, sensation, cognition, and perception. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 7390: Lifespan Assessment**

(cross-leveled with OC\_THR 4390). Basic evaluation skills in occupational therapy practice across the lifespan are introduced. This course provides an introduction of the essentials of occupational therapy evaluation: interviewing, screening, assessment, and report writing in general contexts across the lifespan. Enrollees will also receive an introduction to basic clinical reasoning skills required for instrument selection, interpretation of findings, and application to treatment planning. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students only

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**OC\_THR 7420: Human Development and Occupations I**

(cross-leveled with OC\_THR 4420). Overview of typical development from infancy through adolescence from an occupational perspective. Emphasis on the impact of personal and contextual factors on occupational development in children and adolescents. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7422: Fieldwork I - Occupations I**

(cross-leveled with OC\_THR 4422). Development of clinical observation skills via on-site observation of children with typical and atypical development. Opportunities to develop professional behaviors, gather and organize data, plan and implement activities, and develop therapeutic relationships with children, care providers, and other team members. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students only

---

**OC\_THR 7450: Pediatric Practice**

Lecture and laboratory course designed which addresses Occupational Therapy pediatric frames of reference and theories. Common conditions seen in Occupational Therapy practice as well as interventions such as feeding, positioning, facilitation of movement and sensory strategies are also addressed. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Admission to the Occupational Therapy professional program required

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**OC\_THR 7520: Fundamentals of Occupational Therapy**

This course will provide an overview of disability across the lifespan, including personal and professional interactions. Professional values, ethics and advocacy are also emphasized. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to students who are currently enrolled in to the Occupational Therapy program

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**OC\_THR 7620: Human Development and Occupations II**

(cross-leveled with OC\_THR 4620). Overview of biopsychosocial development and the aging process from young adulthood through older adulthood from an occupational perspective. Emphasis on the impact of client and contextual factors on occupational development and loss of occupations throughout the adult lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7622: Fieldwork I - Occupations II**

(cross-leveled with OC\_THR 4622). Development of evaluation and intervention skills via on-site interaction with older adults in a residential facility. Opportunities to gather data, plan/implement activities, document client performance, and develop therapeutic relationships with older adults and care providers. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Restricted to Occupational Therapy students only

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**OC\_THR 7650: Principles of Intervention**

(cross-leveled with OC\_THR 4650). This course provides a foundation to understanding common frames of reference and theory utilized in occupational therapy. Application of these frames of reference and theories will be utilized to assist students in the program to understand common conditions, their influence on health and wellness, and systematic ways to begin provision of intervention for future clinical practice. Principles of intervention will be discussed across a variety of ages and conditions as a frame to understanding human occupation and ways to support meaningful participation. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** OC\_THR 4310 or OC\_THR 7310 and OC\_THR 4520 or OC\_THR 7520. Restricted to Occupational Therapy students only

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**OC\_THR 7670: Musculoskeletal Intervention**

(cross-leveled with OC\_THR 4670). To gain entry level skills needed to evaluate and treat common upper extremity conditions, including acute injuries and cumulative trauma disorders. Graded on A-F basis only .

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 7750: Functional Cognition**

(cross-leveled with OC\_THR 4750). This course provides an overview of theoretical models of cognitive function, an overview of an occupational therapy cognitive assessment framework and assessment tools, and an introduction to models of intervention for working with individuals with cognitive disabilities across the lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 7770: Community-Based Practice**

Focus on role of occupational therapy in prevention, health and wellness. Program development and evaluation completed through community needs assessment and completion of health promotion project. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites:** Admission to the Occupational Therapy Professional Program

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**OC\_THR 7920: Fieldwork I Application of Clinical Skills**

Application of clinical reasoning. Integration of theory into clinical practice. Emphasis on treatment planning and implementation, outcome based intervention and professional communication. Includes lecture, seminar, and field experience. Graded on S/U basis only.

**Credit Hours:** 2

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**OC\_THR 7921: Clinical Reasoning and Documentation**

(cross-leveled with OC\_THR 4920). Development of observation and assessment skills related to effective documentation of occupational therapy services. Emphasizes exposure to various clinical settings, third party payers, and legislative policies impacting documentation. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

---

**OC\_THR 7960: Readings in Occupational Therapy**

Directed readings and critical evaluation of the literature and research in occupational therapy. Repeatable upon consent of department. May be offered on A-F or S/U basis.

**Credit Hour:** 1-99

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**OC\_THR 7970: Research Methods**

This course will use writing to explore basic concepts in research design and analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 7983: Fieldwork Level II-A**

Advanced practicum in various community settings such as the school system, hospitals, rehabilitation centers and residential facilities. Emphasis on hands-on experiences and translation of theory into practice. Graded on S/U basis only.

**Credit Hour:** 3-9

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**OC\_THR 7993: Fieldwork Level II-B**

Advanced practicum in rehabilitation and various community settings for application of more specialized practice in community based settings. Emphasis on critical analysis of human occupation, clinical reasoning, synthesis, and evidence based practice. Graded on S/U basis only.

**Credit Hour:** 3-9

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**OC\_THR 8000: Field Work 1 - Psychosocial Occupational Therapy Practice**

Fieldwork experience in a setting focused on psychosocial aspects of occupational therapy, students to experience intervention in individual and group psychosocial treatments. Course may be repeated. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students only

**Corequisites:** OC\_THR 8003

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**OC\_THR 8002: Leadership, Management and Policy**

Management perspectives and organizational structure of occupational therapy services programs and the profession. Includes inter- and intra departmental relationships, management and supervision, standards, regulations, and ethical guidelines are emphasized.

**Credit Hour:** 2-3

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**OC\_THR 8003: Psychosocial Aspects of Occupational Therapy**

This graduate course will examine the practice of occupational therapy in treating emotional and mental illnesses and related psychosocial dysfunction in the context of a variety of mental health treatment settings. The course will cover advanced frames of reference, treatment strategies, assessments, service delivery, program planning and group facilitation. In conjunction with didactic content students will actively explore these areas through hands on and practical learning experiences such as planning and leading groups, selecting and administering assessments, and developing a service delivery plan. The student will be required to complete an assigned field experience and write a reflection paper to insight and new perspectives on mental illness.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 8005: Advanced Adult Strategies**

Analysis of major disability areas from an occupational perspective, focusing on advanced rehabilitative practice techniques. Facilitates critical thinking and clinical reasoning skills utilizing a student-centered model.

**Credit Hours:** 3

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**OC\_THR 8006: Advanced Pediatric Strategies**

Explore topics related to occupational therapy pediatric practice in medical and educational settings and advanced topics such as assistive technology, working with special populations and evidence based practice. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** OC\_THR 4420 or OC\_THR 7420 and OC\_THR 4450 or OC\_THR 7450; Restricted to students in the Department of Occupational Therapy

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**OC\_THR 8087: Problem-Based Cases**

Synthesizes occupational therapy approaches to clinical scenarios across the lifespan and practice domains. Integrates clinical reasoning, patient values and evidence-based decision making into the occupational therapy process. Problem-based methodology emphasizes small group learning, problem solving, self/peer evaluation, and self-directed learning.

**Credit Hours:** 4



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**OC\_THR 8090: Synthesis Project**

Write up scholarly manuscript for publication based on research conducted with research mentor. Emphasis on writing: introduction, literature review, analysis and interpretation of findings, and implication for field. Presentation and dissemination of acquired information through poster session and manuscript. Graded on A-F basis only.

**Credit Hours:** 2

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**OC\_THR 8095: Synthesis Project - Mentor Hours**

Hours spent working with research mentor. Emphasis on data collection and analysis to complete synthesis project. Must be taken in conjunction with Synthesis Project course.

**Credit Hour:** 1

**Corequisites:** OC\_THR 8090. Graded on S/U basis only

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**OC\_THR 8950: OT Clinical Practice I**

Clinical course providing students with the occupational therapy process from assessment through discharge in a supervised setting. Course may be repeated. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 8999: OT Clinical Practice II**

This clinical course is designed to provide students an opportunity to advance skills in implementation of the occupational therapy process with individuals experiencing limitations in occupational performance. Through this hands-on experience, students will gain additional opportunities for application of theory, a deepened understanding of occupational therapy practice, and increase independence by identifying strengths and limitations during the evaluation process, developing and measuring client-centered goals, planning and executing interventions, implementing home programs, and preparing and performing discharge procedures.

**Credit Hour:** 1

**Prerequisites:** Restricted to occupational therapy students only

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## Ophthalmology Courses

**OPHTH 6321: ABS Age-Related Mechanism of Degeneration**

ABS Age-Related Mechanism of Degeneration

**Credit Hour:** 5-10

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**OPHTH 6323: ABS Ophthalmology Research**

ABS Ophthalmology Research

**Credit Hour:** 5-10

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**OPHTH 6325: ABS Ophthalmology Research and Review**

ABS Ophthalmology Research and Review

**Credit Hours:** 5

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**OPHTH 6585: Ophthalmology**

Ophthalmology

**Credit Hours:** 5

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**OPHTH 6936: Introduction to Ophthalmology**

Welcome to the Ophthalmology Elective. This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work in the outpatient setting seeing patients at the University Eye Institute. Students will participate in didactic sessions each week. During this 2 week elective, students will become familiar with the screening eye examination, learn to perform a more comprehensive ocular examination, learn about common ocular abnormalities and treatments, and become familiar with the common ophthalmic instruments.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Parks, Recreation, and Tourism Courses

**P\_R\_TR 1010: Introduction to Leisure Studies**

History of recreation and leisure movement; theories and philosophies of play, recreation and leisure. Developmental stages of leisure services to contemporary status.

**Credit Hours:** 3

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**P\_R\_TR 1011: Academic Planning and Career Orientation in Parks, Recreation and Tourism**

Orientation to the field and analysis of career opportunities in leisure services. Academic planning leading to B.S. in parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Parks, Recreation and Tourism major

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**P\_R\_TR 1080: Introduction to Sport Management**

This course will examine the meaning of sport management in terms of its history, scope, principles, issues and future trends. In addition, this course examines the job responsibilities and competencies required of sport managers in a variety of sport organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 1081: Sport Facility Design**

This course will investigate the functions of management in terms of design, implementation, operating and financing public assembly facilities in order to help sell the sport product. Venues such as public and private arenas, coliseums and stadiums will be studied. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1080

**Prerequisites:** May be restricted to Parks, Recreation, and Tourism majors

**Corequisites:** P\_R\_TR 2082, P\_R\_TR 2083

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**P\_R\_TR 1084: Recreational Shooting Sports**

This course provides introductory instruction and hands-on shooting with an introduction to shooting range management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 1085: The Sports Page**

This course is offered to introduce students to Sport Management by discussing the variety of sports, issues, perspectives and people that make the daily sport page worth reading. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** P\_R\_TR 1080

**Corequisites:** Instructor consent required if P\_R\_TR 1080 is taken concurrently

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**P\_R\_TR 1091: Research and Descriptive Statistics for Parks, Recreation and Tourism**

An introduction to research methods and techniques and descriptive statistics and their application in the field of recreation and park administration. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2080: Global Sport Environments**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. professional sports. The course will also look into facility design and technology used in sports environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 2082: Domestic and International Sports Environment**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. profession sports. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1080

**Corequisites:** P\_R\_TR 1081, P\_R\_TR 2083

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**P\_R\_TR 2083: Technological Advancement in Sport**

This course will teach students how to solve sports technology problems they will face in their future career, plus develop computer aided design and manufacturing skills. They will also gain skills in team work, communication and presentation, IT, research and project management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1080

**Corequisites:** P\_R\_TR 1081, P\_R\_TR 2082

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**P\_R\_TR 2101: Topics in Park, Recreation and Tourism**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2101W: Topics in Park, Recreation and Tourism - Writing Intensive**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2103: Topics in Park, Recreation and Tourism - Behavioral Science**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2104: Topics in Park, Recreation and Tourism - Social Science**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2107: Aquatics Science**

A scientific perspective on water chemistry, preventive maintenance of aquatic facilities with an emphasis on the newest safety and engineering design information and construction techniques.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2111: Introduction to Planning and Evaluating Leisure Environments**

Presentation of basic planning principles. Evaluation of existing areas and facilities based upon planning guidelines. Consideration of park plans, standards, terminology, map preparation and evaluation.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2115: Consortium Field Experience**

An organized undergraduate experiential learning opportunity.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 2140: Camp Leadership and Management**

Organization and administration of camps; program planning; selection and training of staff; camp site selection and development; health and safety; camp history, standards, trends; practical application of camp craft skills.

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**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 2142: Leadership of Social Recreation**

Study and practice in techniques of leading social activities suitable for various social settings. Offered periodically.

**Credit Hours:** 2

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2143: Organization and Conduct of Recreation Centers**

Problems of operation, management of playgrounds, recreation centers.

**Credit Hours:** 2

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2182: Ethics and Current Issues in Sports**

Ethical strategies of sport management will be emphasized in all management decisions and current issues that today's sport business professional faces will be studied. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 2206: Introduction to Leisure Service Management**

An introduction to public recreation in local government.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1010, P\_R\_TR 1011, P\_R\_TR 2111 or instructor's consent

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**P\_R\_TR 2281: The Business of Sport**

This course focuses on the business side of sport management, considering issues of marketing, sponsorship, and sales. Students will also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Some sections may require P\_R\_TR 1011

**Prerequisites:** some sections may be restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent

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**P\_R\_TR 2355: Private and Commercial Recreation Principles and Practice**

Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 2711: Experience Internship**

This course is designed as an independent study for students to gain professional experience. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011 and P\_R\_TR 1010

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**P\_R\_TR 2750: Methods in Research and Evaluation**

An overview of social research methods, including terms, human and scientific inquiry, ethical behavior, literature review, sampling questionnaire construction, types of data collection, statistical analysis, and reporting of results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 3185: Sports Economics and Finance**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent

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**P\_R\_TR 3185H: Sports Economics and Finance - Honors**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Honors eligibility required

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**P\_R\_TR 3189: Pre-Internship Seminar in Parks, Recreation and Tourism**

The course is designed to prepare students for P\_R\_TR 4940. Emphasis is placed on students' responsibilities prior to enrollment in P\_R\_TR 4940, selecting internship sites and completing internship requirements.

**Credit Hour:** 1

**Prerequisites:** P\_R\_TR 1011; restricted to Parks, Recreation and Tourism students only

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**P\_R\_TR 3210: Personnel Management and Leadership in Leisure Services**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 3210W: Personnel Management and Leadership in Leisure Services - Writing Intensive**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 3215: Program Development in Leisure Services**

Fundamental principles and techniques of program development; seasonal, year round, specialty areas and total agency program planning.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011, or instructor's consent; restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 3220: Introduction to Recreation for Individuals with Disabilities**

Principles, concepts and historical development of recreation for individuals with disabilities. Explanation of attitudes, issues, practice and barriers related to recreation participation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 3227: Introduction to Therapeutic Recreation**

An investigation of therapeutic recreation service delivery models of the P\_R\_TR 2111 and disabled in both institutional and community settings. Particular emphasis will be placed on advanced leadership and therapeutic interactional skills and dynamics.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 3230: Introduction to Parks and Outdoor Recreation Services**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 3230W: Introduction to Parks and Outdoor Recreation Services - Writing Intensive**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 3231: Principles of Interpretive Outdoor Recreation**

Interpretive principles and techniques employed to communicate values, natural history and cultural features to the recreation user.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

---

**P\_R\_TR 3282: Governance and Policy in Sport and Leisure**

This course serves as a comprehensive study in examining how leisure organizations address fundamental issues of governance and policy. Through careful use of policy and understanding of governance, organizations often form strategies in their attempts to gain an advantage. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis

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**P\_R\_TR 4208: Administration of Leisure Services**

(cross-leveled with P\_R\_TR 7208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 4312: Planning Recreation and Leisure Environments**

Practical application of basic planning principles and design. Layout and design of various leisure-oriented areas and facilities. Site planning and analysis.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

---

**P\_R\_TR 4315: Senior Seminar in Leisure Services**

Presentation of professional principles and issues in leisure services. Seminar study resulting in presentations and discussions.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism majors

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**P\_R\_TR 4327: Operation of Therapeutic Recreation: Procedures and Principles**

Theories and principles of leadership and programming as they apply to recreation services for the ill, handicapped, and aged.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4328: Leisure and Aging**

Basic understanding of problems/needs of later maturity in relation to recreation. Characteristics/capabilities of aged, program settings, financial support, planning guidelines emphasized. Objectives: provide fundamentals for recreation planning with aged individuals/groups. Offered periodically.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4329: Therapeutic Recreation Education/Counseling Techniques**

Techniques and models of leisure facilitation for use within a variety of clinical, residential and Institutional models. Theories of positive/negative leisure engagement reviewed.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4330: Therapeutic Recreation Assessment/Evaluation Procedures**

Reviews accepted clinical protocols for determining a client's physical, emotional, social and cognitive levels of functioning. Competencies in administering, scoring and interpreting multiple tools included.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4331: Administration of Outdoor Recreation - Education Programs**

(cross-leveled with P\_R\_TR 7331). Philosophies, essential principles, methods, techniques, resources, administrative and program practices for outdoor recreation and education. Offered periodically.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4333: Park Management**

Basic principles, practices and problems involved in managing public park systems. Consideration given to local, district, county, state, federal and foreign park systems.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 4340: Advanced Recreation Land Management**

(cross-leveled with P\_R\_TR 7340). Advanced study of problems facing forest recreation managers. Topics include rivers recreation, wilderness management and citizen participation in decision making. Offered periodically.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 4350: Problems in Parks, Recreation and Tourism**

**Credit Hour:** 1-3

**Prerequisites:** P\_R\_TR 1011; departmental consent

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**P\_R\_TR 4356: Tourism Management**

Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development, political system, and the economic, social and environmental effects of tourism.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4357: Tourism Planning and Development**

Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011 and P\_R\_TR 4356

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**P\_R\_TR 4385: Legal Aspects of Sport**

This course studies the U. S. legal system, its structure and terminology. Legal aspects of contract law, statutory law, constitutional law, intellectual property, torts, negligence, and risk management in sport will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sports Management emphasis or instructor consent

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**P\_R\_TR 4940: Parks, Recreation and Tourism Internship**

Supervised professional experience with an approved organization. Course entails weekly reports, case studies, agency evaluations and a special project related to the student's curricular emphasis. Graded on A-F basis only.

**Credit Hours:** 12

**Prerequisites:** P\_R\_TR 1011 and P\_R\_TR 3189, P\_R\_TR majors only, instructor's consent

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**P\_R\_TR 4949: Western Canada Study Abroad**

This course provides students an educational opportunity to explore Western Canada. Students analyze natural resource management, customer and visitor relations, community relations, cultural entrepreneurship, and transportation networks with US and Canadian Management methods.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; instructor's consent

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**P\_R\_TR 4950: Independent Research in Parks, Recreation and Tourism**

Independent research project in parks, recreation and tourism. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** P\_R\_TR 1011; instructor's consent

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**P\_R\_TR 7208: Administration of Leisure Services**

(cross-leveled with P\_R\_TR 4208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator.

**Credit Hours:** 3

---

**P\_R\_TR 7312: Planning Recreation and Leisure Environments**

Practical application of basic planning principles and design. Layout and design of various leisure-oriented areas and facilities. Site planning and analysis.

**Credit Hours:** 3

---

**P\_R\_TR 7328: Leisure and Aging**

Basic understanding of problems/needs of later maturity in relation to recreation. Characteristics/capabilities of aged, program settings, financial support, planning guidelines emphasized. Objectives: provide fundamentals for recreation planning with aged individuals/groups. Offered periodically. .

**Credit Hours:** 3

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**P\_R\_TR 7331: Administration of Outdoor Recreation - Education Programs**

(cross-leveled with P\_R\_TR 4331). Philosophies, essential principles, methods, techniques, resources, administrative and program practices for outdoor recreation and education. Offered periodically.

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**Credit Hours:** 3

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**P\_R\_TR 7333: Park Management**

Basic principles, practices and problems involved in managing public park systems. Consideration given to local, district, county, state, federal and foreign park systems.

**Credit Hours:** 3

---

**P\_R\_TR 7340: Advanced Recreation Land Management**

(cross-leveled with P\_R\_TR 4340). Advanced study of problems facing forest recreation managers. Topics include rivers recreation, wilderness management and citizen participation in decision making. Offered periodically.

**Credit Hours:** 3

---

**P\_R\_TR 7355: Private and Commercial Recreation Principles and Practice**

Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services.

**Credit Hours:** 3

---

**P\_R\_TR 7356: Tourism Management**

Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development, political system, and the economic, social and environmental effects of tourism.

**Credit Hours:** 3

---

**P\_R\_TR 7357: Tourism Planning and Development**

Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry.

**Credit Hours:** 3**Prerequisites:** P\_R\_TR 7356

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**P\_R\_TR 7960: Guided Reading in Parks, Recreation and Tourism**

Selected reading in parks, recreation and tourism identified to fulfill a graduate student's academic needs or specialized interests.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent

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**P\_R\_TR 8080: Foundations of Sport**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_R\_TR 8085: Problems in Parks, Recreation and Tourism**

Independent research on special projects.

**Credit Hour:** 1-6**Prerequisites:** instructor's consent

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**P\_R\_TR 8087: Masters Level Graduate Seminar in Parks, Recreation and Tourism**

In this course, students and faculty will discuss and critically analyze contemporary issues on social concerns relating to leisure services. Graded on S/U basis only.

**Credit Hours:** 2

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**P\_R\_TR 8088: Sport and Leisure Economics**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_R\_TR 8089: Research Project**

Individual research on approved project. Involves creativity and scholarly inquiry where product does not adhere to the traditional thesis format. Graded on S/U basis only.

**Credit Hour:** 1-99**Prerequisites:** Parks, Recreation and Tourism graduate major

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**P\_R\_TR 8090: Thesis Research in Parks, Recreation and Tourism**

Research leading to thesis in field of parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1-6**Prerequisites:** Parks, Recreation and Tourism graduate major

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**P\_R\_TR 8400: Constructs of Leisure**

Review analysis and implications of fundamental psycho-social determinants of leisure behavior. Application theories of determinants to existing and proposed leisure service systems.

**Credit Hours:** 3

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**P\_R\_TR 8401: Topics in Recreation and Park Administration**

Specialized topics in recreation and park administration dynamics. Subjects and credits vary by semester based on available faculty resources and expertise. Course content announced in advance.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent

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**P\_R\_TR 8411: Independent Work in Parks, Recreation and Tourism**

Independent research or special projects in parks, recreation and tourism.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent

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**P\_R\_TR 8420: Leisure, Technology and Human Values**

Study of the developmental patterns of leisure services in society with emphasis to the dynamics of technology and leisure on individual and social values.

**Credit Hours:** 3

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**P\_R\_TR 8427: Contemporary Issues in Therapeutic Recreation**

The course will include new issues and ideas in the field of therapeutic recreation, such as registration, insurance, liability, licensure, assessment, etc., and how they relate to practitioners and services to clients.

**Credit Hours:** 3

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**P\_R\_TR 8430: Research Methods in Parks, Recreation and Tourism**

Analysis of basic research methodology. Review and analysis of research work completed in recreation, park and leisure field.

**Credit Hours:** 3

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**P\_R\_TR 8436: Visitor Behavior and Policy**

Course presents issues, concerns and policies dealing with multi-management/planning/operations of outdoor resource based recreation. Such issues as energy, economics, social/ political, pollution and user characteristics will be studied.

**Credit Hours:** 3

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**P\_R\_TR 8440: Philosophical Perspectives of Leisure**

Study of the theoretical and philosophical perspective of leisure in society with emphasis on integration and development of the student's personal and professional viewpoint.

**Credit Hours:** 3

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**P\_R\_TR 8450: Administration in Leisure Service Delivery**

Review, analysis and synthesis of administrative functions as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**P\_R\_TR 8460: Financial Operations in Leisure Service Delivery**

Review and critical analysis of financial functions, strategies and methodology as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**P\_R\_TR 8940: Internship in Parks, Recreation and Tourism**

Supervised student practice in recreation, park or related settings under qualified instructor.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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## Pathology & Anatomical Science Courses

**PTH\_AS 2000: Basic Pathology**

Provides nonmedical students with a general understanding of the essential nature of disease, including mechanisms of its development and cause/effect relationships.

**Credit Hours:** 2

**Prerequisites:** 5 hours Biological Science or equivalent and 5 hours Chemistry or PTH\_AS 2201

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**PTH\_AS 2201: Human Anatomy Lecture**

A systems-based survey of human gross anatomy including structure, function and history. Internet access required: lectures and assignments will be online. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Minimum cumulative MU GPA of 2.5 required

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**PTH\_AS 2203: Human Anatomy Laboratory**

A systems-based survey of human gross anatomy. Internet access required: most materials will be online. One on-campus laboratory meeting per week. Graded A-F only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PTH\_AS 2201

**Prerequisites:** Minimum cumulative MU GPA of 2.5

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**PTH\_AS 2600: Cytology Female Genital Tract**

A definitive study of normal and abnormal cellular changes occurring within the organ system by means of light microscopy with histologic correlation.

**Credit Hours:** 10

**Prerequisites:** instructor's consent

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**PTH\_AS 2610: Respiratory Cytology**

A definitive study of the normal and abnormal cellular changes occurring within the system by means of light microscopy, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2615: Cytology of Body Fluids**

Normal and abnormal cellular changes within pleural, peritoneal, pericardial and cerebrospinal fluids by means of light microscopy, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2620: Gastrointestinal Cytology**

A definitive study of the normal and abnormal cellular changes occurring within the system by means of light microscopy, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2625: Oral Cytology**

Studies normal and abnormal cellular changes within the oral cavity and oropharynx by means of light microscopy, with histologic correlation.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**PTH\_AS 2630: Urinary Cytology**

Studies normal and abnormal cellular morphology from kidney, ureter and bladder samples, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2685: Special Problems in Cytology**

Relating hematologic morphologic findings in conventional body fluid cytology; also review of techniques used in chromosome cultures and karyotyping, with emphasis on sex-related abnormalities.

**Credit Hours:** 2

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**PTH\_AS 3400: Fundamentals of Medical Technology I**

Emphasizes diseases and basic laboratory methods used in clinical laboratory areas: microbiology, hematology, immunology, virology, tissue typing, blood banking and chemistry.

**Credit Hours:** 3

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**PTH\_AS 3410: Fundamentals of Medical Technology II**

Continuation of PTH\_AS 3400.

**Credit Hours:** 3

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**PTH\_AS 3415: Fundamentals of Medical Technology III**

Continuation of PTH\_AS 3400 and PTH\_AS 3410.

**Credit Hours:** 3

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**PTH\_AS 3420: Clinical Practicum**

Presentation and application of concepts and laboratory method used in areas of immunochemistry, toxicology, mycology, uranalysis and cytogenetics.

**Credit Hours:** 3

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**PTH\_AS 3425: Hemostasis**

Lectures and laboratory exercises in basic theory and techniques of hemostasis including platelet function and disorders, plasma coagulation system, acquired and inherited themostatic disorders.

**Credit Hours:** 2

**Prerequisites:** PTH\_AS 3400, PTH\_AS 3410, PTH\_AS 3415

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**PTH\_AS 3430: Clinical Immunology**

Antigen-antibody reactions and their role in determining infectious, auto-allergic and inflammatory disease states.

**Credit Hours:** 3

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**PTH\_AS 3435: Blood Banking**

Principles and techniques of transfusion practices related through lectures and experience in the blood bank laboratory.

**Credit Hours:** 3

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**PTH\_AS 3440: Clinical Hematology**

Lectures and laboratory regarding procedures for diagnosing hematologic disorders. Experience in collection of specimens from patients; staining, counting and identifying blood and bone marrow cells.

**Credit Hours:** 6

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**PTH\_AS 3445: Clinical Microbiology**

Diagnostic procedures related to the isolation and identification to infectious microorganisms; bacteria and parasites. Emphasis on human pathogens and their sensitivity patterns with commonly used antibiotics.

**Credit Hours:** 6

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**PTH\_AS 3450: Clinical Chemistry**

Principles of quantitative analysis applied to the measurement of substances in biological fluids. Significance of these findings in the diagnosis and treatment of disease.

**Credit Hours:** 6

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**PTH\_AS 3455: Principles of Management and Education**

Lectures and discussion of management techniques and theories used in supervising laboratory personnel. Analysis of educational objectives and exam questions.

**Credit Hour:** 1

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**PTH\_AS 3460: Research and Instructional Techniques**

Involves library and laboratory research. Includes development of oral and written communications skills.

**Credit Hours:** 3

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**PTH\_AS 3485: Problems in Medical Technology**

Individual supervised work in a area of interest in medical technology.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PTH\_AS 3500: Cytology of the Female Genital Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the female genital tract along with histologic correlation.

**Credit Hours:** 8

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3510: Cytology of Respiratory Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring with the respiratory tract along with immunohistologic correlation. Prerequisitez: senior standing and instructor's consent.

**Credit Hours:** 4

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**PTH\_AS 3515: Cytology of Urinary Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the urinary tract along with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3520: Cytology of Gastrointestinal Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the gastrointestinal tract along with histologic correlation.



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**Credit Hours:** 5

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3525: Cytology of Body Fluids**

A definitive study of light microscopy of normal and abnormal cellular changes occurring within body fluid along with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3530: Cytology of Breast**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the breast with histologic correlation.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3535: Fine Needle Aspiration Cytology**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the fine needle aspirations from various body sites along with histologic correlation.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

---

**PTH\_AS 3540: Special Procedures in Cytology**

Study of hematologic findings in body fluid cytology: chromosome cultures and karyotyping. Emphasizing sex-related abnormalities; hormonal evaluation of smears from the female genital tract and their clinical significance.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3545: Clinical Management**

Procedures and processes helpful in operating in cytology laboratory, especially at the supervisory level.

**Credit Hour:** 1

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3550: Technical Application with Research in Cytotechnology**

Research is an area of interest in cytology resulting in a written and oral presentation.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3555: Cytologic Preparation**

Independent applications of techniques used to prepare cytologic material.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3560: Practical Cytotechnology**

Independent application of techniques used to examine cytology material and manage a cytology laboratory.

**Credit Hours:** 6

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3585: Problems in Cytotechnology**

Individual supervised work in an area of interest in cytology.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PTH\_AS 3600: Elementary Histology**

Simplified gross and microscopic anatomy of normal organs and tissues commonly found in the routine histopathology laboratory.

**Credit Hours:** 3

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**PTH\_AS 3610: Basic Histotechnology**

Theories and technical application of procedures used in the preparation of tissue sections and slides of microscopic examination; including instrumentation, fixation, dehydration, clearing infiltration, embedding, microtomy, H&E staining and coverslipping.

**Credit Hours:** 6

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**PTH\_AS 3615: Special Staining Techniques**

Principles and procedures for special staining techniques for carbohydrates, connective tissues, blood, fat and lipids, pigments and minerals, bacteria and fungi, nerve, and other special cell stains.

**Credit Hours:** 6

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**PTH\_AS 3620: Applied Histotechnology**

Application of basic histological techniques in the preparation of histologic sections and slides in a clinical setting.

**Credit Hours:** 9

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**PTH\_AS 3625: Research and Instructional Techniques**

Involves library and laboratory search. Includes development of oral and written communications skills.

**Credit Hours:** 3

**Prerequisites:** senior students admitted to Histotechnology Curriculum

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**PTH\_AS 3630: Clinical Management**

Supervisory techniques and procedures helpful in operating a histopathology laboratory: including laboratory safety, workload recording, and personnel management in a laboratory situation.

**Credit Hours:** 2

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**PTH\_AS 3635: Basic Disease Processes**

Special readings and discussions of basic disease processes of interest to the anatomic pathology laboratory.

**Credit Hours:** 2

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**PTH\_AS 3680: Advances Histotechnology**

Advanced and specialized techniques used in the preparation and processing of muscle, nerve and rectal biopsies; special techniques in cytology; electron microscopy; enzyme and immunohistochemistry; plastic embedding and neuropathologic techniques.

**Credit Hours:** 6

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**PTH\_AS 3685: Problems in Histotechnology**

Individual supervised work in a specialized area of histotechnology.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PTH\_AS 4200: General Pathology**

Basic pathological mechanisms of human disease. Introductory principles of clinical laboratory measurements of altered organ system function studied.

**Credit Hours:** 5

**Prerequisites:** PTH\_AS 7200, PTH\_AS 7220, PTH\_AS 7310; and instructor's consent

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**PTH\_AS 4205: General Pathology Laboratory**

Gross and microscopic applied study of basic pathological disease mechanisms. Laboratory assessment of these basic disease mechanisms.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 7200, PTH\_AS 7220, PTH\_AS 7310; or the equivalents; and instructor's consent

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**PTH\_AS 4210: Seminar in Pathology and Anatomical Sciences**

Presentation and discussion of original investigations and current literature.

**Credit Hour:** 1

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**PTH\_AS 4220: Forensic Pathology and Death Investigation**

Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4220W: Forensic Pathology and Death Investigation - Writing Intensive**

Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4222: Gross Human Anatomy (The Health Professions)**

Gross structure and neuroanatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax.

**Credit Hours:** 7

**Prerequisites:** instructor's consent

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**PTH\_AS 4250: Interpretations of Lab Procedures in Primary Health Care**

Discussion and analysis of selected laboratory test procedures used in office and clinic settings involved with primary health care.

**Credit Hour:** 1

**Prerequisites:** graduate level Physiology course and departmental consent

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**PTH\_AS 6331: ABS Advanced Medical Neurosciences**

ABS Advanced Medical Neurosciences

**Credit Hour:** 5-10

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**PTH\_AS 6333: ABS Pathology/Anatomical Science Research**

ABS Pathology/Anatomical Science Research

**Credit Hours:** 5

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**PTH\_AS 6335: ABS Pathology/Anatomical Science Research and Review**

ABS Pathology/Anatomical Science Research and Review

**Credit Hours:** 5

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**PTH\_AS 6341: ABS Science Anatomical Science Teaching**

ABS Science Anatomical Science Teaching

**Credit Hours:** 5

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**PTH\_AS 6343: ABS Surgical Anatomy**

ABS Surgical Anatomy

**Credit Hours:** 5

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**PTH\_AS 6345: ABS Surgical Anatomy of the Head and Neck**

ABS Surgical Anatomy of the Head and Neck

**Credit Hours:** 5

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**PTH\_AS 6347: ABS Surgical Anatomy of the Back and Limbs**

ABS Surgical Anatomy of the Back and Limbs

**Credit Hours:** 5

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**PTH\_AS 6349: ABS Surgical Anatomy of the Pelvis and Perinium**

ABS Surgical Anatomy of the Pelvis and Perinium

**Credit Hour:** 5-10

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**PTH\_AS 6600: Anatomic Pathology**

Anatomic Pathology

**Credit Hours:** 5

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**PTH\_AS 6602: Clinical Pathology**

Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6604: Forensic Pathology**

Forensic Pathology

**Credit Hours:** 5

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**PTH\_AS 6606: Anatomic/Clinical Pathology**

Anatomic/Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6608: Anatomy Elective**

Anatomy Elective

**Credit Hours:** 5

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**PTH\_AS 6916: Anatomic Pathology Two-Week**

This is a two week rotation. Students will learn how to integrate information and apply previously acquired knowledge and concepts to the assessment and interpretation of surgical pathology, cytopathology, and/or autopsy cases. Students will learn about the procedures necessary to arrive at anatomic pathology diagnoses and the work that goes into specimen processing and examination so as to produce diagnoses.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PTH\_AS 6917: Clinical Pathology - Laboratory Medicine**

Students will learn how to integrate information and apply previously acquired knowledge and concepts to the assessment and interpretation of clinical laboratory tests. Students will learn about the procedures necessary to arrive at clinical pathology diagnoses and the work that goes into specimen processing and examination so as to produce diagnoses.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PTH\_AS 7020: Forensic Pathology and Death Investigation**

Summary of Forensic Death Investigation from beginning to end. Will include some of the current laboratory techniques seen on "CSI" Team taught by experts in the fields including medical examiners, death investigators, forensic anthropologists, police CSI teams, lawyers and others.

**Credit Hours:** 2

**Prerequisites:** Basic Biology

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**PTH\_AS 7220: Human Histology and Organology**

Detailed study of cytology, histology and microscopic anatomy.

**Credit Hours:** 4

**Prerequisites:** 10 hours of Biological Sciences and instructor's consent

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**PTH\_AS 7222: Gross Human Anatomy (The Health Professions)**

Gross/human structure through dissection. Graded on A-F basis only.

**Credit Hours:** 7

**Prerequisites:** Acceptance into Physical Therapy Programs or instructor's consent

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**PTH\_AS 7230: Mammalian Reproduction**

Reproduction in mammals, with emphasis on the neuroendocrine control of the hormones involved in reproductive process: biosyntheses, biologic actions, role.

**Credit Hours:** 3

**Prerequisites:** graduate standing in one of Animal, Biologic, Medical, or Veterinary Sciences, instructor's consent

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**PTH\_AS 7300: Advanced Pathology**

Demonstration and simulation study of gross, microscopic and clinical laboratory pathology of major human organ systems.

**Credit Hours:** 5

**Prerequisites:** PTH\_AS 4200 and PTH\_AS 4205 or equivalent and instructor's consent

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**PTH\_AS 7320: Autonomic Nervous System**

A comprehensive consideration of the autonomic nervous system in man, with emphasis on morphology.

**Credit Hours:** 2

**Prerequisites:** PTH\_AS 2201, Comparative Anatomy or equivalent, and instructor's consent

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**PTH\_AS 7330: Hematopoietic Organs**

Morphological and functional relationships of the blood-forming organs.

**Credit Hours:** 2

**Prerequisites:** Basic Histology and instructor's consent

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**PTH\_AS 7350: Advanced Pathology Laboratory**

Demonstration and simulation and character of work depend upon needs, qualifications, and of major human organ systems.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 4200 and PTH\_AS 4205 or equivalent and instructor's consent

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**PTH\_AS 7400: Seminars in Translational Medicine**

Students participate in regular seminars and discussion groups with other students interested in clinical and translational sciences. Students, working together with faculty in biomedical sciences and those working in clinical and translational fields, identify seminar topics. Learning objectives and written assignments are arranged on an individual basis. The course is open to all graduate level students and students enrolled in professional schools, for 0-5 credit hours, with instructor's approval. Graded on S/U basis only.

**Credit Hour:** 0-5

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**PTH\_AS 7450: Precision Medicine Informatics**

This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**PTH\_AS 8000: Comparative Pathology**

(same as V\_PBio 8430). Biochemical and morphologic lesions related to the mechanism of disease expression in plants and animals.

**Credit Hours:** 3

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**PTH\_AS 8010: Current Issues in Anatomical Sciences**

Survey of the recent literature in integrative anatomy, including functional, evolutionary, developmental and translational anatomy, conducted

through readings and discussion. Grade determined by participation and presentation of weekly readings. May be repeated for a maximum of 10 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8090: Advanced Pathology**

Open only to properly qualified graduate students, with counsel of faculty. Focus of MS-related research in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 8100: Fundamentals of Evolutionary Biology**

Principles of modern evolutionary biology. Topics include: phylogeny, paleobiology, developmental processes, genetic and phenotypic variation, form and function, speculation, macroevolution, and molecular mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PTH\_AS 8150: Fundamentals of Evolutionary Morphology**

This course is a survey of the fundamentals of modern evolutionary morphology. Topics will include: patterns of vertebrate evolution, comparative methods, development and ontogeny, constraint, functional morphology, evolutionary innovations, and experimental methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PTH\_AS 8201: Human Anatomy: Back and Upper Limb**

Developmental, gross, and clinical anatomy of the human back and upper limb, including skeletal, muscular, nervous, and vascular tissues. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8202: Human Anatomy: Thorax and Abdomen**

Developmental, gross, and clinical anatomy of the human thorax and abdomen. Graded on an A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8203: Human Anatomy: Head, Neck and Neuroanatomy**

Developmental, gross and clinical anatomy of the human head, neck and neuroanatomy. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8204: Human Anatomy: Pelvis and Lower Limb**

Developmental, gross and clinical anatomy of the human pelvis and lower limb. Graded A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8285: Problems in Pathology and Anatomical Sciences**

Regions or systems which may include developmental, microscopic, and gross anatomy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8290: Research in Pathology and Anatomical Sciences**

Research unrelated to thesis work in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8310: Anatomy of the Human Nervous System**

A comprehensive consideration of the morphology of the nervous system, emphasizing correlation of structure and function.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201, Comparative Anatomy or equivalent, and instructor's consent

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**PTH\_AS 8450: Human Anatomy Teaching Practicum**

Provides practical experience teaching clinically oriented human anatomy in lecture and laboratory settings. For students pursuing doctoral degrees in Pathobiology. Enrollement is limited to students who have completed PTH\_AS 8201, PTH\_AS 8202, PTH\_AS 8203, and PTH\_AS 8204. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8500: Seminar in Translational Neuroscience**

Students participate in seminars and discussion groups. Masters students identify seminar topics and present existing data with findings. PhD students identify seminar topics, conduct research and present findings. Learning objective and written assignments are arranged individually. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-5

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**PTH\_AS 9090: Research in Pathology and Anatomical Sciences**

Open only to properly qualified graduate students, with counsel of faculty. Focus of PhD-related research in evolutionary morphology, genomics, neuroscience or pathobiology. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 9290: Research in Pathology and Anatomical Sciences**

Open only with instructor's consent. Courses with specialized lectures in various topics such as evolutionary morphology, genomics, neuroscience and pathobiology, depending on faculty expertise and student demand. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Peace Studies Courses

### PEA\_ST 1001: Topics in Peace Studies

Underclass topics. Subjects may vary from semester to semester. May be repeated to 6 hours maximum. Graded on A-F basis only.

**Credit Hours:** 3

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### PEA\_ST 1003: Topics in Peace Studies - Behavioral Science

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

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### PEA\_ST 1004: Topics in Peace Studies

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

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### PEA\_ST 1005: Topics in Peace Studies - Humanities

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

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### PEA\_ST 1050: Introduction to Peace Studies

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLISH 1000 or equivalent has already been taken

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### PEA\_ST 1050W: Introduction to Peace Studies - Writing Intensive

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLISH 1000 or equivalent has already been taken

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### PEA\_ST 1051: International Conflict Resolution and Group Reconciliation

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the "Truth and Reconciliation" committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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### PEA\_ST 1051W: International Conflict Resolution and Group Reconciliation - Writing Intensive

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the "Truth and Reconciliation" committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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### PEA\_ST 1052: Global Warming, Climate Change, Catastrophic Climate Destabilization

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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### PEA\_ST 1052W: Global Warming, Climate Change, Catastrophic Climate Destabilization - Writing Intensive

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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### PEA\_ST 1053: Terror, Violence, and Guns

An examination of gun violence focusing on international terrorist groups, state sanctioned violence, militias, gun violence and violence against women. Accounts of recruitment to violent actions and political groups, contrasted to the research on recruitment processes. Alternate public policies for the reduction of violence. Presentation of a diversity of viewpoints and concepts will be emphasized, especially in participatory formats such as panel discussions composed of students, and in formats that involve presentations in various media to the public outside the classroom.

**Credit Hours:** 3

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### PEA\_ST 1120: Population and Ecology

(same as RU\_SOC 1120 and SOCIOL 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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### PEA\_ST 1150: The Amish Community

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include

cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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**PEA\_ST 1150W: The Amish Community - Writing Intensive**

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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**PEA\_ST 1195: Service Learning in Peace Studies**

Students will perform significant and long term community service while exploring issues central to peace studies.

**Credit Hour:** 1

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**PEA\_ST 1610: Russia in Modern Times**

(same as HIST 1610). Survey of Russian History from 1801 to present.

**Credit Hours:** 3

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**PEA\_ST 2000: Exploration in Social and Economic Justice**

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**PEA\_ST 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**PEA\_ST 2003: Topics in Peace Studies: Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2003W: Topics in Peace Studies: Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2004: Topics in Peace Studies - Social Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2100: The Vietnam and Iraq Wars: Lessons for the Future**

An interdisciplinary analysis of the Vietnam War and the American-led war with Iraq. Course focuses on the reasons that American lost in Vietnam, the reasons it won in Iraq, and the lessons these conflicts provided for America's future. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2110: Perspectives on Peace in the Middle East**

This course examines conflict theories, international relation theories and Middle Eastern politics. It is intended as a comprehensive applied study of these theories. The initial weeks will cover the major conflict theories including social learning theory, social identity theory, relative deprivation theory, human needs theory, and rational choice theory. The focus of this course will primarily be on conflicts and peace efforts of the Middle East including but not limited to: the Arab Spring, the Israeli-Palestinian conflict, Jordanian-Palestinian identity issue, peace efforts in the Middle East. Ultimately, students should explore ways to bridge the theories learned and apply them to conflicts, negotiation and peace efforts in the Middle East.

**Credit Hours:** 3

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**PEA\_ST 2180: Undergraduate Seminar I in Peace Studies**

Conflict Resolution in Theory and Practice. Conflicts are studied in the light of the social and behavioral sciences.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050

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**PEA\_ST 2181: Undergraduate Seminar II in Peace Studies**

Contemporary International Conflict: A readings and research seminar in which students will address such problems as global conflicts, the Arms Race and disarmament, global development.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050

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**PEA\_ST 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as

Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**PEA\_ST 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050 or instructor's consent

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**PEA\_ST 2183: Undergraduate Seminar IV in Peace Studies**

Images of War and Peace. Study of war and peace in philosophical and religious systems, film, poetry, art, fiction, and the media.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050

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**PEA\_ST 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2200W: Nuclear Weapons: Environmental, Health and Social Effects-Writing Intensive**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2201: Topics in Peace Studies-General**

Organized study of selected topics in Peace Studies. Subjects and credit hours may vary from semester to semester.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2220: America in the 1960's**

(same as HIST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2255: Youth, Islam, and Global Cultures**

(same as SOCIOL 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**PEA\_ST 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2284: Critical Dialogs: Global Environmental Policy Conflicts**

(same as SOCIOL 2284). Climate change, water supplies, food, sustainability, industrialization, and chemical, oil, radioactive pollution. Activity of transnational corporations, social harm, and formulation of international policies. Analysis of alternatives using criteria of justice: distribution, recognition, participation, legality.

**Credit Hours:** 3

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**PEA\_ST 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as SOCIOL 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2286: Technological Futures, National Security, and Civil Liberties**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours: 3**

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**PEA\_ST 2287: Conspiracies, Popular Imagination, Evidence**

In-depth and critical analysis of cases involving allegations of "conspiracy" in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours: 3**

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**PEA\_ST 2287W: Conspiracies, Popular Imagination, Evidence - Writing Intensive**

In-depth and critical analysis of cases involving allegations of "conspiracy" in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours: 3**

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**PEA\_ST 2288: Sports, Protest Movements, and Conflict Resolution**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and

sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours: 3**

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**PEA\_ST 2288W: Sports, Protest Movements, and Conflict Resolution - Writing Intensive**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours: 3**

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**PEA\_ST 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

Focusing on towns and communities and their regional history and cultural traditions, we will examine the issues and concerns of small town America in the context of recent hardships and adverse economic trends. Examples of topics to be covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by "middle America". The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that will draw on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours: 3**

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**PEA\_ST 2289W: Towns in Missouri and the Midwest: Voices and Inequalities - Writing Intensive**

Focusing on towns and communities and their regional history and cultural traditions, we will examine the issues and concerns of small town America in the context of recent hardships and adverse economic trends. Examples of topics to be covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by middle America. The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that will draw on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours: 3**

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**PEA\_ST 2290: Drugs, Violence and the Police in Latin America and Latina/o Communities in the United States**

A regional and global perspective on the "war on drugs" and violence in Latin American countries such as Mexico and Colombia, as well as the United States. The course may include units on such topics as: the recent history of gangs in US urban areas; political violence in Central America and such countries as Colombia and Venezuela; and attempts



to mediate and reconcile social conflicts and war in those areas. The interplay between gangs, drug policies, policing, and citizens' action and protests in major cities of the hemisphere, such as in Argentina and Brazil. Drugs, policing, gangs, and violence as a symbolic and hot button issue in domestic politics, and the consequences for public policy and the character of the discourse about public policy.

**Credit Hours:** 3

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**PEA\_ST 2291: Information Technology: Facilitation and Constraint for the Creative Mind**

This course will enable students to evaluate contrasting interpretations by leading thinkers about the development of information technologies, the internet, and robotics and artificial intelligence. Current debates will be covered; topics might include: views that social media are constraining the development of human relationships (Turkel); that commercialization of the internet reduces its function to attention getting (Wu); that automation degrades the humanity of work (Carr) and restricts the pay for producing creative content (Lanier). On the other hand, the course will consider arguments that human mind can be reverse reengineered to advance a new era of artificially intelligent machines (Kurzweil). Current theories of information technology and society will be grounded in the multidisciplinary thinking about mind, intelligence, art, and work.

**Credit Hours:** 3

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**PEA\_ST 2292: Internet Identities, and the Clash of Global Countercultures and Oppositional Cultures**

This course problematizes the development of individual and group identities on the internet and social media due to their multiple, global, shallow, shifting, segmented, and conflictual character. We emphasize a multidisciplinary examination of the internet presentation of diverse identities such as those of the 1960s counter-culture, the Christian right, militias, the alt-right, rural towns, terrorist cells, and life-style and sectarian political and religious groups. We will also examine the processes of publicity and celebrity in the creation of personal identities such as "entrepreneur" (Bill Gates and Steve Jobs), "geek", "hacker," and anonymous, and the development of internet technologies and personal identities in the context of commercialism and ideals such as freedom and rebellion. The intersection of personal, work, and professional identities will be considered. Sources will include autobiography, biography, and literature on such topics as diaspora, borders, Empire, and exile.

**Credit Hours:** 3

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**PEA\_ST 2320: Literature of Spanish Civil War**

(same as SPAN 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2321: Germany in War and Peace: Division and Unity 1945-89**

This course will compare notions of war and peace in East (German Democratic Republic) and West Germany (Federal Republic of Germany), 1945-1989. In particular, there are three main ways to think about war and peace: 1. Dealing with the Nazi past; 2. Dealing with the Cold War present; Negotiating violence and peace within various dissent and peace movements.

**Credit Hour:** 2-3

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**PEA\_ST 2410: Philosophies of War and Peace**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2490: Introduction to Native Studies**

(Same as ENGLSH 2490) Introduction to the field of Native Studies. Topics include indigenous knowledge, culture change and continuity, history and misrepresentation, politics and political history, and global indigenous relationships. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2550: Human Rights, Law, War and Peace**

Interdisciplinary exploration of how human rights, law, war and peace are connected through an analysis of various theories and contemporary examples, which may include issues regarding citizenship in the United States today, the regulation of economic markets in the U.S. today, state surveillance, the military industrial complex, the manner in which gender affects the experience of warfare and individuals

**Credit Hours:** 3

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**PEA\_ST 2600: CAFO: Concentrated Animals, Deep Ecology**

Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

**Credit Hours:** 3

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**PEA\_ST 2600W: CAFO: Concentrated Animals, Deep Ecology - Writing Intensive**

Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

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**Credit Hours:** 3

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**PEA\_ST 2710: Politics and the Military**

(same as POL\_SC 2710). Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**Credit Hours:** 3

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**PEA\_ST 2810: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as JOURN 3510, T\_A\_M 2810, GERMAN 3510, DST 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 2810H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, T\_A\_M 2810H, JOURN 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required and 2.75 GPA. Honors eligibility required

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**PEA\_ST 2810HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors - Writing Intensive**

(same as GERMAN 3510HW, T\_A\_M 2810HW, JOURN 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required and 2.75 GPA. Honors eligibility required

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**PEA\_ST 2810W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as JOURN 3510W, T\_A\_M 2810W, GERMAN 3510W, DST 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 3003: Topics in Peace Studies - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 3005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PEA\_ST 3005H: Topics in Peace Studies - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing. Honors eligibility required

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**PEA\_ST 3130: Foreigners and Dangerous Women in Greek and Latin Literature**

(same as CL\_HUM 3000). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed both their own values and prejudices.

**Credit Hours:** 3

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**PEA\_ST 3140: Art of War and Peace**

Exploration of selected visual art pieces and consideration of humanistic concerns during times of war and peace from various perspectives including a peace studies perspective. Viewing and discussing art within varied selected historical and cultural contexts that generated the imagery. Includes visits to studios and galleries. May be repeated for credit.

**Credit Hour:** 2-3

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**PEA\_ST 3230H: Terrorism and Conflict Resolution - Honors**

Religious, ethnic, ideological movements; state and international reactions. Case studies from South America, Europe, Africa, Asia. Identifying problems, possible resolution. Dramatized thru discussions, documentaries, role-playing; short term paper, exams.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PEA\_ST 3280: Internship in Peace Studies**

Students work in a peace-related agency or institution for 1 to 3 credit hours. Repeatable for maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**PEA\_ST 3330: Environmental Justice**

(same as SOCIOL 3330). Environmental justice refers to the ways in which the "cost and benefits" of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3350: Readings in Peace Studies**

Students may receive 1 to 3 credit hours for doing readings and research in a particular area of peace studies. At least one paper will be required. Repeatable for a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PEA\_ST 3400: Politics of the Media**

(same as SOCIOL 3400). We look at the history and viability of the public sphere in the United States and the integral role of the media to its vitality. We analyze the impact of current trends toward media concentration and debate related issues of bias, censorship, and social control.

**Credit Hours:** 3

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**PEA\_ST 3400W: Politics of the Media - Writing Intensive**

(same as SOCIOL 3400). We look at the history and viability of the public sphere in the United States and the integral role of the media to its vitality. We analyze the impact of current trends toward media concentration and debate related issues of bias, censorship, and social control.

**Credit Hours:** 3

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**PEA\_ST 3401: Global Public Health and Health Care Systems**

(Same as HLTH\_SCI 3400). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3420: America's Environmental Experience**

(same as HIST 3420). Team-taught analysis of American thought and action on physical environment during 19th-20th centuries. Relation between politics, economics, technological change, environmental quality; roles of science, law, regulatory agencies, grassroots action.

**Credit Hours:** 3

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**PEA\_ST 3440: After the Fact: Holocaust in Contemporary History, Art & Literature**

(same as GERMAN 3440). Explores responses to the Holocaust from numerous perspectives. Considers how the Holocaust is remembered, memorialized, and debated in a variety of national contexts. Touches on historical, philosophical, and aesthetic points of view.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3490: Native Writing and Representation**

(same as ENGLSH 3490). Survey of native writing and representation from the late eighteenth century to the present, encompassing a diverse range of tribes and forms. Material will be drawn from tribes inhabiting the North American continent, but global indigenous relationships will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3496: Digital Indigenous Studies**

(same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3496H: Digital Indigenous Studies - Honors**

(same as GEOG 3496H). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community

outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**PEA\_ST 3496W: Digital Indigenous Studies - Writing Intensive** (same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3520: Collective Behavior** (same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3520W: Collective Behavior - Writing Intensive** (same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3521: Group Decision Making Processes** (same as COMMUN 3571). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3522: New Media, Conflict and Control** (same as SOCIOL 3522) This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

**Credit Hours:** 3

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**PEA\_ST 3550: War and Democracy in Late 5th c. BCE Athens** (same as CL\_HUM 3550). War and Democracy in Late 5th c. B.C.E. Athens explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of adamant, unrelenting warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states.

**Credit Hours:** 3

**Recommended:** any 2000 level CL\_HUM course

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**PEA\_ST 3600: Criminology** (same as SOCIOL 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**PEA\_ST 3610: Ireland, 1100s to 1850** (same as HIST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3611: Ireland, 1850-1923** (same as HIST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**PEA\_ST 3612: Ireland, 1920-Present** (same as HIST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Recommended:** HIST 3610 and/or HIST 3611

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**PEA\_ST 3780: World Political Geography** (same as GEOG 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**PEA\_ST 3840: Nonviolence in the Modern World** (same as HIST 3840 and S\_A\_ST 3245). Readings on recent world history, emphasis on Gandhi and nonviolent tradition in America Europe and the Third World.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3850: Islam and the West**

(same as HIST 3850). This course provides a historical intellectual context for the raging debate on Islam and the West. It will discuss how Muslims conceived and reacted variously to the political and cultural challenge the West posed in the nineteenth and twentieth century. It will focus on the discourse on the reception of modernization in Islam. It will highlight the political and cultural energies invested by various Muslim elite communities to distinguish between modernization and Westernization. Islamic fundamentalism, the dominant Islamic expression of our time, will be usefully discussed in the context of this debate and praxis about modernization, authenticity, and Westernization.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**PEA\_ST 3870: Social Revolution in Latin America**

(same as HIST 3870 and SOCIOL 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3

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**PEA\_ST 4003: Topics in Peace Studies - Behavioral Sciences**

Upperclass Topics. Subject may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**PEA\_ST 4005: Topics in Peace Studies: Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Recommended:** sophomore standing

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**PEA\_ST 4080: American Foreign Policy from Colonial Times to 1898**  
(same as HIST 4080).

**Credit Hours:** 3

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**PEA\_ST 4230: Women, Development and Globalization**

(same as SOCIOL 4230 and WGST 4230 and BL\_STU 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332 or BL\_STU 2200; SOCIOL 2200, WGST 1332 or WGST 2010

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**PEA\_ST 4240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as HIST 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 4287; cross-leveled with PEA\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** senior standing

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**PEA\_ST 4288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 7288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state- corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

**Prerequisites:** at least junior standing

**Recommended:** senior standing, 3.0 or above GPA, interest in graduate school

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**PEA\_ST 4330: Science and Technology of Terrorism and Counterterrorism**

(same as NU\_ENG 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 4331: Nonproliferation Issues for Weapons of Mass Destruction**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**PEA\_ST 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing required or instructor's consent

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**PEA\_ST 4341: Building Communities from the Grassroots**

(Same as RU\_SOC 4341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PEA\_ST 4360: Economic Development**

(same as ECONOM 4360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and social structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229, ECONOM 3251 or ECONOM 4351

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**PEA\_ST 4410: Politics and War**

(same as POL\_SC 4410). Why do wars occur? The function of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**PEA\_ST 4440: Ethical Issues in Communication**

(same as COMMUN 4440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PEA\_ST 4480: War Crimes and Genocide**

(same as HIST 4480). This course will explore the development of international law, international consciousness, and U.S. Foreign policy on the two distinct but often related issues of war crimes and genocide during the late 19th and throughout the 20th centuries.

**Credit Hours:** 3

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**PEA\_ST 4510: Western Europe's Foreign Policy**

Comparison of foreign policies of the major Western European countries; their roles within the European community. Study of institutions and

functioning of the European community and its potential as an emerging world power.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PEA\_ST 4520: Political Sociology**

(same as SOCIOL 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course.

**Credit Hours:** 3

**Recommended:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**PEA\_ST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as WGST 4550 and SOCIOL 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200; senior standing required

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**PEA\_ST 4600: Political and Social Philosophy**

(same as PHIL 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, liberalism, libertarianism, Marxism, Communitarianism and feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

**Recommended:** two courses in Philosophy

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**PEA\_ST 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, T\_A\_M 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**PEA\_ST 4830: Journalism and Conflict**

(same as JOURN 4730). Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**Credit Hours:** 3

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**PEA\_ST 4940: Leadership and Ethics**

(same as NAVY 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a

capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PEA\_ST 4970: Senior Thesis I**

Senior essay on a Peace Studies topic requiring major research.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050, senior standing, and instructor's consent

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**PEA\_ST 4980: Peace Studies Abroad - Social Sciences**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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**PEA\_ST 7003: Topics in Peace Studies - Behavioral Sciences**

Upperclass Topics. Subject may vary from semester to semester.

**Credit Hours:** 3

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**PEA\_ST 7080: American Foreign Policy from Colonial Times to 1898**

(same as HIST 7080).

**Credit Hours:** 3

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**PEA\_ST 7240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 7260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as HIST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

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**PEA\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 7287; cross-leveled with PEA\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**PEA\_ST 7288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 4288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state-corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

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**PEA\_ST 7520: Political Sociology**

(same as SOCIOL 7520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**PEA\_ST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7750 or WGST 7550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**PEA\_ST 7640: Ethical Issues in Communication**

(same as COMMUN 7640). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

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**PEA\_ST 7980: Peace Studies Abroad**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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## Personal and Financial Planning Courses

**FINPLN 1183: Financial Survival**

Examines financial management issues needed to survive the critical college years-credit/credit cards, budgeting/planning, financial aid, loans, common financial mistakes, debt management, setting financial goals, effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 2083: Financial Planning Careers**

This course will provide the student with a broad, general introduction to careers in financial planning. Through readings, introspection, discussions, and guest speakers, the student will develop an understanding of the field.

**Credit Hour:** 1

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**FINPLN 2183: Personal and Family Finance**

Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Math Reasoning Proficiency Course. Students who wish to pursue a Personal Financial Planning emphasis must earn a B- or better, in FINPLN 2183.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 with grade of C- or above

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**FINPLN 2185: Consumer as Entrepreneur**

The American economic system and marketplace from both a consumer and an entrepreneurial perspective.

**Credit Hours:** 3

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**FINPLN 3282: Financial Counseling**

Practical course on client financial counseling. Course emphasizes client money issues including budgeting, credit, debt management, bankruptcy and other issues. Students also will learn counseling strategies and communication skills to motivate clients to change negative behaviors and/or adopt positive behaviors.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINPLN 2183 or instructor's consent

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**FINPLN 3283: Financial Planning: Computer Applications**

Development of expertise in analyzing and understanding family financial case situations. Applications include the use of leading financial planning software, as well as applications with spreadsheets.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183 or equivalent

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**FINPLN 3285: Financial Planning: Real Estate**

Family housing and real estate investments as components of the family's quality of life and asset portfolio.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; ECONOM 1014 and ECONOM 1015; STAT 1300 or STAT 2500

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**FINPLN 4000: Problems in Personal Financial Planning**

Supervised and independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4183: Sales Management**

Prepares students to enter financial service occupations dependent upon sales and sales management. Attention given to skill development, evaluation of current and best practices.

**Credit Hours:** 3

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**Prerequisites or Corequisites:** FINPLN 3283 or instructor's consent

**Prerequisites:** junior standing; acceptance into professional program; FINPLN 2183

---

**FINPLN 4187: Tax Planning**

Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183, FINPLN 3283 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4188: Community Agencies and Volunteerism**

Service learning in a non-profit community social support agency. Examines economic role of non-profits and volunteerism. Students engage in service and evaluate experience in seminar. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 or FINPLN 7187 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4189: Financial Planning: Applied Tax Law**

This course trains students to become volunteer tax preparers and provides the opportunity to use their skills in a lab setting to prepare personal tax returns for U.S. citizens and resident aliens living in central Missouri. The course also discusses tax law, especially as it applies to clients of the Volunteer Income Tax Assistance site.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187

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**FINPLN 4318: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** vary with topic

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**FINPLN 4355: Recent Trends in Personal and Financial Planning**

For upper-class students who wish additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-3

**Prerequisites:** vary with the topic

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**FINPLN 4380: Assessing the American Dream**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

---

**FINPLN 4380W: Assessing the American Dream - Writing Intensive**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal



and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** junior standing

---

**FINPLN 4382: Financial Planning: Risk Management**

Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; ECONOM 1014 and ECONOM 1015; STAT 1300 or STAT 2500. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4383: Financial Planning: Investment Management**

(cross-leveled with FINPLN 7383). Introduction to investment for family financial planning.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 3229

**Prerequisites:** FINPLN 2183 and 3283; STAT 1300 or STAT 2500. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning**

Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382, FINPLN 4383. Not available to Pre-Personal Financial Planning majors

---

**FINPLN 4387: Consumer and Household Economics**

Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or equivalent

---

**FINPLN 4388: Effective Consumer Decision-Making**

Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, optimal search, heuristics, interactive decisions; strategies for their application in the marketplace.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 and ECONOM 1015

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**FINPLN 4389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187, FINPLN 4382, FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382 and FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4418: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4483: Financial Success**

Examines financial management issues needed to survive the critical post-college years - managing educational debt; after-school budgeting; auto, health, and other forms of insurance; retirement planning and other investment issues; setting financial goals; effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 4992: Readings in Personal Financial Planning**

**Credit Hour:** 1-99

**Prerequisites:** restricted to Personal Financial Planning Majors only

**Recommended:** 2-3 hours in Personal Financial Planning

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**FINPLN 4993: Internship in Personal Financial Planning**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 7000: Problems in Personal Financial Planning**

Prerequisites: Restricted to Personal Financial Planning Majors Only.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**FINPLN 7001: Topics in Household Economics and Finance**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 7083: Teaching Personal Finance Literacy**

(same as LTC\_V 7083). Principles and practices of teaching personal finance with particular emphasis on income, money management, spending and credit, and savings and investing. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 7085: Problems in Household Economics and Finance**

Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 7087: Seminar in Household Economics and Finance**

Reports and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-4

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**FINPLN 7183: Fundamentals of Personal Financial Planning**

Issues and concepts related to the financial planning process, including determination of financial goals and expectations and analysis and evaluation of personal and family financial data with emphasis on savings, insurance, investments, taxes, credit and financial aspects of housing.

**Credit Hours:** 3

---

**FINPLN 7187: Financial Planning: Tax Planning**

Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183, FINPLN 3283, ACCTCY 2010 or equivalent or instructor's consent

---

**FINPLN 7282: Advanced Financial Counseling**

Students will learn client-centered financial counseling. Includes development of interviewing techniques, focus on personality strengths and weaknesses, creation of the sales process, and the role of technology in counseling. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 7355: Recent Trends in Personal Financial Planning**

For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-3

**Prerequisites:** vary with the topic

---

**FINPLN 7380: Assessing the American Dream**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

---

**FINPLN 7382: Financial Planning: Risk Management**

Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; 5-6 hours of Economics; STAT 1300 or STAT 2500

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**FINPLN 7383: Financial Planning: Investment Management**

Management of family financial investments.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; 5-6 hours of Economics; STAT 1300 or STAT 2500

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**FINPLN 7386: Financial Planning: Employee Benefits and Retirement Planning**

Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382, FINPLN 4383, or instructor's consent

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**FINPLN 7387: Consumer and Household Economics II**

(cross-leveled with FINPLN 7387). Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent

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**FINPLN 7388: Effective Consumer Decision-Making**

Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, optimal search, heuristics, interactive decisions; strategies for their application in the marketplace.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2185; 5-6 hours of Economics

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**FINPLN 7389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187, FINPLN 4382, FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 7393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382 and FINPLN 4382

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**FINPLN 7412: Research Methods in Personal Financial Planning**

Introduction to the scope, purpose and methods of research in consumer and family economics, with emphasis on economic survey methods.

**Credit Hours:** 3

**Prerequisites:** an introductory statistics course

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**FINPLN 7583: Personal Financial Issues of Older Adults**

(same as H\_D\_FS 7583). Principles and practice of personal finance relevant to assessing and improving the financial security of older individuals. Topics covered include sources of income, management of cash flow, credit use and abuse, risk exposure, investment management, housing, and financial planning. Financial vulnerabilities of seniors will be explored. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Bachelor or Master's degree in human services, social work, mental health, nursing physical rehabilitation or psychology;

Must be enrolled in Graduate Certificate in Geriatric Care Management program

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**FINPLN 7960: Readings in Household Economics and Finance**  
Readings in recent research in household economics and finance.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 7993: Internship in Personal Financial Planning**  
Internship in Personal Financial Planning.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent; Restricted to Personal Financial Planning Majors Only

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**FINPLN 8001: Topics in Personal Financial Planning**  
Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 8085: Problems in Household Economics and Finance**  
Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8087: Seminar in Household Economics and Finance**  
Report and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8090: Master's Thesis Research in Personal Financial Planning**  
Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8183: Military Personal Financial Readiness**  
Financial planning process applied to military personnel and their families. Focus on service member status; financial readiness; record-keeping; management of cash flow, risk, credit and debt, savings, investments, tax, savings; education planning, retirement and estate planning. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8187: Professional Practices in Financial Planning**  
Practice management techniques for Financial Planners. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8380: Family Systems**  
Exploration of the family as a system within the broader context of society.

**Credit Hours:** 3

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**FINPLN 8381: Theories and Research in Personal Financial Planning I**

Course introduces students to the social science of family finances. Course covers the theories of family functioning, microeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of families and the economy. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8382: Theories and Research in Personal Financial Planning II**

Course reviews theories and empirical research in household financial decision-making, drawing from macroeconomic theory, theories of household behavior, lifecycle hypothesis, behavioral economics and finance, theories of behavioral change and psychological theories of family well-being. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** FINPLN 8381

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**FINPLN 8385: Housing and Real Estate**

The study of real estate as a component to household wealth. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8386: International Employee Benefits and Retirement Planning**

This course develops the theory and application of international employee benefits and retirement planning. Universal theory will be applied to analyze existing programs in an international context. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** FINPLN 7183 and FINPLN 7383

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**FINPLN 8389: Financial Planning Case Studies**

The analysis and development of appropriate presentations for effective financial plans.

**Credit Hours:** 3

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**FINPLN 8393: International Estate and Gift Planning**

This course develops the theory and application of end of life planning in an international context. Core estate planning education will prepare students to sit for the CFP exam, while addressing issues prevalent in other countries. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** FINPLN 7183, FINPLN 7383

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**FINPLN 8450: Applied Research in Household Economics and Planning**

Independent research not leading to a thesis. Report required. For students completing Master's in Personal Financial Planning.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8483: Family Economics**

Multidisciplinary study of research on families as economic units. Examines trends in family income, wealth, labor market participation, household production, distribution of household resources, use of public goods, and underground economy.

**Credit Hours:** 3

---

**FINPLN 8485: Human Resource Development and Allocation**

Economic analysis of conditions, programs and policies related to development and use of human resources, with special reference to impact on families and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4387 or instructor's consent

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**FINPLN 8486: Social Policy and the Family Economy**

Economic analysis of public programs that directly affect well-being of families: income maintenance, goods transfers, employment, housing, health, transportation, taxes, etc.; consideration of underlying philosophies, policy alternatives.

**Credit Hours:** 3

**Prerequisites:** FINPLN 7387 or instructor's consent

---

**FINPLN 8488: Household Financial Decision Making**

This course provides a solid foundation for critical thinking and research on household financial decision making. A selective but extensive review of normative and descriptive theories and empirical studies pertinent to household financial decision making is provided. The focus is on developing a critical perspective in students that enables them to identify opportunities to advanced theory toward relevant applications through research on household financial decision making.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. A knowledge of intermediate micro economics, introductory statistics, and introductory differential calculus is assumed

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**FINPLN 8500: Personal Financial Planning Capstone**

Independent work on project approved by major advisor and CFP (R) Program Director. For students completing Master's in Personal Financial Planning. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8960: Readings in Household Economics and Finance**

Readings in recent research in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9001: Topics in Household Economics and Finance**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 9085: Problems in Household Economics and Finance**

Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9087: Seminar in Household Economics and Finance**

Report and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9090: Doctoral Dissertation Research in Personal Financial Planning**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9960: Readings in Household Economics and Finance**

Readings in recent research in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Philosophy Courses

**PHIL 1000: General Introduction to Philosophy**

Introduction to traditional philosophical problems and methods of philosophical enquiry. Consideration given to different philosophical theories on the nature of reality, man, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

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**PHIL 1000H: General Introduction to Philosophy - Honors**

Introduction to traditional philosophical problems and methods of philosophical enquiry. Consideration given to different philosophical theories on the nature of reality, man, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

---

**PHIL 1100: Introduction to Ethics**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the "good life", nature of ethical reasoning and justification.

**Credit Hours:** 3

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**PHIL 1100H: Introduction to Ethics - Honors**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the "good life", nature of ethical reasoning and justification.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHIL 1150: Introductory Bioethics**

This course approaches moral problems in biomedical and scientific research from a philosophical perspective. First, we'll familiarize ourselves with ethics and political philosophy. Then we'll study the ethical issues that arise in connection with a series of issues, including research involving human and animal subjects, eugenics, the human genome project, cloning and stem cell research. By thinking about these issues, we learn how to think critically about particular moral quandaries, as well as to uncover and examine some of our deepest moral commitments.

**Credit Hours:** 3

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**PHIL 1200: Logic and Reasoning**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

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**PHIL 1200H: Logic and Reasoning-Honors**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

---

**PHIL 2000: Philosophical Ideas in Literature**

Philosophical ideas and issues revolving around human freedom as these ideas and issues are embodied in great literary works from Plato through Dostoyevski to Burgess.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2005: Topics in Philosophy-Humanities**

Organized study of philosophical issues to which no regular course in devoted. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**PHIL 2010: The Philosophy of Film**

(same as FILM\_S 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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**PHIL 2100: Philosophy: East and West**

(same as S\_A\_ST 2100). Compares the interpretation and role of philosophical concepts such as experience, reason, permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

---

**PHIL 2200: Philosophy and Intellectual Revolution**

Examines such revolutions as the Copernican, Darwinian, Marxian and Freudian. What are the new views? How is our place in the universe affected? What puzzles arise in replacing old by new views?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2300: Philosophy and Human Nature**

Philosophical exploration and examination of theories of human nature with reference to relevant developments in such sciences as biology, psychology, and economics.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2350: The Meaning of Life**

Does life have meaning, or is it essentially meaningless, absurd? This course will examine some of answers philosophers have given to this and related questions.

**Credit Hours:** 3

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**PHIL 2400: Ethics and the Professions**

Examination of ethical issues confronted by members of different professions such as medicine, law, business, journalism and engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2410: Philosophies of War and Peace**

(same as PEA\_ST 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PEA\_ST 2410W). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2420: Ethical Issues in Business**

Major theories of moral obligation and justice and their application to business practices. Corporate responsibility, government regulation, investment and production, advertisement, the environment, preferential hiring, etc. through case studies, legal opinions and philosophical analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2430: Contemporary Moral Issues**

Review of the major contemporary ethical theories and their contribution to the resolution of major social issues such as euthanasia, suicide, abortion, capital punishment, violence and war. Emphasis on nature, interests, and rights of persons. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2440: Medical Ethics**

Considers moral issues posed by developments in biological sciences and medical technology. Topics may include: genetic engineering, abortion and euthanasia, distribution of health care.

**Credit Hours:** 3

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**PHIL 2500: Philosophy and Gender**

(same as WGST 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2500H: Philosophy and Gender - Honors**

A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; honors eligibility required

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**PHIL 2600: Rational Decisions**

Principles for making decisions in a rational way. Special attention to principles that use probabilities and utilities. Some discussion of decisions made in conjunction with other people, and decisions made for other people. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1100 or MATH 1120

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**PHIL 2700: Elementary Logic**

(same as LINGST 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1100 or MATH 1120

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**PHIL 2820: Introduction to Cognitive Science**

(same as PSYCH 2820 and LINGST 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** PSYCH 1000

---

**PHIL 3000: Ancient Western Philosophy**

(same as CL\_HUM 3025). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3100: Medieval Philosophy**

Major thinkers from St. Augustine through 14th century Ockhamists.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200: Modern Philosophy**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200W: Modern Philosophy - Writing Intensive**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3400: 19th Century Philosophy**

A careful and sympathetic study of some of the major thinkers of this period, notably Kierkegaard and Nietzsche.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3500: Existentialism**

The nature of human existence, the meaning of life, the relation of the individual to nature, society, and any gods that may be, according to Kierkegaard, Nietzsche, Heidegger, Sartre, de Beauvoir, Camus and others. Students are encouraged to come to grips with the issues in relation to their own lives.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3600: 20th Century Philosophy**

The course will be a survey of some of the notable philosophers/thinkers whose contributions have been made in the twentieth century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3700: Selected Modern Philosophers**

Advanced study of a particular philosopher or a number of philosophers from the same school in the modern period. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3800: Selected Contemporary Philosophers**

Advanced study of a particular contemporary philosopher or philosophers. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4001: Topics in Philosophy-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing and two courses in Philosophy, or instructor's consent; departmental consent for repetition

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**PHIL 4005: Topics in Philosophy-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy, or instructor's consent

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**PHIL 4100: Philosophy of Language**

(same as LINGST 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

**Recommended:** one other course in Philosophy

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**PHIL 4110: Advanced Logic**

(same as LINGST 4110; cross-leveled with PHIL 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

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**PHIL 4120: Selected Topics in Logic**

Elementary set theory. Modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and either PHIL 2700 or PHIL 4110

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**PHIL 4130: Probability and Induction**

This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability

of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

---

**PHIL 4200: Metaphysics**

Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000 or PHIL 3200

---

**PHIL 4210: Philosophy of Mind**

Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two Philosophy courses

---

**PHIL 4220: Philosophy of Religion**

Considers basis for and nature of religious beliefs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** One course in Philosophy

---

**PHIL 4300: Epistemology**

An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000, PHIL 3200

---

**PHIL 4400: Philosophy of Science**

Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4410: Philosophy of History**

Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4420: Philosophy of Biology**

A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include

reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4500: Theories of Ethics**

Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

---

**PHIL 4600: Political and Social Philosophy**

(same as PEA\_ST 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4610: Philosophy of Law**

What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

---

**PHIL 4620: Marxism**

A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

**Recommended:** two courses in Philosophy

---

**PHIL 4700: Aesthetics**

Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4700W: Aesthetics-Writing Intensive**

Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

---

**PHIL 4800: Asian Philosophy**

(same as S\_A\_ST 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4810: Philosophy of India**

(same as S\_A\_ST 4810). General development of Indian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4850: Special Readings in Philosophy**

Special Readings in Philosophy.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**PHIL 4950: Senior Seminar in Philosophy**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4950W: Senior Seminar in Philosophy - Writing Intensive**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4998: Honors I in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 4999: Honors II in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 7001: Topics in Philosophy-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PHIL 7005: Topics in Philosophy-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. Prerequisites: instructor's consent

**Credit Hour:** 1-99

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**PHIL 7100: Philosophy of Language**

(same as LINGST 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 7110: Advanced Logic**

(same as LINGST 7110; cross-leveled with PHIL 4110, LINGST 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

---

**PHIL 7120: Selected Topics in Logic**

Elementary set theory. Modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or PHIL 7110

---

**PHIL 7130: Probability and Induction**

This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs. Prerequisites: PHIL 2700

**Credit Hours:** 3

---

**PHIL 7200: Metaphysics**

Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality.

**Credit Hours:** 3

**Recommended:** Previous work in PHIL 1000, PHIL 3000 or PHIL 3200

---

**PHIL 7210: Philosophy of Mind**

Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

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**PHIL 7220: Philosophy of Religion**

Considers basis for and nature of religious beliefs. Philosophical approaches to religion, cultural implications of religion, psychoanalysis and religion, mysticism and myth.

**Credit Hours:** 3

---

**PHIL 7300: Epistemology**

An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Recommended:** Previous work in PHIL 1000, PHIL 3000, or PHIL 3200

---

**PHIL 7400: Philosophy of Science**

Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to the past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

---

**PHIL 7410: Philosophy of History**

Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

---

**PHIL 7420: Philosophy of Biology**

A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory.

**Credit Hours:** 3

---

**PHIL 7500: Theories of Ethics**

Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Recommended:** one course in Philosophy

---

**PHIL 7600: Political and Social Philosophy**

(same as PEA\_ST 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

---

**PHIL 7610: Philosophy of Law**

What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

---

**PHIL 7620: Marxism**

A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

---

**PHIL 7700: Aesthetics**

Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

---

**PHIL 7800: Asian Philosophy**

(same as S\_A\_ST 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

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**PHIL 7810: Philosophy of India**

(same as S\_A\_ST 4810). General development of Indian philosophy.

**Credit Hours:** 3

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**PHIL 7850: Special Readings in Philosophy**

Special Readings in Philosophy.

**Credit Hour:** 1-3

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**PHIL 8090: Research in Philosophy**

Research not leading to thesis. Graded S/U only.

**Credit Hour:** 1-99

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**PHIL 8100: Protoseminar in Philosophy**

Introduction to graduate level work in philosophy. Required of all students entering the program, in the first year. An intensive workshop focused on skills rather than any particular philosophical content.

**Credit Hours:** 3

**Prerequisites:** restricted to first year graduate students

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**PHIL 8210: Teaching of Philosophy I**

Seminar meetings on course design, teaching methods, the evaluation of teaching, grading, instructor obligations, and teaching aids. Some individualized instruction, including help preparing for and assessing the effectiveness of practice teaching.

**Credit Hour:** 1

**Prerequisites:** graduate philosophy students

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**PHIL 8220: Teaching of Philosophy II**

A sequel to PHIL 8210. Includes a re-examination of end of semester tasks such as the composition and grading of finals and the assignment of course grades.

**Credit Hour:** 1

**Prerequisites:** PHIL 8210; graduate philosophy student

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**PHIL 8300: Dissertation Seminar**

The course will address writing and time management for Ph.D. students writing a dissertation. Also discussed will be preparation for the academic job market in philosophy, especially the development of an application dossier. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Philosophy Ph.D. student

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**PHIL 8510: Metaphysics: A Survey**

A graduate-level survey of central issues in metaphysics. May be repeated up to 6 hours of credit.

**Credit Hours:** 3

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**PHIL 8520: Philosophy of Mind: A Survey**

A graduate-level survey of central issues in the philosophy of mind.

**Credit Hours:** 3

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**PHIL 8530: Epistemology: A Survey**

A graduate-level survey of central issues in epistemology.

**Credit Hours:** 3

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**PHIL 8540: Philosophy of Language: A Survey**

A graduate-level survey of central issues in philosophy of language.

**Credit Hours:** 3

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**PHIL 9001: Topics in Philosophy**

Organized study of selected topics. Need departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PHIL 9040: Indian Philosophy**

Reality, levels of being, status of the world, nature of knowledge in Indian philosophy in relations in Advaita Vendanta system of Samkara.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9050: Plato**

Advanced studies in Plato; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9060: Aristotle**

Advanced studies in Aristotle; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9070: Medieval Thinkers**

Selected works of one or more: Augustine, Avicenna, Anselm, Maimonides, Aquinas, Scotus, Ockham. Not a survey.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9090: Research in Philosophy**

Work toward preparation of thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate Philosophy students

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**PHIL 9110: The Rationalists**

Interpretation and evaluation of major works of Descartes, Leibniz, and/or Spinoza in relation to their historical context and current philosophical problems.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9120: The Empiricists**

Epistemological and metaphysical doctrines of Locke, Berkeley and Hume.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9130: Kant**

Critique of Pure Reason: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9210: Hegel**

Phenomenology of Spirit: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9220: Marxism**

Basic works of Marx and his successors.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9230: Whitehead**

Process and Reality and other works. Contributions to metaphysics, theology, epistemology, and philosophy of science.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9240: Russell and Wittgenstein**

Each initially defends, but then rejects logical atomism. Metaphysical and epistemological themes of such intellectual phases and shifts of one or both philosophers.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9250: Heidegger**

Being and Time: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9260: Existentialism**

Being and Nothingness and other philosophy and literary works.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9270: Phenomenology**

Selected works of Husserl and other phenomenological thinkers. Implications for epistemology, science, metaphysics, ethics, and other philosophical topics.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9280: Recent Anglo-American Philosophy**

Topics on which current philosophers of the Anglo-American or Analytic tradition are concentrating.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9290: Recent Continental Philosophy**

Topics on which current philosophers on the European continent are concentrating.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9310: Applied Ethics**

Methods for applying normative ethical theories to personal and social moral problems, illustrated by application of consequentialist, deontological and virtue-centered theories to such problems as euthanasia, capital punishment, pornography, world hunger, war and environmentalism.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

---

**PHIL 9320: Social and Political Philosophy**

Topics of current interest in social and political philosophy. generally one of the following: social contract theory, utilitarianism, voting procedures, or convention.

**Credit Hours:** 3

**Prerequisites:** PHIL 4600 or instructor's consent and graduate Philosophy student

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**PHIL 9330: Aesthetics**

Theories of art and beauty, the aesthetic experience, the physical work of art, the role of the artist; art and other human concerns.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9340: Topics in the History of Ethics**

Advanced study of the ethical views of major historical figures ancient and/or modern.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9350: History of Eastern Ethics**

Historical survey of major eastern ethical theories. Explores broad range of ethical theories developed in Asia: Hindu and Buddhist in India; Taoism and Confucianism in China; and Zen in Japan.

**Credit Hours:** 3

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**Prerequisites:** graduate Philosophy student

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**PHIL 9510: Decision Theory**

Principles for making rational decisions, including principles of expected utility theory, game theory, and social choice theory. A survey of basic ideas and an introduction to selected research topics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110; graduate Philosophy student

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**PHIL 9520: Ethical Theory**

Contemporary theories of the right and the good. Metaethical topics such as moral language, reasoning, and justification.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9610: Metaphysics**

Theories of the categories and structures of reality, e.g., appearance and reality, causality, space and time, God, Nature, the human being.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9710: Philosophy of Mind and Psychology**

Survey of important recent work in contemporary philosophy of mind and psychology. Graduate seminar.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9720: Foundations of Cognitive Science**

Examination of philosophical questions arising in cognitive science concerning, for instance, the nature of computation and representation, inter-disciplinary relations, the nature of cognitive scientific explanation, and its relation to folk psychological explanation.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9820: Epistemology**

Knowledge and opinion, the types, sources, and extent of knowledge, according to a variety of views.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

---

**PHIL 9830: Philosophy of Science**

Examines central issues in general philosophy of science concerning the scientific method and the role in it of observation, the nature of rational theory-choice, progress, and the status of theories postulating unobservables.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9840: Philosophy of Language**

Topics of current interest in the philosophy of language.

**Credit Hours:** 3

**Prerequisites:** Graduate Philosophy student

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**PHIL 9850: Philosophy of Biology**

Philosophical problems relating to the life sciences, with attention given especially to explanation and reductionism in biology.

**Credit Hours:** 3

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**PHIL 9887: Seminar in Logic**

Topics of current interest in logic. Generally one of the following: inductive logic, set theory, conditionals, epistemic logic, or formal semantics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110 graduate Philosophy student

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**PHIL 9901: Seminar in Philosophy**

Special topics. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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## Physical Medicine And Rehabilitation Courses

**PM\_REH 6351: ABS Physical Medicine/Rehab. Mechanism of Disease**

ABS Physical Medicine/Rehab. Mechanism of Disease

**Credit Hour:** 5-10

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**PM\_REH 6353: ABS Physical Medicine/Rehab. Research**

ABS Physical Medicine/Rehab. Research

**Credit Hour:** 5-10

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**PM\_REH 6355: ABS Physical Medicine/Rehab. Research and Review**

ABS Physical Medicine/Rehab. Research and Review

**Credit Hour:** 5-10

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**PM\_REH 6615: Physical Medicine and Rehabilitation**

Physical Medicine and Rehabilitation

**Credit Hours:** 5

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**PM\_REH 6915: Rehabilitation of Musculoskeletal and Neurologic Diseases**

The rotating student will be an integral part of the inpatient team, serving in an active role on the floor and participating in the evaluation and treatment of clinic patients. Daily morning rounds will be completed with the inpatient teams and will be followed by scheduled didactic sessions with various faculty throughout the week. Outpatient rotations will be included as a fundamental clinical experience and will encompass the breadth of PM&R to the best that can be accomplished in this short block. In-depth examinations of the neurologic and musculoskeletal systems will be performed.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Physical Therapy Courses

### **PH\_THR 1000: Introduction to Physical Therapy**

Acquaints students with the physical therapy profession including the required educational preparation, practice settings, sample interventions, current issues, trends and research. Graded on S/U basis only.

**Credit Hour:** 1

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### **PH\_THR 2420: Biology of Healthy Living**

(same as BIOMED 2420 and NEP 2420). Biology of inactivity as a casual factor in chronic disease.

**Credit Hours:** 2

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### **PH\_THR 2500: Musculoskeletal Anatomy and Injury**

Study of human musculoskeletal anatomy, movement, common injury and physical therapy management. Graded on an A-F basis only.

**Credit Hours:** 3

**Recommended:** biology

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### **PH\_THR 3022: Principles of Physical Therapy**

History of physical therapy: the profession; basic skills: first aid, infection control, vital signs; medical terminology. Graded on S/U basis only.

**Credit Hour:** 1

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### **PH\_THR 4085: Problems in Physical Therapy**

Independent study, based upon educational goals, leading to completion of a project or paper. Specific objectives and time line developed with the supervision of a faculty member.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### **PH\_THR 4120: Clinical Education IA**

(cross-leveled with PH\_THR 7120). An introduction to clinical education in Physical Therapy: includes development of foundational clinical skills and behaviors as well as experience in the PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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### **PH\_THR 4150: Clinical Education IB**

(cross-leveled with PH\_THR 7150). Continuation of Clinical Education IA with further emphasis on current events in Physical Therapy as well as the professional attributes of communication, teamwork and problem solving. Required experience in PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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### **PH\_THR 4240: Applied Neurophysiology for Allied Health Students**

(same as OC\_THR 4240; cross-leveled with PH\_THR 7240, OC\_THR 7240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

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### **PH\_THR 4250: Human Kinesiology**

(same as HTH\_PR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201 or PH\_THR 2500

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### **PH\_THR 4270: Clinical Pathophysiology**

(same as OC\_THR 4270; cross-leveled with PH\_THR 7270, OC\_THR 7270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** successful completion of prior professional coursework

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### **PH\_THR 4330: Physical Agents**

Biophysics, theory and technique concerning the use of physical agents as adjuncts to exercise programs. Includes thermal, electrical, light, hydrotherapy and mechanical agents.

**Credit Hours:** 3

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### **PH\_THR 4420: Foundations of Therapeutic Exercise**

Physiological basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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### **PH\_THR 4480: Medical Testing in Rehabilitation**

Diagnostic tests used by disciplines within and outside of physical therapy. Studies include laboratory, nuclear medicine, radiologic, and motion analysis. Emphasis placed on interpretation of results as they apply to physical therapy examination and intervention.

**Credit Hours:** 3

**Prerequisites:** Restricted to students accepted into professional major

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### **PH\_THR 4510: Evidence-Based Practice**

Clinical research design and methods overview. Critical review of current and historically important professional literature. Effective writing related to clinically applicable research using computer and library resources. Identification of research questions.

**Credit Hours:** 3

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### **PH\_THR 4520: Applied Therapeutic Exercise**

Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**Credit Hours:** 3

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**PH\_THR 4560: Movement Theory and Application**

Human sensorimotor development; motor learning; motor control theories; developmental and practical application to exercise; proprioceptive neuromuscular facilitation.

**Credit Hours:** 2

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**PH\_THR 4570: Bridging the Clinical-Research Gap**

This class focuses on theories of clinical decision making and Evidence-based Practice, their applications to the clinical setting and dissemination of such information to colleagues in professional forums. Graded on A-F basis only.

**Credit Hours:** 3

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**PH\_THR 4620: Introduction to Orthopedic Physical Therapy with Laboratory**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; basics of orthopedic manual therapy. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 4680: Orthopedic Physical Therapy**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; continuation of orthopedic manual therapy emphasizing the axial skeleton; traction; massage; taping; sport-specific injury rehabilitation; orthotics.

**Credit Hours:** 3

---

**PH\_THR 4730: Pediatric Physical Therapy**

Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**Credit Hours:** 4

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**PH\_THR 4770: Rehabilitation of the Neurologically Impaired Adult**

Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**Credit Hours:** 4

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**PH\_THR 4790: Pharmacology in Rehabilitation**

Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems across the lifespan.

**Credit Hours:** 2

**Prerequisites:** Restricted to students accepted into a professional major

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**PH\_THR 4960: Special Readings in Physical Therapy**

Independent readings selected in consultation with supervising faculty member. Identified educational goals and activities; discussion, annotated bibliography or report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PH\_THR 4965: Directed Readings in Physical Therapy**

Selected readings on specific topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PH\_THR 4980: Clinical Evaluation and Procedures with Laboratory**

Principles and procedures of basic evaluation methods and documentation: muscle strength, range of motion, muscle balance, posture, neurologic tests. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 4981: Clinical Kinesiology with Laboratory**

Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 7120: Clinical Education IA**

(cross-leveled with PH\_THR 4120). An introduction to clinical education in Physical Therapy; includes development of foundational clinical skills and behaviors as well as experience in PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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**PH\_THR 7150: Clinical Education IB**

(cross-leveled with PH\_THR 4150). Continuation of Clinical Education IA with further emphasis on current events in Physical Therapy as well as the professional attributes of communication, teamwork and problem solving. Required experience in PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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**PH\_THR 7240: Applied Neurophysiology for Allied Health Students**

(same as OC\_THR 7240; cross-leveled with OC\_THR 4240, PH\_THR 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

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**PH\_THR 7250: Human Kinesiology**

(same as HTH\_PR 4250, OC\_THR 4220 or OC\_THR 7220). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** Human Anatomy

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**PH\_THR 7270: Clinical Pathophysiology**

(same as OC\_THR 7270; cross-leveled with PH\_THR 4270, OC\_THR 4270) Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice.

**Credit Hours:** 3

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**PH\_THR 7330: Physical Agents**

Biophysics, theory and technique concerning the use of physical agents as adjuncts to exercise programs. Includes thermal, electrical, light, hydrotherapy and mechanical agents.

**Credit Hours:** 3

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**PH\_THR 7420: Foundations of Therapeutic Exercise**

Physiologic basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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**PH\_THR 7480: Medical Testing in Rehabilitation**

Diagnostic test used by disciplines within and outside of physical therapy. Studies include laboratory, nuclear medicine, radiologic, and motion analysis. Emphasis placed on interpretation of results as they apply to physical therapy examination and intervention.

**Credit Hours:** 3

**Prerequisites:** Restricted to students accepted into professional major

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**PH\_THR 7510: Evidence-Based Practice**

Clinical research design and methods overview. Critical review of current and historically important professional literature. Effective writing related to clinically applicable research using computer and library resources. Identification of research questions.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PH\_THR 7520: Applied Therapeutic Exercise**

Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**Credit Hours:** 3

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**PH\_THR 7550: Psychosocial Issues for Health Promotion**

Psychological and social factors impact people's health and the American Physical Therapy Association has called for interprofessional approaches for the provision of fitness, health promotion, wellness, and risk reduction programs to enhance quality of life for persons across the life-span. This course focuses on psychosocial issues for health promotion in order to help future health care providers and scientists to improve the health and well-being of people. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to students who are admitted into the Physical Therapy-DPT program

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**PH\_THR 7570: Bridging the Clinical-Research Gap**

This class focuses on theories of clinical decision making and Evidence-based Practice, their applications to the clinical setting and dissemination of such information to colleagues in professional forums. Graded on A-F basis only.

**Credit Hours:** 3

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**PH\_THR 7620: Introduction to Orthopedic Physical Therapy with Laboratory**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; basics of orthopedic manual therapy. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 7680: Orthopedic Physical Therapy**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; continuation of orthopedic manual therapy emphasizing the axial skeleton; traction; massage; taping; sport-specific injury rehabilitation; orthotics.

**Credit Hours:** 3

**Prerequisites:** PH\_THR 4620

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**PH\_THR 7730: Pediatric Physical Therapy**

Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**Credit Hours:** 4

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**PH\_THR 7770: Rehabilitation of the Neurologically Impaired Adult**

Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**Credit Hours:** 4

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**PH\_THR 7780: Differential Diagnosis in Physical Therapy**

Evidence-based clinical decision making emphasizing health screenings and system review to determine physical therapy diagnosis/need for referral to other health care professionals.

**Credit Hours:** 3

**Prerequisites:** Restricted to students accepted into the professional major

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**PH\_THR 7790: Pharmacology in Rehabilitation**

Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems across the lifespan.

**Credit Hours:** 2

**Prerequisites:** Restricted to students accepted into professional major

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**PH\_THR 7850: Assessment and Neuropsychology of Pain**

Pain is a common problem that impairs people's quality of life and costs millions of dollars annually. Yet, an investigation of physical therapy education programs in the U.S. supported inadequate coverage of pain. This course focuses on the assessment and neuropsychology of pain in order to help future health care providers and scientists to improve the health and well-being of people with impaired quality of life due to pain. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to students who are admitted into the Physical Therapy-DPT program

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**PH\_THR 7890: Case Management I**

Evaluation and team approach to physical therapy management in adult medical and surgical conditions: cardiopulmonary, rheumatic, oncologic, integumentary or wound care, including major burn injury. Psychosocial and ethical issues incorporated. Problem based; laboratory.

**Credit Hours:** 5

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**PH\_THR 7940: Clinical Education II**

Full time, supervised clinical experience addressing application of basic skills in patient evaluation and treatment, documentation and professional behaviors. Graded on S/U basis only.

**Credit Hours:** 5

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**PH\_THR 7945: Clinical Education III**

Continuation of supervised clinical education. (Capstone course). Graded on S/U basis only.

**Credit Hours:** 7

**Prerequisites:** Successful completion of PH\_THR 7940

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**PH\_THR 7960: Special Readings in Physical Therapy**

Independent readings selected in consultation with supervising faculty member. Identified educational goals and activities; discussion, annotated bibliography or report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PH\_THR 7965: Directed Readings in Physical Therapy**

Selected readings on specific topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

---

**PH\_THR 7980: Clinical Evaluation and Procedures with Laboratory**

Principles and procedures of basic evaluation methods and documentation: transfers, body mechanics, muscle strength, range of motion, muscle length, neurologic tests. Includes laboratory. Includes discussion with emphasis on critical thinking and clinical application through problem solving.

**Credit Hours:** 4

**Prerequisites:** Restricted to physical therapy students only

**Recommended:** Successful completion of prior professional coursework

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**PH\_THR 7981: Clinical Kinesiology with Laboratory**

Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 8000: Health Policy for Physical Therapy**

This course is designed for physical therapy students and will provide an introduction to health policy along with an overview of the health care system in the United States, including its structures, financing mechanisms, and outcomes. Lecture/reflective writing/written exams. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Successful completion of prior coursework

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**PH\_THR 8001: Topics in Physical Therapy**

Organized study of selected topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PH\_THR 8080: Special Skills in Physical Therapy**

This course will offer a menu of options to students to develop additional knowledge about specific skills in the physical therapy profession. Students may choose topics of interest in addition to the mandatory sessions to meet a minimum of 800 minutes of contact. Graded on S/U basis only. Prerequisites: successful completion of prior professional coursework.

**Credit Hour:** 1

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**PH\_THR 8085: Problems in Physical Therapy**

Independent study and development of a clinical or research paper, poster or workshop suitable for presentation in a symposium or conference. Specific plan individually developed with advisor. Journal reviews.

**Credit Hour:** 1-3

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**PH\_THR 8087: Seminar in Physical Therapy**

Integrate previously learned content in unique patient cases and comprehensive review and evaluation of readiness for entry level physical therapist practice, in both didactic and psycho-motor domains. Enrollment is limited to students in professional physical therapy program.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**PH\_THR 8130: Professional Issues in the 21st Century**

The physical therapist as health care professional, administrator, and educator; legal, ethical, and political issues. Service delivery management; delegation of care; rural vs. urban health care needs.

**Credit Hours:** 3

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**PH\_THR 8390: Case Management II with Laboratory**

Complex orthopedic problems in persons of all ages; supervision, reimbursement, ethical/legal situations; community programs for injury prevention; work capacity evaluation/work hardening; consultation. Problem-based format; laboratory.

**Credit Hours:** 5

**Prerequisites:** PH\_THR 7890

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**PH\_THR 8690: Case Management III with Laboratory**

Traditional and contemporary theories of physical therapy in advanced rehabilitation of children and adults with neurologic disorders; education/employment, ethical/legal issues; patient/client advocacy. Problem based format; laboratory.

**Credit Hours:** 5



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**Prerequisites:** PH\_THR 8390

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**PH\_THR 8945: Clinical Education IV**

A continuation of supervised clinical education with supervision from a licensed physical therapist that has at least one year of experience. This course is a continuation of 7945 with advancing expectations of student physical therapist performance. Graded on S/U basis only.

**Credit Hours:** 7

**Prerequisites:** Successful completion of PH\_THR 7945

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**PH\_THR 8950: Clinical Education V**

Full time supervised clinical education with supervision from a licensed physical therapist that has at least one year of experience. This course is a continuation of 8945 with advancing expectations of student physical therapist performance. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** Successful completion of PH\_THR 8945

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## Physics Courses

**PHYSICS 1002: Topics in Physics and Astronomy**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**PHYSICS 1050: Concepts in Cosmology**

Introduction to fundamental concepts of modern cosmology. Topics include Olbers' paradox, Hubble expansion, Big Bang, and the Cosmic Microwave Background Radiation.

**Credit Hours:** 3

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**PHYSICS 1100: Science and Inventions**

This course covers the history of some of the most important inventions in science and their impact on past civilizations, current advances in science and inventions, funding and policies, and critical advances in technology required for future generations.

**Credit Hour:** 1

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**PHYSICS 1150: Concepts in Physics**

Introduction to fundamental concepts of physics for non-science majors. Concepts include the conservation of energy, the second law of thermodynamics, and the special theory of relativity. Students learn to reason and apply these concepts through writing assignments.

**Credit Hours:** 3

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**PHYSICS 1210: College Physics I**

This introductory college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered are vectors, kinematics, dynamics, gravity, momentum, energy, rotational kinematics, rotational dynamics, fluids, simple harmonic motion, waves and sound, and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 4

**Prerequisites:** MATH 1100

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**PHYSICS 1220: College Physics II**

This introductory second semester college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered include electricity and magnetism, optics and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in PHYSICS 1210

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**PHYSICS 1500H: Energy and Energy Technology - Honors**

Explore issues in energy, energy production and energy use from a science and technology perspective. Students will learn through a combination of lectures, classroom activities, a writing assignment, open-ended discussion, and student presentations. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHYSICS 2002: Topics in Physics and Astronomy- Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100

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**PHYSICS 2002H: Topics in Physics and Astronomy- Physical Science - Honors**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100; Honors eligibility required

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**PHYSICS 2100: Thinking Physics**

This course investigates motion and force and the relationship between them. Problem-solving skills will be emphasized in addition to hands-on inquiry and deep conceptual understanding. This course is intended to help prepare students for College Physics I or University Physics I. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**PHYSICS 2200: Life and the Universe**

This course explores the connection between our everyday existence and the underlying physics' processes. Students will look at processes - essential to life - ranging from the very small (atomic level) to the very large (universe), and the many length scales in between (cellular level and human being level) as will as make connections between the laws of physics and the numbers that go into them and the prerequisites for the existence of life.

**Credit Hours:** 3

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**PHYSICS 2330: Exploring the Principles of Physics**

A hands-on course covering topics in Electricity, Magnetism, Forces, Motion and Energy. Pedagogy reflects styles used in K-12 classrooms; emphasis on inquiry, concept development, quantitative applications and technology. Enrollment limited to Elementary and Early Childhood Education majors who have completed MATH 1100 or higher.

**Credit Hours:** 4

**Prerequisites:** instructor's consent required

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**PHYSICS 2400: The Physics Around Us**

This course will address the basic physics principles behind commonly accepted technology. Examples include microwave ovens, rockets and LED lights. The course will be taught using hands-on activities combined with lecture and discussion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**PHYSICS 2500: The Beautiful Invisible: Exploring Physics, Fiction, and Reality**

This course explores the conceptual structure of modern physics from a humanistic perspective. Rather than describing the natural world "as it is", physical science weaves some key observations in a convincing and memorable narrative. It is not within its power to explain reality, but it can make it understandable, sometimes even predictable. Due to the presence of internal and external constraints, physical theories are akin to myths, i.e., fiction created by many authors over an extended period of time. The mythical character of a theory does not diminish its scientific validity - quite the contrary. Convincing myths are not easily found and better observations demand better myths. The mythical content of the theory is not some extraneous content that we introduce for the sake of popularization, but an essential part of the science itself.

**Credit Hours:** 3

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**PHYSICS 2750: University Physics I**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent

**Recommended:** MATH 1700

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**PHYSICS 2750H: University Physics I - Honors**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent. Honors eligibility required

**Recommended:** MATH 1700

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**PHYSICS 2760: University Physics II**

Second semester course in calculus-based physics for science and engineering students. Topics covered are electrostatics, circuits, magnetism, electromagnetic phenomena, optics, matter waves and particles and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1700 and grade of C- or better in PHYSICS 2750

**Recommended:** MATH 2300

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**PHYSICS 2800: Undergraduate Seminar in Physics**

Introduction to the Physics Department and presentation of topics of current interest in physics by faculty and students. Intended for physics majors at the freshman or sophomore level only.

**Credit Hours:** 2

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**PHYSICS 3002: Topics in Physics and Astronomy - Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. May be repeated 2 for credit.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 1210 or PHYSICS 2750

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**PHYSICS 3010: Introduction to Modern Astrophysics**

(same as ASTRON 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3100: Teaching Physics**

Introduces modeling and inquiry methods of teaching about force, motion, energy, electricity and magnetism. Students learn research-base physics teaching methods, including eliciting prior understanding, facilitating conceptual change, and active learning strategies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760

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**PHYSICS 3150: Introduction to Modern Physics**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3150W: Introduction to Modern Physics - Writing Intensive**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSCS 3200: Physics of Space Explorations**

The course provides an overview of the solar system, spaceflight history, a review of Newtonian physics and law of universal gravitation, the application of these laws to spacecraft launch, entry, and orbit, planetary trajectories, and other special topics. Three focused case studies of actual space missions are addressed. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** MATH 1100**PHYSCS 4020: Astrophysical Techniques**

(same as ASTRON 4020; cross-leveled with PHYSCS 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4050: Electronic Laboratory**

(cross-leveled with PHYSCS 7050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** PHYSCS 2760**PHYSCS 4060: Advanced Physics Laboratory I**

This upper-level undergraduate laboratory course familiarizes students with the methods and procedures of experimental physics at an advanced level. The course covers principles of magnetism, graphic programming and interface techniques, weak-signal detection, and some modern physics discoveries such as, magneto-optical Kerr effect, digital holography and gamma-ray spectroscopy. Students work on research projects in the areas of condensed matter physics, materials science, modern spectroscopy, superconductivity, and quantum physics.

**Credit Hours:** 3**Prerequisites:** PHYSCS 3150**PHYSCS 4080: Major Themes in Classical Physics**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4080W: Major Themes in Classical Physics - Writing Intensive**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4100: Electricity and Magnetism I**

Mathematical preliminaries, properties of charge distributions at rest and in motion, the field concept, introduces electromagnetic radiation.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4102: Topics on Physics and Astronomy-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3**Prerequisites:** PHYSCS 2760 or instructor's consent**PHYSCS 4110: Light and Modern Optics**

Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4**Prerequisites:** PHYSCS 2760**PHYSCS 4120: Introduction to Thermodynamics**

Development of the concepts of temperature, heat, work, entropy, enthalpy and free energy. Applications to gases, liquids and solids. Statistical methods.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4130: Electricity and Magnetism II**

Application of Maxwell's equations.

**Credit Hours:** 3**Prerequisites:** PHYSCS 4100**PHYSCS 4140: Mechanics**

Development of fundamental concepts, principles of mechanics using mathematical methods. Many problems used.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4180: Solar System Science**

(same as GEOL 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent**PHYSCS 4190: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, BIOL\_EN 4480 and CHEM 4490). This course will cover fundamental and applied aspects relating to the Physics, Chemistry and Biology of materials with special emphasis on Nanoscience and Nanomedicine. Consists of lectures and experiments in Nanoscience.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent, or instructor's consent

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**PHYSCS 4230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 7230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 4250: Stellar Astrophysics**

(same as ASTRON 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4310: Physics in Cell and Developmental Biology**

(same as BIO\_SC 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIO\_SC 2300 or instructor's consent

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**PHYSCS 4350: Galactic Astronomy**

(same as ASTRON 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3010

**Recommended:** PHYSCS 4140

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**PHYSCS 4360: Extragalactic Astronomy**

This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4390: Problems in Physics**

Problems in Physics

**Credit Hour:** 1-99

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**PHYSCS 4400: The Physics of Electronic Devices**

(cross-leveled with PHYSCS 7400). This course is designed for graduate and undergraduate students of Physics and Electrical Engineering

who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4410: Analysis of Biological Macromolecules and Biomaterials**

This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learn/Writing Intensive approach uses four modules: Proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4420: Introduction to Biomedical Imaging**

This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray, CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4450: Introduction to Cosmology**

Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4460: Interstellar Medium**

(same as ASTRON 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4500: Computational Biological Physics**

Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or instructor's consent

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**PHYSCS 4510: Single Molecule Biophysics**

(same as BIOCHM 4510; Cross-leveled with PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors,

polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4520: Introduction to Biophysics**

This course introduces the study of biological systems from the perspective of a physicist. Students will learn how to relate the structure of a particular system and its constituents to its function. The treatment of molecular and cellular phenomena will be based on physical principles quantified through the necessary analytical tools. Prominent biophysical methods and their fundamental operating principles will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 4550: Cosmochemistry**

(same as ASTRON 4550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent required

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**PHYSCS 4600: Semiconductor Optics**

It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4620: Introduction to Materials Science**

This course on the science and technology of materials explores the interrelationship between processing, structure, properties (electrical, optical, magnetic), and performance. Observable properties of materials will be used to explore and understand the consequences of atomic- and molecular-level events. Structure-property correlations, including electronic, thermal, and mechanical properties, will be presented for different classes of materials including nanoscale materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4650: Modern Condensed Matter Physics**

Introduces the basic concepts and gives an overview of the latest developments of modern condensed-matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4700: Introduction to Methods in Mathematical Physics**

Introduces mathematical methods and theories of physics. Topics usually covered are complex analysis, partial differential equations, integral equations and tensor analysis.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**PHYSCS 4800: Introduction to Quantum Mechanics I**

Foundations of wave mechanics; wave packets; Schrodinger equation and I-D problems; operators and eigenfunctions, spherically symmetric systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and MATH 4100

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**PHYSCS 4810: Introduction to Quantum Mechanics II**

Review of quantum mechanics and units, forms of radiation, radiation detectors, spacetime symmetries, internal symmetries, nuclear structure and form factors, low-energy nuclear models, recent developments.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or equivalent

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**PHYSCS 4850: Computational Methods in Physics**

Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 4885: Problem-Based Learning in Physics Using Case Studies**

Using case studies from frontiers of physics research, students in this course will develop skills on leadership, team-work, communication, deductive reasoning, writing and oral presentation skills. A combined Problem-Based Learning/ Writing Intensive approach will be used.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4950: Undergraduate Research in Physics**

Special studies for advanced undergraduate students in physics covering subjects not included in courses regularly offered. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PHYSCS 4960: Senior Thesis in Physics**

Special studies for senior undergraduate students in physics. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and 3 units of PHYSCS 4950. Departmental consent required for repetition

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**PHYSCS 4985: Issues in Modern Physics and Engineering**

Students are expected to write a major paper on a selected topic from modern physics or engineering. The paper will review the current state

of the experimental and theoretical research on the topic at a level appropriate to their peers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 7020: Astrophysical Techniques**

(same as ASTRON 7020; cross-leveled with PHYSCS 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7050: Electronic Laboratory**

(cross-leveled with PHYSCS 4050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7085: Problems in Physics**

Laboratory work involving study of literature of special experiments in physics. Introduces research methods.

**Credit Hour:** 1-99

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**PHYSCS 7087: Seminar in Physics**

Topics of current interest selected for discussion. May be elected repeatedly. S/U Graded only.

**Credit Hour:** 1

**Prerequisites:** PHYSCS 8150

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**PHYSCS 7110: Light and Modern Optics**

Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7180: Solar System Science**

(same as GEOL 7180 and ASTRON 7180; cross-leveled with GEOL 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 7190: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, BIOL\_EN 7480 and CHEM 7490). This course will cover fundamental and applied aspects relating to the Physics, Chemistry and Biology of materials with special emphasis on

Nanoscience and Nanomedicine. Consists of lectures and experiments in Nanoscience.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

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**PHYSCS 7201: Topics in Physics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**PHYSCS 7230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 4230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 7301: Topics in Astronomy and Astrophysics**

Selected topics from solar system, stellar, galactic and extragalactic astronomy, and astrophysics. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**PHYSCS 7310: Physics in Cell and Developmental Biology**

(same as BIO\_SC 7310 and MPP 7300). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 and BIO\_SC 2300 or instructor's consent

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**PHYSCS 7360: Extragalactic Astronomy**

(same as ASTRON 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7400: Physics of Electronic Devices**

(cross-leveled with PHYSCS 4400). This course is designed for graduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 7410: Analysis of Biological Macromolecules and Biomaterials**

This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learn/Writing Intensive approach uses four modules: proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760

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**PHYSCS 7420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760

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**PHYSCS 7450: Introduction to Cosmology**

Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PHYSCS 3150 or equivalent or instructor's consent

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**PHYSCS 7500: Computational Biological Physics**

Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 7510: Single Molecule Biophysics**

(same as BIOCHM 7510; cross-leveled with PHYSCS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization of the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760

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**PHYSCS 7550: Cosmochemistry**

(same as ASTRON 7550). Chemistry of cosmic dust and molecules.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760 or PHYSCS 1220; instructor's consent

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**PHYSCS 7600: Semiconductor Optics**

It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering.

**Credit Hours:** 3**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7650: Modern Condensed Matter Physics**

Introduces the basic concepts and gives an overview of the latest developments of modern condensed matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7750: Interstellar Medium**

The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3**Prerequisites:** PHYSCS 1220

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**PHYSCS 7850: Computational Methods in Physics**

Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 8040: Study of Techniques of Teaching College Physics**

Objectives, methods and problems related to teaching college physics. Some credit in this course is required for all students teaching physics. May repeat for 3 hours maximum.

**Credit Hour:** 1-3

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**PHYSCS 8090: Research in Physics**

Graduate research. Graded on S/U Basis only.

**Credit Hour:** 1-99

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**PHYSCS 8101: Topics of Physics and Astronomy**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent. Departmental consent for repetition

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**PHYSCS 8110: Physics for High School Teachers I**

This is a physics course designed primarily for high school teachers. Topics include motion, forces, Newton's Laws, electricity, k and magnetism. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** instructor's consent

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**PHYSICS 8120: Physics for High School Teachers II**

This is a physics course designed primarily for high school teachers. Topics include applications of Newton's laws, energy, waves, optics, heat, and astronomy. The course uses research based pedagogical methods utilizing inquiry modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PHYSICS 8130: Physics for High School Teachers 3**

This is a physics course designed primarily for high school teachers. Topics include modern physics and history of science. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**PHYSICS 8150: Condensed Matter Physics I**

Crystal structure, reciprocal lattice, phonons, neutron and x-ray scattering, free electron theory of metals, Fermi surfaces, energy bands, static properties of solids, semiconductors, devices, and quantum structures, optical properties, excitons, introduction to magnetism and superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4800 or equivalent

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**PHYSICS 8160: Condensed Matter Physics II**

The basic Hamiltonian, Phonons, theory of the electron gas, second quantization, Hartree and Hartree-Fock approximation, local-density method, tight-binding theory, electron-electron interaction and screening, Fermi liquid theory, transport properties, impurities, Green's function's, Localization, Quantum Hall effect, magnetism, superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8150

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**PHYSICS 8301: Topics in Astronomy and Astrophysics**

(same as ASTRON 8301). Selected topics from solar system, stellar, galactic and extragalactic astronomy and astrophysics. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PHYSICS 8310: College Science Teaching**

(same as ASTRON 8310, BIO\_SC 8724 and LTC 8724). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**PHYSICS 8350: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725) This course is aimed at promoting public understanding and appreciation of science. The students will develop presentations that increase awareness of the impact of science on many aspects of our daily lives.

**Credit Hour:** 1-2

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**PHYSICS 8400: Low Energy Neutron Scattering**

Theory, application of low energy neutron scattering to investigation of structure and dynamics of aggregate matter including lattice vibrations, ordered spin systems, spin waves, diffusive motions in liquids; experimental techniques discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8150

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**PHYSICS 8410: Concepts in Nanoscale Materials: Interdisciplinary Science**

This interdisciplinary course covers basic concepts in nanoscale materials, their characterization, and how and why they differ from conventional bulk materials. The course focuses on neutron scattering methods and uses lectures, problem-based modules, and writing assignments.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150 and instructor's consent

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**PHYSICS 8420: X-ray and Neutron Scattering Methods for Studying Surfaces/Interfaces of Nanocrystalline Materials**

This course develops the conceptual foundation of neutron and x-ray scattering methods for probing the structure of epitaxial films, nanomaterials and their buried interfaces. A particular emphasis is given to the use of intense synchrotron x-ray radiation. Course graded on A-F basis only.

**Credit Hours:** 3

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**PHYSICS 8450: Plasma Physics**

Single particle motion, plasma kinetic theory, magnetohydrodynamics and other fluid theories, waves in unmagnetized and magnetized plasmas, transport phenomena, instabilities, controlled fusion.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PHYSICS 8550: Stellar Structure and Evolution**

(same as ASTRON 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4250, PHYSICS 4800, or instructor's consent

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**PHYSICS 8560: Quantitative X-Ray Microanalysis and Advanced Imaging**

This course covers the theory and methodology to quantitatively analyze materials using both energy-dispersive (EDS) and wavelength-dispersive (WDS) spectrometry. Other topics include chemical mapping and data extraction using image processing and analysis techniques.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 7230

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**PHYSICS 8610: Classical Mechanics**

The interplay of dynamics and symmetry, Hamilton's principle and Noether's theorem, Lagrangian, Hamiltonian, Hamilton-Jacobi theories



of mechanics in special relativity. Rigid body motion, small oscillation, canonical transformations and fields as continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4140 or equivalent

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#### **PHYSCS 8620: Electrodynamics I**

Electrostatic potential and fields, boundary-value problems in electrostatics, methods of images, Green's functions, multipole expansion, dielectrics, magnetostatics, magnetic materials, Maxwell's equations, time-varying fields.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610 or instructor's consent

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#### **PHYSCS 8640: Electrodynamics II**

Electromagnetic wave propagation, reflection, refraction, wave guides, cavities antennas and diffraction, tensors, special relativity, the Lorentz group, dynamics of relativistic particles and fields radiation by moving charges, retardation, bremsstrahlung. Additional topics may include magnetohydrodynamics and plasma physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8620 or instructor's consent

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#### **PHYSCS 8660: Methods in Mathematical Physics**

Concentrates on mathematical techniques used in modern physics. Infinite series, functions of a complex variable, differential equations, Fourier series and integral, etc.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4700 or instructor's consent

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#### **PHYSCS 8680: Thermodynamics and Statistical Mechanics**

Thermodynamics as applied in physics, chemistry; laws of distribution; statistical methods of study matter, radiation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8710 or concurrently

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#### **PHYSCS 8700: Non-Equilibrium Statistical Mechanics**

This course provides an introduction to the theoretical and mathematical description of classical stochastic systems with examples from biophysics and condensed matter physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8680 or consent of instructor

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#### **PHYSCS 8710: Quantum Mechanics I**

Non-relativistic quantum theory in Hilbert space. States and self-adjoint observables, unitary time evolution in various pictures, the path-integral, identical particles, Fock space, angular momentum and some perturbation theory.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610

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#### **PHYSCS 8720: Quantum Mechanics II**

More perturbation theory, variational methods, semi-classical methods and application to radiation theory, linear response theory and rudiments

of relativistic quantum mechanics including the Klein-Gordan equation and the Dirac equation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8710

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#### **PHYSCS 8730: Quantum Mechanics III**

Properties of many-particle systems at low temperature. General Formalism for Fermi and Bose systems, theory of superconductivity and superfluidity, introduction to quantum spin model--Diagrammatic formulation of quantum electrodynamics. Scattering of electrons and positrons, introduction to radioactive corrections. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8720

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#### **PHYSCS 8801: Topics in Solid State Theory**

Selected topics in solid-state theory, including various elementary excitations in solids and their interactions. May be elected more than once.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **PHYSCS 8820: Relativity and Gravitation**

Special and general theories of relativity. Discussion of accelerated observers and the principles of equivalence. Einstein's gravitational field equations, black holes, gravitational waves and cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610, PHYSCS 8620

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#### **PHYSCS 9090: Research in Physics**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** PhD candidacy has been established

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## **Plant Science Courses**

#### **PLNT\_S 1002: Topics In Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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#### **PLNT\_S 1010: Plant Science Orientation**

Introduction to perspectives, comprehensiveness, and current issues in the plant sciences. Involves independent learning, faculty interviews, and oral and written communication about agronomy, horticulture, entomology, and plant pathology.

**Credit Hour:** 1

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#### **PLNT\_S 1020: World Food and You**

(same as F\_S 1020). Basic scientific principles involved in production agriculture, food processing, marketing and consumption. Evaluation and understanding of current agriculture issues that affect human foods and required nutrients.

**Credit Hours:** 3

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**PLNT\_S 1120: Career Development**

Introductory course for students planning a career in plant sciences. Includes an overview of each emphasis area, as well as development of professional skills required for a successful career. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Plant Science majors only

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**PLNT\_S 1125: People, Plants and the Environment**

Exploration of the science and niche relationships that exist between people, plants, animals, and the environment. Emphasis placed on urban vs. rural culture, the impact on production agriculture and the world food supply.

**Credit Hours:** 3

**Prerequisites:** restricted to freshmen and sophomores

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**PLNT\_S 2002: Topics in Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 2075: Environmental Horticulture**

Investigate interrelationships between plants and the environment. Special emphasis placed on improving homeowners' environmental stewardship and their knowledge of sustainable practices. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 2100: Introduction to Soils**

(same as SOIL 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hrs of Chemistry

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**PLNT\_S 2110: Plants and their Cultivation**

Principles of plant growth with emphasis on anatomy, physiology, and response to environmental factors. Production and protection of economically important crop and horticulture species.

**Credit Hours:** 3

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**PLNT\_S 2125: Plant Structure and Function**

Introduction to plant anatomy; physiology; how plant structures and processes are involved in growth/development. Labs explore photosynthesis, mineral nutrition, water relations, growth, and hormonal regulation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 and CHEM 1100 or CHEM 1320

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**PLNT\_S 2150: Plants for Interior Design**

Identification, culture and uses of plants adaptable to or capable of becoming acclimated to interior environments.

**Credit Hours:** 2

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**PLNT\_S 2195: Grapes and Wines of the World**

(same as F\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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**PLNT\_S 2210: Ornamental Woody Plants**

Identification and evaluation of trees and shrubs for landscape use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or instructor's consent

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**PLNT\_S 2215: Ornamental Herbaceous Plants**

Annuals, biennials, perennials, ground covers, and bulbs; their identification, nomenclature classification, culture and use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500 or BIO\_SC 1200

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**PLNT\_S 2220: Introduction to Floral Design**

Introduction to the basics of floral design with special emphasis on design mechanics, flower processing, care and handling. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Some sections of this course may be restricted to Plant Science Majors Only and/or students with 75 credit hours or less

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**PLNT\_S 2221: Everyday Floral Design**

Intermediate floral design course expanding skills from introductory floral design with emphasis on the elements and principles of design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220

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**PLNT\_S 2240: Landscape Graphic Communication**

Landscape design is a blend of art and science. This course is designed to help students expand their artistic skills, including graphic communications. Topics included to achieve this goal are drawing mediums and techniques, coloring mediums and techniques, symbol usage, and elevation drawings. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** ART\_DRAW 1050

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**PLNT\_S 2250: Landscape Site Analysis**

In order to effectively design what a site can become a landscape designer must first be able to accurately see what it is. This course presents a detailed look at obtaining, calculating, and manipulating a site's topography and features while offering a glimpse into the methods

and means required for implementation of the final landscape design. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** MATH 1100 or equivalent

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**PLNT\_S 2254: Landscape Design**

An introduction into the processes, principles, and practices of landscape design, this course begins with site analysis and moves through the drawing and presentation of your landscape concepts.

**Credit Hours:** 3

**Prerequisites:** Completion of 30 hours

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**PLNT\_S 2710: Insects in the Environment**

Ways in which insects are adapted for life in particular environments, basics of morphology, taxonomy; how important insect pests affect food and crop production, and principles of control.

**Credit Hours:** 3

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**PLNT\_S 3002: Topics in Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 3110: Horticultural Drainage and Irrigation Systems**

This course is designed to provide practical knowledge of drainage and irrigation systems for golf courses, sports fields, lawns, landscapes, greenhouses, nurseries and vineyards. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 3130: Undergraduate Seminar in Plant Science**

Discussion of assigned or selected topics in Plant Science, including participation in a panel debate and individual seminar oral presentations.

**Credit Hour:** 1

**Prerequisites:** Completion of 60 credit hours

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**PLNT\_S 3210: Principles of Weed Science**

Introduction to principles of weed growth, reproduction, and impact on human activities. Discussion of weed control techniques and technology, weed identification, and developing weed management strategies.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2110 or BIO\_SC 1200

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**PLNT\_S 3213: Genetics of Agricultural Plants and Animals**

(same as AN\_SCI 3213). Concepts of molecular, transmission, and population and quantitative genetics. Emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200 or BIO\_SC 1500.

**Credit Hours:** 3

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**PLNT\_S 3220: Special Occasion Floral Design**

Advanced floral design course with emphasis in silk décor, sympathy design and public ceremony design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both

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**PLNT\_S 3221: Wedding Floral Design**

Advanced floral design course with emphasis in wedding floral design and personal pieces design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both

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**PLNT\_S 3222: Retail Floral Management**

Course focusing on all areas of retail floral management: business finance, marketing, products and services, employee management, and customer service. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221

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**PLNT\_S 3225: Plant Breeding and Genetics**

Mendelian genetic principles and related genetic developments applicable in plant breeding. Discussion of established and new plant breeding procedures applicable to cultivar development.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or equivalent

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**PLNT\_S 3230: Plant Propagation**

Principles and practices of propagation of horticultural plants. Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3

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**PLNT\_S 3230W: Plant Propagation - Writing Intensive**

Principles and practices of propagation of horticultural plants. Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3

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**PLNT\_S 3240: Principles of Viticulture I**

(same as F\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 1010 and F\_S 2195 or PLNT\_S 2195; or PLNT\_S 2100; or PLNT\_S 2110; or PLNT\_S 2125

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**PLNT\_S 3250: Green Industry Bidding**

Principles of interpreting drawings, estimating labor, equipment, materials and other costs and recordkeeping for preparation of competitive green industry bids. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Plant Science major and completion of 30 credit hours

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**PLNT\_S 3252: Arboriculture and Pruning**

Concepts for establishment and management of urban trees. Emphasis on planting, fertilization, pruning, disease, hazard assessment and components of a municipal trees ordinance.

**Credit Hour:** 1

**Prerequisites:** PLNT\_S 2210 or instructor's consent

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**PLNT\_S 3254: Landscape AutoCAD**

AutoCAD is the most widely utilized computer aided drafting software program in the professional landscape design industry. This course will teach students how to utilize AutoCAD to transform their landscape design skills into a digital format and investigate the benefits of utilizing technology as a design tool. We will also explore other industry utilized software, and their functionality, with focus on landscape design and presentation. Additional software will include, but not be limited to, AutoDesk Revit; Adobe Photoshop; and Sketchup. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PLNT\_S 2250 and PLNT\_S 2254

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**PLNT\_S 3260: Greenhouse Management**

Greenhouse design, environmental control and equipment. Practices associated with plant nutrition management, greenhouse pest control, postproduction handling and marketing of greenhouse crops, and greenhouse management are also covered.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2075 or instructor's consent

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**PLNT\_S 3270: Forage Crops**

An introduction to principle forage crops, including identification, anatomy, physiology, and growth characteristics. Pasture production and management, grazing systems, and forage preservation and utilization will also be covered.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or AN\_SCI 3232 or instructor's consent

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**PLNT\_S 3275: Grain Crops**

Lecture and discussion covering production and utilization, plus growth and development of a wide range of grain crops, including Missouri crops. Problem solving tasks include agronomics, economics and environmental factors.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125

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**PLNT\_S 3355: Introductory Turfgrass Management**

Characteristics of turf materials, principles of establishment and maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or instructor's consent

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**PLNT\_S 3385: Problems in Plant Science**

Not accepted as a substitute for any regularly scheduled course. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-4

**Prerequisites:** consent required

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**PLNT\_S 3500: Forest Pathology**

Provides basic understanding of biotic and abiotic agents which cause forest diseases, and current approaches to disease control.

**Credit Hours:** 3

**Recommended:** 5 hours Biological Sciences or equivalent

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**PLNT\_S 3510: Biology of Fungi**

(same as BIO\_SC 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**PLNT\_S 3710: Introductory Entomology**

(same as BIO\_SC 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**PLNT\_S 3715: Insect Diversity**

(same as BIO\_SC 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PLNT\_S 3710 (or BIO\_SC 3710)

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**PLNT\_S 4002: Topics in Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 4313: Soil Fertility and Plant Nutrition**

(same as SOIL 4313; cross-leveled with PLNT\_S 7313, SOIL 7313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**PLNT\_S 4314: Soil Fertility and Plant Nutrition Laboratory**

(same as SOIL 4314; cross-leveled with PLNT\_S 7314, SOIL 7314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4313

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**PLNT\_S 4315: Crop Physiology**

(cross-leveled with PLNT\_S 7315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology

of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 4320: Molecular Plant Physiology**

(same as BIO\_SC 4320; cross-leveled with PLNT\_S 7320, BIO\_SC 7320). Modern physiology of higher plants using common cultivated plants as examples. Prerequisites: CHEM 1320 or CHEM 1330 and one of the following: BIO\_SC 1500 or BIO\_SC 1200.

**Credit Hours:** 3

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**PLNT\_S 4325: Field Crop Breeding**

(cross-leveled with PLNT\_S 7325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 4330: Plant Breeding Theory**

(cross-leveled with PLNT\_S 7330). Designed to provide a logical application of genetic concepts to mating and selection theory in general improvement of cross pollinated crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3225 or equivalent

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**PLNT\_S 4340: Principles of Viticulture II**

(same as F\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**PLNT\_S 4345: Principles of Viticulture and Winemaking**

(same as F\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1020 or BIO\_SC 1030

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**PLNT\_S 4350: Nursery Crop Production and Management**

Operations, methods used by wholesale, retail, landscape nurseries. Field problems, observational trips.

**Credit Hours:** 4

**Recommended:** PLNT\_S 3230 and PLNT\_S 3235

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**PLNT\_S 4355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 7355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, SOIL 4360; cross-leveled with PLNT\_S 7360, AG\_S\_M 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110, or instructor's consent

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**PLNT\_S 4365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 7365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 4385: Problems in Plant Science**

Special problem in plant pathology designed for the minor program in Plant Pathology. Problems arranged on an individual student basis.

**Credit Hours:** 3

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**PLNT\_S 4400: Plant Anatomy**

(same as BIO\_SC 4400; cross-leveled with PLNT\_S 7400, BIO\_SC 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 4500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 7500). Diagnosis of diseases of plants caused by fungi, nematodes, viruses and bacteria Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology. Prerequisites: 5 hours from the following courses: BIO\_SC 1010, BIO\_SC 1020, BIO\_SC 1030, BIO\_SC 1100, BIO\_SC 1200 or BIO\_SC 1500; and completion of 60 credit hours.

**Credit Hours:** 4

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**PLNT\_S 4520: Environmental Microbiology**

Fundamental knowledge of selected microbial processes that are important in agriculture, environmental detoxification, and microbial

biotechnology. Emphasis is on molecular, genetic and physiological aspects of nitrogen metabolism, bioconversions, antibiotics and biocontrol.

**Credit Hours:** 3

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**PLNT\_S 4550: Plant Biotechnology**

(cross-leveled with PLNT\_S 7550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc. Prerequisites: PLNT\_S 2125 and one of the following: PLNT\_S 3213, or BIO\_SC 2200 or BIO\_SC 2300.

**Credit Hours:** 4

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**PLNT\_S 4710: Systematic Entomology**

(cross-leveled with PLNT\_S 7710). Taxonomy of insects: emphasizes biology and classification of orders and suborders in lecture, and major families in lab. Insect collection required. Prerequisites: PLNT\_S 3715 and one of the following: BIO\_SC 1100 or BIO\_SC 1500.

**Credit Hours:** 5

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**PLNT\_S 4720: Aquatic Entomology**

(cross-leveled with PLNT\_S 7720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or PLNT\_S 3715 or equivalent, or instructor's consent

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**PLNT\_S 4730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 7730). History and concepts of Integrated Pest Management of insect pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 4940: Internship in Plant Science**

Combines study, observation, and employment with an industry or government agency in area of agronomy or horticulture. Written and oral reports and faculty evaluation.

**Credit Hours:** 3

**Prerequisites:** Completion of 75 hours including two courses in department and instructor's consent

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**PLNT\_S 4950: Undergraduate Research in Plant Science**

Capstone experience consisting of investigations in Plant Science in support of an undergraduate thesis or special project portfolio.

**Credit Hour:** 1-3

**Prerequisites:** Completion of 75 credit hours and Plant Science Majors only

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**PLNT\_S 4965: Special Readings in Plant Pathology**

Independent readings and discussions of topics in entomology selected in consultation with supervising faculty member. Paper required.

**Credit Hour:** 1-99

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**PLNT\_S 4970: Readings in Molecular Ecology of Herbivory**

(cross-leveled with PLNT\_S 7970). The application of molecular biology tools to the rich history of chemical, physiological, population, and multi-trophic ecology studies on plant herbivore interactions has made for an exciting, fast-paced field at the forefront of ecology, 'functional biology' and 'systems biology'. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 4975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 7975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254 or instructor's consent

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**PLNT\_S 7001: Topics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 7085: Problems**

Advanced studies not expected to terminate in thesis. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PLNT\_S 7087: Seminar**

In-depth development of advanced aspects of plant, insect, or microbial sciences through reviews of results of research in progress and current scientific publications. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 7090: Nonthesis Research**

Original investigation not leading to preparation of thesis.

**Credit Hour:** 1-9

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**PLNT\_S 7313: Soil Fertility and Plant Nutrition**

(same as SOIL 7313; cross-leveled with PLNT\_S 4313, SOIL 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2110 or instructor's consent

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**PLNT\_S 7314: Soil Fertility and Plant Nutrition Laboratory**

(same as SOIL 7314; cross-leveled PLNT\_S 4314, SOIL 4314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites:** concurrent enrollment or previous completion of SOIL 4313 SOIL 7313

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**PLNT\_S 7315: Crop Physiology**

(cross-leveled with PLNT\_S 4315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 7320: Molecular Plant Physiology**

(same as BIO\_SC 7320; cross-leveled with PLNT\_S 4320, BIO\_SC 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or BIO\_SC 1200 and five hours of chemistry

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**PLNT\_S 7325: Field Crop Breeding**

(cross-leveled with PLNT\_S 4325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 7330: Plant Breeding Theory**

(cross-leveled with PLNT\_S 4330). Designed to provide a logical application of genetic concepts to mating and selection theory in general improvement of cross pollinated crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3225 or equivalent

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**PLNT\_S 7345: Principles of Viticulture and Winemaking**

(same as F\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 7350: Readings**

Individual study of assigned topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PLNT\_S 7355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 4355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and SOIL 7360; cross-leveled with PLNT\_S 4360, AG\_S\_M 4360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PLNT\_S 2110 or instructor's consent

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**PLNT\_S 7365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 4365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 7370: Small Fruit and Vegetable Production**

Emphasizes production, management and marketing practices for small fruit and vegetable crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100, PLNT\_S 3230, and PLNT\_S 3235

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**PLNT\_S 7400: Plant Anatomy**

(same as BIO\_SC 7400; cross-leveled with PLNT\_S 4400, BIO\_SCI 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissue systems; comparative anatomy of stem, root, leaf. Emphasized anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 7500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 4500). Diagnosis of disease of plants caused by fungi, nematodes, viruses and bacteria. Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology.

**Credit Hours:** 4

**Prerequisites:** 5 hours BIO\_SC

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**PLNT\_S 7550: Plant Biotechnology**

(cross-leveled with PLNT\_S 4550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2960 or equivalent; BIO\_SC 2200 or equivalent; BIO\_SCI 2300 or equivalent; PLNT\_S 2125

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**PLNT\_S 7710: Systematic Entomology**

(cross-leveled with PLNT\_S 4710). Taxonomy of insects: emphasizes biology and classification of orders and suborders in lecture, and major families in lab. Insect collection required.

**Credit Hours:** 5

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours Biological Sciences

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**PLNT\_S 7720: Aquatic Entomology**

(cross-leveled with PLNT\_S 4720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 or equivalent or instructor's consent

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**PLNT\_S 7730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 4730). History and concepts of Integrated Pest Management for insects pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 7820: Principles of Insect Physiology**

Major concepts of insect physiology emphasizing functions of organ-systems sensory physiology hormones in development, nutrition.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 and PLNT\_S 7810 or equivalent

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**PLNT\_S 7965: Readings in Plant Stress Biology**

Independent readings and discussion of recent research publications. Topics selected in consultation with supervisory faculty member.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**PLNT\_S 7970: Readings in Molecular Ecology of Herbivory**

(cross-leveled with PLNT\_S 4970). The application of molecular biology tools to the rich history of chemical, physiological, population, and multi-trophic ecology studies on plant herbivore interactions has made for an exciting, fast-paced field at the forefront of ecology, 'functional biology' and 'systems biology'. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**PLNT\_S 7975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 4975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254, instructor's consent

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**PLNT\_S 8001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 8010: Professionalism and Ethics**

Ethical issues in the conduct of scientific research including data integrity, plagiarism, and intellectual property. Scientific writing, lab management, peer review and other professional skills for the life sciences. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8090: Thesis Research**

Original investigations in plant, insect or microbial science in support of thesis for master's candidates. Graded on S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 8330: Molecular Breeding**

Development of Molecular Breeding, Evolution of Transgenics, Transformation and Gene Transfer Methods, Transgenics in the Food Supply Genetics and Marker Technology, Genotyping Methods for Marker Assisted Selection (MAS), and Emerging Transgenic and Genotyping Technologies. Graded on A-F basis only. Prerequisites: PLNT\_S 3225

**Credit Hours:** 3

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**PLNT\_S 8362: Introduction to Plant Metabolism**

(same as BIO\_SC 8362 and BIOCHM 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8365: Introduction to Molecular Cell Biology**

(same as BIOCHM 8365 and BIO\_SC 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8410: Advanced Weed Science**

Discussion of herbicide physiology and fate in the environment, current development in weed science theory and methodology, and application of analytical procedures in weed research.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3210



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**PLNT\_S 8420: Herbicide Mode of Action and Symptomology**

Designed for graduate students to gain an understanding of the in-depth processes by which herbicides interrupt normal plant growth and development at a tissue, cellular, and enzymatic level while learning to diagnose visual symptoms associated with herbicide injury. Course maybe repeated for credit. Graded on A-F basis.

**Credit Hours:** 2

**Prerequisites:** PLNT\_S 3210; instructor's consent

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**PLNT\_S 8430: Introduction to Bioinformatics Programming**

(same as AN\_SCI 8430). This course provides the basics of programming and database development to students in the life sciences who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**PLNT\_S 8505: Introduction to Plant Stress Biology**

(same as BIO\_SC 8505) This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8530: Research with Plant Stress Agents**

Students will learn key research strategies for abiotic and biotic plant stress agents. Students will complete two focused hands-on projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510 or PLNT\_S 7315, or PLNT\_S 7320, or equivalent

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**PLNT\_S 8650: Ecological and Evolutionary Genomics**

(same as BIO\_SC 8650). This course is designed to give a background in evolution and then explore an exciting new field: Ecological and evolutionary genomics. We will study genes that affect fitness and how whole genomes evolve. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8720: Insect Behavior**

An examination of the breadth of behaviors found in insects, such as orientation mechanisms, communication, dispersal and migration, defensive mechanisms, lost location, feeding strategies, pollination, courtship and reproduction, and social behavior.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours of Biological Sciences

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**PLNT\_S 9001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 9087: Seminar in Plant Science**

In-depth development of advanced aspects of plant, insect and microbial sciences through reviews of results of research in progress and current scientific publications. Graded on A-F or S/U basis dependent on section.

**Credit Hour:** 1

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**PLNT\_S 9090: Dissertation Research**

Original investigations in plant, insect or microbial science in support of dissertation for doctoral candidates. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 9310: Ecology of Grazing Lands Systems**

Students travel to grazing lands ecosystems to learn: the components and function of grazing lands; research techniques in soil-plant-animal research; forage-livestock ecology; and the role of forages in conservation practices, wildlife habitat, and sustainable agriculture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PLNT\_S 9415: Advanced Plant Physiology**

Advanced course in the physiology of plant growth and development. Discussion of current and classical studies in plant physiology with emphasis on responses to environmental variation.

**Credit Hour:** 1-3

**Prerequisites:** PLNT\_S 4315 or PLNT\_S 4320 or equivalent. Instructor's consent required

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**PLNT\_S 9440: Applied Quantitative and Statistical Genetics**

Estimation of genetic effects using means and variances, diallel analysis, environmental stability responses, index selection, and gain from selection.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 4330, STAT 4510, STAT 4530, AN\_SCI 9423, or equivalent

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**PLNT\_S 9540: Genetics of Plant-Microorganism Interaction**

Molecular and general genetics of the interactions between plants and pathogenic or symbiotic microorganisms.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510, one course each in Biochemistry and Genetics

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**PLNT\_S 9810: Insect Ecology**

Ecological aspects of insect populations and communities including population dynamics, predator-prey interactions, competition, diversity and stability. Quantitative methods are emphasized.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715, STAT 1400 and BIO\_SC 3650 or instructor's consent

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## Political Science Courses

### **POL\_SC 1004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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### **POL\_SC 1100: American Government**

Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**Credit Hours:** 3

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### **POL\_SC 1100H: American Government - Honors**

Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **POL\_SC 1400: International Relations**

Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**Credit Hours:** 3

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### **POL\_SC 1400H: International Relations - Honors**

Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **POL\_SC 2004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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### **POL\_SC 2100: State Government**

Government and politics at the state level, with emphasis on Missouri. Meets state law constitutional requirement.

**Credit Hours:** 3

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### **POL\_SC 2200: The Judicial Process**

Analysis of roles played by American judges and courts in democratic policy formation.

**Credit Hours:** 3

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### **POL\_SC 2445: American Constitutional Democracy**

(same as HIST 2445) This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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### **POL\_SC 2450: The Intellectual World of the American Founders**

This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

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### **POL\_SC 2450H: The Intellectual World of the American Founders - Honors**

This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **POL\_SC 2455: Constitutional Debates**

While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in "high theory." Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately "won the day," we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 2455H: Constitutional Debates - Honors**

While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in "high theory". Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framers-worship. While we will discuss why the Federalists ultimately "won the day," we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; POL\_SC 1100

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**POL\_SC 2600: Canadian Politics and Government**

Introductory survey of Canada, including constitutional development, governmental institutions, political participation, and Canadians' political attitudes and behaviors.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 2700: Comparative Political Systems**

Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 2700H: Comparative Political Systems - Honors**

Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100. Honors eligibility required

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**POL\_SC 2710: Politics and the Military**

Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**Credit Hours:** 3

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**POL\_SC 2720: European Democracies**

This course provides an introduction to the institutions and issues in contemporary European political systems. It covers domestic institutions and policies as well as the developments of the European Union.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 2800: Liberty, Justice and the Common Good**

Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 2860: American Political Thought**

Examines major themes that shaped three centuries of American political thought, including slavery, religion, and the tension between unity and difference. Readings are drawn from primary sources (Jefferson, Adams, Mason, Tocqueville, Calhoun, Lincoln, Stowe, Baldwin) as well as contemporary analytic commentary on those sources (Bercovitch, Hartz, Wolin, Guinier, Morrison).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 3000: Introduction to Political Research**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of "explanation" and "causal reasoning." and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3000W: Introduction to Political Research - Writing Intensive**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of "explanation" and "causal reasoning." and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3164: Nation Building through a Barrel of a Gun**

(same as MIL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**POL\_SC 3165: "Chasing Ghost", The History of Irregular Warfare**

(same as MIL\_SC 3165). This course explores the history of irregular warfare from the guerrilla perspective. The course examines the works of Mau Tse-Tung, Che Guevara, T.E. Lawrence and several other guerrilla leaders. You will analyze the evolution of irregular warfare through history and understand the complexities associated with the difficulties of countering and defeating irregular warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent, concurrent enrollment in POL\_SC 4010

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**POL\_SC 4004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 4010: Computing Methods**

Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 4030: Formal Political Analysis**

Introductory course in formal mathematical models of political behavior and political institutions. Topics includes electoral rules, agenda control, measures of power, collective action, constitutions.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

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**POL\_SC 4100: Political Parties and Election Campaigns**

Development, organization, functions, activities of major and minor political parties; principles and procedures of managing campaigns; campaign finance; election administration.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 3000

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**POL\_SC 4110: Political Behavior**

Economic, psychological, and social dimensions of political behavior; participation, leadership and elites; political attitudes; voting behavior and decision-making processes.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 3000

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**POL\_SC 4120: Politics and the Media**

The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4120W: Politics and the Media - Writing Intensive**

The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4130: African-American Politics**

(same as BL\_STU 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4140: Congress and Legislative Policy**

Study of national and state legislative systems and legislative policy making, with emphasis on Congress.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4150: The American Presidency**

Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4150W: The American Presidency - Writing Intensive**

Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4160: Interest Groups**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest

groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4160W: Interest Groups - Writing Intensive**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4170: Politics of the American South**

This course focuses on the politics of the American South in the latter part of the 20th century and the early years of the current millennium. For undergraduate credit only.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, junior standing or instructor's consent

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**POL\_SC 4180: Politics and Hollywood**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4180W: Politics and Hollywood - Writing Intensive**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4200: The American Constitution**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100; junior standing

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**POL\_SC 4200W: The American Constitution - Writing Intensive**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100; junior standing

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**POL\_SC 4210: Constitutional Rights**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4210W: Constitutional Rights - Writing Intensive**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4220: The United States Supreme Court**

Role of Supreme Court in American system of government; particular attention given to reading biographies and writings of the Justices.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4230: Constitution and Civil Liberties**

Civil liberties in the American constitutional context emphasizing freedom of expression (religion, speech, press, assembly), rights of accused and right to privacy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4310: Comparative State Politics**

Analyzes similarities and differences of state politics and the ways in which such politics are shaped by political and socioeconomic environments of the states.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4320: Public Policy**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, and junior standing

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**POL\_SC 4320W: Public Policy - Writing Intensive**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, and junior standing

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**POL\_SC 4370: The Administrative State, Public Policy and Constitutional Democracy**

Off in the quiet corners of the policy process, public servants distribute public benefits, write rules that have the force of law, adjudicate conflicts and selectively enforce the law. Frequently the government delegates these tasks to non-profit organizations. These public and quasi- public administrative organizations play, therefore, a critical role in the politics of who gets what, when and how - the essential question of public policy. Administrative organizations in the United States play this powerful role, however, within a constitutional democracy. This course focuses on policymaking through the administrative state and the relationship between the administrative state, democracy and the U.S. Constitution.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4380: Politics of Criminal Justice**

Course explores the political motivations for and the substantive consequences of state and federal criminal justice policy in the United States.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**POL\_SC 4400: Theories of International Relations**

Surveys Theories of International Relations. Analyzes conceptions of decision-making, foreign policy behavior and international society. Prerequisites: junior standing

**Credit Hours:** 3

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**POL\_SC 4410: Politics and War**

(same as PEA\_ST 4410). Why do wars occur? The functions of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4411: Genocide, Terrorism and Civil War**

This course explores the conditions that lead to the initiation, escalation and termination of civil wars as well as the causes and targets of terrorism and the effects of genocide.

**Credit Hours:** 3

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**POL\_SC 4412: Strategy and Warfare**

Examines strategic theory, traditional forms of warfare (on land, sea, and in the air), as well as irregular warfare and terrorism. Additional topics include weapons of mass destruction, deterrence, and technology.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4415: Peacekeeping and Intervention**

This course will survey the causes and consequences of peacekeeping and intervention as well as assess the conditions that lead to successful and failed missions.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4420: Politics of International Economic Relations**

Study of reciprocal interaction between global politics and economics. Includes politics of north/south relations, multinational non-state actors, arms transfers and dependency.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4430: Global Human Rights**

Human rights violations are widespread. The majority of the world's citizenry lives with inadequate civil and political and economic, social, and cultural rights, often with dire consequences on economic and human security. What caused this situation? And, moreover, what can be done to fix it? This course focuses on the social scientific study of human

rights. We will focus on scientific explanations of the rise of the human rights movement, political and economic explanations for human rights conditions, and the effects of advocacy efforts concerning human rights. After this class, you will have not only an understanding of the major players and factors influencing human rights, but a base understanding of the social scientific processes which govern human rights conditions and improvements. As such, this class is not a history class or a class on current events. Though current and historical events will be discussed, your grade will not depend on your rote memorization of these events. Instead, the focus will be on understanding the underlying interests of important actors towards human rights, the arenas in which these actors interact, and the rules which govern their interactions. This focus on the basic principles will provide you with a rich practical knowledge of human rights. At the conclusion of the course, you will be able to actively engage with the global human rights community.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4440: International Organization**

Forms and functions of governmental (United Nations, European Union, NATO) and nongovernmental international organizations.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4500: The European Union in the Global System**

Provides an understanding of the European Union from the perspective of international relations and comparative politics. Topics covered pertain to the institutions, politics and policies of the European Union and its member states.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and POL\_SC 1400 and junior standing

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**POL\_SC 4540: American Foreign Policies**

Bases, formulation, evaluation of current American foreign policies.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4600: Latin American Politics**

Development, present status of political institutions in South America; emphasizes current political problems.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4605: Latin American Politics through Film**

This course provides an introduction to Latin American politics using the medium of film to illustrate the complexities of political development, regime change, revolutionary movements, and problems facing new democracies such as crime, poverty, drugs, and democratic stability.

**Credit Hours:** 3

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**POL\_SC 4610: European Political Systems**

Comparison of political cultures, institutions, and processes of Britain, France, West Germany, and selected smaller countries in Western Europe.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4630: The Politics of Modern Europe**

The course is an introduction to the politics of modern Europe. Europe provides an ideal setting to explore the central concepts and debates of comparative politics in industrialized countries. The course introduces the wide variety of political institutions, political economics and cultures existing in contemporary Europe and probes the question how such discrepancies might affect political outcomes and the possibility to coordinate EU policy. Several central topics in comparative politics, including political parties, elections, the welfare state, civil society and corruption will be introduced with application to modern European democracies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and Junior Standing

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**POL\_SC 4640: African Politics**

(same as BL\_STU 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4660: Canada in North America**

This course focuses on the role of Canada in North America. The main topic areas include the evolution of Canada as a political system; political structures and processes; regionalism and social movements; political, economic and social connections with North America; and the future of Canada in North America.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 2600

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**POL\_SC 4670: The Political System of the European Union**

This course examines the politics, political actors, and institutions of the European Union from a comparative perspective. It questions whether we can view the EU as a federal democratic system similar to the U.S.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and Junior or Senior standing

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**POL\_SC 4680: Chinese Politics and Foreign Policy**

This course is intended to introduce you to the history and analysis of Chinese politics and foreign policy since 1949. The course has two main goals. The first is that during the semester, you should learn the key historical events in Chinese political development and foreign policy. Second, you will examine these events and developments in light of major theories in comparative politics and international relations.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and POL\_SC 1400 or Instructor's permission

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**POL\_SC 4690: North and South Korea**

This course is an introduction to the development of North and South Korea since 1945. By the end of the semester, students will 1) Know the key events and historical trends in the political development and foreign

policy of the two Koreas 2) Be able to explain these developments using major theories in comparative politics and international relations We will focus on processes of continuity and change, both for the two political systems and for the everyday lives of individuals on both sides of the DMZ. We will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4700: America's Wars in Asia/War and Peace in Asia**

This course is an introduction to the causes and character of conflict in Asia, especially the conflicts that either have involved or could plausibly involve the United States of America. These conflicts often combine aspects of civil conflict with aspects of international politics, and one of the important themes of the course will be to look at Asia's conflicts through both of these lenses. In addition, we will examine America's foreign policy options and how it selected strategies to deal with these conflicts. By the end of the semester, students will 1) Be familiar with the key historical events and concepts related to conflict in East Asia 2) Be able to explain these developments using a range of major theories and conceptual lenses in comparative politics and international relations. The course will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4710: Terrorism: Religious, Ethnic and Ideological Politics**

Terrorism as political violence extending beyond the acts themselves. Examines major modern movements, e.g. Northern Ireland, Basques (Spain), Germany, Algeria, Arab-Israeli, Iran, India, Sri Lanka, Peru, Argentina, Uruguay.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4720: Politics of Development**

(same as BL\_STU 4720). Comparative, interdisciplinary analysis of the politics of developing countries in Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4730: Women and Politics**

(same as WGST 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100; junior standing

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**POL\_SC 4740: Comparative Political Culture**

Review of the many divergent conceptions of political culture and examination of the dynamics and consequences for the performance of political systems and the behavior of their citizenry. Comparison of particular cultures of selected regions including East Asia, Europe and the Middle East, Latin America, and North America.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4750: Power and Money**

This course provides an introduction to comparative political economy by focusing on the following questions. How and why do governments promote economic prosperity? Does democracy make people richer or poorer? Is it true that "money is power"? Can poor countries enjoy a stable democracy?

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4760: Comparative Political Parties**

This course will explore political parties and party systems in democracies around the world. The course will focus on differences in the number, size, ideology, polarization, and functions of political parties.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 2700 and Junior standing

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**POL\_SC 4770: Comparative Political Behavior**

Explores research questions related to cross-national differences and similarities in public opinion formation, political culture and values, voting behavior, and other forms of political participation. Violent forms of political participation are also considered. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4780: Dictatorship and Democracy**

Why did the Arab Spring happen? Will China survive or collapse? Did North Korea's new dictator Kim Jong Un really execute his old girlfriend? Throughout history, the majority of the world's regimes have been dictatorships rather than democracies. This course is an introduction to the causes and character of contemporary authoritarian and democratic regimes: how and why they are created, why they survive, why people resist dictatorship or don't, and why regimes survive or fall. We will use academic articles, news stories, and films to study dictatorship and democracy. You will come away from this course with an understanding of the major theoretical debates about dictatorship and democracy, and how these debates apply to important countries and issues in the world today.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4790: The Age of Democratization?**

Democracy has become a global norm. After repeated waves of democratization, democracy has now reached all corners of the world and spread far beyond the affluent West. How can we understand transitions to democracy and democratic stability? What is the relationship between democracy and development and what can America and other Western powers do to promote democracy abroad? Although democracy has been on the rise in the last decades we have also seen new challenges emerge. Many countries have adopted democratic facades hiding the persistent stability of authoritarianism. We have also seen the rise of China and Russia in world politics, creating a powerful counterweight to the previously dominant liberal order. How will this change affect the prospects for democratization in the future? These and other questions will be debated in this course as students will be

introduced to central question, theories, and findings in comparative democratization.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4800: Classical Political Theory**

(same as CL\_HUM 4800). Great Greek, Roman, and Medieval political theorists on the relation of psychology, ethics, politics, and the best form of government.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4810: Modern Political Theory**

Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism, and Marxism.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4820: Contemporary Political Theory**

Great contemporary thinkers on Western vs. Eastern Marxism, existentialism, critical theory, political theologies, postmodernism, feminism, environmentalist ideologies, biological approaches to politics.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4830: Democracy in America (and Elsewhere)**

This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and Junior standing

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**POL\_SC 4840: Developing Dynamics of Democracy**

This course examines developments in the theory and practice of democracy from the ancient Greeks to the present. Beginning with the origins of democracy in the Hellenic city states, we consider the transformation of democratic concepts in the classical liberal period, review the development of democratic institutions in the United States and Europe, examine the emergence of supra-national democratic institutions such as the European Union, and assess the future of democratization in the 21st century.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850: Scots and the Making of America**

This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100



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**POL\_SC 4850H: Scots and the Making of America - Honors**

This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, Honors eligibility required

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**POL\_SC 4890: Contemporary Political Analysis**

This course introduces public choice writings. Public choice applies economic methods to the study of politics. Topics covered include the appropriate size of the state, how individuals organize to achieve shared goals and how voters chose in elections.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4900: Beltway History and Politics: American Constitutional Democracy in Theory and Practice**

(same as HIST 4900). This course is an experiential overview of American political history for students on the Kinder Forum's Washington program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

**Prerequisites:** This course is limited to students participating in the Kinder Scholars Washington D.C. Internship program

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**POL\_SC 4940: Political Science Internship**

Work experience in a public or private organization that is relevant to the political science major coordinated by a faculty member.

**Credit Hour:** 3-6

**Prerequisites:** junior standing with a 3.0 GPA; or senior standing with 2.67 GPA. Must be in good standing

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**POL\_SC 4975: Journal on Constitutional Democracy**

(same as HIST 4975). The journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current former participants in the institute's undergraduate Society of Fellows program. Each volume of the journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**POL\_SC 4985: Problems in Political Science**

Independent investigation to meet needs of the individual student.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4986: Special Readings in Political Science**

Independent readings selected in consultation with supervisory faculty member.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4995: Political Science Capstone**

Readings and discussions in selected areas of political science (comparative, American, international affairs, public administration/policy or theory). Subject depends on instructor.

**Credit Hours:** 3

**Prerequisites:** political science major, senior standing

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**POL\_SC 4996: Political Science Capstone, Honors**

Special readings, reports in the several fields of political science. For political science Honors students.

**Credit Hour:** 1-6

**Prerequisites:** senior standing. Honors eligibility required

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**POL\_SC 7000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

**Corequisites:** POL\_SC 4010

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**POL\_SC 7010: Computing Methods**

Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 7085: Problems in Political Science**

Individual study in one of the fields of Political Science.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 8085: Master Research in Political Science**

Independent research not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 8090: Masters Research in Political Science**

Independent research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9000: Scope and Methods**

Examines the major fields in the discipline, assumptions underlying empirical social science and theoretical issues in the study of politics. Primarily for doctoral candidates in political science.

**Credit Hours:** 3

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**POL\_SC 9030: Linear Models in Politics**

Linear and non-linear multivariate estimation techniques with applications to political science research.

**Credit Hours:** 3

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**POL\_SC 9040: Advanced Political Methodology**

Analytic strategies and statistical models applicable to social science research. Emphasis on modeling political phenomena. Topics vary, include linear and nonlinear models, multidimensional scaling.

**Credit Hours:** 3

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**POL\_SC 9050: Introduction to Formal Political Theory**

Formal and mathematical models of political institutions and behavior. Topics may include social choice, game theory, spatial models, coalition formation.

**Credit Hours:** 3

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**POL\_SC 9070: Qualitative Research Methods in Political Science**

Seminar on research design for qualitative research in political science. Topics include case-study, archival, multi-method, and field research and other qualitative methods.

**Credit Hours:** 3

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**POL\_SC 9085: Problems in Political Science**

For graduate students with necessary prerequisite courses. Topics in one of the fields of political science for individual study.

**Credit Hour:** 1-99

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**POL\_SC 9090: Ph D Research in Political Science**

Independent research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9100: American Political Behavior**

Critical examination of literature on political behavior in the United States. Topics include voting and elections, public opinion, parties and interest groups, political psychology, communication, elites, and collective action.

**Credit Hours:** 3

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**POL\_SC 9120: Voting and Elections**

Research seminar on political participation, voter choice, campaigns, and elections, primarily in the United States. Covers theories, approaches and research on electoral behavior.

**Credit Hours:** 3

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**POL\_SC 9140: American Political Institutions**

Critical examination of literature on political institutions in the United States. Topics include Congress, the Presidency, courts, the bureaucracy, political organizations, federalism, and institutional dynamics.

**Credit Hours:** 3

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**POL\_SC 9145: American State Politics**

Research seminar on state government and politics in the U.S. Topics include state culture, mass politics, elections, state executives, legislatures, courts, and public policy.

**Credit Hours:** 3

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**POL\_SC 9150: Political Parties**

Research seminar on the organization and activities of political parties, primarily in the United States. Attention to historical development, nature of party change, functions, elites, membership, political finance, and policy formulation.

**Credit Hours:** 3

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**POL\_SC 9160: Interest Groups**

Research seminar on nonpartisan organizations seeking to influence the public policy agenda. Includes problems of collective action, mobilization and organization of interest groups, strategies and tactics, lobbying, political movements, theories and research.

**Credit Hours:** 3

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**POL\_SC 9170: Legislative Institutions**

Research seminar on the U.S. Congress and legislative institutions generally. Topics include the legislative process, policy change, committees, political parties, leadership, representation, and relations with other branches of government.

**Credit Hours:** 3

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**POL\_SC 9175: Evolution of American Legislatures, 1619 to the Present**

Examination of the organizational evolution of American legislatures from the colonial era to the present.

**Credit Hours:** 3

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**POL\_SC 9190: Research in American Politics**

Directed research into one or more specific aspects of American Politics, behavior, and institutions.

**Credit Hours:** 3

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**POL\_SC 9210: Civil Rights and Civil Liberties**

Research seminar on the U.S. Constitution, civil liberties, and civil rights. Topics include the First Amendment and freedom of expression and of belief, due process, the rights of the accused, privacy, equal protection, and constitutional interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9220: Constitutional Law: Institutions and Powers**

Research seminar on powers and constraints on government found in the U.S. Constitution. Topics include separation of powers, federalism, legislative and presidential power, the commerce clause, taxing and spending.

**Credit Hours:** 3

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**POL\_SC 9230: Public Law**

Research seminar on the judicial process in the United States.

**Credit Hours:** 3

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**POL\_SC 9240: Racial and Ethnic Politics**

Theories, institutional processes, and behaviors pertaining to social defined racial and ethnic groups. Topics include social dominance, representation, mobilization, public opinion, and the influence of racial and ethnic factors on the American political process.

**Credit Hours:** 3

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**POL\_SC 9300: Federalism and Intergovernmental Relations**

Analyzes relationships among American governmental units emphasizing national-state relations and metropolitan area problems.

**Credit Hours:** 3

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**POL\_SC 9310: Public Policy**

Covers the basic theory, approaches, problems and issues relating to the scope, development and implementation of public policy.

**Credit Hours:** 3

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**POL\_SC 9320: Administrative Politics**

Critical examination of literature relating to selected topics in public bureaucracies.

**Credit Hours:** 3

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**POL\_SC 9330: Research in Policy and Administration**

Contemporary research in public policy, bureaucratic politics, public management and administration.

**Credit Hours:** 3

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**POL\_SC 9350: Public Policy, Processes and Strategies**

Provides an overview of the history, function, size, scope, development, and management of the nonprofit sector. Historical, political, economic, and social perspectives are used to examine the meaning of voluntarism, charity, philanthropy, and the nonprofit sector. Graded on A-F basis.

**Credit Hours:** 3

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**POL\_SC 9390: Administration and Public Policy**

Directed research in Public Administration or Public Policy. Inquire as to the emphasis for any given semester.

**Credit Hours:** 3

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**POL\_SC 9400: Introduction to International Relations**

Analysis, evaluation of some basic theories which attempt to explain international affairs.

**Credit Hours:** 3

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**POL\_SC 9420: Quantitative Approaches in International Relations**

Research seminar emphasizing quantitative analysis of large data sets on international politics, especially international conflict. Topics include conflict escalation, correlates of war, deterrence, alliance behavior and the democratic peace.

**Credit Hours:** 3

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**POL\_SC 9430: International Political Economy**

Theories of political economy and current problems such as North-South relations, international trade, monetary relations, aid regimes, and international divisions of labor.

**Credit Hours:** 3

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**POL\_SC 9440: Foreign Policy Analysis**

Research seminar assessing foreign policy decisions and outcomes with particular attention given to decision-making. Both theoretical and empirical methods for testing foreign policy are considered. Approaches include domestic politics, bureaucratic, and psychological models.

**Credit Hours:** 3

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**POL\_SC 9450: International Conflict**

This is an advanced seminar in international conflict. The range of material that might be included is vast, so an effort will be made to balance overall coverage with the need to look in more depth at some especially salient areas in the literature. The seminar unfolds in five parts.

**Credit Hours:** 3

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**POL\_SC 9460: Coercive Diplomacy**

Research seminar on how nations apply political and economic sanctions on other nations in order to compel or entice changes in foreign policy and/or government behavior. How threats (short of conflict) and incentives govern international relations.

**Credit Hours:** 3

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**POL\_SC 9470: Theories of Civil War**

Seminar on why groups may engage in violence against the state or other opposition groups. Topics include causes of civil wars, terrorism as a strategy of violence and possible solutions including third party security, partition, intervention, power sharing and treaty design. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9480: Human Security**

Seminar on cross-national civil, political, economic, social, and cultural rights. The determinants of human security issues and the efficacy and dynamics of efforts from intergovernmental organizations, foreign aid, peacekeeping, interventions, and treaties on human rights.

**Credit Hours:** 3

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**POL\_SC 9490: Selected Themes in International Relations**

Graduate seminar in International Relations. Variable content. May be repeated for credit.

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**Credit Hours:** 3

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**POL\_SC 9550: Strategic Studies**

This graduate seminar analyzes important theories regarding strategic studies. The course explores topics such as war outcomes, military effectiveness, military history, military strategy, civil-military relations, counterinsurgency, military innovation, and air warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9600: Introduction to Comparative Politics**

Study of theories and approaches to comparative politics in Europe, Asia and/or Latin America.

**Credit Hours:** 3

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**POL\_SC 9610: Latin American Politics**

Research seminar on politics and government in Central and South America. Topics include modernization and dependency theories, civil-military relations, economics adjustment, democratic transitions, and area and country studies.

**Credit Hours:** 3

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**POL\_SC 9620: Politics of Industrial Societies**

Comparative analysis of public policy in Western democracies. Emphasis on economic policy and related policy areas. Comparisons of Western European countries with United States, Japan, Russia when appropriate.

**Credit Hours:** 3

**Prerequisites:** graduate standing

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**POL\_SC 9640: East Asian Politics**

Intensive study of selected topics in the internal and external politics of China, Japan and Korea.

**Credit Hours:** 3

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**POL\_SC 9645: China and Political Science Research**

This is a graduate-level seminar on Chinese politics and foreign policy since 1949 covering the key historical events in Chinese political development and foreign policy. These events and developments will be examined in light of major theories in and methodological approaches adopted by the subfields of comparative politics and international relations, with the goal of exploring the strengths and weaknesses of alternative perspectives. At the end of the course, students should be familiar with the key debates and questions in the study of Chinese politics and foreign policy, and have a better sense of how to research questions on these topics. The course is also intended to encourage a dialogue between the study of China and the broader fields of comparative politics and international relations. Thus by the end of the course, students should have a sense not only for how the study of Chinese politics and foreign policy applies broader CP/IR theories to explain key patterns and events in China, but also gain insight into the question of what China as a case (or cases) can contribute back to major theories and debates in these fields.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 9600

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**POL\_SC 9650: African Politics**

Research seminar on comparative African politics. Theory and research on sub-Saharan post-independence governance on the African continent.

**Credit Hours:** 3

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**POL\_SC 9670: European Transitions**

Research seminar comparing post-communist transitions with those from previous European transformations along economic, political, and social lines. The course focuses on testing theories and on comparing transitional experiences in search of generalizable results.

**Credit Hours:** 3

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**POL\_SC 9680: Politics of Development**

Research seminar on the politics of development in the developing world. Examines the relationship between political and economic change in Africa, Asia and Latin America, as well as global patterns.

**Credit Hours:** 3

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**POL\_SC 9690: Democracy and Dictatorship**

Research seminar on comparative politics of authoritarian and democratic regimes. Topics include characteristics and durability of authoritarianism, political institutions under autocracy, tactics of rule, state-society relations, transition and breakdown of regimes.

**Credit Hours:** 3

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**POL\_SC 9700: Democratization**

Research seminar on the third wave of democratization. Classical and contemporary conceptions of democracy, measurement, theories, trends, and influences on democratization across the globe.

**Credit Hours:** 3

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**POL\_SC 9710: Comparative Political Economy**

Interdisciplinary, comparative analysis of political aspects of political economy, rural development, and related issues.

**Credit Hours:** 3

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**POL\_SC 9720: Comparative Political Institutions**

Research seminar on comparative political institutions. Debates in comparative politics on the influence of rules and institutions on political decisions in developed democracies. Topics include political parties, legislatures, governments, and electoral rules.

**Credit Hours:** 3

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**POL\_SC 9730: Comparative Elections and Voting Behavior**

This is a graduate level seminar in comparative political behavior. We will discuss a variety of topics dealing with comparative political behavior, such as the formation of partisan identification, public opinion formation, the decision to vote, organize and protest, and how foreign and domestic policy influence elections. The readings will introduce you to the various methodological techniques--including case studies, quantitative analysis, and agent-based modeling--used to test the empirical expectations of these theories. The goal of this course is to provide a solid foundation

upon which you can build for comprehensive examinations. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9760: Comparative Political Parties**

This course will analyze cross-national differences in the size and nature of party systems in established democracies. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9790: Seminar in Comparative Politics**

Comparative study of selected aspects of political systems. Variable content. May be repeated for credit.

**Credit Hours:** 3

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**POL\_SC 9901: Topics in Political Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 9910: Leadership in Civic Education**

Intensive workshop for Missouri secondary social studies teachers. Includes instructional materials on U.S. and Missouri governments, lectures by leading scholars, breakout sessions, and interactions with government practitioners.

**Credit Hours:** 3

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**POL\_SC 9970: Independent Readings for Ph.D. Comprehensive Examinations**

Graded on S/U basis only.

**Credit Hour:** 1-9

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## Portuguese Courses

**PORT 1100: Elementary Portuguese I**

This is the first course in the three-part elementary Portuguese-language sequence. The focus is on building common vocabulary and learning basic verb tenses and syntax, as well as other grammar basics such as noun/adjective number and gender, adverbs, and preposition usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, and in-class structured conversation and discussion of texts, videos, music and additional cultural materials related to Brazilian and other Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

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**PORT 1200: Elementary Portuguese II**

This is the second course in the three-part elementary Portuguese-language sequence. The focus is on increasing vocabulary (including common idiomatic expressions) and reviewing basic verb tenses and syntax. The course also includes further study of key grammatical concepts such as irregular and reflexive verbs, progressive and past tenses, the imperative, and pronoun usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, as well as in-class structured conversation and discussion of texts, videos,

music and other cultural materials related to Brazilian and additional Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in PORT 1100 or its equivalent

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**PORT 2001: Topics in Portuguese-General**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**PORT 2005: Topics in Portuguese-Humanities/Fine Arts**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**PORT 2160: Intermediate Portuguese**

Review of grammar through Brazilian culture. Designed for students who have taken either PORT 1200 or PORT 4070 and wish to continue studying the language.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in PORT 1200 or equivalent

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**PORT 2310: Brazilian Civilization**

Survey of Brazilian history, arts and culture. Open to any student interested. No knowledge of Portuguese required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3001: Topics in Portuguese-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3005: Topics in Portuguese-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3160: Advanced Portuguese Composition and Conversation**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in PORT 2160

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**PORT 3260: Cinema for Portuguese Conversation**

This course is for intermediate and advanced students of Portuguese and uses film as the basis for teaching vocabulary, strengthening oral and written skills, and presenting Brazilian culture. Graded on A-F basis only,

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**Credit Hours:** 3**Prerequisites:** grade of C- or better in PORT 2160 or equivalent

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**PORT 3420: Survey of Brazilian Literature**

Masterpieces of Brazilian literature in translation from its origins to present.

**Credit Hours:** 3**Prerequisites:** sophomore standing

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**PORT 3875: Brazilian Cinema**

(same as FILM\_S 3875). An introduction to Brazilian cinema, culture and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; re-definitions of national identity and history, representations of race and gender.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000

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**PORT 3885: Twenty-First Century South American Cinema**

(same as FILM\_S 3885, SPAN 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**PORT 4070: Intensive Beginning Portuguese**

Designed for rapid acquisition of a reading knowledge of Portuguese. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3**Prerequisites:** instructor's consent

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**PORT 4960: Special Readings in Portuguese**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3**Prerequisites:** departmental consent

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## Psychiatry Courses

**PSCHTY 6005: Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 6

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**PSCHTY 6015: Rural Psychiatry Clerkship**

Rural Psychiatry Clerkship

**Credit Hours:** 6

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**PSCHTY 6025: Springfield Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 8

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**Prerequisites:** successful completion of the first two years of medical school

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**PSCHTY 6105: Remediation Psychiatry Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Psychiatry Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 6**Prerequisites:** PSCHTY 6005 Psychiatry Clerkship, received unsatisfactory grade

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**PSCHTY 6363: ABS Psychiatry Research**

ABS Psychiatry Research

**Credit Hour:** 5-10

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**PSCHTY 6365: ABS Psychiatry Research and Review**

ABS Psychiatry Research and Review

**Credit Hour:** 5-10

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**PSCHTY 6367: ABS Psychopharmacology**

ABS Psychopharmacology

**Credit Hour:** 5-10

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**PSCHTY 6630: Narrative Med and the Meaningful Life**

The 4th year medical student will attend didactics and participate in discussions. They will complete suggested readings (short stories, poems and essays), assessments and writing assignments/projects. May be repeated for credit.

**Credit Hours:** 5**Prerequisites:** 4th year medical student, all core clerkships

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**PSCHTY 6730: Adult Outpatient Psychology - Rural**

Adult Outpatient Psychology - Rural

**Credit Hours:** 3

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**PSCHTY 6731: Psychiatry Rural Elective**

The 4th year medical student will participate in the evaluation of adult psychiatric patients and child psychiatric patients in a clinical setting.

**Credit Hours:** 5**Prerequisites:** PSCHTY 6005; restricted to 4th year medical students

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**PSCHTY 6835: Psychiatry Outpatient Clinic**

Psychiatry Outpatient Clinic

**Credit Hours:** 5

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**PSCHTY 6836: Psychiatry Adult Inpatient Service**

Psychiatry Adult Inpatient Service

**Credit Hours:** 5

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**PSCHTY 6837: Psychosomatic Medicine**

Psychosomatic Medicine

**Credit Hours:** 5

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**PSCHTY 6838: Forensic Psychiatry**

Forensic Psychiatry

**Credit Hours:** 5

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**PSCHTY 6839: Child/Adolescent Psychiatry**

Child/Adolescent Psychiatry

**Credit Hours:** 5

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**PSCHTY 6840: Geriatric Psychiatry**

Geriatric Psychiatry

**Credit Hours:** 5

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**PSCHTY 6939: Two Week - Psychiatry Adult Inpatient Service**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of adults on an acute care inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6940: Two Week - Child and Adolescent Psychiatry**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of children and adolescents on an acute care child inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6941: Two Week - Psychiatry Consultation and Liaison**

Students will participate in the psychiatric consultation process for medical rehabilitation, medical and surgical inpatients. The types of patients seen present with a wide spectrum of psychiatric conditions such as depression, substance abuse, anxiety disorders, delirium, dementia, somatoform disorders, personality disorders, psychotic disorders and organic behavior/mood disorders. Typical duties include bedside evaluation in collaboration with attendings and residents, documentation and presentation of findings and recommendations and participation in rounds.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two years of medical school

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## Psychology Courses

**PSYCH 1000: General Psychology**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

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**PSYCH 1000H: General Psychology - Honors**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**PSYCH 1003: Topics in Psychology - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

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**PSYCH 1003H: Topics in Psychology - Honors - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1003HW: Topics in Psychology - Behavioral Science - Honors/Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1020: Applied Psychology**

Surveys wide range of applications of psychology. Topics include social issues (prejudice and violence), applications to fields such as business and law, applications for personal improvement (improving memory), and others (sports, health, environment).

**Credit Hours:** 3

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**PSYCH 1030: Orientation to the Psychology Major**

This course is intended to help students choose the best major for themselves and to provide information on careers available to psychology majors.

**Credit Hour:** 1

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**PSYCH 2001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used

toward behavioral science distribution credit. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2110: Learning, Memory, and Cognition**

Students will gain an understanding of the fundamental principles of learning, memory and cognition, and will be able to recognize important historical figures and their contributions. Students will also learn how the principles can be applied to their everyday lives.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2210: Mind, Brain, and Behavior**

Introduction to the structures and processes of the mind and the nervous system, including the psychobiology of eating, sleeping, emotion, stress and learning. No credit if taken after PSYCH 4210. Recommended: PSYCH 1000

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 2220: Drugs and Behavior**

Basic principles of drug action on the nervous system; the effects of important psychoactive drugs; drug use and society.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2310: Social Psychology**

An introduction to how people's thoughts, feelings and behaviors are influenced by the actual or imagined thoughts, feelings and behaviors of others.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2320: Introduction to Personality**

Personality is the scientific study of individual differences (e.g., traits, motives, abilities). This course reviews historical theoretical perspectives as well as current research. Students will have an opportunity to learn about on their own motives and traits.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to undergraduate psychology majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2330: Consumer Psychology**

This course surveys how and why we engage in consumer activities and how we are affected by them. We will survey many areas of psychology as they apply to influencing consumer purchase decisions. We will also survey research examining the consequences of our consumption behavior.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to undergraduate psychology majors

**Recommended:** PSYCH 1000

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**PSYCH 2410: Developmental Psychology**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2410H: Developmental Psychology - Honors**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2510: Survey of Abnormal Psychology**

Basic survey of maladaptive human behavior and experience, including personality disorders, alcohol and drug abuse, anxiety and mood disorders, sexual dysfunctions, and thought disorders.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2810: Human Sexuality**

Survey of research on sexual behavior including sex norms, gender identity, sexual dysfunctions, sexual deviation, homosexuality, and legal



aspects of sexual behavior. Attendance at small group discussions may be required at the option of the instructor.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2830: Human-Companion Animal Interaction**

Exploration of historical and theoretical bases of human-companion animal interaction (HAI), the nature issues, and clinical applications of HAI. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2940: Internship in Psychology**

Work experience in an organization that is relevant to the psychology major.

**Credit Hour:** 3-6

**Prerequisites:** must be in good standing and have completed 9 credit hours in psychology; instructor's consent. Intended for students with freshman or sophomore standing

**Recommended:** PSYCH 1000

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**PSYCH 2950: Special Problems in Psychology**

Research apprenticeship with a faculty member, assisting a faculty member in the development and execution of research. May be repeated to 6 hours maximum.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** PSYCH 1000

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**PSYCH 3001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000

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**PSYCH 3003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3003H: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration. Honors eligibility required

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**PSYCH 3003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3010: Research Methods in Psychology I**

Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods.

**Credit Hours:** 3

**Prerequisites or Corequisites:** concurrent enrollment in STAT 1200 or a grade of C or better in STAT 1200 (or its equivalent)

**Prerequisites:** PSYCH 1000. This course is restricted to psychology majors with sophomore standing and above

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**PSYCH 3010H: Research Methods in Psychology I- Honors**

Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Concurrent enrollment in STAT 1200 or a grade of C or better in STAT 1200 (or its equivalent)

**Prerequisites:** PSYCH 1000; Honors eligibility required. This course is restricted to psychology majors with sophomore standing and above

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**PSYCH 3020: Research Methods in Psychology II**

Continuation of PSYCH 3010 and required for all further labs in psychology.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 with a grade of C- or better or exemption, and PSYCH 1000, and a grade of C or better in PSYCH 3010 and STAT 1200 or exemption. This course is restricted to junior and senior psychology majors

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**PSYCH 3020H: Research Methods in Psychology II - Honors**

Continuation of PSYCH 3010 and required for all further labs in psychology.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 3010 and STAT 1200 (or its equivalent). Honors eligibility required. This course is restricted to junior and senior Psychology majors

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**PSYCH 3110: Theories of Learning**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3110W: Theories of Learning - Writing Intensive**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3130: Decisions, Values and Choice**

Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3140: Cognitive Psychology**

A survey of psychological theory and research on human cognition.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3150: Human Memory**

Surveys research on human memory, including basic laboratory studies with normal subjects as well as research on amnesia and other memory impairments, life-span memory development, and the cognitive neuroscience of memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3160: Perception and Thought**

Covers research on various aspects of mental life: language, problem-solving, decision-making, sensory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3310: Intergroup Relations**

Provides an overview of the social psychological literature on stereotyping, prejudice, discrimination, and intergroup relations. Students learn theoretical frameworks and research findings regarding the development and maintenance of intergroup conflict.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3350: Positive Psychology**

This course introduces students to the science of positive psychology, including its origin and the historical imbalances it addresses within the broader field of psychology. A wide variety of topics are covered, including happiness, materialism, purpose, flow, courage, humility,

positive emotions, curiosity, mindfulness, savoring, gratitude, forgiveness, personal strengths, resilience, and compassion. Psychology majors cannot receive credit for both PSYCH 3350 and ESC\_PS 4200.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000, This course may be restricted to Undergraduate Psychology Majors during early registration

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**PSYCH 3360: Automatic Social Judgments**

In this course we will survey the area of social psychology dealing with automatic social judgments, including an introduction to the topic, review of techniques used to measure automatic social judgments, and discussion of applications of automatic social judgment research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Psychology majors through early registration

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**PSYCH 3370: The Science of Mindfulness**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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**PSYCH 3370W: The Science of Mindfulness - Writing Intensive**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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**PSYCH 3420: Cognitive Development in Childhood**

Theories and research on cognitive development in childhood.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430: Social Development in Childhood**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430W: Social Development in Childhood - Writing Intensive**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3440: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate psychology majors through early registration

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**PSYCH 3440H: Women's Professional Development - Honors**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required. This course may be restricted to undergraduate psychology majors through early registration

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**PSYCH 3510: Introduction to Clinical Psychology**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3510W: Introduction to Clinical Psychology - Writing Intensive**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3830: Health Psychology**

A hands-on approach to the study of health psychology including research on a topic of current relevance to the field.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3840: Individual Differences**

Surveys individual and group differences. Contributions of various factors to variations in behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3860: Law and Psychological Science**

This survey course examines the interactions of law and psychology across the justice system. Emphasis is placed on how psychological research does (and does not) inform important legal issues. Requirements may include an in-class team debate of relevant controversy in law.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3870: Sleep and Sleep Disorders**

This course provides a critical review of the current research on both normal sleep and sleep disorders.

**Credit Hours:** 3

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**PSYCH 3880: African-American Psychology**

(Same as BL\_STU 3100 and ESC\_PS 3100). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors through Early Registration

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**PSYCH 4001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Enrollment limited to students who have completed PSYCH 1000.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral

science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-6

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4010: Topics in Psychology Capstone**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PSYCH 4010W: Topics in Psychology Capstone - Writing Intensive**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PSYCH 4110: Perception**

Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4210: Physiological Psychology**

An introduction to neuroscience with an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress psych immunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4220: Animal Learning and Behavior**

Survey of animal behavior and learning abilities, including topics such as learning, habitat selection, foraging, problem solving, mating, communication, conditioning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4240: Cognitive Neuroscience**

The neural basis of human information processing in memory, attention, perception, imagery, movement, and language.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2210 and PSYCH 4210

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**PSYCH 4340: Attitude Change**

Theories, methods, and experimental findings in attitude change research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4350: Stereotypes and Prejudice**

This course provides an overview of theory and research on stereotypes, prejudice, and discrimination from a social-psychological perspective. Course material comes primarily from textbook and supplementary readings, in addition to videos related to these topics.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4360: Social Cognition**

The overarching goal of this course is to provide an overview of current research and theory in social cognition. If there is a running theme to this course, it is in the use of "top down" processes in how we construct an understanding of the world around us. That is, we use our past experiences and memories to interpret new experiences, people and behavior. This fact does not dictate whether that understanding is accurate or not. However, social psychologists have historically been interested in the ways that this process leads to errors or biases in a vast array of human endeavors. This perspective has had a strong impact on the trajectory of social cognition. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate Psychology majors during early registration

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**PSYCH 4420: Personality Development**

This course covers the topic of temperament and personality development through the lifespan with particular focus on infancy, childhood, and adolescence. Coverage includes classic and contemporary theories and classic and contemporary research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4440: Sex Differences**

This course covers the evolution of sex differences and hormonal and environmental influences on their expressions in nonhuman species. These insights are used to understand human sex differences in mate choices, emotions, development, brain and cognition, and in modern societies.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4520: Behavior Genetics**

(cross-leveled with PSYCH 7520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Grade of C or better in PSYCH 3010 and STAT 1200 or higher. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4530: Research in Psychopathology**

Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4540: Emotional Disorders in Childhood and Adolescence**

Surveys disturbed behavioral development during childhood and adolescence, emphasizing factors that produce deviation from normal developmental patterns.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2410

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**PSYCH 4560: Schizophrenia**

This course will examine one of the most severe, debilitating, and complex mental disorders. We will review the major symptoms and clinical features of schizophrenia, explore possible causes of Psychology disorder, and critically assess treatments for the disorder.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4570: Pediatric Neuropsychology**

Introduction to the field of pediatric neuropsychology and the study of individuals with early brain dysfunction. Common central nervous system disorders of childhood (e.g. autism, ADHD, epilepsy) will be discussed.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000, PSYCH 2210 or PSYCH 4240

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**PSYCH 4580: Externalizing Spectrum Disorders**

The purpose of this course is to provide an overview of the symptoms, etiology, and treatment of psychiatric disorders that fall within the externalizing spectrum, including Attention-Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder, Alcohol and other Substance Use Disorders, and Antisocial Personality Disorder. This course will attempt to provide an overview of key issues and topics related to the classification of psychiatric disorders and how research in this area has led to current conceptualizations of the externalizing spectrum. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4590: Autism Mentor Program**

The Autism Mentor Program and its accompanying course are designed to educate and train student mentors to be of assistance to their peers on the autism spectrum. The student will have an opportunity to participate in class and interact weekly with their mentee in a practical learning environment. Graded on A-F basis only.

**Credit Hour:** 1-2

**Prerequisites:** PSYCH 1000 or PSYCH 2510

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**PSYCH 4815: Cross-Cultural Psychology**

This course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course is restricted to juniors and seniors

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**PSYCH 4815H: Cross-Cultural Psychology - Honors**

The Cross-cultural Psychology course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required. Restricted to sophomores and above

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**PSYCH 4825: Psychology at the Movies**

In this course we watch and discuss films from multiple psychological perspectives. Connections are made between cinematic content and contemporary psychological research on culture and diversity. Race, Gender, Disability, Class, and LGBT issues in movies are explored.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. Restricted to juniors and seniors

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**PSYCH 4830: Psychology of Women**

(same as WGST 4830). Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 4840: The History of Psychology**

Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4940: Internship in Psychology**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

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**Prerequisites:** Instructor's consent required

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**PSYCH 4940W: Internship in Psychology - Writing Intensive**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent required

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**PSYCH 4950: Special Problems in Psychology**

Independent investigation leading to a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4960: Special Readings in Psychology**

Independent readings selected in consultation with supervisory faculty member. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4970: Psychological Measurement Capstone**

Survey of theories and methods of psychological test construction, focusing on measures of intelligence and personality. Lab component involves experimental training in test construction and test evaluation.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4971: Developmental Psychology Capstone**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4971W: Developmental Psychology Capstone - Writing Intensive**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4972: Animal Learning Capstone**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4972W: Animal Learning Capstone - Writing Intensive**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4973: Human Cognition Capstone**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4973W: Human Cognition Capstone - Writing Intensive**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4974: The Human Senses Capstone**

Psychophysical data, sense organs, psychological attributes, and theories of vision, hearing, and the vestibular (motion) senses. Elementary aspects of psychophysics.

**Credit Hours:** 3

**Prerequisites:** grade of C better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Department Consent

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**PSYCH 4974W: The Human Senses Capstone - Writing Intensive**

Psychophysical data, sense organs, psychological attributes, and theories of vision, hearing, and the vestibular (motion) senses. Elementary aspects of psychophysics.

**Credit Hours:** 3

**Prerequisites:** grade of C better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4975: Social/Personality Capstone**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4975W: Social/Personality Capstone - Writing Intensive**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976: Independent Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976H: Honors Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977H) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976HW: Honors Research Capstone I - Honors/Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977HW) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976W: Independent Research Capstone I - Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977W) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977: Independent Research Capstone II**

Continuation of PSYCH 4976. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977H: Honors Research Capstone II**

Continuation of PSYCH 4976H. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior

standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976H.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977HW: Honors Research Capstone II - Honors/Writing Intensive**

Continuation of PSYCH 4976HW. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976HW.

**Credit Hours:** 3

**Prerequisites:** Consent required. Honors Eligibility Required

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**PSYCH 4977W: Independent Research Capstone II - Writing Intensive**

Continuation of PSYCH 4976W. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976W.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4978: Clinical Psychology Capstone**

Students work at assigned agencies to gain "real-world" experience in the practice of psychology and attend regularly scheduled class meetings in order to integrate their academic knowledge with their practical experience. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4978W: Clinical Psychology Capstone - Writing Intensive**

Students work at assigned agencies to gain "real-world" experience in the practice of psychology and attend regularly scheduled class meetings in order to integrate their academic knowledge with their practical experience. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4979: Judgement and Decision Making Capstone**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4979W: Judgement and Decision Making Capstone - Writing Intensive**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental

findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4980: Human Relationships Capstone**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing, a grade of C or better in PSYCH 3020, PSYCH 2810 or two social/personality courses.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4980W: Human Relationships Capstone - Writing Intensive**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing, a grade of C or better in PSYCH 3020, PSYCH 2810 or two social/personality courses.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4981: Advanced Developmental Psychology Capstone I**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4981W: Advanced Developmental Psychology Capstone I - Writing Intensive**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982: Advanced Developmental Psychology II**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982W: Advanced Developmental Psychology II - Writing Intensive**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4983: Consumer Psychology Capstone**

This course examines numerous social and psychological issues related to the area of consumer psychology. The course begins by examining how media exposure influences consumption, prejudice in marketing and advertising, and the question of whether children should be targets of marketing strategies. The second section examines how consumption can be influenced by unconscious and automatic factors. The third section examines unhealthy forms of consumption and consumption's relationship to well being. The fourth section focuses on ethical and social responsibility issues like consumption's impact on the environment and the voluntary simplicity movement. The last section of the course is devoted to student presentations of term papers. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4983W: Consumer Psychology Capstone - Writing Intensive**

This course examines numerous social and psychological issues related to the area of consumer psychology. The course begins by examining how media exposure influences consumption, prejudice in marketing and advertising, and the question of whether children should be targets of marketing strategies. The second section examines how consumption can be influenced by unconscious and automatic factors. The third section examines unhealthy forms of consumption and consumption's relationship to well being. The fourth section focuses on ethical and social responsibility issues like consumption's impact on the environment and the voluntary simplicity movement. The last section of the course is devoted to student presentations of term papers. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4984: Promoting Social Justice, Diversity, and Inclusion Capstone**

This course is an advanced exploration of diversity and social justice in the United States and provides students with a framework for understanding specific forms and the interlocking systems of oppression; a process to explore how oppression affects our lives; a pedagogical framework for teaching and training about concepts of oppression and diversity; and an application of these ideologies and skills in community settings. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3



**Prerequisites:** Department Consent required

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**PSYCH 7001: Topics in Psychology - General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. Graduate credit will be earned through additional reading and assignments.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; departmental consent for repetition

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**PSYCH 7003: Topics in Psychology - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. Graduate credit will be earned through additional reading and assignments.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; departmental consent for repetition

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**PSYCH 7085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 7110: Perception**

(cross-leveled with PSYCH 4110). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

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**PSYCH 7210: Physiological Psychology**

An introduction to neuroscience giving an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress, psychoimmunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7340: Attitude Change**

Theories, methods, and experimental findings in attitude change research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7420: Personality Development**

This course covers the topic of temperament and personality development through the lifespan with particular focus on infancy, childhood, and adolescence. Coverage includes classic and contemporary theories and classic and contemporary research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7520: Behavior Genetics**

(cross-leveled with PSYCH 4520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**PSYCH 7530: Research in Psychopathology**

Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7550: Introduction to Clinical Psychology**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7560: Schizophrenia**

Examines symptoms, possible causes, and treatments of schizophrenia. Goals include understanding psychopathology by examining one disorder and reviewing cutting edge psychology and clinical science research being used to understand schizophrenia.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7810: Industrial/Organizational Psychology**

Survey of basic and applied personnel and organizational psychology. Focus on the human relations field, job satisfaction, leadership, group dynamics and formal organizational structures within the realm of industry.

**Credit Hours:** 3

**Prerequisites:** PSYCH 3010

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**PSYCH 7815: Cross-Cultural Psychology**

This course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and departmental consent

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**PSYCH 7830: Psychology of Women**

Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7840: The History of Psychology**

Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 8001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 8050: Research in Psychology - Non-Thesis**

Research in psychology not leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8090: Research in Psychology - Thesis**

Research in psychology leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8110: Cognitive Psychology**

Focuses on basic research on human perception, memory, attention, language, and thought.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8210: Functional Neuroscience**

Basic techniques, data and theory in the neurosciences applied to the study of psychopathology, psychopharmacology, neural development, brain damage, memory and other areas of "behavior."

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8310: Survey of Social Psychology**

Survey of historical and contemporary theory and research in affiliation, attribution, social comparison, attitude change and group dynamics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8410: Psychology of Development**

Principles, theories, research in normal human development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8420: Cognitive Development**

(same as H D FS 8420). An introduction to central theories and issues in the study of cognitive development in infancy and childhood. Emphasis is on major theoretical frameworks for studying cognitive development, and topics such as perception, memory, language, categorization, and reasoning.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8430: Temperament and Personality Development**

(same as H\_D\_FS 8430). Intended for graduate students in psychology and related fields. This course is a survey of theory and research in the area of temperament and personality development, with emphasis on child development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8440: Social and Emotional Development**

(same as H\_D\_FS 8440). There are two major objectives for this course. The first is a "content" objective and involves familiarizing students with theory and research regarding social, emotional, and personality development in childhood and adolescence and also regarding the relationships in which such development takes place. The second objective is a "process" objective and involves enhancing students skills at interpreting empirical research, identifying gaps in the literature, and identifying research strategies for addressing those gaps.

**Credit Hours:** 3

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**PSYCH 8510: Developmental Psychopathology**

Etiology, diagnosis, and treatment of disordered behavior from infancy through adolescence. Emphasizes contrasting theories and research issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8520: Adult Psychopathology**

Problems of etiology, diagnosis, treatment in psychopathology. Considers theory, research, case histories.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8530: Experimental Psychopathology**

Critical examination of current theories, with special emphasis on empirical studies in psychopathology including such topics as alcoholism, enuresis, sexual deviancy, drug addiction, mental retardation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8610: Motivation**

Survey of historical and contemporary theories and models of human motivation. Major emphasis on different levels of motivational analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8620: Personality Psychology**

Graduate-level introduction to the field of personality psychology, including readings and discussion of both classic and contemporary works.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8710: General Linear Models in Psychology I**

Principles of interval estimation and hypothesis testing, scalar and matrix forms of simple and multiple regression with continuous and categorical predictors, regression diagnostics.

**Credit Hours:** 4

**Prerequisites:** undergraduate course in statistics; concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8720: General Linear Models in Psychology II**

Complex analysis of variance; experimental design.

**Credit Hours:** 4

**Prerequisites:** PSYCH 8710 or equivalent, concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8730: Statistical Software Packages**

Computer implementation of data management and statistical analysis. Covers elementary computer operations, data entry and quality control, and computer implementation of statistical models covered in PSYCH 8710 and PSYCH 8720.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 8910: Responsible Conduct of Research**

This course exposes students to important concepts in the responsible conduct of research. Graded on A-F basis only.

**Credit Hour:** 1

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**PSYCH 8920: Social and Behavioral Sciences in Public Health**

(same as P\_HLTH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**PSYCH 9001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9050: Research in Psychology - Non-Dissertation**

Research in Psychology not leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. Departmental consent for repetition

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**PSYCH 9090: Research in Psychology - Dissertation**

Research in Psychology leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9110: Studies in Experimental Psychology**

Critical consideration of selected research in neuroscience and cognitive psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 4972 or PSYCH 4973; departmental consent for repetition; instructor's consent

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**PSYCH 9120: Studies in Physiological Psychology**

Weekly seminars given by local and regional cognitive psychologists and cognitive neuroscientists. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PSYCH 7210, departmental consent for repetition, and instructor's consent

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**PSYCH 9150: Human Learning and Memory**

Current theory and research in the area of human learning and memory will be investigated. A major component of the course will involve the critical review of existing literature in this area.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9210: Psychopharmacology**

Basic principles of drug action on the nervous system, the theory and clinical use of the various psychotherapeutic drugs, drug abuse and its treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9220: Clinical Neuropsychology Seminar**

In this course students will analyze published cases in the neuropsychology literature. By studying how behavioral and mental processes break down, the supposition is that one can infer how intact processes must have been constructed, and how a brain supports them.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**PSYCH 9230: Seminar on fMRI**

Fundamentals of MRI and its application to brain imaging, including experimental design, analysis and contemporary issues. During the lab component, students will use FSL and other software to analyze fMRI data and will design and implement their own fMRI experiments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9240: Advanced Neural Systems**

The course provides in-depth coverage of the neurophysiology, neuroanatomy, and function of the brain. Course lectures and discussions cover the brain and its systems in a "bottom-up" sequence starting with basic sensory pathways and concluding with higher cognitive functions. The course also includes hands-on laboratory sessions, which include dissection component. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9310: Theories of Social Psychology**

Intensive review of classic and contemporary concepts and theories of social psychology; emphasizes readings from primary sources. PhD candidates only. Required for all PhD candidates in social psychology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9320: Social Psychology Methodology**

Advanced study of experimental methods in social psychological research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9330: Field Research Methods**

Advanced course in research methods and designs commonly used in field settings; theoretical, ethical, and pragmatic issues that arise in field settings are considered; emphasis is on learning and skill acquisition through a series of hands-on assignments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9350: Studies in Social Psychology**

Critical coverage of selected research and theory in social psychology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9360: Seminar in Social Psychology**

Intensive review of concepts and theories of social psychology; emphasizes readings from primary sources. Ph.D. candidates only. Required for all Ph.D. candidates in social psychology program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9365: Positive Psychology**

This seminar will discuss and critique modern research in positive psychology. Each chapter of the textbook provides overviews of positive psychology research topics at various levels of analysis, while providing suggestions for further research. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9440: Studies in Developmental Psychology**

Covers contemporary research and professional topics in developmental psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9460: Studies in Evolution and Behavior**

Reading and discussion of classic and contemporary works in evolution.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9470: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor Consent Required

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**PSYCH 9510: Studies in Clinical Psychology**

Contemporary research and theory for advanced graduate students in clinical psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9515: Orientations in Psychotherapy**

The introductory psychotherapy course for students in the clinical psychology doctoral program. The focus of the course is on development of knowledge and skills in the following four areas: (1) Theory and practice of contemporary (brief) psychotherapy; (2) Basic interviewing skills; (3) Psychotherapy research and empirically supported treatments; and (4) The role and impact of managed care in contemporary psychotherapy.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9520: Psychometrics**

Introduction to concepts and issues essential to psychological assessment including psychometrics, test construction, controversies in psychological testing, behavioral assessment, and structured interviewing.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9525: Orientations to Clinical Assessment**

Topics include psychometric principles, intelligence testing, objective and projective personality testing and behavioral assessment.

**Credit Hours:** 3

**Prerequisites:** PSYCH 9520 and instructor's consent

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**PSYCH 9530: Clinical Child Assessment**

Introduction to clinical instruments, techniques and problems in the psychological assessment of children.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9540: Ethical and Professional Issues II**

Legal issues, state and national codes, ethical decision-making, dangerousness, ethical clinical treatment issues, mandated reporting, and ethics in specialized clinical settings. This course is the second in a sequence for clinical psychology doctoral students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9545: Clinical Practicum**

Intensive supervised training in use and interpretation of psychological techniques and in psychotherapy. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent and professional liability insurance

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**PSYCH 9550: Clinical Intervention with Children**

Introduction to theory, research and practice in the area of behavior change with children and adolescents.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9560: Family and Group Process**

Theory, intervention, and research in the areas of family and group dynamics. Emphasis on family therapy approaches.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9570: Assessment and Treatment of Sexual Problems**

Background information for and methods and techniques of dealing with a variety of sexual problems that clients bring to therapists. Sexual dysfunction, homosexuality, sexual aberrations and sex crimes covered.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9575: Clinical Research Methods**

Focus on research design with emphasis on active critique of methodological challenges (e.g., subject selection, control groups, multimodal measures, and treatment issues), includes lecture and active review or research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9580: Seminar in Clinical Psychology**

Critical coverage of selected research and theory in clinical psychology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9585: Introduction to Alcohol Studies**

Intensive seminar on alcohol research primarily intended for alcohol research training fellows. Covers a range of topics of interest to psychologist, including pharmacology, research methods, genetics, diagnosis, expectancies, and treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9590: Clinical Pediatric Neuropsychology**

The goal of this course is to provide an in-depth introduction to the field of clinical pediatric neuropsychology. Particular emphasis will be placed on how we can increase our understanding of development through the study of individuals with early brain dysfunction.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9710: Multivariate Statistics in Psychology**

Multivariate statistical methods, including multivariate analysis of variance, discriminant analysis, principal component analysis, and elements of matrix algebra, as applied to problems in psychology.

**Credit Hours:** 3

**Prerequisites:** PSCYH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9715: Multilevel Modeling**

Introduction to random coefficient multilevel modeling of clustered data. Topics include two- and three-level models, estimation techniques, computing options, model fitting issues, advanced model applications, and growth modeling.

**Credit Hours:** 3

**Prerequisites:** instructor's consent, a graduate course in regression analysis

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**PSYCH 9720: Latent Variable Models in Statistical Analysis**

Covers Matrix Algebra fundamentals, Factor Rotation, Communality Estimation techniques, High Order and Dynamic Factor Models, Path Analysis, Use of computer programs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and PSYCH 8720

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**PSYCH 9725: The Literature Review**

Focuses on methods for gathering, summarizing, integrating and interpreting research on a particular research issue. Topics include searching the literature, evaluating research quality and synthesizing statistical results across separate studies.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and instructor's consent

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**PSYCH 9735: Psychological Process Models**

Examines mathematical and statistical models of cognition and perception. Emphasis on modeling basics such as estimation, hypothesis testing, and assessment of fit.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720 or instructor's consent

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**PSYCH 9740: Statistical Consulting for Psychologists**

Provision of statistical consulting to individuals working with psychological data. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing in Psychological Sciences and instructor's consent

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**PSYCH 9750: Advanced Structural Equation Modeling**

Growth Mixture Models, Dynamic Factor models, and nonlinear structural models.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 or departmental consent

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**PSYCH 9755: Quantitative Psychology Seminar**

Quantitative Psychology Topics Seminar. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**PSYCH 9760: Categorical Data Analysis**

This course will provide an applied introduction to the most important methods for analyzing categorical data. Topics include; logistic regression modeling Poisson regression modeling, multinomial sampling, and classic analysis of contingency tables.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9765: Cluster Analysis and Network Analysis**

The course covers traditional and modern clustering techniques (hierarchical, partitioning, and mixture modeling), both from an algorithmic and modeling perspective. Several types of data types are explored, including traditional two-mode data sets and network structures.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PSYCH 9780: Item Response Theory I**

Introduction to item response theory, including classical test theory, popular item response models, model estimation, software considerations, and application. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** PSYCH 8710

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**PSYCH 9910: Teaching of Psychology Practicum**

Focuses on development and enhancement of teaching skills for graduate students in psychology who are primary instructors of undergraduate psychology courses. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9920: Advanced History of Psychology**

Advanced course in history of psychology designed to show how general philosophical models of mind and behavior have been linked to doctrines of mental health and pathology and to theories of social behavior.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**Public Affairs Courses****PUB\_AF 4001: Topics in Public Affairs**

Selected topics in public affairs.

**Credit Hours:** 3

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**PUB\_AF 4700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 7700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7001: Topics in Public Affairs**

Select current topics in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PUB\_AF 7330: Scientific and Technological Aspects Terrorism and Counter Terrorism**

(same as NU\_ENG 7330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**PUB\_AF 7357: Health Economics for Public Affairs**

(same as ECONOM 7357). This course analyzes the economics of health care in the United States with particular attention to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, speculation and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine, as well as an examination of recent proposals and initiatives for health care reform.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8190 or equivalent

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**PUB\_AF 7367: Law and Economics for Public Affairs**

(same as ECONOM 7367). This course is a survey of economic analysis of American legal institutions. Students will apply basic microeconomic, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime and the judiciary.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or ECONOM 3251 and STAT 2500, or equivalent

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**PUB\_AF 7700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 4700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8001: Topics in Public Affairs**

Select current topics in public affairs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8085: Problems in Public Affairs**

Intensive study of an area of public affairs related to the student's special interest.

**Credit Hour:** 1-99

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**PUB\_AF 8150: Collaborative Governance**

Political, economic, and social context of government and public service; examines theories and models of collaborative governance and implications for policy-making, public management, and public service delivery. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8160: Organizational Dynamics and Leadership**

Focuses on understanding human action in administrative situations and on developing personal capacities for effective action in varied and difficult organizational situations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8170: Public Policy Processes and Strategies**

Processes through which public demands are generated, converted into public policy, and implemented. Examines the intersection of politics, policy, and management as well as the diverse strategies and tools of public action. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8171: Environmental Policy**

This course is an introduction to U.S. environmental policy, focusing on important political institutions and political actors. The course provides a survey of the primary laws, regulations, and policies that comprise pollution control and natural resource management policy.

**Credit Hours:** 3

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**PUB\_AF 8172: Health Policy**

(same as P\_HLTH 8300). This seminar will examine the health care system in the United States, including government funded programs, regulation of costs, and policies promoting health behaviors. the course will examine historical development, recent trends, and methods of health policy analysis.

**Credit Hours:** 3

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**PUB\_AF 8173: Education Governance, Finance and Policy**

The course centers on public policy processes as applied to governance, finance and policy in public education. The administrative, political and economic dimensions of policy reform are emphasized. A special focus is placed on developing tools for analyzing and critiquing policy rational, design and implementation.

**Credit Hours:** 3

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**PUB\_AF 8174: Social Policy**

This seminar will examine the nature and extent of poverty in the U.S., its causes and consequences, and the antipoverty effects of existing and proposed government programs and policies.

**Credit Hours:** 3

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**PUB\_AF 8175: Early Childhood Policy**

This course provides an understanding of early childhood development issues and their impact on policy formation. Will study different family situations in the US and other countries (e.g. maternal employment and job policies, divorce, child abuse and neglect) that may be a concern for child policy makers and analysis. In addition we are going to examine the effects of different early childhood programs in the US and other countries around the world. Also, US federal regulations that have an impact on child policy, such as the National Health Policy and Welfare reform will be examined. Will use both qualitative and quantitative criteria to analyze these policies. This course is applied in focus, so by the end of the semester students should be able to understand policy analysis and the trade-offs of implementing policy choices, as well as being able to develop analytical skills for early childhood and family policies in their work. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8177: Energy Economics**

The course examines economic theory and empirical analyses of global energy supply and demand. It examines the role of non-renewable and renewable energy in the economy and trends in energy production and consumption. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8178: Sustainable Energy Policy**

This course examines the concept of sustainability as it applies to energy production and consumption, and explores policy options for achieving sustainable energy use.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8177

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8180: Research Methods and Inquiry in Public Affairs I**

Introduction to research methods for graduate students in public affairs. Topics include measurement, quantitative description, problem definition, the policy research process, and basic analytical tools commonly applied in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8181: Research Methods and Inquiry in Public Affairs II**

Advanced topics and applications in research methods for public affairs. Topics include: multivariate analysis and other advanced quantitative techniques; evaluation of policy research products.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8180 or permission of instructor

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**PUB\_AF 8185: Research Methods and Inquiry in Public Affairs - Mid Career**

Applications in research methods for graduate students in public affairs mid-career program. Topics include: measurement; quantitative description; problem definition; the policy research processes; basic analytical tools commonly applied in public affairs; multivariate analysis and other advanced quantitative techniques; evaluation of policy research products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8190: Economic Analysis for Public Affairs**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8195: Economic Analysis for Public Policy - Mid Career**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8210: Public Service and Democracy**

This course examines some of the challenges of public service in a liberal democracy. It addresses basic questions about the design of institutions through which public power is exercised and about the ethical and administrative obligations of people who work within those institutions. The aim of the course is to provide students with tools for thinking about such questions, and practice addressing them. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8211: MPA Capstone (Applied Project)**

Application of concepts and methods of public affairs to actual policy or management problems. Diagnosis of problem or decision situation, collection of relevant data, development of alternative solutions, recommendations of proposed course of action.

**Credit Hours:** 3

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**PUB\_AF 8280: Public Affairs Internship**

Gives students an opportunity to gain experience in government operations by providing supervised work with an agency at the local, state, or federal level of government or in nonprofit agencies. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8282: Practicum in Public Affairs**

Supervised field experience in an approved community, public agency, or nonprofit organizations. Opportunity for observation and participation under the guidance of a qualified advisor. Formal study of advanced theories and techniques is integrated into the student's experience. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** advanced standing and instructor's consent required

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**PUB\_AF 8310: E-Democracy in Theory and Practice**

Examines the theory and practice of electronic democracy. Uses case studies to assess how information and communication technology affects public involvement in public decisions. Major topics include the methods and tools used in current e-democracy projects as well as the philosophical political, practical and institutional issues faced. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8320: Spatial Analysis for Public Affairs**

Examines theoretical and empirical issues related to the spatial analysis of economic activity and local public issues. Major topics include the role of the public sector, the economics of public services, social accounting matrices, input-output analysis, econometric models of regional economies, and geographic information systems. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8330: Informatics and Governance**

Provides students with a non-technical introduction to the design, implementation and management of information systems for local and regional governance. Surveys key issues for information professionals, including policy planning, design, procurement, staffing, applications and public access and participation. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8340: Regional and Economic Development Policy**

Presents an overview of historical perspectives and current practice in regional development policy. Explores various rationales for regional collaboration. Topics include global and political context of development policy, theories of regional growth and development, regional governance, distribution of benefits and sustainable development. Graded on A-F basis only

**Credit Hours:** 3

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**PUB\_AF 8350: Regional Development Issues and Analysis**

(same as AG\_EC 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**PUB\_AF 8410: Public Policy Workshop**

Application of policy analysis tools and methods onto a specific policy topic or problem. Topics vary depending upon interests of the instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8420 and PUB\_AF 8430

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**PUB\_AF 8420: Public Program Evaluation**

Covers implementation and outcome evaluation models, research design strategies, and data collection methods used to assess the effectiveness of public programs and means of their improvement. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 or equivalent

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**PUB\_AF 8430: Public Policy Analysis**

Uses economic logic and statistical techniques to design, analyze and evaluate public policy. Applies social choice theory, cost/benefit analysis, forecasting, regression analysis, trend analysis, time series methods, and other analytic techniques to policy decision. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 and PUB\_AF 8190 or equivalent, or permission of instructor

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**PUB\_AF 8510: Public Budgeting and Taxation**

Intensive study of the institutions, processes, politics, and social and economic impact of public taxation and expenditures.

**Credit Hours:** 3

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**PUB\_AF 8520: Human Resources Management and Development in Public and Nonprofit Sector**

Examines the political, economic, and legal context of the personnel function, as well as the technical aspects of the personnel administrator's job. Stresses the dynamics of bureaucratic organizations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8530: Strategic Management of Public Service Organizations: People, Information and Money**

Presents the rationale for strategic planning, and techniques and processes to develop and implement strategic planning in the public sector. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8540: Local Government Management**

Organization and division of service responsibility within local governments. Problems of managing delivery of services with special emphasis upon program implementation, productivity, planning, responsiveness. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8610: Group Dynamics and Conflict Resolution**

Focuses on the study of group psychology in the context of communities and organizations. It provides a specific examination of the emergence and resolution of conflict. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8620: Organizational Analysis and Change**

Investigates processes and methodologies of organizational diagnosis, intervention strategies, and the role of a change agent. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8630: Organizational Change in a Community and Global Context**

Examines changing organizations in their task environments, which include communities and the global economy. The phenomenon of ambiguous boundaries between public and private as well as nonprofit sectors will be investigated as these profound changes impact organizational behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8710: The Nonprofit and Voluntary Sector**

Provides an overview of the history, function, size, scope, development, and management of the nonprofit sector. Historical, political, economic, and social perspectives are used to examine the meaning of voluntarism, charity, philanthropy, and the nonprofit sector. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8720: Budgeting and Financial Management in the Nonprofit Sector**

Nature and environment of public and nonprofit financial administration. Principles of accountability for management of public and nonprofit funds; management and investment of cash balances; special problems related to long- and short-term debt. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8830: Grant Writing I**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a letter proposal. They will experience the peer review process both as applicant and reviewer. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8831: Grant Writing II**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a full-blown state or federal grant proposal. They will experience the peer review process both as applicant and reviewer. The course will cover a variety of funding sources and a range of funding types to provide students with an information base for preparing future grant applications.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8830

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**PUB\_AF 8832: Sponsor Relationships**

Provides students with knowledge of the landscape and culture of grant seeking with an emphasis on understanding how private and public sector sponsors are in many ways, significantly different enterprises. Students will gain an understanding of the pivotal role relationships play in grant seeking and gain an appreciation of the particularities and rigors of both public and private grant seeking.

**Credit Hours:** 3**Prerequisites:** Proposed Grant Writing 2 course**PUB\_AF 8833: Grant Award Management**

Provides students with knowledge regarding the process and policies entailed in managing grant awards. Course content includes federal OMB circulars, basic human resource issues, project management strategies, reporting obligations, and project close-out.

**Credit Hours:** 3**Prerequisites:** Proposed Grant Writing 2 course**PUB\_AF 8850: Policies and Institutions of the European Union**

Policies and Institutions of the European Union

**Credit Hours:** 3**PUB\_AF 8860: International Comparative Rural Policy**

(same as AG\_EC 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** instructor's consent**PUB\_AF 8864: Administrative Law**

(same as LAW 5310). Principles, factors and statutory provisions which govern availability of relief (both judicial and administrative) to persons or entities aggrieved by the actions or inactions of governmental officials or agencies. Graded on A-F basis only.

**Credit Hours:** 3**PUB\_AF 9000: Directed Individual Study**

Supervised readings and research in area of doctoral specialization. Student must submit formal written proposal to doctoral supervising faculty member prior to registration. May be repeated up to 6 hours.

**Credit Hours:** 3**Prerequisites:** PhD standing or permission of instructor**PUB\_AF 9090: Dissertation**

Independent research for Ph.D. dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99**Prerequisites:** PhD standing or permission of instructor**PUB\_AF 9150: Governance and Public Affairs**

Examines theories of governance, the role of the state and other social institutions. Other topics include administrative reform, the new public management, and the emergence of the multi-sector public service.

International comparative dimensions emphasized. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PUB\_AF 8150, PhD standing or permission of professor**PUB\_AF 9160: Organization Studies in Public Affairs**

Examines theories of public and nonprofit organizations, including classical and contemporary perspectives in organization science; individual and group behavior; leadership, power and influence; organization design and structure; and organizational culture. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PhD standing or permission of instructor**PUB\_AF 9170: Policy Theory**

This seminar examines theories on the policy process, institutions, and delegation of power that influence public policy. Topics covered may include agenda setting, policy design, implementation, legislative decision-making, state political institutions, and federalism. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PhD standing or permission of instructor**PUB\_AF 9171: Political Economy of Public Affairs**

Course focuses on formal theories of public decision-making, collective choice and strategic interaction of public actors in the policy process using tools such as welfare economics, social choice, game theory, logic of collective action, public choice, and principal agent models. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PhD standing or instructor's consent**PUB\_AF 9180: Advanced Research Methods for Public Affairs I**

Focuses on multiple regression analysis, the implications and treatment of serial correlation, heteroskedasticity, multicollinearity, specification error, and measurement error. Students estimate models, use diagnostic information, and interpret and present findings for public affairs. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PUB\_AF 8180 or equivalent, PhD standing or permission of instructor**PUB\_AF 9181: Advanced Research Methods for Public Affairs II**

The seminar examines statistical modeling tools for limited dependent variables and complex data situations, such as time-series cross-sectional data, clustered observations, and multilevel data. Other topics include simultaneous equation models and instrument variable in public affairs. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PUB\_AF 9180 or equivalent, PhD standing or permission of instructor**PUB\_AF 9182: Logics of Inquiry in Public Affairs**

This course examines the philosophical foundations of social inquiry public affairs. Topics include investigation of epistemological and

methodological issues in development and use of social research, and exploration of the theoretical underpinnings of multiple paradigms in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9183: Public Affairs Research and Professional Development Seminar**

Research and professional development through participation in research seminars, colloquia, academic conferences, lectures, and professional workshops. Students required to register every spring semester in residence. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9185: Supervised Research**

Research experience directed by major professor designed to prepare doctoral students for independent scholarship in area of doctoral specialization.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8150, PhD standing or permission of instructor

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**PUB\_AF 9446: Advanced Empirical Methods**

(same as ECONOM 9446). Empirical and modeling techniques for evaluation of microeconomic policy questions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructors consent or PUB\_AF 8181, PUB\_AF 9180, and PUB\_AF 9181

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**PUB\_AF 9447: Topics in Microeconomic Policy Analysis**

(same as ECONOM 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** PUB\_AF 8181, PUB\_AF 9180 and PUB\_AF 9181

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## Public Health Courses

**P\_HLTH 7001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hours:** 3

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**P\_HLTH 7085: Problems in Public Health**

Guided readings, intensive study of an area in Public Health related to special interest of student or an area in which the student needs to strengthen. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**P\_HLTH 7150: Principles of Public Health**

This course provides an overview of public health, including concentration areas of public health systems, epidemiology, social and behavioral determinants of health, environmental health, and public health policy. Case studies from local, state, national and international public health issues are incorporated into each segment, culminating in a discussion of the future of public health.

**Credit Hours:** 3

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**P\_HLTH 7160: Interdisciplinary Perspectives in Global Health**

This course is designed for those interested in health issues from a global perspective. It explores contemporary issues, problems, and controversies in global health through an interdisciplinary perspective. This course will follow a lecture and case study discussion format. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**P\_HLTH 7750: Physical Function and Older Adults**

(same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, H\_D\_FS 7750, NURSE 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7800: Public Health Campaign Successes and Failures**

Explains public health campaigns from assessing needs to planning and implementing interventions, as well as taking lessons learned from previous public health campaigns to create strategies that increase the likelihood of success and reduce the chance of failure. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7850: Mental Health Policy**

This course is an introductory survey of the principles and practice of mental health policy, beginning with its early history and continuing to the present day. Topics will include the nature of mental illness, its incidence and prevalence, mental health stigma, policy concerns related to mental health finance, the process of policy making, involvement of mental health care consumers in the policy process, and mental health in health policy reform. The needs of special populations including the homeless, persons in the criminal justice system, ethnic/minority groups, persons living in rural areas and veterans will be examined as well as needs specific to children and the elderly. Students are also expected to understand mental health policy considerations related to current health

care reform and ethical issues in the practice of mental health policy.  
Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7952: Research Methods in Public Health**

This course is designed to introduce students to the process of research as a sequence of events, systematically organized to further knowledge. A scientific and conceptual stance to knowledge development is emphasized, along with the importance of the empirical approach in establishing relationships between theories, concepts, and behavior phenomena. May be repeated for credit.

**Credit Hours:** 3

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**P\_HLTH 8001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hour:** 1-3

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**P\_HLTH 8085: Problems in Public Health**

Guided readings, intensive study of an area in Public Health related to special interest of student or an area in which the student needs to strengthen.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. May be repeated for credit

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**P\_HLTH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. May only be repeated for credit for six hours. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** P\_HLTH 8980. Instructor's consent required

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**P\_HLTH 8120: Applied Epidemiology in Community Assessment**

The purpose of this course is to enable students to gain skills and abilities in assessing population groups and determining their priority public health problems. Students will consider a variety of strategies for empowering and mobilizing populations in collaborative public health efforts. Communication skills are key to the community assessment and intervention process, particularly in translating epidemiological data to lay audiences, and advocating for action. Students will be challenged to communicate public health issues effectively both on-line and in writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_HLTH 7952

**Prerequisites:** P\_HLTH 8420, Graduate level Statistics (STAT 7020 or STAT 7410)

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**P\_HLTH 8150: Human Health and the Environment**

This graduate level course will address threats to public health related to environmental factors including biological, physical and chemical factors. Subjects will include environmental contamination and remediation, zoonotic disease food and water quality. This course will include recorded lectures with optional synchronous participation. Lectures will be recorded live and students will have the option to virtually attend live lecture, but this will not be required. Lecture recordings are archived for students to view at their convenience. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8250: Equity and Disparities in Health**

(same as SOC\_WK 8250). This course is designed to provide students with knowledge about the distribution, causes, and consequences of health inequalities. The course will examine how multiple predictors such as socioeconomic status, behavioral risk factors, and cultural factors such as perceived discrimination and acculturation, gender and marriage, stigma, and health care inequalities are related with racial/ethnic, socioeconomic, and gender disparities in health. This course will also discuss implications that may contribute substantively toward the elimination of health inequalities.

**Credit Hours:** 3

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**P\_HLTH 8251: Immigrant Health**

Public health professions have considerable interest in understanding the unique health concerns of immigrants, in order to prevent disease, promote health, and prolong life in this specific population and in the population as a whole. This course will be based on readings in the peer-reviewed literature, discussion in a seminar format, community visits and observations/interviews, and guest speakers on topics of importance when considering issues of public health particular to immigrant communities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**P\_HLTH 8260: Emergency Preparedness**

An overview of current national guidance and basic assessment of the current health care system level of readiness focusing on the critical role of the health care system for community, regional, state, and nationally based emergency preparedness efforts. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8270: Storytelling in Public Health and Public Policy**

Storytelling for public health and public policy offers students an opportunity to become familiar with the literature and theoretical frameworks underlying the use of narrative and digital storytelling in public health and policy advocacy and public health interventions focused on behavior change. Students will review case studies of effective narrative communication and practice elements of effective storytelling in a variety of print and digital platforms. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8280: Biosafety and Laboratory Issues in Public Health**

This course is designed to provide current worldwide guidance on laboratory issues & bio-safety with respect to conducting field epidemiology. This integration has recently been given media exposure with recent outbreaks of infectious disease, food-borne illnesses in the food supply, & also recently in Hollywood filmography (see Contagion, 2011 & Outbreak, 1995). While bio-safety, epidemiology, & laboratory medicine are disciplines that are closely interrelated, they are not always optimally connected on functional & organizational levels. This course will provide an overview of the field of biological safety (shorthand to 'bio-safety') & its application to epidemiology & laboratory medicine for the control biological hazards for students at all levels who are interested in the epidemiology of microbial diseases. Students will review biological hazards associated with occupational laboratory acquired infections,

& examine select case studies to identify critical bio-safety lapses & outbreak scenarios of food borne illness using epidemiological tools. The course will teach participants how to perform a comprehensive qualitative risk assessment for the use bio-hazards in the laboratory & learn how to employ the control strategies to appropriately manage these risks for field epidemiology. This course will also convey the laboratory perspective of public health investigations to field epidemiologists in order to improve collaboration between these disciplines & to enhance the quality of field investigations as well as day-to-day interaction. Course concepts can be applied to the control of bio-hazards during the review of proposed research involving bio-hazards, along with emphasizing protective measures when addressing incidents involving bio-hazards, such as emergency spills or bio-terrorism related events. In addition, coverage of the Select Agent Program & the additional security practices entailed with research will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent

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**P\_HLTH 8300: Health Care in the United States**

(same as PUB\_AF 8172). Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8400: Clinical Veterinary Regulatory Medicine and Public Health**

(same as V\_M\_S 8400). The goal of this course is to familiarize the student with clinical aspects of veterinary public health/regulatory medicine. Must be enrolled in MPH (veterinary public health concentration) or DVM curriculum.

**Credit Hours:** 2

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**P\_HLTH 8420: Principles of Epidemiology**

This course is intended to provide a general introduction to the course epidemiological concepts and methods as grounded in the essential services of public health. The focus of the course is on developing critical thinking skills and providing a foundation in applied epidemiologic competencies. May be repeated for credit. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** graduate level statistics; instructor's consent

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**P\_HLTH 8620: Emerging Zoonoses Diseases**

This course will enhance student understanding of epidemiology and ecology as it relates to emerging and established zoonotic diseases. Risk factors for the emergence of and mechanisms for control and prevention of zoonotic diseases will be discussed. Course will involve individual and group assignments, use of discussion board, and several blackboard collaborate sessions. Blackboard collaborate sessions (time is TBA) will be held throughout the semester as an introduction to course modules and for help sessions. Students must have audio capability (microphone and speakers) for the course. Built in microphones and speakers work nicely, an inexpensive headset helps screen out background noise. If your computer does not have a built in microphone, an inexpensive one can be purchased at an electronics/computer store. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455 and P\_HLTH 8150

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**P\_HLTH 8625: Data Analysis for Health Researchers**

The goal of this course is to introduce students to the systematic approach to data analysis, statistical computing, correct interpretation and presentation of results. Note that mathematical equations or their derivations forms are not emphasized. However, candidates taking this course are required to have a basic understanding of the epidemiologic and statistical principles and data analysis. The course is not expected to convert you into an expert data analyst within 16 weeks but upon completing the course, you will have acquired skills needed to analyze and interpret cohort, case-control and cross-sectional studies by cross tabulations, stratification, and regression. In addition, you will be able to build and interpret findings from complex multivariable models after controlling for confounding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455, STAT 7020

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**P\_HLTH 8920: Social and Behavioral Sciences in Public Health**

(same as PSYCH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**P\_HLTH 8921: Assessment of Population Health and Field Epidemiology**

Assessment in public health including outbreak investigation, surveillance, infectious disease, and environmental epidemiology. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate level statistics, basic graduate level epidemiology. Instructor's consent required

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**P\_HLTH 8953: Evaluating Global Public Health Programs**

This course is designed to prepare students to evaluate global public health programs, preferably in developing countries. Students will identify a global public health issue, find one or more global health intervention or prevention programs, evaluate the programs using principles of evaluation research methods, and suggest implications for global public health promotion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 7952 or P\_HLTH 8420

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**P\_HLTH 8970: Public Health Capstone**

As an integrating experience, the Public Health Capstone will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring areas of knowledge the students identify as most relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education.

**Credit Hours:** 3

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**P\_HLTH 8971: Veterinary Public Health Capstone**

This capstone experience provides a unique set of opportunities and responsibilities. It is generally scheduled after completion of at least 2 semesters of the MPH curriculum and is designed to serve as a capstone experience integrating previous coursework and experiences. Exceptions to the requirement of completion of 2 semesters of MPH coursework will be granted for students who have completed or concurrent degree. Examples of relevant preparatory coursework will include epidemiology and veterinary public health. As an integrating experience, the capstone will require students to apply knowledge in an independent manner, integrate knowledge into cohesive production, and communication the results of this experience.

**Credit Hour:** 1-99

**Prerequisites:** completion of at least 2 semester of MPH curriculum

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**P\_HLTH 8980: Public Health Internship**

The field experience, or internship, is an opportunity for the student to test many of the theories, concepts, and information about public health learned during the first year and translate them into practice. Using the internship site as the "organizational laboratory," the student begins to develop the necessary professional skill sets for becoming a successful public health professional. The current knowledge, skills, abilities, and experiences will continue to develop and grow as each student becomes a life-long learner and practitioner of public health. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Radiologic Sciences Courses

**RA\_SCI 1000: Introduction to Radiography**

Overview of radiography through small group discussions and onsite visitations in radiology departments. Graded on S/U basis only.

**Credit Hour:** 1

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**RA\_SCI 3110: Radiography Procedures I**

This course is an introduction to basic radiographic positioning and procedures. Specific radiographic procedures of the chest, upper extremity, shoulder girdle, pelvis and lower extremity are taught.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3120: Fundamentals of Radiography**

Orientation to radiology department, ethics, psychodynamics of patient care, medical legal considerations and radiation safety procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3130: Basic Radiographic Skills**

Radiographic film processing techniques, intensifying screens and sensitometry will be discussed. The x-ray tube, x-ray production and some of the factors which affect the quantity and quality of the x-ray beam as well as the x-ray image will also be introduced.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3140: Principles in Radiographic Exposure I**

Theory and principles of X-ray technique; correlation of factors with application.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3150: Radiologic Pharmacology**

Pharmacological principles, biopharmaceutics, pharmacokinetics, pharmacodynamics, drug classifications, drug names, administration routes, and infection prevention and control will be covered. Attention will be given to contrast agents relative to radiographic imaging. Ethical and legal implications will be explored.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3160: Radiologic Physics**

Fundamental physics of electricity and radiant energy; principles of generation of electromagnetic radiation and applicable equipment; and principles of digital image capture, display and storage.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3170: Imaging Modalities**

The study of radiographic and fluoroscopic equipment with attention to automatic exposure devices, image intensification, and imaging detectors. Consideration will be given to equipment in such modalities as computed tomography, magnetic resonance imaging, ultrasound, nuclear medicine and radiation therapy.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3180: Radiography Procedures II**

Instruction in radiographic procedures of the upper and lower gastrointestinal system, urinary system, bony thorax, vertebral column, and cranium.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3190: Radiography Procedures III**

Instructions in advanced radiographic imaging techniques with emphasis in trauma radiography, vascular studies and other specialty radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3460: Cardiovascular and Pulmonary Diagnostic Applications I**

(same as CDS 3460). Problem-based study of cardiopulmonary anatomy and physiology using current imaging methods. Emphasis given to assessment of the acutely distressed cardiac or pulmonary subject, emergency pulmonary support and vascular access techniques.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 3941: Clinical Education I**

First in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing radiographic procedures of the chest, abdomen, and extremities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3942: Clinical Education II**

Second in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the development of technical skills and procedural knowledge of routine radiographic procedures,

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4085: Problems in Medical Imaging**

Supervise investigation in an aspect of medical imaging science usually culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RA\_SCI 4110: Sectional Anatomy**

(same as DMU 4312; cross-leveled with RA\_SCI 7110, DMU 7312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RA\_SCI 4140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 7140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 7150). Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4303: Radiation Safety**

(same as NU\_ENG 4303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

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**RA\_SCI 4440: Organization and Administration**

(same as RS\_THR 4440 and CDS 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**RA\_SCI 4943: Clinical Education III**

Third in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the transition to self-directed practice of routine radiographic procedures and the development of technical skills and procedural knowledge of more advanced radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Science, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4944: Clinical Education IV**

Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4945: Clinical Education V**

Final clinical course. Supervised clinical experience emphasizing self-directed performance of complex radiographic procedures, continued competency in routine diagnostic radiography and the investigation of advanced modalities, while transitioning to reflective, critical, and strategic professional practice.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Sciences students only

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**RA\_SCI 4946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 7946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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**RA\_SCI 4947: Radiography Overview**

A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980: Imaging Pathology**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980W: Imaging Pathology - Writing Intensive**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 7110: Sectional Anatomy**

(same as DMU 7312; cross-leveled with RA\_SCI 4110, DMU 4312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent required

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**RA\_SCI 7140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 4140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor consent

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**RA\_SCI 7150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 4150). Computed tomography (CT) imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor's consent required

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**RA\_SCI 7303: Radiation Safety**

(same as NU\_ENG 7303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

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**RA\_SCI 7946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 4946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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## Radiology Courses

**RADIOL 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**RADIOL 6371: ABS Radiology Mechanism of Disease**

ABS Radiology Mechanism of Disease

**Credit Hour:** 5-10

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**RADIOL 6373: ABS Radiology Research**

ABS Radiology Research

**Credit Hour:** 5-10

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**RADIOL 6375: ABS Radiology Research and Review**

ABS Radiology Research and Review

**Credit Hour:** 5-10

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**RADIOL 6645: Radiology**

Goals/Objectives: General survey of all subspecialties of radiology. Evaluations: Written evaluations performed by both faculty and residents.

**Credit Hours:** 5

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**RADIOL 6650: Advanced Radiology**

Advanced Radiology

**Credit Hours:** 5

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**RADIOL 6745: Radiology - Rural**

Radiology - Rural

**Credit Hours:** 5**RADIOL 6931: Introduction to Radiology**

This two week elective will provide students with exposure to chest and body imaging (1 week per area). They will participate in 2-3 didactic sessions focused on the basics of radiology and imaging that is important to all fields of medicine, as well as video lectures one day a week along with the upperclassmen that are doing their 4 week elective at that time. Videos present a case based learning plan involving common emergent situations that may be encountered during their clinical training.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school**RADIOL 7328: Introductory Radiation Biology**

(same as BIO\_SC 7328, NU\_ENG 7328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent**RADIOL 8085: Problems in Radiology**

Supervised investigation in an aspect of radiological science usually culminating in a written report.

**Credit Hour:** 1-3**RADIOL 8090: Problems in Radiology**

Supervised investigation in an aspect of radiological science usually culminating in a written report.

**Credit Hour:** 1-3**Reading (Intensive English Program) Courses****IEPR \_0001: Reading I**

Students will develop the reading skills and vocabulary required to comprehend short, simple texts on general interest topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required**IEPR \_0002: Reading II**

Students will develop the reading skills and vocabulary required to comprehend short, predictable texts on general interest topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required**IEPR \_0030: Reading for Academic Purposes III**

Students will develop the reading skills and vocabulary required to comprehend pre-academic and adapted academic texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required**IEPR \_0040: Reading for Academic Purposes IV**

Students will develop the reading skills and vocabulary required to comprehend adapted university-level texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required**IEPR \_0050: Reading for Academic Purposes V**

Students will develop the reading skills and vocabulary required to comprehend and analyze university-level texts. Not open to native speakers of English. No college credit. Prerequisites:

**Credit Hours:** 3**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required; concurrent enrollment in IEPW\_0050 Writing for Academic Purposes required**Religious Studies Courses****REL\_ST 1100: Introduction to Religion**

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3**Prerequisites:** Sections are restricted to Freshmen and Sophomores only or Juniors and Seniors only**REL\_ST 1100H: Introduction to Religion - Honors**

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3**Prerequisites:** Sections are restricted to Freshman and Sophomores only and Juniors and Seniors only. Honors eligibility required**REL\_ST 1500: Religion and Culture**

The study of religion as expressed in art, literature, music, dance, drama, architecture.

**Credit Hours:** 3**Prerequisites:** Restricted to Freshmen and Sophomores only**REL\_ST 1820: Asian Humanities**

(same as AR\_H\_A 1230, HIST 1820, and S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected

master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**REL\_ST 1820H: Asian Humanities - Honors**

(same as AR\_H\_A 1230, HIST 1820, S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 2005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hour:** 1-3

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**REL\_ST 2100: Indigenous Religions**

(same as ANTHRO 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific groups, it considers individual and group identity, the meaning of the sacred, and the impact of foreign domination.

**Credit Hours:** 3

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**REL\_ST 2100H: Indigenous Religions - Honors**

(same as ANTHRO 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2110: Religions of the World**

This course introduces students to a variety of religious traditions through the study of their myths, rituals, beliefs, and practices, and explores approaches to the academic study of religion.

**Credit Hours:** 3

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**REL\_ST 2110H: Religions of the World - Honors**

Explores the differing ways in which Asian and Western religions interpret life and reality. Includes study of Hinduism, Buddhism, Chinese and Japanese religions, Judaism, Christianity, and Islam.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2220: Death and Dying in the Western World**

Death is a topic most Americans wish to avoid. Once we were very familiar with it since people before the mid-19th c. usually died at home, their bodies mourned at home, and then buried either in a designated public space or on their property (especially in the South). Today, most

people die in hospitals or medical-oriented institutions (like nursing homes). Because death is so hidden (even disguised) most of us have never seen a dead body except in film or on television and those bodies are often a result of an exceptionally gruesome, yet highly staged death. Hidden death in everyday life has led to the fact that most Americans are unfamiliar with death and even outright afraid of it. People unconsciously treat death, the process of dying, and grief as a sort of infectious disease. However, death surrounds us both personally and collectively and this means that the living and the dead do not exist (and have never existed) in completely separate realms. This class explores how death has historically been approached in the Western world and familiarizes us with different types of death (natural death, death by execution, death from illness, and death by murder). Using a religious studies and American studies approach we will examine overarching themes of grief, loss, mourning, and even anger in association with death and dying.

**Credit Hour:** 1-3

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**REL\_ST 2230: Religion and Popular Culture in the U.S.**

Explores intersections of religion and popular culture and methods for analysis.

**Credit Hours:** 3

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**REL\_ST 2240: Harry Potter, Magic, and Religion**

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups.

**Credit Hours:** 3

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**REL\_ST 2240H: Harry Potter, Magic, and Religion - Honors**

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2250: Religious Perspectives on Peace and War**

This course explores religious justification for war as well as religious perspectives on peacemaking. We engage these issues through the investigation of a variety of religious leaders and traditions, drawing from contemporary and historical examples. Traditions studied can include Jewish, Christians, Buddhist, Hindu, Islamic, and indigenous illustrations.

**Credit Hours:** 3

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**REL\_ST 2260: Gods, Dwarves, and Dragons: Introduction to Old Norse Mythology**

This course is an introduction to the pre-Christian religion and mythology of Northern Europe. Topics covered include Old Norse society, gender roles, and values. Main deities and mythological figures are explored through images and texts. Graded on A-F basis only.

**Credit Hours:** 2

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**REL\_ST 2270: Religion and Literature**

This course explores religious themes such as myth, rituals and rites, sacred power, transcendence, salvation, and pilgrimage in secular literature. Selections in English, include novels and short stories from a variety of cultures and religious traditions.

**Credit Hours:** 3

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**REL\_ST 2270H: Modern Literature and the Quest for Values - Honors**

This course is an interdisciplinary study of the religious and ethical questions, quests, and solutions in the literary works of selected modern writers: Beckett, Eliot, Camus, Kazantzakis, O'Connor, Updike, Wiesel, Percy and Morrison.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2280: Biblical Themes in American Literature**

This course is a study of the reinterpretation of Hebrew scriptures and New Testament sources in classic American texts. The works of Melville, Faulkner, MacLeish, Baldwin, O'Connor, Updike, Percy, and Morrison create a history of certain American ideas as they transform traditional biblical figures and ideas.

**Credit Hours:** 3

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**REL\_ST 2280H: Biblical Themes in American Literature - Honors**

A study of the sources in the Hebrew Scriptures and the New Testament and their reinterpretation in classic American texts. Such a study, initially textual, results in a history of American ideas. Authors studied include MacLeish, Baldwin, O'Connor, Updike, Percy and Morrison.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2310: Religions of China and Japan**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

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**REL\_ST 2310H: Religions of China and Japan - Honors**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2410: Essential Stories and Ideas of the Torah**

Students will examine major narratives and texts from the Pentateuch section of Hebrew Bible. This class will present such ancient, medieval, and contemporary interpretations that will demonstrate how biblical texts could be construed in more than one way.

**Credit Hours:** 3

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**REL\_ST 2420: Jewish Ethics**

The study and discussion of selected traditional and modern Jewish ethics (e.g., anger, fair speech, gratitude, charity, the animal world) that derive from ancient sources such as the Hebrew Bible, the Talmud, Rabbinic commentaries and contemporary resources.

**Credit Hours:** 3

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**REL\_ST 2450: The Holocaust and Reflections on Genocide**

Examines the nature of genocide as an historical phenomenon using the Holocaust as the primary case study.

**Credit Hours:** 3

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**REL\_ST 2500: Introduction to the Hebrew Bible and its World**

An introduction to the literature of the Hebrew Bible in its Ancient Near Eastern cultural context. Students are exposed to the art, archaeology, literature, and histories of the great civilizations of the ANE and their impact on Israelite history and the formation of the Hebrew Bible. Emphasis is placed on the development and changes in Israelite theology in response to historical circumstances over the centuries that witnessed the Hebrew Bible's composition, compilation, and canonization.

**Credit Hours:** 3

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**REL\_ST 2500H: Introduction to the Hebrew Bible and its World - Honors**

An introduction to the literature of the Hebrew Bible in its Ancient Near Eastern cultural context. Students are exposed to the art, archaeology, literature, and histories of the great civilizations of the ANE and their impact on Israelite history and the formation of the Hebrew Bible. Emphasis is placed on the development and changes in Israelite theology in response to historical circumstances over the centuries that witnessed the Hebrew Bible's composition, compilation, and canonization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2510: Introduction to the New Testament and its World**

An introduction to the books of the New Testament and the methods and principles guiding its academic study. Emphasis is placed on Jesus' and his disciples' Jewish heritage and the relationship and interactions between Judaism and Christianity over the decades the NT books were written and compiled. Attention is given to the character of the Roman world in which Christianity grew and found the bulk of its converts. Finally, stress is given to the texts that were not accepted into the canonical NT, the Christians whose views those texts represent, and their differences from those Christians whose views became orthodox.

**Credit Hours:** 3

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**REL\_ST 2510H: Introduction to the New Testament - Honors**

An introduction to the books of the New Testament and the methods and principles guiding its academic study. Emphasis is placed on Jesus' and his disciples' Jewish heritage and the relationship and interactions between Judaism and Christianity over the decades the NT books were written and compiled. Attention is given to the character of the Roman world in which Christianity grew and found the bulk of its converts. Finally, stress is given to the texts that were not accepted into the canonical NT,

the Christians whose views those texts represent, and their differences from those Christians whose views became orthodox.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2600: Early Christianity**

(same as HIST 2600). History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodoxy Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world.

**Credit Hours:** 3

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**REL\_ST 2600H: Early Christianity - Honors**

History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodoxy Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2610: Medieval Christianity**

(same as HIST 2610). History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

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**REL\_ST 2610H: Medieval Christianity - Honors**

History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2620: History of Christianity, 1500-Present**

(same as HIST 2620). History of Christian practices and teachings from the 15th - 21st centuries, including global dimensions of Orthodox, Catholic, Protestant and other forms of Christianity. Themes such as right teaching and practice, indigenous-Christian contact, mission and expansion, impact of secular theories, contemporary debates.

**Credit Hours:** 3

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**REL\_ST 2620H: History of Christianity, 1500-Present - Honors**

History of Christian practices and teachings from the 15th - 21st centuries, including global dimensions of Orthodox, Catholic, Protestant and other forms of Christianity. Themes such as right teaching and practice, indigenous-Christian contact, mission and expansion, impact of secular theories, contemporary debates.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2630: History of Christian Traditions**

(same as HIST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topic will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy. May be repeated for credit.

**Credit Hours:** 3

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**REL\_ST 2700: Islam**

Examines the historical development of Islamic traditions, noting the manner in which various sects & factions understand religion, humanity and God.

**Credit Hours:** 3

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**REL\_ST 2860: Religious History of the Middle East II**

This course is a historical introduction to the religions of the pre-modern and modern Middle East. It follows the histories of Judaism, Christianity, and Islam from the defeat of the Mongol army in Palestine in 1260 to the present day. In particular it focuses on the social, political, and economic interactions of the Jewish, Christian, and Muslim populations, and the role religion has (and has not) played in the formation and development of the modern Middle East. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2900: Contemporary Religious Thought**

Explores issues within contemporary Christian theology that cut across denominational lines such as: the nature and existence of God; secularization, relativism, and humanism; the authority of the Bible; attitudes toward other religions; the moral integrity of Christianity; and the purpose of human existence.

**Credit Hours:** 3

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**REL\_ST 2910: Religion and Contemporary Social Issues**

Study of the social ethics of Jewish and Christian theologians and movements of the 19th and 20th centuries and an examination of selected social problems in light of these systems.

**Credit Hours:** 3

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**REL\_ST 2920: Images of Good and Evil**

Study of the symbols and myths which explore the nature and power of good and evil. Includes examination of the music, art and literature of both ancient and contemporary religions.

**Credit Hours:** 3

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**REL\_ST 2930: Religion and Psychological Perspectives**

Examines how religion is understood from various psychological perspectives, and how psychological theories reflect religious presuppositions about the nature and purpose of human life.

**Credit Hours:** 3

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**REL\_ST 2939: Religion and Human Sexuality**

Examines attitudes within the Christian tradition toward sexuality, with particular reference to the alternatives of patriarchy and feminism,

especially as they consider issues such as the meaning of bodiliness, masturbation, pornography, prostitution, homosexuality and sexual pluralism.

**Credit Hours:** 3

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**REL\_ST 2940: African Religions**

(same as BL\_STU 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures are will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2950: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May not be repeated.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**REL\_ST 3000: History of Religion in America to the Civil War**

(same as HIST 3000). Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3000H: History of Religion in America to the Civil War - Honors**

Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent. Honors eligibility required

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**REL\_ST 3001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 3005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 3042: Sacred Humor: Tricksters, Clowns, and Contraries**

This class will explore the notion that humor plays an important role in conveying sacred meaning. To that end, we will need to adopt a fairly common vocabulary regarding the concepts "humor" and "sacred," and

will do so while exploring some of the key aspects of the sacred humor discourse, especially the "trickster," "clown," and "contrary" motifs in mythic narrative.

**Credit Hours:** 3

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**REL\_ST 3100: Religious Literacy for the Public and Professions**

This course teaches students to engage and encounter religion in day-to-day life and in the professional workplace. Its primary goal is to examine religious diversity in private and professional contexts from a practical standpoint by examining a variety of case studies.

**Credit Hours:** 3

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**REL\_ST 3200: Hinduism**

(same as S\_A\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga, and meditation, Indian religious thought, and devotional Hinduism.

**Credit Hours:** 3

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**REL\_ST 3210: History of Religion in Post-Civil War America**

(same as HIST 3210). Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments.

**Credit Hours:** 3

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**REL\_ST 3210H: History of Religion in Post-Civil War America - Honors**

Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments. Prerequisites: Honors Eligibility Required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3220: Tibetan Buddhism**

This course explores the Buddhist tradition in Tibet, from its introduction in the 8th century to the present. Topics include the merger of Indian Buddhism with the local Bon religion, the relationship between Tibetan Buddhism and Mahayana Buddhism, the Tibetan Buddhist canon, lamas and tulkus, religion and material culture in Tibet, and the influence of Tibetan Buddhism in Central Asia. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3230: Buddhism and Environmental Ethics**

(same as S\_A\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**REL\_ST 3240: Buddhism of South and Southeast Asia**

(same as S\_A\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist

schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in South and Southeast Asia.

**Credit Hours:** 3

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**REL\_ST 3250: Buddhism in East Asia**

This course will trace the transmission of Buddhism from the Indian subcontinent to China, and from there to Korea and Japan. We will examine the historical development of East Asian forms of Buddhism, deal with key issues of Buddhist thought and practice, and look at the role of Buddhism in modern East Asian societies.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2110, REL\_ST 2300, REL\_ST 2310 or REL\_ST 3200, or instructor's consent

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**REL\_ST 3260: Hindu Goddesses**

(same as S\_A\_ST 3261). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**REL\_ST 3270: Yoga and Meditation in the Modern World**

This course explores the practice of Yoga and meditation, both as an ancient tradition of India and as an example of the globalization of religion. It will examine how the ancient Hindu religious tradition of Yoga was reinvented against the backdrop of India's colonial experience. Then it will look at a variety of emerging and transforming varieties of Hindu inspired yoga and meditation that spread globally in the context of increasing transnational interaction. To better appreciate both the traditional and the modern aspects of yoga and meditation, a secular meditation practice is included as an instructional and experiential component of this class.

**Credit Hours:** 4

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**REL\_ST 3280: Chinese Popular Religion**

Starting with a consideration of conceptual issues (what is 'popular religion?'), the course will give a survey of the beliefs and practices of Chinese popular religion, including ancestor worship, territorial cults, spirit-mediumism, divination, and popular sects.

**Credit Hours:** 3

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**REL\_ST 3300: The Prophets**

Study of the prophetic writings of the Hebrew Scriptures, with consideration of the origin and nature of Israelite prophecy. Includes the narratives of the period of prophetic activity and study of the classical prophets.

**Credit Hours:** 3

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**REL\_ST 3310: The Problem of Evil: Theodicy in the Ancient Near East**

A comparative study of Ancient Near Eastern reflections on the question of why bad things happen to good people, aka the Problem of Evil. Students read primary texts in translation from Ancient Egypt, Ancient Mesopotamia, and Ancient Israel, including such famous texts as the Dispute between a Man and his Ba, the Babylonian Theodicy, and the book of Job. Students will discover how different beliefs about the origins of the universe, the relationship between humans and the divine, the notion of sin, and the causes of suffering lead to different answers to the age-old question of why the righteous suffer.

**Credit Hours:** 3

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**REL\_ST 3350: Monsters in Western Religion and Folklore**

This course focuses on monsters found in Western cultures and more specifically how monsters are instantiated and put to use in contexts of popular culture. Theoretical and methodological approaches to the material are drawn from both Religious Studies and Folkloristics. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3360: Cults and New Religious Movements**

While religious traditions constantly change, and new religions emerge in every historical time period, the new religious movements of the past century (many of which are often referred to negatively as "cults") present a particular challenge to contemporary cultures and societies. We will begin with a theoretical overview of new religious movements (NRMs) and will proceed gradually to discuss in detail the religion of the Peoples Temple and its charismatic leader and founder, Jim Jones. Recommended: An introductory course in any of the following disciplines/area studies: Religious Studies, Psychology, Communication Studies (emphasis on Media and Society/Media Theory); or Sociology.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**REL\_ST 3380: Native American Religions**

(same as ANTHRO 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**REL\_ST 3380H: Native American Religions - Honors**

(same as ANTHRO 3380H). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 3400: The Gospels of Matthew, Mark, and Luke**

Examination of the Gospels of Matthew, Mark, and Luke as single works and as literarily related compositions. Interpretation focuses on the literary form of passages and the theological and ethical themes expressed.

**Credit Hours:** 3

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**REL\_ST 3400H: The Gospels of Matthew, Mark, and Luke - Honors**

Examination of the Gospels of Matthew, Mark, and Luke as single works and as literarily related compositions. Interpretation focuses on the literary form of passages and the theological and ethical themes expressed.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 3410: Cities and Letters of Paul: an Archaeological Investigation**

This course combines a close contextual reading of the seven undisputed letters written by the apostle Paul and the three disputed letters of uncertain authorship coupled with an in-depth historical and archaeological investigation of the cities to which they were written. Students will learn about ancient letter writing, how the conventions used differed from modern practice, and how understanding those differences is essential for a more accurate reading of Paul. Likewise, this course will demonstrate that knowing the circumstances in which a letter was written sheds additional light on its contents and therefore investigates the historical and social conditions of Thessalonica, Corinth, Rome, Phillipi, the cities of Galatia, Ephesus, and Colossae in an effort better to understand the purposes for which Paul presumably wrote to the Christian communities in these cities.

**Credit Hours:** 3

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**REL\_ST 3410H: Cities and Letters of Paul: an Archaeological Investigation - Honors**

This course combines a close contextual reading of the seven undisputed letters written by the apostle Paul and the three disputed letters of uncertain authorship coupled with an in-depth historical and archaeological investigation of the cities to which they were written. Students will learn about ancient letter writing, how the conventions used differed from modern practice, and how understanding those differences is essential for a more accurate reading of Paul. Likewise, this course will demonstrate that knowing the circumstances in which a letter was written sheds additional light on its contents and therefore investigates the historical and social conditions of Thessalonica, Corinth, Rome, Phillipi, the cities of Galatia, Ephesus, and Colossae in an effort better to understand the purposes for which Paul presumably wrote to the Christian communities in these cities.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 3420: Jesus in Myth, Tradition and History**

This course will explore the identity and character of Jesus of Nazareth as depicted in various early Christian canonical and non-canonical sources and, using a variety of scholarly techniques, ascertain what information in those sources can be considered to describe accurately the real, historical Jesus.

**Credit Hours:** 3

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**REL\_ST 3430H: Revelation and Apocalyptic Literature - Honors**

A study of Jewish and Christian apocalyptic literature with an emphasis on the Revelation to St. John.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 3445: The Body in Western Christianity**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3445W: The Body in Western Christianity - Writing Intensive**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3451: Religion in Science Fiction**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours:** 3

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**REL\_ST 3451W: Religion in Science Fiction - Writing Intensive**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours:** 3

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**REL\_ST 3455: Robots and Religion: Reflection on Self, Soul, and Humanity**

This course explores ancient and modern texts about robots, androids, and other artificial and virtual humans in order to analyze cultural and religious notions of what it means to be human. Course readings include ancient Indian, Tibetan, and Chinese robot stories in translation, medieval Jewish legends about golems, as well as contemporary Western science fiction

**Credit Hours:** 3

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**REL\_ST 3500: Judaism in the Time of Jesus**

This course is an introduction to the origin and development of Judaism from the time of the destruction of the first Jerusalem temple (587 BCE) to the Bar Kochba revolt (132-135 CE).

**Credit Hours:** 3

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**REL\_ST 3530: Rabbinic Judaism: Perspective and Literature**

Overview of the Jewish oral tradition during the Rabbinic era. The information covered in this course will focus upon the vast literature created during the Mishnaic and Talmudic periods and the emerging new styles and directions of Jewish religious thought.

**Credit Hours:** 3

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**REL\_ST 3540: Jewish-Christian Relations**

Explores historical and contemporary relations between Christians and Jews, and the transformations in Christian thought and practice resulting

from awareness of Christianity's role in the Holocaust and from post-Holocaust dialogues between Jews and Christians.

**Credit Hours:** 3

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**REL\_ST 3600: Spirituality**

Comparative investigation of selected mystical writings from Western religious traditions; consideration of contemporary psychological, philosophical, and phenomenological interpretations of mystical experience.

**Credit Hours:** 3

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**REL\_ST 3610: Angry Theologians**

This course examines how intense debates and furious prose helped define many of modern Christianity's most widely agreed upon tenets of faith. Through close readings of theological treatises laced with profanity, insults, and outrage, we shall explore how central Christian theological convictions about baptism, the nature of Jesus, gender roles, sin, salvation, and other topics were constructed through argumentation and compromise. Though some theological disputes were settled politely through votes at church councils, even these peaceable compromises often emerged through a spate of insults and red-faced polemic. We shall read and discuss some of the most colorful--and enduringly influential--cases of theology developing through brash confrontation, from the Luther Insult Generator to the fiercely angry articulations of Christian theology in contemporary America. Students will learn to understand the logic and purpose behind these vehement arguments in their historical context and practice evaluating competing claims about complex issues such as the Trinity, the path to salvation, and sin. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3700: Modern Religious Thought**

Examination of the theological systems of major Christian thinkers and movements of the 19th and 20th centuries in relation to historic religious traditions and modern cultural challenges. Prerequisites: sophomore standing. and one course in Philosophy, or instructor's consent.

**Credit Hours:** 3

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**REL\_ST 3710: Reality of God**

Will explore the meaning of "the loss of God" (Tillich) and various modern and contemporary attempts to reaffirm the reality of God.

**Credit Hours:** 3

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**REL\_ST 3740: Religion and Film**

Addresses issues of interpretation and analysis in the convergence of religion and film. Addresses three areas under this broad rubric: 1) film representations of established religions; 2) film and the construction of social values; 3) film as contemporary "myth". Treating films as social texts, we will ask what such representations of ourselves to ourselves suggest about culture in general.

**Credit Hours:** 3

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**REL\_ST 3750: Women and Religions**

(same as WGST 3750). A rediscovery of the wealth of religious activity which women have created and enacted. Investigates women's roles

and rituals in large-scale and local religions, including ancient Goddess religions, Hinduism, Buddhism, Judaism, Christianity, Islam, and African, South American, and native American groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**REL\_ST 3760: Geography of the World's Religions**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3760W: Geography of the World's Religions - Writing Intensive**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3800: Religion in America Today**

Explores in depth a few selected issues currently shaping or being shaped by religion in the United States. Specific topics will be chosen from events conflicts, developments, or news items within the last five years. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**REL\_ST 3820: Religion and Law in America**

This class explores how the U.S. legal system is navigating an increasing diversity of religious traditions. Course examines the place of religious values and the ongoing tension between religion and law in the legal system of the U.S. through a variety of controversial topics.

**Credit Hours:** 3

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**REL\_ST 3990: Majors Seminar**

In this seminar religious studies majors will be encouraged to form a community of inquiry focused on the subject of religion and public life. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Religious Studies majors in their junior year

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**REL\_ST 4001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**REL\_ST 4005: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 4100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies majors and MA students

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**REL\_ST 4100W: Advanced Theories and Methods - Writing Intensive**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies majors and MA students

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**REL\_ST 4110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 7110). This course will unpack theoretical and methodological issues surrounding the study of embodied religious practice and the nature of religious narrative using myths and rituals from around the world's religious traditions.

**Credit Hours:** 3

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**REL\_ST 4120: Studies in Ritual**

Exploration of particular themes of religious expression in seasonal, calendric and life-cycle rituals and in personal and public ceremonies. Includes comparisons of indigenous communities and modern society.

**Credit Hours:** 3

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**REL\_ST 4130: Haunting and Healing**

This course explores instances, stories, and representations of haunting in the United States. We apply a variety of theoretical and methodological approaches to illuminate the diversity of meanings, functions, and contexts of supernatural beings in American popular and folk cultures.

**Credit Hours:** 3

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**REL\_ST 4150: Religion, Spirituality, and the Brain**

Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

**Prerequisites:** Restricted to juniors and seniors only

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**REL\_ST 4200: Survey of West African and African Diasporic Religions**

Explores indigenous African religions and Islam in West Africa, as well as the development of African American Christianity and African diasporic religions in the Americas.

**Credit Hours:** 3

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**REL\_ST 4210: African-American Religion**

(same as BL\_STU 4210). Historical and thematic examination of African American religious traditions and practices. Addresses intersections of religious expression with race, identity, culture, and society.

**Credit Hours:** 3

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**REL\_ST 4280: Archaeology of Religion**

(same as ANTHRO 4280). This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 4287; cross-leveled with REL\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras.

Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors.

Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing, senior standing preferred

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**REL\_ST 4300: Religious Narratives of South Asia**

(same as S\_A\_ST 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

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**REL\_ST 4310: The Confucian Tradition: Past and Present**

Investigates Confucianism as the dominant religio-philosophical tradition of China and its impact on Korea and Japan. We will study basic Confucian canonical texts, follow its historical development, look at its interactions with other religions, and discuss the continuing relevance of the Confucian tradition in modern East Asia.

**Credit Hours:** 3

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**REL\_ST 4320: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow

the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 4380: Anthropological Theories of Religion**

(same as ANTHRO 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030, ANTHRO 2100 or REL\_ST 2100, or instructor's consent

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**REL\_ST 4400: The Catholic Intellectual Tradition**

(cross-level with REL\_ST 7110). Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 4410: Major Religious Thinkers**

Concentrated study of one or more selected theologians, such as Augustine, Aquinas, Luther, Calvin, Buber, Tillich, and Rahner.

**Credit Hours:** 3

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**REL\_ST 4418: Religion Reporting and Writing**

(same as JOURN 4426). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life, and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 professional writing experience and instructor's consent

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**REL\_ST 4500: Greek and Roman Religion**

(same as CL\_HUM 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and CL\_HUM 1060, AR\_H\_A 1110 or HIST 1520

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**REL\_ST 4535: Monastic Worlds**

Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-

site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details.

**Credit Hours:** 3

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**REL\_ST 4550: The Historical Jesus**

This course examines theory, method, and conclusions in recent Jesus scholarship. Attention is also paid to the historical and cultural context in which Jesus research becomes prominent.

**Credit Hours:** 3

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**REL\_ST 4630: Sanskrit I**

(same as S\_A\_ST 4350). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**REL\_ST 4640: Sanskrit II**

(same as S\_A\_ST 4640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 4750: Women, Religion and Culture**

(same as WGST 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 4960: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May be repeated up to 6 hrs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**REL\_ST 4990: Senior Seminar in Religious Studies**

A seminar in which Religious Studies majors use methods of understanding and comparing religions by focusing on times and places of significant contact among peoples of different religions.

**Credit Hours:** 3

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**REL\_ST 7001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7005: Topics in Religious Studies - General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 4100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies major or minor or instructor's consent

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**REL\_ST 7110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 4110). Comparative analysis of religious mythologies and symbolism as well as the ritual systems associated with those mythologies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**REL\_ST 7120: Studies in Ritual**

Exploration of particular themes of religious expression in seasonal, calendric and life-cycle rituals and in personal and public ceremonies. Includes comparisons of indigenous communities and modern society.

**Credit Hours:** 3

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**REL\_ST 7150: Religion, Spirituality, and the Brain**

Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

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**REL\_ST 7280: Archaeology of Religion**

(Same as ANTHRO 7280) This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 7287; cross-leveled with REL\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples

of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**REL\_ST 7380: Anthropological Theory of Religions**

(same as ANTHRO 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**REL\_ST 7418: Religion Reporting and Writing**

(same as JOURN 7426). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life, and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 and instructor's consent

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**REL\_ST 7500: Greek and Roman Religion**

Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and CL\_HUM 1060, AR\_H\_A 1110 or HIST 1520

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**REL\_ST 7510: The Catholic Intellectual Tradition**

(cross-leveled with REL\_ST 4400), Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 7520: Major Religious Thinkers**

Concentrated study of one or more selected theologians, such as Augustine, Aquinas, Luther, Calvin, Buber, Tillich, and Rahner.

**Credit Hours:** 3

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**REL\_ST 7630: Sanskrit I**

(same as S\_A\_ST 7630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist literature.

**Credit Hours:** 3

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**REL\_ST 7640: Sanskrit II**

(same as S\_A\_ST 7640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of

the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 7700: Religious Narratives of South Asia**

(same as S\_A\_ST 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2110, REL\_ST 3200, or REL\_ST 3240, or instructor's consent

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**REL\_ST 7710: The Confucian Tradition: Past and Present**

Investigates Confucianism as the dominant religio-philosophical tradition of China and its impact on Korea and Japan. We will study basic Confucian canonical texts, follow its historical development, look at its interactions with other religions, and discuss the continuing relevance of the Confucian tradition in modern East Asia.

**Credit Hours:** 3

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**REL\_ST 7720: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 7750: Women, Religion and Culture**

(same as WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 7800: West African and African Diasporic Religions**

Explores traditional African religions and African Islam prior to the slave trade. Also, will examine the Christianity of African American slaves.

**Credit Hours:** 3

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**REL\_ST 7810: African-American Religion**

(same as BL\_STU 7810). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

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**REL\_ST 7990: Independent Readings in Religious Studies**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hours:** 3

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**REL\_ST 8001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 8005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 8010: Proseminar in Method and Theory in the Study of Religion**

Proseminar in classic and recent theoretical and methodological perspectives in the academic study of religion. This course is required of all graduate students in Religious Studies.

**Credit Hours:** 3

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**REL\_ST 8090: Research and Thesis in Religious Studies**

Research and writing for master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**REL\_ST 8200: Religious Texts and Interpretation: The Veda**

(same as S\_A\_ST 7200). This course examines the Veda, the foundational scripture of Hinduism. It includes close study of Vedic texts and rituals and the influence, interpretation, and application of the Veda in the later Hinduism.

**Credit Hours:** 3

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**REL\_ST 8210: Indian Buddhism**

This course examines the role of sacred texts in the Theravada and Mayayana Buddhist traditions. The course will emphasize canon formation and ideas about sacred texts in Buddhist traditions.

**Credit Hours:** 3

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**REL\_ST 8250: Religious Texts and Interpretation: Gospel Literature**

The seminar includes comparative study of ancient gospels, and an examination of modern theories about the development of Jesus traditions.

**Credit Hours:** 3

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**REL\_ST 8400: Religious History: Christian Interpretative Communities**

This course compares notions of religious authority in the sixteenth century: the Roman Catholic Church's Scripture and tradition and the Protestant principle of sola scriptura. The focus is the doctrine of the Eucharistic disputes carried on throughout the sixteenth century.

**Credit Hours:** 3

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**REL\_ST 8430: Religious History: West African Interpretative Communities**

In this study of West African religious history, we will examine indigenous African religions, Islam, and Christianity. We will consider the impact of the slave trade, environmental changes, prophetic movements, and changes in the status of women. We will also evaluate theoretical perspectives on the study of Africa, of "traditional religions" and oral traditions.

**Credit Hours:** 3

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**REL\_ST 8440: Religion, Globalization and Local Cultures**

Interdisciplinary, comparative approach to globalization's religious dimensions and productions in a variety of specific sites around the world.

**Credit Hours:** 3

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**REL\_ST 8500: History of Religion and Everyday Life in America**

This graduate seminar will familiarize you with several theoretical and methodological issues involved in the study of religion in everyday life, its historical recovery and interpretation, and its presentation. We will focus on examples of scholarship on U. S. history.

**Credit Hours:** 3

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**REL\_ST 8600: Comparative Studies in Spirit Possession**

This course will investigate four distinct Afro-Latin religious traditions of the Americas, including traditions from Haiti, Cuba, Brazil and Honduras, as well as comparative examples from South Asia, Europe and North Africa. We will read and discuss such issues as 1) spirit possession and narratively; 2) spirit possession as "history"; 3) possession as dramatic performance; 4) the relationship between sacrifice and possession trance. Through careful exploration of their histories and contemporary practice, the class will attempt general comparisons between the religion as well as the critical review of comparative methods employed.

**Credit Hours:** 3

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**REL\_ST 8700: Seminar in Folklore**

(same as ANTHRO 8157 and ENGLSH 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups.

**Credit Hours:** 3

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**REL\_ST 8710: Comparative Religion: Popular Religion**

Popular religion is the lived religion of the common people which takes shape in contact with and distinction from the religion(s) of the elite(s) of a society. This course introduces concepts and theories of popular religion, and investigates its role in various traditions, including Hinduism, Buddhism, Christianity, and Chinese religions.

**Credit Hours:** 3

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## Respiratory Therapy Courses

**RS\_THR 1000: Introduction to Respiratory Therapy**

Introductory course to assist students acquiring information about the respiratory therapy profession. Students observe therapists in hospitals

and participate in lectures on credentialing, program requirements, placement and future trends in the profession. Graded on S/U basis only.

**Credit Hour:** 1

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**RS\_THR 3000: Fundamentals of Respiratory Care**

Orientation to the profession. Focus on professional attributes of communication, teamwork, licensure and safety.

**Credit Hour:** 1

**Prerequisites:** acceptance into respiratory therapy major

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**RS\_THR 3220: Equipment and Techniques**

History, organization of respiratory therapy. Theory, application of gas laws. Equipment for invasive and non-invasive pulmonary assessment, therapeutic aerosol and humidity, gas delivery, airway management. Techniques for infection control, lung expansion, bronchial hygiene. Graded on A-F basis only.

**Credit Hours:** 5

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**RS\_THR 3290: Cardiopulmonary Pharmacology**

To provide the student with specific knowledge of the pharmacologic strategies in treating cardiopulmonary disorders. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to students in the respiratory therapy program

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**RS\_THR 3420: Principles of Mechanical Ventilation**

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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**RS\_THR 3420W: Principles of Mechanical Ventilation - Writing Intensive**

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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**RS\_THR 3440: Mechanical Ventilation Lab**

Application of mechanical ventilation emphasizing acute care: pressure, volume, and oscillatory ventilation of adults, Pediatrics, and infants. Related graphical, laboratory, and hemodynamic analysis; therapeutic intervention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941, RS\_THR 4040

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**RS\_THR 3941: Clinical Practice I**

To be taken concurrently with RS\_THR 3220 for which it serves as an extension of the laboratory time and an opportunity for structured clinical experience exposures.

**Credit Hours:** 2

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**RS\_THR 3942: Clinical Practice II**

To be taken concurrently with RS\_THR 3420, for which it serves as an extension of the laboratory time, and an opportunity for structured clinical experience exposures.

**Credit Hours:** 4

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**RS\_THR 3943: Clinical Practice III**

Continuation of supervised clinical experience from RS\_THR 3942. Graded on A-F basis only.

**Credit Hours:** 2

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**RS\_THR 4020: Perinatal/Neonatal Respiratory Care**

Evaluation and management of perinatal/neonatal pulmonary, medical and surgical conditions which require respiratory care. Emphasis on resuscitation, pathophysiology, evaluation, blood gas and x-ray interpretation, treatment and mechanical ventilation.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 4040; Respiratory Therapy students only

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**RS\_THR 4040: Respiratory Pathophysiology**

Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature. Impact of disease on normal structure function; clinical, roentgenographic, and physiologic manifestations are described.

**Credit Hours:** 5

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**RS\_THR 4085: Problems in Respiratory Therapy**

Independent work on special problems related to cardiopulmonary health. Course not offered for graduate credit. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RS\_THR 4220: Community and Patient Education I**

Design and implement materials for educational presentations for a given patient population. Graded on A-F basis only.

**Credit Hour:** 1

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**RS\_THR 4240: Pulmonary Rehabilitation**

Focus is on an interdisciplinary approach to pulmonary rehabilitation and home care of the adult cardiopulmonary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RS\_THR 4420: Pediatric Respiratory Care**

Evaluation and management of pulmonary, medical and surgical pediatric conditions requiring respiratory care. Emphasis on pediatric resuscitation, pathophysiology, treatment and prevention of respiratory conditions, mechanical ventilation, lab interpretation.

**Credit Hours:** 3

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**RS\_THR 4440: Organization and Administration**

(same as RA\_SCI 4440 and CPD 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**RS\_THR 4460: Evidence-Based Medicine in Respiratory Care**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4460W: Evidence-Based Medicine in Respiratory Care - Writing Intensive**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4620: Pulmonary Function Technologies**

This course will provide the student with a specific knowledge of the testing procedures and equipment for pulmonary function technology. The student will learn to interpret pulmonary function tests and perform quality assurance within the pulmonary function laboratory.

**Credit Hours:** 2

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4640: Teaching Practicum**

Structured and supervised experience identifying student characteristics, methods for teaching, improving assessment, current development and instructional design.

**Credit Hours:** 3

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**RS\_THR 4660: Advanced Mechanical Ventilation Theory**

Exploration of advanced disease management via specific disease processes as well as concepts and modes of mechanical ventilation. Emphasis will be placed on mode selection for various disease and how new modes of mechanical ventilation impact disease management.

**Credit Hours:** 3

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**RS\_THR 4720: Advanced Pulmonary Function Technology**

This course will focus on the respiratory therapist's role in diagnostic testing. Topics include pulmonary function tests, exercise tests, and metabolic studies. In addition the course briefly addresses polysomnography, pulmonary rehabilitation, and home care. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Respiratory Therapy students only

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**RS\_THR 4820: Adult Critical Care**

This course will focus on the respiratory therapist's role in the adult critical care environment. Topics include airway management, mechanical ventilation, general adult critical care and functioning as a vital member of the critical care team.

**Credit Hours:** 3

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 7930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CDS 4955 or HLTH SCI 3900 or Instructor consent

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**RS\_THR 4940: Clinical Practice IV**

Structured and supervised clinical experience and case conferences regarding bioterrorism response and emergency/disaster planning.

**Credit Hours:** 5

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**RS\_THR 4956: Research in Respiratory Therapy**

Selected research projects guided by a senior staff member.

**Credit Hour:** 2-6

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**RS\_THR 4973: Clinical Practice V**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in adult critical care and special procedures including bronchoscopies, cardiac catheterization and chest tube placement.

**Credit Hours:** 4

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**RS\_THR 4983: Clinical Practice VI**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in perinatal and pediatric critical care including pediatric pulmonary function testing and airway management.

**Credit Hours:** 4

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**RS\_THR 4990: Respiratory Therapy Capstone**

Integration of literature, knowledge of previous coursework and clinical experience.

**Credit Hours:** 2

**Prerequisites:** Respiratory Therapy Majors Only

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**RS\_THR 4993: Clinical Practice VII**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in rehabilitation and home care, inservice education, and management. Students will participate in on-going research projects and community service activities.

**Credit Hours:** 5

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**RS\_THR 7040: Respiratory Pathophysiology**

Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature.

Impact of disease on normal structure/function; clinical, roentgenographic, and physiologic manifestations are described.

**Credit Hours:** 5

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**RS\_THR 7930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 4930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet).

**Credit Hours:** 3

**Prerequisites:** CDS 4955 or HLTH SCI 3900 or Instructor consent

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## Romance Languages Courses

**RM\_LAN 2001: Undergraduate Topics in Romance Languages-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**RM\_LAN 2200: Introduction to Catalan Language and Culture**

This is an introductory course to Catalan language and culture. Previous knowledge of another Romance language might be beneficial. Students will learn basic Catalan expressions, vocabulary and grammatical structures. Furthermore, students will begin to familiarize themselves with elements of Catalan culture.

**Credit Hours:** 3

**Recommended:** Some knowledge of a Romance language desirable

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**RM\_LAN 2310: Literature of the African Diaspora**

(same as BL\_STU 2310). A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas. Exemplary texts from the Caribbean (English, French, Spanish), South America and the United States are discussed in comparative perspective. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**RM\_LAN 2820: Trends in World Cinema**

(same as FILM\_S 2820 and GERMAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1800 or FILM\_S 1800

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**RM\_LAN 3200: Catalan Culture and Identity**

Students in this course are not expected to have previous exposure to Catalan instruction. If they do, it will enhance their learning experience. Knowledge of another Romance language might be beneficial as well. This is a course focused on Catalan culture and identity. Students will learn about the history of the language, the language policies in Spain and Europe, Catalan literature, cinema, music, and food. Students will

read different materials in English for the most part. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RM\_LAN 3820: Major Directors**

(same as ENGLISH 3820 and FILM\_S 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**RM\_LAN 4310: Literature of the African Diaspora**

A study, in English translation, of writings by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**RM\_LAN 4730: Linguistic Theory and Language Acquisition**

(same as LINGST 4730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** SPAN 4721 or SPAN 7721, FRENCH 4720 or FRENCH 7720, ENGLISH 4600 or ENGLISH 7600 or LINGST 4860 or LINGST 7860

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**RM\_LAN 4940: Service Learning in Romance Languages**

(same as SPAN 4940 and FRENCH 4940). Course offers our majors and advanced minors the opportunity to use their language skills in real-life community settings. Does not meet Art and Science general education requirements. May be repeated once for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior or senior standings and departmental consent

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**RM\_LAN 7310: Literature of the African Diaspora**

A study, in English translation, of writings by authors of African descent in the Americas.

**Credit Hours:** 3

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**RM\_LAN 7730: Linguistic Theory and Language Acquisition**

(same as LINGST 7730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** SPAN 4721 or SPAN 7721, FRENCH 4720 or FRENCH 7720, ENGLISH 4600 or ENGLISH 7600 or LINGST 4860 or LINGST 7860

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**RM\_LAN 8085: Problems in Romance Languages**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RM\_LAN 8087: Seminar in Literature and Languages of the African Diaspora**

One of two courses devoted to the theory and practice of African diaspora literary criticism. Beginning with the United States, we address the issues of developing appropriate theoretical models for black literatures in the Americas.

**Credit Hours:** 3

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## Rural Sociology Courses

**RU\_SOC 1000: Rural Sociology**

Introduction to basic concepts and principles of sociology with a focus on rural populations and places. The course explores interconnections between rural/urban and local global economies and cultures. Students are exposed to the rich diversity of rural society, social changes underway, and to current social issues. (Students may not earn credit for both RU\_SOC 1000 and SOCIOL 1000).

**Credit Hours:** 3

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**RU\_SOC 1103: Topics in Rural Sociology - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 1104: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 1120: Population and the Environment**

(same as SOCIOL 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**RU\_SOC 1150: The Amish Community**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000

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**RU\_SOC 1150W: The Amish Community - Writing Intensive**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000



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**RU\_SOC 1175: The Health of People in Local Communities**

Health is a universal concern of all people. However, the place of residence has a major impact on many things closely related to health including the local cultural such as diets, exercise, occupations, local health services, etc. This is an introduction to these topics.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2010: Leadership in Today's World**

Examination of dynamics of group leadership, especially in local voluntary organizations; study of how leader's behavior is related to success or failure of organization's program.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2203: Topics in Rural Sociology - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2203W: Topics in Rural Sociology - Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2204: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2225: Science, Technology and Society**

Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2225W: Science, Technology and Society - Writing Intensive**

Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2950: Social Research I**

(same as SOCIOL 2950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 3085: Problems in Rural Sociology**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 3100: Recent Theories in Sociology**

(same as SOCIOL 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Recommended:** SOCIOL 2200

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**RU\_SOC 3235: Global Perspectives and Realities**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3235W: Global Perspectives and Realities - Writing Intensive**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3303: Topics in Rural Sociology - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 2-3

**Recommended:** 6 hours of Rural Sociology or SOCIOL 1000, or junior standing

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**RU\_SOC 3304: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 2-3

**Recommended:** 6 hours Rural Sociology or Sociology, or junior standing

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**RU\_SOC 3310: Society, Agriculture and Natural Resources**

Explore the human dimensions of agriculture and natural resources through an overview of key areas in natural resource social science. Diverse conceptual approaches and empirical research topics related to society-natural resource interactions are included.

**Credit Hours:** 3

**Recommended:** junior standing or instructor's consent

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**RU\_SOC 3325: Sociology of Food and Nutrition**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3325W: Sociology of Food and Nutrition - Writing Intensive**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3940: Practicum in Rural Sociology**

Independent research or professional experience under faculty supervision. Projects must be arranged by student and faculty member prior to registration.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**RU\_SOC 3950W: Social Research I - Writing Intensive**

(same as SOCIOL 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 4120: Social Statistics**

(same as SOCIOL 4120; cross-leveled with RU\_SOC 7120, SOCIOL 7120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Recommended:** SOCIOL 2950

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**RU\_SOC 4301: Topics in Rural Sociology**

Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 or equivalent

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**RU\_SOC 4325: American Community Studies**

(cross-leveled with RU\_SOC 7325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community

studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 4335: Social Change and Development**

(same as SOCIOL 4335; cross-leveled with SOCIOL 7335, RUR\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4341: Building Communities from the Grassroots**

(same as PEA\_ST 4341; cross-leveled with RU\_SOC 7341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 7374). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 4370: Environmental Sociology**

(same as SOCIOL 4370; cross-leveled with SOCIOL 7370, RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

**Recommended:** junior standing

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**RU\_SOC 7120: Social Statistics**

(same as SOCIOL 7120; cross-leveled with RU\_SOC 4120, SOCIOL 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**RU\_SOC 7301: Topics in Rural Sociology**

Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000 or equivalent, RU\_SOC 4301

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**RU\_SOC 7325: American Community Studies**

(cross-leveled with RU\_SOC 4325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 7335: Social Change and Development**

(same as SOCIOL 7335; cross-leveled with SOCIOL 4335, RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from other disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 7341: Building Communities from the Grassroots**

(cross-leveled with RU\_SOC 4341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 4343). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7370: Environmental Sociology**

(same as SOCIOL 7370; cross-leveled with SOCIOL 4370, RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**RU\_SOC 7445: Seminar on Issues in the Sociology of Agriculture and Natural Resources**

Issues in current research in the sociology of agriculture of developing and industrial nations. Links sociological theory with research in agriculture, examining contributions of applied research to sociological knowledge.

**Credit Hours:** 3

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**RU\_SOC 7446: Community Social Structure**

(same as SOCIOL 7446). A comparative study of communities in different nations and in urban and rural areas. A primary focus of the course will be on social change in communities in response to changing economic, political, social, cultural, and ecological factors.

**Credit Hours:** 3

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**RU\_SOC 8085: Problems in Rural Sociology**

Research for student capable of semi-independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 8130: Advanced Social Statistics**

(same as SOCIOL 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4120 or equivalent

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**RU\_SOC 8287: Seminar on Sustainable Development**

(same as SOCIOL 8287). An interdisciplinary examination of sustainable development focusing on social, economic, cultural and environmental dimensions of development. International and domestic issues and approaches to sustainable development are included.

**Credit Hours:** 3

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**RU\_SOC 8430: Program Development and Evaluation**

(same as AG\_ED\_LD 8430). Program development principles, teaching plans and evaluation principles applied to extension program development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 8435: Political Ecology**

Political ecology is an analytical approach to environment and natural resource issues at local, regional and global scales, emphasizing political, economic, cultural, social and historical factors and their relationship to ecological trends and processes. Seminar format. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8436: Community, Natural Resources and Sustainability**

A graduate seminar on conceptual and methodological (mixed methods) approaches to natural resource sustainability issues at the human community level. Focuses on theoretical, methodological, and empirical topics related to the interactions between community, natural resources and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 4310 or RU\_SOC 7310

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**RU\_SOC 8444: Agriculture, Food and Community**

Introduces key debates in the sociology of food and agriculture. Includes research on the structure and history of the agriculture system and its impacts on farmers, communities and the natural environment.

**Credit Hours:** 3

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**RU\_SOC 8447: Seminar on Contemporary Issues in Rural Sociology**

Seminar on Contemporary Issues in Rural Sociology

**Credit Hour:** 1-99

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**RU\_SOC 8448: Society and Ecosystems Research Seminar**

(same as AG\_EC 8448 and NAT\_R 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**RU\_SOC 8450: Research in Rural Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8510: Research Methods and Design**

(same as AG\_ED\_LD 8510). A foundations course on quantitative research methodology and design principles for investigating problems in social and behavioral sciences. A focus is on the language of research, purposes, validity threats, and data collection methods. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8540: Methods of Qualitative Research**

(same as AG\_ED\_LD 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**RU\_SOC 8610: Economic and Sociological Approaches to Collective Action**

(same as AG\_EC 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 8610

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**RU\_SOC 9090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 9287: Seminar in Qualitative Methods in Sociology**

(same as SOCIOL 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or instructor's consent

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**RU\_SOC 9437: Synthesis of Theory and Method in Sociology**

The purpose of the course is to provide the student with a critical understanding of the basic theoretical paradigms employed in the development of research projects in sociology. The course is designed for graduate students.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4130 and RU\_SOC 8510, or instructor's consent

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**RU\_SOC 9480: Community Survey Research**

(same as SOCIOL 9987). This course applies social science survey research methods to the unique kinds of problems that arise in the study of whole communities.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or equivalent

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**RU\_SOC 9510: Data Collection, Analysis and Interpretation**

(same as AG\_ED\_LD 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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**RU\_SOC 9837: Seminar in Multivariate Analysis Techniques**

(same as SOCIOL 9837). Examination of various qualitative techniques of data analysis.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or instructor's consent

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## Russian Courses

**RUSS 1100: Elementary Russian I**

Five hours of classroom instruction, with one hour lab work weekly. For beginners with no prior knowledge of Russian.

**Credit Hours:** 6

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**RUSS 1200: Elementary Russian II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in RUSS 1100 or equivalent. or instructor consent

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**RUSS 2001: Undergraduate Topics in Russian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**RUSS 2005: Undergraduate Topics in Russian-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent. No language credit.

**Credit Hour:** 1-3

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**RUSS 2100: Classics and Iconoclasts: An Introduction to Russian Literature**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called "father of Russian literature" Aleksandr Pushkin, then moves on to two "classics" from the 19th century (Gogol, Chekhov) and two "iconoclasts" from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2100W: Classics and Iconoclasts: An Introduction to Russian Literature - Writing Intensive**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called "father of Russian literature" Aleksandr Pushkin, then moves on to two "classics" from the 19th century (Gogol, Chekhov) and two "iconoclasts" from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2120: Russia: Enigma Wrapped in Mystery**

Broad introduction to the study of Russia as a discipline; designed to acquaint the student with a wide range of topics connected to the study of Russia.

**Credit Hours:** 3

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**RUSS 2130: Second-Year Russian I**

Students will solidify their command of Russian grammar and begin developing their reading skills.

**Credit Hours:** 4

**Prerequisites:** RUSS 1200, equivalent, or instructor's consent

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**RUSS 2160: Second-Year Russian II**

Continuation of RUSS 2130.

**Credit Hours:** 4

**Prerequisites:** RUSS 2130 or equivalent, or instructor's consent

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**RUSS 2310: Between Heaven and Earth: Russian Civilization**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2310W: Between Heaven and Earth: Russian Civilization - Writing Intensive**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320: The Arts of Survival: Civilization in Soviet Times**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320W: The Arts of Survival: Civilization in Soviet Times - Writing Intensive**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2330: Russia and America as Comparative Civilizations**

Analyzes similar developments in the arts, architecture, literature, and film of Russia and America.

**Credit Hours:** 3

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**RUSS 2570: The Supreme Measure: Capital Punishment in Russian History and Literature**

Highlights historical, ethical, and religious aspects of capital punishment across the span of Russian history. Provides an opportunity to explore a difficult topic using material unknown to most students; a serious course in literary history. Develops critical thinking skills.

**Credit Hours:** 3

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**RUSS 2865: The Art of Soviet and Russian Cinema**

(same as FILM\_S 2865) Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(same as FILM\_S 2865) Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 3001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3130: Intermediate Russian**

Normally taken as 5th semester of Russian language sequence.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3160 or instructor's consent

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**RUSS 3160: Intermediate Conversation and Composition**

Further develops oral command of Russian as well as listening comprehension and some letter writing skills.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3130 or instructor's consent

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**RUSS 3310: Heroes of Their Times: Individualism in Russian Literature**

Examines selected works by the major Russian writers of the first half of the nineteenth century. Reading and lectures in English.

**Credit Hours:** 3

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**RUSS 3320: Matters of Life and Death: The Fiction of Tolstoy and Dostoevsky**

Analyzes the major works of Tolstoy and Dostoevsky. Readings and lectures in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**RUSS 3330: Decline, Fall, and Resurrection in Modern Russian Literature**

Analysis of the major trends in Russian literature and related cultural developments from 1890 to 1930. Readings and lectures in English.

**Credit Hours:** 3

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**RUSS 3350: The Split Tree of Russian Literature: Contemporary Russian Prose**

Analyzes the divided tradition of Russian literature since 1930 in the works of such authors as Nabokov, Pasternak, Bulgakov, and Solzhenitsyn. Readings and lectures in English.

**Credit Hours:** 3

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**RUSS 3380: Sinners, Saints, and Madmen: 19th Century Russian Literature**

Introduction to foundational periods (Sentimentalism, Romanticism, Realism and its decline), narratives, and authors of 19th century Russian literary tradition. Traces development of the "Russian" short story and novel forms, as well as the all-important "Petersburg" theme.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; sophomore standing or instructor's consent

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**RUSS 3390: True Fictions: Russian Prose since 1900**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will ready and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**RUSS 3390W: True Fictions: Russian Prose since 1900 - Writing Intensive**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will ready and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**RUSS 3630: Russian Classics I**

Reading and discussion of selected works by major Russian writers of the nineteenth century. Course conducted in Russian. May be taken before or after RUSS 3640.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3640: Russian Classics II**

Reading and discussion of selected works by major Russian writers of the twentieth century. Course conducted in Russian. May be taken before or after RUSS 3630.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3870: Russian Women and Film**

(same as FILM\_S 3870 or WGST 3870). Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles).

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**RUSS 3890: Russian and Soviet Cinema**

(same as FILM\_S 3890). Survey and analysis of selected Soviet films. Emphasis on film-making as a form of art. English or subtitled. Second screenings by arr. Some films may run over 2 hrs. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 3895: Service Learning in Russian Studies**

Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Does not meet Arts and Science foundation requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**RUSS 3896: Honors in Russian**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent of Honors director

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**RUSS 4001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 4005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4070: Intensive Beginning Russian**

Designed to lead quickly to a reading knowledge of Russian. Cannot be taken to fulfill undergraduate language requirement. Intended for graduate students in other departments who plan to conduct research in Russian.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

**Recommended:** junior standing

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**RUSS 4160: Advanced Russian Conversation**

Advanced syntax, idiomatic constructions, and vocabulary building.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 4350: Special Readings in Russian**

Special Readings in Slavic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 4420: Russian Poetry**

Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430: Russian Drama**

Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430W: Russian Drama - Writing Intensive**

Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4435: Russian Prose**

Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual

imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4440: The Russian Novel**

Selected readings and seminar discussion of major novelists of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4510: The Art and Life of Pushkin**

Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4520: Nikolai Gogol**

Study of the life and art of Nikolai Gogol. Includes biographical overview, Ukrainian stories, dynamics of folklore, local dialect, and the process of literary creation. Considers St. Petersburg stories, novels, and plays.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4530: Dostoevsky**

Introduction to the works of Fyodor Dostoevsky, including selections from both the shorter works and the major novels.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4540: Tolstoy's Fiction and Truth**

Provides a conceptual overview and analysis of two masterpieces of Tolstoy's art. Acquaints students with the complex and hidden connections between Tolstoy's artistic methods and religious beliefs.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4550: Nabokov's Russian Fiction**

Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian (English translations for undergraduate students).

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4730: Internship in Russian**

Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4896: Honors Thesis in Russian**

Intended for Russian majors in their final year of study who have completed the majority of course requirements within the major and are prepared to engage in an independent research project that culminates in a 25-40 page thesis paper. To be considered for honors thesis, the student should be in his/her final year of the major; must have completed at least three courses in literature, one of which must be at the 4000 level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** Russian major; senior standing, have a minimum cumulative GPA to 3.3, and a GPA of 3.5 or above within the major, and completion of an independent reading course the previous semester (e.g. RUSS 3896; RUSS 4350)



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**RUSS 7085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7087: Seminar in Russian**

Course content varies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 7105: Topics in 19th Century Russian Literature-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7205: Topics in 20th Century Russian Literature**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7305: Topics in Slavic Linguistics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7310: Russian Literary History**

A study of the major works of Russian literature in relation to their representations in literary history.

**Credit Hours:** 3

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**RUSS 7350: Special Readings in Russian**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 7405: Topics in Slavic Literatures**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7420: Russian Poetry**

Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

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**RUSS 7430: Russian Drama**

Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

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**RUSS 7435: Russian Prose**

Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay, early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

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**RUSS 7440: The Russian Novel**

Selected readings and seminar discussion of major novelists of the 19th and 20th centuries.

**Credit Hours:** 3

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**RUSS 7520: Nikolai Gogol**

Study of the life and art of Nikolai Gogol. Includes biographical overview, Ukrainian stories, dynamics of folklore, local dialect, and the process of literary creation. Considers St. Petersburg stories, novels, and plays.

**Credit Hours:** 3

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**RUSS 7530: Dostoevsky**

Introduction to the works of Fyodor Dostoevsky, including selections from both the shorter works and the major novels.

**Credit Hours:** 3

---

**RUSS 7540: Tolstoy's Fiction and Truth**

Provides a conceptual overview and analysis of two masterpieces of Tolstoy's art. Acquaints students with the complex and hidden connections between Tolstoy's artistic methods and religious beliefs.

**Credit Hours:** 3

---

**RUSS 7550: Nabokov's Russian Fiction**

Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian.

**Credit Hours:** 3

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**RUSS 7730: Internship in Russian**

Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment.

**Credit Hours:** 3

---

**RUSS 7820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 7820 and FRENCH 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context. Working in cross-disciplinary teams, students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold: students learn the

particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concepts of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

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**RUSS 7975: Distorted Picture: Post-War Cinema in a Police State**

(same as FILM\_S 7975) Considers strategies and stylistic devices employed by East European and Soviet directors to produce artistically worthy films under censorship. Discusses how artists adapted methods, boldness of expression, thematic content, and technical sophistication. Attention paid to production techniques.

**Credit Hours:** 3

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**RUSS 8050: Research in Russian**

Translations or creative work not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8090: Thesis Research in Russian**

Independent research leading to a Master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8105: Topics in 19th Century Russian Literature-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8205: Topics in 20th Century Russian Literature**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8220: Russian Intellectual History and Critical Theory I**

Survey of Russian literary and cultural criticism of the 18th and 19th centuries. Course texts will include representative critical essays as well as selected literary texts. May be taken before or after RUSS 8230.

**Credit Hours:** 3

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**RUSS 8230: Russian Intellectual History and Critical Theory II**

Survey of Russian literary and cultural criticism of the 20th century. Course texts will include representative critical essays as well as selected literary texts. May be taken before or after RUSS 8220.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 8305: Topics in Slavic Linguistics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8405: Topics in Slavic Literatures**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8510: The Art and Life of Pushkin**

Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English.

**Credit Hours:** 3

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**RUSS 8560: Old Russian Literature**

Considers the genres, periodization, and development of Russian literature from the beginnings of literacy to the end of the Rurikovich dynasty. Emphasis on literary genres and their evolution. Readings in English or in Russian.

**Credit Hours:** 3

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**RUSS 8570: Russian Symbolism**

Study of the history, aesthetics, and creative works associated with the Symbolist movement in Russian literature and art. Primary emphasis on poetry drama, and prose fiction.

**Credit Hours:** 3

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**RUSS 8580: Pasternak**

Presents the life-long work of Boris Pasternak in three stages: early, interbellum, and late. Special attention to the evolution of poetics, with close analysis of selected poems. Includes theory of poetic expression. Requires a grasp of the main principles of Western versification (prosody, tropes, metaphor, rhyme, euphony), and history of Russian poetry.

**Credit Hours:** 3

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**RUSS 8650: Old Church Slavonic**

Designed to familiarize student with the phonological system, inflectional morphology and most important literature of the oldest recorded Slavic language. Comparisons of OCS to modern Slavic languages.

**Credit Hours:** 3

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## Science and Agricultural Journalism Courses

**SCI\_AG\_J 1160: Introduction to Science and Agricultural Journalism**

Introduction to journalistic writing for print, broadcast, Web. Introduction to writing for public relations. Also includes writing for live Web publication: cafnrcornerpost.com. Provides overview of career opportunities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 2150: Problems in Science and Agricultural Journalism**

For undergraduates majoring in science and agricultural journalism. May be repeated.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 2210: Communicating Science to the Public**

For science majors. Introduction to the history, theory and practice of communicating science to the general public. Emphasis on the interplay of science, human values and politics; also, the art and craft of writing and talking to lay audiences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and a declared major in a science or engineering field or instructor's consent

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**SCI\_AG\_J 2940: Internships in Science and Agricultural Journalism**

May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 3201: Topics in Science and Agricultural Journalism**

Instruction in select subject matter areas in the field of communications.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 3210: Fundamentals of Communications**

Instruction in writing about conflicts in agriculture and the environment and their cultural impacts. Emphasis on media literacy, critical thinking, communication and the interplay of science and human values.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and sophomore standing

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**SCI\_AG\_J 3210W: Fundamentals of Communications - Writing Intensive**

Instruction in writing about conflicts in agriculture and the environment and their cultural impacts. Emphasis on media literacy, critical thinking, communication and the interplay of science and human values.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and sophomore standing

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**SCI\_AG\_J 3240: Communicating on the Web**

Learn to make a useful, content-driven web site using web authoring software (this is not a programming class). This course emphasizes informative content and functional design.

**Credit Hours:** 3

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**SCI\_AG\_J 3385: Problems in Science and Agricultural Journalism**

Opportunity to apply journalism skills to agricultural subjects; opportunity to integrate communication processes within single medium or across media. Section 1: Corner Post Staff, Section 2: Problems in Science and Agricultural Journalism. May be repeated for up to 9 credit hours.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 4301: Topics in Science and Agricultural Journalism**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing

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**SCI\_AG\_J 4301H: Topics in Science and Agricultural Journalism - Honors**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing; Honors Eligibility required

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**SCI\_AG\_J 4301HW: Topics in Science and Agricultural Journalism - Honors/Writing Intensive**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing; Honors Eligibility required

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**SCI\_AG\_J 4301W: Topics in Science and Agricultural Journalism - Writing Intensive**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing

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**SCI\_AG\_J 4410: Readings in Science and Agricultural Journalism**

An examination of modern journalistic book-length storytelling about science, the food system, environment, natural resources and society. Students will learn about the authors and how they use theory and techniques of storytelling. Students will gain a deeper knowledge about how to pursue such information-gathering and writing, as well as develop their critical-thinking abilities and expertise in the subject matter covered by the books. They will read, analyze and write about the books and the ideas and times that shaped them. Each course will examine a particular subject grouping of books, for example several on farming, or on conservation, or on climate change.

**Credit Hour:** 1-3

**Prerequisites:** English 1000

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**SCI\_AG\_J 4414: Field Reporting on the Food System and Environment**

(Same as JOURN 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SCI\_AG\_J 4415: Current Issues in Science Journalism**

(Same as JOURN 4415) Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 or instructor's consent

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**SCI\_AG\_J 4480: Will Write for Food (and Wine)**

(same as JOURN 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science Agricultural Journalism students only

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**SCI\_AG\_J 4480W: Will Write for Food (and Wine) - Writing Intensive**

(same as JOURN 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science Agricultural Journalism students only

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**SCI\_AG\_J 4482: Field Reporting: Wine Country Writing**

(same as JOURN 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**SCI\_AG\_J 4482W: Field Reporting: Wine Country Writing - Writing Intensive**

(same as JOURN 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**SCI\_AG\_J 4940: Internships in Science and Agricultural Journalism**

May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** 60 or more credit hours completed

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**SCI\_AG\_J 4970: Agriculture and the Media Senior Seminar Capstone**

Provides background, knowledge of trends and experience with agricultural media.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** Science and Agricultural Journalism seniors take last Spring semester before graduation

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**SCI\_AG\_J 7301: Topics in Science and Agricultural Journalism**

Selected current topics in science and agricultural journalism. Specific topics to be announced at time of registration. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**SCI\_AG\_J 7414: Field Reporting on the Food System and Environment**

(same as JOURN 7414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Service Learning Courses

**SRV\_LRN 1090: Independent Study-Service Learning**

Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community

**Credit Hour:** 1-3

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**SRV\_LRN 1090H: Independent Study-Service Learning - Honors**

Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

---

**SRV\_LRN 2021: MU Community Engagement Project**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

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**SRV\_LRN 2021H: MU Community Engagement Project - Honors**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

---

**SRV\_LRN 2021HW: MU Community Engagement Project - Honors/ Writing Intensive**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**SRV\_LRN 2021W: MU Community Engagement Project - Writing Intensive**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

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**SRV\_LRN 3028: Civic Leaders Internship**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required

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**SRV\_LRN 3028H: Civic Leaders Internship - Honors**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required. Honors eligibility required

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**SRV\_LRN 3028HW: Civic Leaders Internship - Honors/Writing Intensive**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required. Honors eligibility required

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**SRV\_LRN 3028W: Civic Leaders Internship - Writing Intensive**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required

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**Social Work Courses****SOC\_WK 1101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** For undergraduate students only

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**SOC\_WK 1110: Introduction to the Social Work Major**

Students examine their interest in social work and other human service professions; learn of career possibilities in their interest area; and develop an educational plan to reach their goal.

**Credit Hour:** 1

**Prerequisites:** freshman or sophomore standing

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**SOC\_WK 1115: Social Welfare and Social Work**

Survey course that examines the history and development of social welfare in the United States and the profession of social work, as well as contemporary issues.

**Credit Hours:** 3

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**SOC\_WK 1200: Criminal Justice**

This course provides an introduction to the history and development of criminal justice in our country and includes policing and law enforcement, and the adjudication and court process as well as the terminology associated with each system. Theories on crime, prison, community corrections and reentry discussions for both juvenile and adult systems will be addressed. Emphasis will be placed on an overview to the major sociological and psychological perspectives on variations from normative individual and group behaviors prevalent in the U.S. society while providing a strengths perspective in which to understand them. Finally, this course will evaluate the delicate balance between community interest and personal freedom that criminal justice decision-making requires.

**Credit Hours:** 3

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**SOC\_WK 2000: Exploration in Social and Economic Justice**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SOC\_WK 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SOC\_WK 2101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 2220: Human Behavior and the Environment**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

---

**SOC\_WK 2220W: Human Behavior and the Environment - Writing Intensive**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 3101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

---

**SOC\_WK 3101W: Topics in Social Work - Writing Intensive**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

---

**SOC\_WK 3310: Comparative Social Policy**

A comparative study of social policy aspects in the framework of international development. Policy areas include South Asia, as well as other regions relevant to such study.

**Credit Hour:** 2-3

**Prerequisites:** departmental consent required

---

**SOC\_WK 3320: Understanding Personality in a Social Context**

Introduces students to diverse personality theories and examines background, key concepts, motivation, structure, development dynamics and applications of each theory in a social context. Required of all undergraduate social work majors.

**Credit Hours:** 3

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**SOC\_WK 3330: Medical Social Problems**

Interrelations of biological, psychological, social factors in understanding people with common physical illnesses.

**Credit Hours:** 2

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**Prerequisites:** junior standing and instructor's consent required

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**SOC\_WK 3340: Dynamics of Interviewing**

Analysis of interviewing techniques employed in communication for securing reliable, valid data to modify behavior in accordance with professional objectives.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 3350: Problems in Social Work**

Research and independent study projects offered on a tutorial basis to undergraduate social work students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 4300: Women and Health Care**

Provides a study of the role of women as health care providers and an analysis of the impact of value systems and the women's movement on the organization and delivery of health services to women.

**Credit Hours:** 3

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**SOC\_WK 4310: Social Statistics**

Descriptive, analytic techniques applied to qualitative and quantitative social data. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** sophomore standing required

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**SOC\_WK 4320: Rural Human Services**

A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4330: Addiction Treatment and Prevention**

Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4350: Deaf Culture: A Social Work Perspective**

An introduction to the deaf community as a linguistic and cultural minority. Examines the complexities of Deaf culture from a historical and contemporary perspective. Addresses cultural identity, communication,

education, social services, civil rights and advocacy. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 4360: Working with Minority Youth**

(same as BL\_STU 4360). Develops awareness and understanding of social/psychological and cognitive realities influencing the behavior of minority youth. Content draws upon theories, research and practice skills relevant to understanding and counseling minority youth.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4370: Delinquency, Corrections and Social Treatment**

Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4380: Social Work Practice With Minorities: African-American Emphasis**

(same as BL\_STU 4380). Provides students with an appreciation of the African-American experience in the United States on a knowledge and feeling level.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4390: Helping Strategies With Children and Adolescents**

Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4395: Death, Grief and Loss**

This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4400: Domestic Violence**

(same as WGST 4400). This 3-hour course covers history of battered women's movement, violence theories, policy issues, prevention and intervention practice models for working with battered women, their children, and abusers.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**SOC\_WK 4410: Law and Social Work Practice**

Legal processes relevant to social work practice and court procedures, and study of decisions affecting social work across micro and macro practice.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4440: International Social Work Practices and Principles**

This course explores issues of fairness and equity in economic, political and social systems, and applies social justice principles to major international social problems. Social Justice is the perspective that in a perfect world, all citizens deserve equal rights, protection, opportunities, obligations and social benefits. Recognizing that the world is not perfect, International Social Work Practice and Principles presents theories and perspectives on how to affect a more just society and world community. Social Work person in environment orientation and strong value system are used as guides in analyzing problems and determining ways of promoting a more just society and global community.

**Credit Hours:** 3

**Prerequisites:** Junior Standing required

---

**SOC\_WK 4450: Professional Perspectives on Child Welfare Services in the 21st Century**

This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long-term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within the program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 4455: Latino/a Immigrants and Receiving Communities**

This interdisciplinary course is designed to educate students about the Latino/a immigrants seeking better lives and the communities that receive them. Special attention is given to social justice issues; micro, mezzo, and macro systems will be used to explore content.

**Credit Hours:** 3

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**SOC\_WK 4480: Helping Strategies with Older Persons**

This course is designed to provide knowledge and skill development for work with older adults and their families. It offers an intensive examination of the concepts and skills needed for effective social work practice with these populations. In particular, sociological, psychological, political, and economic factors affecting older adults will be examined as they relate to intervention, programmatic, and policy responses. Special attention will be given to assessment and intervention from macro, mezzo, and micro perspectives. The interrelationship between the aging person, the family, and society is explored since these factors affect all levels of practice.

Content in this course related to the social and economic mission of the School of Social Work.

**Credit Hours:** 3

**Prerequisites:** Junior standing in Social Work and instructor's consent required

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**SOC\_WK 4710: Social Justice and Social Policy**

Based on the concepts of human need and social justice, a historical and analytical approach to social welfare policies and programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4711: Social Justice and Social Policy II**

Advanced course in the analysis of policies and programs relevant to social work and social welfare. Prepares students to understand and conduct policy analysis of public, voluntary, and proprietary human service organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4710; Social Work Professional standing

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**SOC\_WK 4720: Variations in Human Behavior**

Basic concepts and principles regarding psychological/social dynamics of deviance; implications for social welfare policy and social interventions.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4730: Introduction to Social Work Practice**

Introductory, generalist practice theory course promoting student's understanding of professional social work practice as holistic, identifiable, unique configuration of knowledge, values and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional Standing and departmental consent required

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**SOC\_WK 4740: Introduction to Community and Organizational Processes**

Introduction to contextual framework of social work practice with particular emphasis on community and organization as social systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Social Work professional standing and departmental consent required

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**SOC\_WK 4750: Interaction Skills Workshop**

Generalist practice at individual, group and community levels. Group communication and social influence theories address generic and unique aspects of interaction across systems. Uses laboratory instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing and departmental consent required

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**SOC\_WK 4760: Theory and Practice of Social Group Work**

Focuses on small group dynamics and models of group work practice suitable in all social work fields. Emphasizes practice theory and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing

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**SOC\_WK 4770: Strategies of Direct Practice**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4770W: Strategies of Direct Practice - Writing Intensive**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4951: Research for Social Work Practice**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4951W: Research for Social Work Practice - Writing Intensive**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952: Research Methods for Social Work**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952W: Research Methods for Social Work - Writing Intensive**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4960: Special Readings in Social Work**

Extensive readings in selected area or intensive reading in a special field.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4970: Senior Professional Seminar**

Integrative professional practice seminar for BSW students, focusing on the principles of generic social work and its application to direct practice in diverse fields, career planning and responsibilities.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; departmental consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970

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**SOC\_WK 4971: Undergraduate Field Practicum**

Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Fall semester, three days per week. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** senior standing; SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; departmental consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970

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**SOC\_WK 4971H: Undergraduate Field Practicum - Honors**

Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** senior standing; SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970. Honors eligibility required

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**SOC\_WK 7000: Professional Social Work Practice**

This course introduces the social work profession within a historical and contemporary context, provides an overview of key concepts, standards and regulations, and assists students in examining personal and professional values and ethics related to practice. Graded on an A-F basis only.

**Credit Hour:** 1

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**SOC\_WK 7001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 7085: Problems in Social Work**

Intensive study of an area of social welfare related to special interest of student.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 7220: Advanced Social Work Practice in Integrated Healthcare**

The course will introduce students to the essential practice skills needed to effectively address the challenges of integrating services, care, and support for persons with health, mental health, and substance use problems. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7230: Integrative Behavioral Health Clinic**

This is an elective course devoted to assessment, intervention and research with under-served individuals, couples, groups and families. This course is facilitated as a skills-training laboratory. Intervention methods will be applied to client's coping with major life stressors and relational problems. Students should leave this course with increased confidence in their ability to analyze patterns, assess, and intervene using diverse clinical methods. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** Masters of Social Work students only

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**SOC\_WK 7300: Women and Health Care**

Provides a study of the role of women as health care providers and an analysis of the impact of value systems and the women's movement on the organization and delivery of health services to women.

**Credit Hours:** 3

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**SOC\_WK 7320: Rural Human Services**

A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns.

**Credit Hours:** 3

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**SOC\_WK 7330: Addiction Treatment and Prevention**

Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

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**SOC\_WK 7340: Military Culture**

An introduction to the branches of the military and related cultural issues. Examines the historical and contemporary complexities of military service and personal and professional values and ethics related to practice with military personnel, families, and veterans. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7350: Deaf Culture: A Social Work Perspective**

An introduction to the deaf community as a linguistic and cultural minority. Examines the complexities of Deaf culture from a historical and contemporary perspective. Addresses cultural identity, communication, education, social services, civil rights, and advocacy. Graded on A-F basis only

**Credit Hours:** 3

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**SOC\_WK 7370: Delinquency, Corrections and Social Treatment**

Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

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**SOC\_WK 7390: Helping Strategies With Children and Adolescents**

Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

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**SOC\_WK 7395: Death, Grief and Loss**

This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

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**SOC\_WK 7400: Domestic Violence**

(same as WGST 7400; cross-leveled with SOC\_WK 4400, WGST 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma.

**Credit Hours:** 3

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**SOC\_WK 7410: Law and Social Work Practice**

(cross-leveled with SOC\_WK 4410). This course explores the intersection of human services, law, and policy. It explores how law shapes services directed at children, families, women, and racial and sexual minorities. Students learn to work with legal professionals, prepare for proceedings, and avoid malpractice.

**Credit Hours:** 3

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**SOC\_WK 7430: Community Organization for Social Welfare**

The theory and practice of community organization as a social work problem solving method. Approaches emphasized include locality development, social planning and social action.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7450: Professional Perspectives on Child Welfare Services in the 21st Century**

This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child

safety, family stability, permanency for the child, and well-being of the child as a long term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within either program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 7460: Advanced Social Group Work**

An intensive exposure to the theories and models of social group work practice through cognitive, affective and experiential (laboratory) methods of teaching/learning.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7470: Organizational Issues in Social Work Practices in Child Welfare**

Intensive seminar in meso-level practice in the field of child welfare. Examines communication theory, team building, and interorganizational dynamics as they affect professional practice in child welfare.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7480: Helping Strategies with Older Persons**

Focus on interdisciplinary methods of assessment and intervention strategies designed to optimize healthy functioning for older persons and their families.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7485: Military Social Work**

An introduction to social work practice with military personnel, veterans, and their families. Content draws on theories strategies, and research relevant to effective social work practice with this population. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7490: Family Treatment**

Comparative study of theories and methods required for work with problems of family functioning. Both conjoint and subsystem approaches to family treatment are examined.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7710: Social Policy and Service Delivery in Social Work**

Covers historic and contemporary issues in social welfare policy. Focuses on relationships among social problems, public policies, private actions, poverty, racism, sexism and social work practice/values. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7720: Foundations of Human Behavior**

Substantive sources from behavioral sciences used in social work toward understanding the biosocial processes and constraints of human development.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7730: Social Work Skills**

Introduces theory and application of strengths-based generalist practice. Develops knowledge, values, and techniques of professional social work practice at micro, mezzo, and macro levels, emphasizing assessment and interaction skills.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; Foundation level course

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**SOC\_WK 7740: Large Group Theory**

Examination of social environment in which social work is practiced with particular emphasis on development of analytic framework for understanding formal organizations and communities.

**Credit Hour:** 2-3

**Prerequisites:** graduate standing in Social Work

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**SOC\_WK 7750: Advanced Interaction Skills Workshop**

Advanced class in social processes and interaction skills basic to generalist social work practice. Learning in cognitive, behavioral and affective domains: including group dynamics, communication and social influence theory.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; departmental consent required

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**SOC\_WK 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and HMI 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7752: Physical Function and Older Adults**

(Same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, H\_D\_FS 7750, NURSE 7750, and P\_HLTH 7750. This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7760: Social Justice Seminar**

Provides integrative learning experience in social work practice in foundation level social work practice focusing on social and economic justice experiences in field practicum.

**Credit Hours:** 2

**Prerequisites:** restricted to graduate Social Work majors

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**Corequisites:** SOC\_WK 7971

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**SOC\_WK 7770: Strategies of Clinical Social Work Intervention**

Strategies of social treatment with individuals and small groups applicable to practice in public and private social agency settings.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; departmental consent required

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**SOC\_WK 7780: Fundamentals of Social Work Administration**

Basic managerial skills which social workers need for supervision, planning, staff development and administrative positions in social agencies; focus on individual management functions and skills associated with them.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7790: Practicum in Cultural Diversity I**

A practicum conducted on a workshop with content focused on racial, cultural and gender dynamics in social work practice. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 7791: Practicum in Cultural Diversity II**

Continuation of SOC\_WK 7790. A practicum conducted as a workshop with content focused on racial, cultural and gender dynamics in social work practice. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 7820: DSM V and Psychopathology: A Social Work Perspective**

Examines psychopathology of human behavior within social work context, prevailing diagnostic models (Diagnostic and Statistical Manual of Mental Disorders V), and historically oppressive categorizations.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Social Work

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**SOC\_WK 7920: Advanced Foundations of Human Behavior for Administrators**

Examination of relevant theoretical and behavioral foundations in order that students can acquire the knowledge to function as a social work administrator.

**Credit Hours:** 3

**Prerequisites:** graduate Social Work majors

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**SOC\_WK 7952: Research Methods in Social Work**

Examines research methodology and design as applied to the study of social work techniques and problems. Emphasizes differential uses of scientific observation and techniques for developing knowledge and improving practice.

**Credit Hours:** 3

**Prerequisites:** Graduate Social Work Majors

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**SOC\_WK 7971: Graduate Field Practicum I**

Supervised social work practice in a school-approved agency providing a full range of interventive experiences. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** admission to MSW program; SOC\_WK 7710, SOC\_WK 7720, SOC\_WK 7730, SOC\_WK 7740, SOC\_WK 7760. Departmental Consent Required

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**SOC\_WK 7981: Professional Development Workshop**

Field practicum under intensive faculty instruction for eight weeks prepares the student for entry into the accelerated graduate degree program.

**Credit Hours:** 8

**Prerequisites:** BSW degree and dean's consent

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**SOC\_WK 8001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. May be repeated for credit

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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**SOC\_WK 8010: Child Abuse and Neglect Assessment and Intervention**

In-depth exploration of identification of and interventions with abused/neglected children and their families. Examines roles for social work with both victims and perpetrators. Examines how environmental factors affect successful intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; instructor's consent for non MSW students

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**SOC\_WK 8020: Social Work in Schools**

The course focuses on the etiology and development of child and adolescent educational, social, emotional, and behavioral health disorders encountered, identified and treated in school settings. Educational disabilities and related policies and the interdisciplinary nature of school settings will be highlighted. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8030: Client Case Management, Networking, and Advocacy**

Examines the key role of clinical case management across all social work client populations. Models of case management for and techniques applicable to those populations will be developed for effective practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; instructor's consent for non-MSW students

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**SOC\_WK 8040: Narrative Approaches to Social Work Practice**

This class will enable students to gain knowledge of theory and basic practice skills grounded in narrative therapy. The use of narratives with

vulnerable and oppressed populations and creative strategies to evoke narratives are highlighted in this course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; departmental consent required

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**SOC\_WK 8050: Resiliency and Solution-Focused Practice**

Focuses on brief therapy approaches to dealing with clinical problems in a time-efficient, clinically effective method. Various approaches to solution-oriented work based in resiliency theory are presented. Stresses client empowerment across the lifespan.

**Credit Hours:** 3

**Prerequisites:** Social Work [SOC\_WK] 7770; graduate level Social Work Majors only. Graded on A/F basis only

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**SOC\_WK 8060: Trauma Practice and Crisis Intervention**

Focuses on clinical techniques for social work with trauma survivors. Addressing effects of disasters, personal violence and war are included. Resiliency in survivors is presented as basis for interventions.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; graduate level Social Work majors only

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**SOC\_WK 8070: Cognitive Behavioral Practice**

Focuses on the theory, concepts, and techniques of cognitive behavioral therapies, with a particular emphasis on clinical intervention methods that may be used by the social worker to address specific client needs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770. Restricted to graduate Social Work majors

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**SOC\_WK 8090: Master's Research in Social Work**

Independently conducted research that includes concept development, data collection, statistical analysis and social policy implications prepared in a format suitable for publication. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 8100: Mental Health Policies and Programs**

Focus is on knowledge of the content, context, history and current trends in mental health policymaking at federal and state levels, and skill building in policy analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 8200: Family and Child Welfare Policies and Programs**

Graduate seminar on policies and programs relevant to social work practice in the family and child welfare field, including policies on aging.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 8210: Disability Rights Advocacy**

Highlights historical views of disabilities in relationship to contemporary policies, programs and services. This cross-disability focus examines the shift in focus from cure, care, and treatment to participation, capabilities,

adapting environments, and building community. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8220: Integrated Health Policy and Services**

The course focuses on the role of social workers as social policy practitioners within an Integrated Behavioral Health environment. Strategies to influence policies and promote change in the interest of service consumer, agency, and society will be presented. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8240: Social Policy for Older Adults**

Examines local, state, and federal social policies related to older adults highlighting challenges related to diverse and special needs. Students will explore and appraise needs, values, ageism, and human rights related to social policies for older adults.

**Credit Hours:** 3

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**SOC\_WK 8250: Equity and Disparities in Health**

(same as P\_HLTH 8250). This course is designed to provide students with knowledge about the distribution, causes, and consequences of health inequalities. The course will examine how multiple predictors such as socioeconomic status, behavioral risk factors, and cultural factors such as perceived discrimination and acculturation, gender and marriage, stigma, and health care inequalities are related with racial/ethnic, socioeconomic, and gender disparities in health. This course will also discuss implications that may contribute substantively toward the elimination of health inequalities. Graded on AF basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7710, SOC\_WK 7720, SOC\_WK 7730, SOC\_WK 7740 and SOC\_WK 7760; Instructor's consent required

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**SOC\_WK 8300: Advanced Social Policy for Planning and Administration**

Focus on integration of cognitive and skill components of policy development, analysis and change with special emphasis on utility by social work administrators and planners.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7920; departmental consent required

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**SOC\_WK 8350: Management of a Social Agency**

Basic resource management and control techniques common to social agencies with emphasis on personnel management, information and data management, and fiscal management.

**Credit Hours:** 3

**Prerequisites:** restricted to Graduate Social Work majors

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**SOC\_WK 8952: Evaluative Research in Clinical Social Work Practice**

Develop ability to systematically evaluate effectiveness of interventive strategies designed to produce positive change in clients' environment and/or cognitive, affective and behavioral functioning.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8953: Evaluative Research in Social Work**

Develop ability to design and implement appropriate evaluative research methods and strategies employed in social and human service delivery.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8955: Independent Study in Social Work**

Intensive investigation of phenomena germane to area of concentration carried out with guidance of faculty. May include data collection; leads to a written report in publishable format.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 8970: Professional Practice Seminar I**

Provides integrative learning experience in social work practice in an area of beginning specialization in autonomous social work practice.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 8971

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**SOC\_WK 8971: Graduate Field Practicum II**

Field instruction tailored to concentration interests, developing depth in clinical skills in direct service or in planning and administration. Graded on S/U basis only.

**Credit Hour:** 1-13

**Prerequisites:** Restricted to graduate Social Work majors. Completion of all required graduate coursework except SOC\_WK 8970

**Corequisites:** SOC\_WK 8970

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**SOC\_WK 8990: Topics in Advanced Social Welfare**

Topics in Advanced Social Welfare.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**SOC\_WK 9001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 9090: Research in Social Work**

Research in Social Work. Graded on S/U basis only.

**Credit Hour:** 1-12

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**SOC\_WK 9100: Knowledge Building I**

Advanced systemic review of theories requisite for study and implementation of practice and policy centered research in social welfare and development; emphasis placed on critical analysis of theories needed for research and study of integrated social development.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9200: Knowledge Building IIA**

Building on the foundation laid in SOC\_WK 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with individuals, families, formed and natural groups.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9300: Research Methodology and Design Seminar**

Review of historical development of social welfare and social work research with emphasis on critical analysis of seminal studies; examination of "state-of-the-art" social welfare and development initiatives, designs and methodology.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9350: Advanced Quantitative and Qualitative Methods in Social Research**

The course provides an in-depth understanding of the use of both quantitative and qualitative methods. The curriculum emphasizes an integration of quantitative and qualitative approaches, methods, and data analysis. Computer application sessions are included. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 9300 or permission of instructor

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**SOC\_WK 9400: Macro Social Theory**

(Same as NURSE 9400). Building on the foundation laid in SOC\_WK 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with formal organizations, interorganizational combinations, communities and larger political entities.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9500: Pro Seminar I**

Joint student-faculty exercise in intellectual discovery focusing on current and emerging issues in the field of social work and social development; emphasis on integration of multi-disciplinary perspectives. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 9560: Qualitative Systematic Reviews**

(Same as NURSE 9560 and H\_D\_FS 9560) Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** NURSE 9420 or equivalent

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**SOC\_WK 9600: Professional Seminar II**

This second seminar focuses on topics related to long term professional success for doctoral students. The seminar covers topics on conference

presentations, peer-reviewed publications, external funding, and academic job search process. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9650: Pedagogical Methods in Social Work and Applied Professional Programs**

An in depth examination of the pedagogical issues, policies, and principles associated with teaching social work in higher education. Topics include the history and philosophy of social work education, instructional models and methods, assessing educational outcomes, and instructional improvement methods. Issues specific to social work include the need to differentiate teaching methods relative to direct practice, human services administration, community organization, policy practice, and program evaluation. Particular focus will be directed toward online education and its role in the 21st century. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9700: Social Welfare Policy Seminar**

(Same as NURSE 9700). Critical examination of comparative models of social policy development; preparation of a professional social work policy analysis in the student's area of interest/specialization that is suitable for submission to an appropriate referred journal.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9800: Research Application I**

Research practicum for Social Work doctoral students.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9850: Research Application II**

Research Practicum. In most cases it will be a second research practicum but may also be a continuation of the research conducted in SOC\_WK 9800. Prerequisites: departmental consent required

**Credit Hours:** 3

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**SOC\_WK 9890: Dissertation Seminar**

This course will assist doctoral students in planning and writing the dissertation.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9900: Doctoral Dissertation Research in Social Work**

Independently conducted research that includes concept development, data collection, statistical analysis and social policy implications prepared in a format suitable for publication. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent required

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## Sociology Courses

**SOCIOL 1000: Introduction to Sociology**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions;

social influences shaping personality, behavior, social change. No credit for both SOCIOL 1000 and RU\_SOC 1000.

**Credit Hour:** 1-3

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**SOCIOL 1000H: Introduction to Sociology Honors**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOL 1000 and RU\_SOC 1000.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**SOCIOL 1010: Social Problems**

Introduces a sociological perspective on what constitutes social problems and their impact on individuals and societies. Emphasizes critical thinking skills. Topics covered may include poverty, inequalities of gender, race, class, religion, education, and political power, the environment and global conflicts among others.

**Credit Hours:** 3

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**SOCIOL 1120: Population and Ecology**

(same as RU\_SOC 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**SOCIOL 1360: The Female Experience: Body, Identity, Culture**

(same as WGST 1360). Study of the experience of being female in American culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**SOCIOL 1650: Social Deviance**

Survey of approaches to the study of behaviors commonly regarded as deviant such as crime, sexual abuse, substance abuse, mental illness, etc.

**Credit Hours:** 3

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**SOCIOL 2103: Topics in Sociology-Behavioral Science**

Organized study of selected topics. Particular topics may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**SOCIOL 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as PEA\_ST 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOL 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as PEA\_ST 2182W). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOL 2200: Social Inequalities**

(same as BL\_STU 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequalities are structured.

**Credit Hours:** 3

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**SOCIOL 2210: The Black Americans**

(same as BL\_STU 2210). Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, styles of life, patterns of work and intergroup relations.

**Credit Hours:** 3

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**SOCIOL 2230: Social Perspectives on Aging**

Survey of basic knowledge in social gerontology, aging and old age in American society. Analysis of changes as individuals age, differences among old people, social problems of the aged.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**SOCIOL 2255: Youth, Islam, and Global Cultures**

(same as PEA\_ST 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**SOCIOL 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2284: Critical Dialogs: Global Environmental Policy Conflicts**

(same as PEA\_ST 2284). Climate change, water supplies, food, sustainability, industrialization, and chemical, oil, radioactive pollution. Activity of transnational corporations, social harm, and formulation of international policies. Analysis of alternatives using criteria of justice: distribution, recognition, participation, legality.

**Credit Hours:** 3

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**SOCIOL 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as PEA\_ST 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2286: Technological Futures, National Security, and Civil Liberties**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital

intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2300: Self and Society**

Analysis of the self in modern society. Topics covered include social interaction, social perception, language and learning, the sociology of emotions and the social construction of identity.

**Credit Hours:** 3

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**SOCIOL 2310: Culture and Mass Media**

Sociological study of modern folk, local, popular and mass cultural production and consumption; mass media, diffusion, change, differentiation.

**Credit Hours:** 3

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**SOCIOL 2950: Social Research I**

(same as RU\_SOC 2950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 3000: Urban Sociology**

Urbanism as a world phenomenon; ecological, demographic characteristics of cities; organization of urban society including status systems, occupational structure, formal and informal associations, racial and cultural relations, forms of communication, housing, city planning.

**Credit Hours:** 3

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**SOCIOL 3100: Recent Theories in Sociology**

(same as RU\_SOC 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Prerequisites:** Sociology majors only. Non-sociology majors may petition the instructor to add the course

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**SOCIOL 3200: Class, Status, and Power**

Study of the structure of wealth, poverty, prestige, and power. Concepts of social justice in political, economic and legal issues and policies. Provides student engagement in research.

**Credit Hours:** 3

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**SOCIOL 3210: Sociology of Globalization**

Globalization's origin and dynamics; the social and political effects of globalization: countervailing forces to economic globalization, in particular reassertions of "traditional" identities, labor movements, new social movements, and the global democracy movement.

**Credit Hours:** 3

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**SOCIOL 3230: Education and Social Inequalities**

Examination of the ways in which inequalities are constructed, reproduced, maintained or transformed by and within educational institutions. Particular attention will be given to inequalities based on gender, race, and social class.

**Credit Hours:** 3

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**SOCIOL 3255: Youth in Today's World**

Study of what factors influence the development of youth in today's society. Examined are types of behavior such as mating, deviance and the role of schools, parents, TV and friendship groups.

**Credit Hours:** 3

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**SOCIOL 3300: Queer Theories/Identities**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3300W: Queer Theories/Identities - Writing Intensive**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3310: Social Psychology**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3310W: Social Psychology - Writing Intensive**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3320: Sociology of Gender**

(same as WGST 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

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**SOCIOL 3330: Environmental Justice**

(same as PEA\_ST 3330). Environmental justice refers to the ways in which the "cost and benefits" of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank

account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality.

**Credit Hours:** 3

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**SOCIOL 3400: Politics of the Media**

(same as PEA\_ST 3400). In this course we study critical thinking skills and use them to compare and contrast U.S. media coverage of current issues with media in other parts of the world. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3400W: Politics of the Media - Writing Intensive**

(same as PEA\_ST 3400). In this course we study critical thinking skills and use them to compare and contrast U.S. media coverage of current issues with media in other parts of the world. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3420: The Family**

Families, kin and households as interacting groups; roles, socialization, problems, structural change; family in relation to other social institutions; historical, cultural and class variations.

**Credit Hours:** 3

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**SOCIOL 3430: The Sociology of Sport**

The role of sport in modern society. Includes violence in sport; politics and economics of sport; male, female, and racial inequalities; and international comparisons of sport structures.

**Credit Hours:** 3

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**SOCIOL 3440: Sociology of Health**

A survey of sociological thinking and research on health, health problems, health occupations and health services. How these are shaped by the society. Problems faced by individuals and the system. Potential solutions to problems.

**Credit Hours:** 3

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**SOCIOL 3450: The Sociology of Religion**

Sociology of religious experience, action, organization, movements and social change; contemporary trends, including mainline and new religions, civil religion, secularization.

**Credit Hours:** 3

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**SOCIOL 3460: Technology and Society**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the

relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3460W: Technology and Society - Writing Intensive**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3510: Public Opinion and Communication**

Nature of public opinion; processes of opinion formation; special publics, pressure groups; effects of communication through personal contacts and mass media; propaganda, censorship; opinion surveying.

**Credit Hours:** 3

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**SOCIOL 3520: Collective Behavior**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3520W: Collective Behavior - Writing Intensive**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3522: New Media, Conflict and Control**

(same as PEA\_ST 3522). This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

**Credit Hours:** 3

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**SOCIOL 3600: Criminology**

(same as PEA\_ST 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**SOCIOL 3700: Institutions and Society**

Institutions of societies with focus on institutional arrangements (economy, polity, media, education, religion); organizational structures; interorganizational networks; interrelations of institutional sectors.

**Credit Hours:** 3

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**SOCIOL 3710: The Sociology of Work**

Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1650

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**SOCIOL 3950W: Social Research I - Writing Intensive**

(same as RU\_SOC 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 4104: Topics in Sociology-Social Science**

Organized study of selected topics. Particular topics may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**SOCIOL 4110: Feminist Research and Criticism**

(same as WGST 4110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**SOCIOL 4120: Social Statistics**

(same as RU\_SOC 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 or graduate standing

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**SOCIOL 4200: Social Inequalities**

Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent

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**SOCIOL 4210: Aging and the Life Course**

Course will take a life course perspective on the sociological aspects of aging in contemporary American society. Begins with birth, then childhood, adolescence, emergent adulthood, middle life, old age, and death. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above

**Recommended:** At least three credits in Sociology prior to enrollment is preferred

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**SOCIOL 4220: Race and Ethnic Relations**

The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**SOCIOL 4230: Women, Development, and Globalization**

(same as BL\_STU 4230 and WGST 4230 and PEA\_ST 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332, BL\_STU 2200; SOCIOL 2200; WGST 1332 or WGST 2010

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**SOCIOL 4235: Social Perspectives on Gender and Emotion**

(same as BL\_STU 4235, WGST 4235; cross-leveled with BL\_STU 7235, SOCIOL 7235, WGST 7235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** WGST 1332 or WGST 1360; SOCIOL 1360 or SOCIOL 2300; BL\_STU 1332 or BL\_STU 2200; junior standing

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**SOCIOL 4315: Social Demography**

(same as RU\_SOC 4315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000 and junior standing

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**SOCIOL 4320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectivities.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310 graduate standing or instructor's consent

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**SOCIOL 4335: Social Change and Development**

(same as RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**SOCIOL 4370: Environment and Society**

(same as RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

**Prerequisites:** junior, senior or graduate standing

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**SOCIOL 4410: Sociology of Education**

(cross-leveled with ED\_LPA 7458 and SOCIOL 7410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**SOCIOL 4500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**SOCIOL 4510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions. MA core course.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3520, SOCIOL 3700, or SOCIOL 3320 or graduate standing

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**SOCIOL 4520: Political Sociology**

(same as PEA\_ST 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**SOCIOL 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as WGST 4550 and PEA\_ST 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200; senior standing required

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**SOCIOL 4610: Society and Social Control**

The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 4620: Drugs and Society**

Course will examine the social, political, and economic aspects of legal and illegal drug use in American society. Issues include: theories of drug use, the social correlates of drug use, the war on drugs and policy alternatives, and the rise of the pharmaceuticals industry. Graded on A/F basis only

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**Credit Hours:** 3

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**SOCIOL 4630: Sociology of Mental Health**

Course examines the social aspects of mental health and illness. Topics include: stress and mental health, medicalization of behavior, stigma and labeling, mental health care systems, social correlates of mental health (such as gender, childhood, work status, and social support).

**Credit Hours:** 3

**Recommended:** 1000 level sociology course or 1000 level Psychology course

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**SOCIOL 4940: Internship in Sociology**

Professional experience under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-9

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 4942: Service Learning in Sociology**

Students participate in a variety of research-oriented, community service projects which illuminate and reinforce concepts introduced in various sociology courses. Repeatable twice for credit. Does not meet Arts and Science general education requirements.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SOCIOL 4960: Special Readings in Sociology**

Extensive reading in selected area or special field.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 4970: Senior Seminar**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4970W: Senior Seminar - Writing Intensive**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4995: Honors in Sociology**

Intensive work in a selected field within sociology, including readings and research. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

**Prerequisites:** for honors candidates; SOCIOL 2950 and SOCIOL 3100

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**SOCIOL 7004: Topics in Sociology-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 7085: Problems in Sociology**

Directed research not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 7110: Feminist Research and Criticism**

(same as WGST 7110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**SOCIOL 7120: Social Statistics**

(same as RU\_SOC 7120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**SOCIOL 7200: Social Inequalities**

Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students.

**Credit Hours:** 3

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**SOCIOL 7210: Sociology of Aging**

Sociological research and theories of aging and old age; historical, demographic, comparative, social psychological and structural topics are studied in depth.

**Credit Hours:** 3

**Prerequisites:** 6 hours of Sociology

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**SOCIOL 7220: Race and Ethnic Relations**

The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**SOCIOL 7230: Women, Development and Globalization**

(same as WGST 7230 and BI\_STU 7230; cross-leveled with WGST 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**SOCIOL 7235: Social Perspectives on Gender and Emotion**

(same as WGST 7235, BL\_STU 7235; cross-leveled with WGST 4235, SOCIOL 4235, BL\_STU 4235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 7287: Seminar in Comparative Social Institutions**

Analysis of selected social institutions such as agriculture, family, economy, education, health care, law, polity, religion. Inter-institutional and international comparisons.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 4700 or instructor's consent

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**SOCIOL 7300: Death and Dying**

Death and dying explored from demographic, sociological and social psychological perspectives. Topics: trends and differentials; definitions of death; dying as a social process; funerals and survivors; cultural solutions to problems of death.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SOCIOL 7315: Social Demography**

(same as RU\_SOC 7315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000

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**SOCIOL 7320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectives.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310

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**SOCIOL 7335: Social Change and Development**

(same as RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**SOCIOL 7340: Self, Language, and Social Life**

Examines the interplay between self, language, and social life. Particular attention is paid to how the everyday construction of inner lives relates to diverse social worlds. The effects of situational and institutional conditions as they shape identity and social interactions are important considerations.

**Credit Hours:** 3

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**SOCIOL 7370: Environment and Society**

(same as RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**SOCIOL 7387: Seminar in Sociology of Work**

Recent developments in the sociological study of occupations and professions. Surveys alternative theoretical perspectives and methodological approaches. Deals with rationalization, professionalization, alienation, class consciousness, self management.

**Credit Hours:** 3

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**SOCIOL 7410: Sociology of Education**

(same as ED\_LPA 7458; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

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**SOCIOL 7446: Community Social Structure**

(same as RU\_SOC 7446). A comparative study of communities in different nations and in urban and rural areas. A primary focus of the course will be on social change in communities, in response to changing economic, political, social, cultural, and ecological factors.

**Credit Hours:** 3

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**SOCIOL 7500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

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**SOCIOL 7510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions.

**Credit Hours:** 3

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**SOCIOL 7520: Political Sociology**

(same as PEA\_ST 7520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change.

**Credit Hours:** 3

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**SOCIOL 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as PEA\_ST 7550 and WGST 7550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**SOCIOL 7587: Seminar in Culture and Mass Media**

Sociological examination of culture and mass media, including institutional character, production and distribution, audience effects, relation of social structures. Current research, theories, methods.

**Credit Hours:** 3

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**SOCIOL 7610: Society and Social Control**

The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 7687: Seminar in Family Sociology**

Research and theory on family structure and family life; in-depth study of a selection of topics and issues.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 4210 or instructor's consent

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**SOCIOL 7960: Special Readings in Sociology for the Graduate Level**

Extensive reading in selected area or special field. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SOCIOL 8086: Teaching Sociology**

This graduate seminar will cover current issues in higher education, building a teaching portfolio, the daily work of teaching, and work/life balance in academia. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8087: Critical Race Theory**

Critical examination of key sociological theories of race, racialization, and racism in contemporary society.

**Credit Hours:** 3

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**SOCIOL 8100: Theoretical Thinking in Sociology**

Close analysis of the texts of classical and contemporary social theory. Key concepts will be elaborated in the context of intellectual history, and will be applied to deepening the theoretical significance of an empirical research question on the student's emerging agenda. Required for all entering graduate students in Sociology.

**Credit Hours:** 3

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**SOCIOL 8110: Research in Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**SOCIOL 8120: The Logic of Social Research**

Meta-theoretical and conceptual issues at the core of design decision making, questionnaire construction, qualitative field techniques, interviewing, scaling, panel analysis, computer applications to qualitative

data; experimental, survey and case study designs, ethics. Required for Ph.D. students.

**Credit Hours:** 3

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**SOCIOL 8130: Advanced Social Statistics**

(same as RU\_SOC 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 7120 or equivalent

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**SOCIOL 8140: Seminar in Population Health**

Graduate Seminar on the social distribution of morbidity and mortality. Covers major theoretical perspectives and the state of empirical evidence regarding several individuals and contextual explanations of health disparities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor permission

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**SOCIOL 8150: Graduate Seminar in Urban Sociology**

In this course we will survey the field of urban sociology. Urban sociology is the study of human social relations in cities and urbanized communities. We will consider urbanization in its preindustrial, industrial, and postindustrial forms in the U.S. and elsewhere. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8187: Seminar on Interview Theory and Technique**

The seminar has three goals: First is the consideration of literature dealing with recent theoretical formulations of the interview. This will provide a basis, second, for critically examining a number of popular interview guidebooks. The third goal is to offer the opportunity to put theory and technique into practice by analyzing selected interview material.

**Credit Hours:** 3

**Prerequisites:** doctoral standing

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**SOCIOL 8250: Media and Power in Comparative Perspective Seminar**

This course traces the historical development of U.S. and selected international media systems. We analyze and debate the relationship of differing media systems to political power, popular culture, and the facilitation or inhibition of democratic practices. Students do comparative analyses of international media institutions and related analyzes of media content.

**Credit Hours:** 3

**Prerequisites:** undergraduate seniors may enroll with instructor's consent

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**SOCIOL 8277: Race, Ethnicity, and Transnational Inequalities**

(same as BL\_STU 8277). This graduate seminar examines the global contest of our radicalized modern world system. How do people develop and give meaning to race/ethnicity in different regions? Focus on the construction of bodies Creole identities, gender, sexualities, citizenships and immigration. Graded on A-F basis only.

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**Credit Hours: 3**

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**SOCIOL 8287: Seminar on Sustainable Development**

(same as RU\_SOC 8287). An interdisciplinary examination of sustainable development focusing on social, economic, cultural and environmental dimensions of development. International and domestic issues and approaches to sustainable development are included.

**Credit Hours: 3**

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**SOCIOL 8387: Seminar on Narrative and Identity****Credit Hours: 3****Prerequisites:** graduate standing required; instructor's consent required

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**SOCIOL 8425: Social Processes of Information/Knowledge Utilization**

(same as RU\_SOC 8425). Factors conditioning communication and diffusion of ideas and practices; exercise of personal influence; role of change agents and agencies in the process of change.

**Credit Hours: 3**

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**SOCIOL 8435: Graduate Seminar in Medicine, Technology, and Globalization**

In the last two hundred years medicine and technology have transformed our day-to-day living as never before. They have permeated our social and personal imagination, our epistemological bearing, disciplinary practices, and not to forget national and global agendas. A key aspect of such transformations, which we are going to investigate in this course, has been the intertwining of medicine and technology in a variety of ways, resulting in wide ranging impact - from the emergence of medical gaze, transformation of healthcare practices, to present day transnationalization and globalization of medical practices. This course would utilize recent theoretical developments to interrogate different interrelated facets of medicine, technology, and globalization. Graded on A-F basis only.

**Credit Hours: 3**

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**SOCIOL 8687: Seminar in Criminology and Deviant Behavior**

Survey of empirical research and sociological theory in criminology and deviant behavior. May be repeated once with instructor's consent.

**Credit Hours: 3****Prerequisites:** SOCIOL 3600

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**SOCIOL 8987: Seminar on the Sociology of Health and Sickness**

Topical seminar dealing with one of three subject areas: (1) Health problems, disease, illness, sickness; (2) Occupations, and Organizations in the health field, or (3) Comparative Health Care Systems. Course may be repeated for different topics.

**Credit Hours: 3**

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**SOCIOL 9090: Research**

Advanced work leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour: 1-99****Prerequisites:** consent of major advisor

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**SOCIOL 9187: Seminar in Sociological Theory I**

Traces development of sociological theory from the "generation of 1890" through the 1940s, including the work of Durkheim, Weber, Parsons and others.

**Credit Hours: 3****Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9287: Seminar in Qualitative Methods in Sociology**

(same as RU\_SOC 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours: 3****Prerequisites:** SOCIOL 8120 and instructor's consent

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**SOCIOL 9288: Ethnographic Fieldwork**

History of sociological ethnography, the analysis of key ethnographic texts, forms of ethnographic fieldwork, and recent debates related to representational practices. Applications to participant observation, field interviewing, and strategies of discourse analysis in various social settings.

**Credit Hours: 3****Prerequisites:** SOCIOL 9287, instructor's consent

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**SOCIOL 9300: Social Interaction Research**

Seminar on research methods in social interaction. Prerequisites: PSYCH 8310 or instructor's consent

**Credit Hours: 3**

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**SOCIOL 9350: Graduate Seminar in Environmental Discourses**

This seminar explores human cultural interactions with nature: how we understand ourselves in relation to space, how we interact with and learn about nature, and how we use nature. Readings will include exemplary texts from sociology, geography and anthropology, science studies and cultural studies. Graduate Standing required.

**Credit Hours: 3**

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**SOCIOL 9487: Seminar in Sociological Theory II**

Theoretical developments in sociology in Europe and United States since 1950. Recent formulations, controversies.

**Credit Hours: 3****Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9500: Seminar in State and Economy**

Analysis of public policy and economic change in contemporary political-economic systems; growth of welfare state, capitalist planning, state socialist economics.

**Credit Hours: 3**

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**SOCIOL 9525: Culture, Difference, and Inequality**

This course is an examination of exemplary, interdisciplinary texts employing a variety of cultural approaches to understanding difference and inequality. In this seminar, we will think about what is gained from various cultural approaches to difference and inequality, now such

approaches can be achieved methodologically, and how students can apply such approaches to their own research. The main focus of the course is on cultural studies and poststructural feminist studies, but readings will also be included from intersectionality studies, affect studies, critical race studies and cultural sociology.

**Credit Hours:** 3

**Prerequisites:** restricted to Sociology graduate students or instructor permission

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### **SOCIOL 9587: Topical Seminar in Contemporary Sociological Theory**

Critical evaluation of selected points of view in current sociological theory. May be repeated with departmental consent.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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### **SOCIOL 9687: Topical Seminar in Historical Sociology**

Methodological approaches to sociological explanation of historical phenomena; related sociological theories of historical development, including Weberian, Marxist and other perspectives applied to a topical historical problem.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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### **SOCIOL 9777: Graduate Seminar in Body and Society**

The course is organized around three major themes - body as a site of personal and political experience; the social body, emphasizing the relationship between society, culture, and individuals; and the body as a site and instrument of politics. Readings assigned for the course are aimed at critical engagement with the "body: within and across these themes. Graded on A-F basis only.

**Credit Hours:** 3

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### **SOCIOL 9837: Seminar in Multivariate Analysis Techniques**

(same as RU\_SOC 9837). Examination of various qualitative techniques of data analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 or instructor's consent

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### **SOCIOL 9887: Seminar in Sociology of Gender**

Analysis of recent research in which gender is a major focus. This research is chosen to exemplify a variety of theoretical perspectives, research strategies, and substantive topics.

**Credit Hours:** 3

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### **SOCIOL 9920: Independent Readings in Preparation for Comprehensive Examinations**

Independent readings for PhD comprehensives. Open only to PhD candidates who have passed qualifying examinations.

**Credit Hour:** 1-6

**Prerequisites:** consent of major advisor

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### **SOCIOL 9987: Seminar in Sociological Reasoning and Research Development**

Systematic development of sociological research integrating theory, method, and contributions to knowledge. Formulations of sociological problems, conceptual frameworks, research programs analytical strategies.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 or equivalent; departmental consent; doctoral standing

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## **Soil Science Courses**

### **SOIL 2100: Introduction to Soils**

(same as PLNT\_S 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hours of Chemistry

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### **SOIL 2106: Soil Science Laboratory**

Laboratory application of fundamental soil science concepts.

**Credit Hours:** 2

**Corequisites:** SOIL 2100

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### **SOIL 3001: Topics in Soil Science**

Organized study of selected topics in soil science.

**Credit Hour:** 1-99

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### **SOIL 3085: Problems in Soil Science**

Special individualized research projects or readings in soil science.

**Credit Hour:** 1-99

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### **SOIL 3290: Soils and the Environment**

(same as ENV\_SC 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLISH 1000

**Recommended:** 3 hours of chemistry

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### **SOIL 3290W: Soils and the Environment - Writing Intensive**

(same as ENV\_SC 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLISH 1000

**Recommended:** 3 hours of chemistry

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### **SOIL 4001: Topics in Soil Science**

Organized study of selected topics in soil science.



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**Credit Hour:** 1-99

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**SOIL 4085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 4305: Environmental Soil Physics**

(same as ENV\_SC 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

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**SOIL 4306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 4308: Soil Conservation**

Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 4312: Environmental Soil Microbiology**

(same as ENV\_SC 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**SOIL 4313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 4314: Soil Fertility and Plant Nutrition Laboratory**

(same as PLNT\_S 4314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4313

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**SOIL 4318: Environmental Soil Chemistry**

(same as ENV\_SC 4318 and GEOL 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**SOIL 4320: Genesis of Soil Landscapes**

The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Recommended:** introductory soil science or introductory geology course

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**SOIL 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, PLNT\_S 4360; cross-leveled with SOIL 7360, AG\_S\_M 7360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110, or instructor's consent

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**SOIL 4940: Soil Science Internship**

Supervised professional experience with an approved public or private organization. Course may be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Soil and Atmospheric Sciences majors only, instructor's consent

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**SOIL 4950: Undergraduate Research in Soil Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** SOIL 2100 and SOIL 2106, STAT 2530, or instructor's consent

**Recommended:** 9 hours of Soil Science with at least 3 hours above the 3000-level

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**SOIL 7001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 7085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing

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**SOIL 7305: Environmental Soil Physics**

(same as ENV\_SC 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

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**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**SOIL 7306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 7306). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 7308: Soil Conservation**

Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 7312: Environmental Soil Microbiology**

(same as ENV\_SC 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformations bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** general microbiology, SOIL 2100, or instructor's consent

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**SOIL 7313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 7313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 7314: Soil Fertility and Plant Nutrition Laboratory**

(same as PLNT\_S 7314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 7313

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**SOIL 7318: Environmental Soil Chemistry**

(same as GEOL 7318 and ENV\_SC 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**SOIL 7320: Genesis of Soil Landscape**

The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Prerequisites:** introductory soil science or introductory geology or permission of instructor

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**SOIL 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and PLNT\_S 7360; cross-leveled with SOIL 4360, AG\_S\_M 4360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PLNT\_S 2110 or instructor's consent

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**SOIL 8001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 8085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 8090: Masters Research in Soil Science**

Original investigations in soil science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 8400: Solute Transport in the Vadose Zone**

(same as ENV\_SC 8400). Transport of water and solutes in geomedia with emphasis on development of the equations of flow. Evaluation of analytical and numeral solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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**SOIL 8450: Nonthesis Research in Soil Science**

Research not expected to terminate in dissertation.

**Credit Hour:** 1-9

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**SOIL 8500: Chemistry of the Vadose Zone**

(same as ENV\_SC 8500). Chemical reactions occurring in geomedia with emphasis on understanding molecular scale processes occurring at the solid-water interface, aqueous geochemistry, and soil organic matter.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300 or instructor's consent

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**SOIL 9001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 9085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 9087: Seminar in Soil Science**

In-depth development of advanced aspects of soil science through reviews of results of research in progress and current scientific publications.

**Credit Hour:** 1

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**SOIL 9090: Doctoral Research in Soil Science**

Original investigations in soil science for presentation in a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 9407: Advanced Environmental Soil Physics**

(same as ENV\_SC 9407). Transport of mass and energy through soil with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to differential equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** SOIL 7305, MATH 4100 or MATH 7100, or equivalent

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**SOIL 9414: Advanced Soil Fertility**

History and application of concepts of fertility and plant nutrition.

**Credit Hours:** 3

**Prerequisites:** SOIL 7313 and PLNT\_S 7315 or equivalent, 14 hours of college chemistry and five hours of calculus

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**SOIL 9418: Advanced Environmental Soil Chemistry**

(same as ENV\_SC 9418). Linking molecular-scale solution-phase and surface reactions with macroscopic chemical processes. Fundamentals of aqueous surface and colloid chemistry will be discussed.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300, and CHEM 3300

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**SOIL 9422: Pedology**

Three one-hour lectures. Detailed study of processes of soil horizonization and current topics in soil genesis including quantitative assessment of spatial and temporal variability and application of GIS in landuse planning.

**Credit Hours:** 3

**Prerequisites:** SOIL 7320, one statistics course beyond ANOVA

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**South Asia Studies Courses****S\_A\_ST 1004: Topics in South Asian Studies - Social Science**

Special topics.

**Credit Hours:** 3

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**S\_A\_ST 1100: Elementary Hindi I**

Oral-aural and structural approach. Devanagari script.

**Credit Hours:** 5

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**S\_A\_ST 1152: Asian Humanities**

(same as REL\_ST 1820, HIST 1820 and AR\_H\_A 1230). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**S\_A\_ST 1200: Elementary Hindi II**

Continuation of S\_A\_ST 1100. Spoken and written Hindi.

**Credit Hours:** 5

**Prerequisites:** grade of C or better in S\_A\_ST 1100

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**S\_A\_ST 1860: History of Ancient India**

(same as HIST 1860). This course surveys the history of South Asian history. The course begins with the Indus Valley Civilization (fl. 2600-1900B.C.) and ends with an analysis of Islamic impact on Indic culture around 1200-1350. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used for the study of permodern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 1861: History of Modern India**

(same as HIST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 1862: History of India: 1000-1750**

(Same as HIST 1862) This course surveys the history of the South Asian subcontinent from the eleventh through mid-eighteenth centuries. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used to study civilization. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 2005: Topics in South Asian Studies-Humanities**

Special Topics. May be repeated for credit.

**Credit Hours:** 3

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**S\_A\_ST 2100: Philosophy: East and West**

(same as PHIL 2100). Compares the interpretation and role of philosophical concepts such as experience, reason permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**S\_A\_ST 2110: Elementary Hindi III**

Continuation of S\_A\_ST 1200. Prerequisites: S\_A\_ST 1100 or S\_A\_ST 1200

**Credit Hours:** 3

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**S\_A\_ST 2270: Geography of Asia**

(same as GEOG 2270). An introductory survey of the geography of Asia from India through Southeast Asia to China and Japan, emphasizing factors contributing to cultural similarities and variations, conflicts of interest, and current development.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**S\_A\_ST 2800: Women in Indian History**

(same as HIST 2800). This course examines the role of women in Indian (South Asian) history, focusing on women in British India from the eighteenth century up to the Partition of 1947. While previous knowledge of South Asian history may be beneficial, it is not required for this course.

**Credit Hours:** 3

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**S\_A\_ST 3130: Advanced Hindi Readings I**

Directed readings in the literature of the student's area of concentration, and advanced conversation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**S\_A\_ST 3160: Advanced Hindi Readings II in South Asian Studies**

Continuation of S\_A\_ST 3160.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**S\_A\_ST 3200: Hinduism**

(same as REL\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga and meditation, Indian religious thought and devotional Hinduism.

**Credit Hours:** 3

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**S\_A\_ST 3230: Buddhism and Environmental Ethics**

(same as REL\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**S\_A\_ST 3240: Buddhism of South and Southeast Asia**

(same as REL\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in south and Southeast Asia.

**Credit Hours:** 3

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**S\_A\_ST 3245: Nonviolence in the Modern World**

(same as PEA\_ST 3840). Readings on recent world history, emphasis on Ghandi and nonviolent tradition in America, Europe and the Third World.

**Credit Hours:** 3

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**S\_A\_ST 3260: Southeast Asia**

(same as GEOG 3260). Physical, cultural, historical and regional geography of Southeast Asia, with an introduction to East Asian geography. Emphasizes the problems of tradition and development.

**Credit Hours:** 3

**Prerequisites:** GEOG 2270 or junior standing

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**S\_A\_ST 3261: Hindu Goddesses**

(same as REL\_ST 3260). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**S\_A\_ST 3280: Geography of South Asia**

(same as GEOG 3280). Topical and regional analysis of India, Pakistan, Sri Lanka. Historical development of distinctive cultural regions. Relations with neighboring areas. Impact of Westernization on economic activities, settlements, population.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**S\_A\_ST 3490: Indian Cinema**

(same as AR\_H\_A 3790, ANTHRO 3490 and FILM\_S 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**S\_A\_ST 4004: Topics in South Asian Studies - Social Science**

Special topics.

**Credit Hours:** 3

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**S\_A\_ST 4300: Religious Narratives of South Asia**

(same as REL\_ST 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

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**S\_A\_ST 4620: Politics in India and South Asia**

(same as POL\_SC 4620). Contemporary political and governmental patterns of India, Pakistan, Sri Lanka, Nepal, and Bangladesh.

**Credit Hours:** 3

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**S\_A\_ST 4630: Sanskrit I**

(same as REL\_ST 4630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**S\_A\_ST 4640: Sanskrit II**

(same as REL\_ST 4640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**S\_A\_ST 4790: Culture and Society in South Asia**

(same as ANTHRO 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include caste, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**S\_A\_ST 4800: Asian Philosophy**

(same as PHIL 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and one course in Philosophy; or instructor's consent

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**S\_A\_ST 4810: Philosophy of India**

(same as PHIL 4810). General development of Indian Philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and one course in Philosophy; or instructor's consent

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**S\_A\_ST 4820: Contemporary Indian Philosophy**

(same as PHIL 4820). Indian philosophical traditions as represented in backgrounds of Gandhi, Tagore, Tagore, Tagore, and philosophical systems of Radhakrishnan, Aurobindo, etc.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**S\_A\_ST 4850: Traversing the Muslim World**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**S\_A\_ST 4850W: Traversing the Muslim World - Writing Intensive**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**S\_A\_ST 4860: Colonial Masculinity/Colonial Frontier**

(same as HIST 4860). This writing intensive discussion-based course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny and martial race ideology.

**Credit Hours:** 3

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**S\_A\_ST 7004: Topics in South Asian Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**S\_A\_ST 7200: Religious Texts and Interpretation: The Veda**

(same as REL\_ST 8200). This course examines the Veda, the foundational scripture of Hinduism. It includes close study of Vedic texts and rituals and the influence, interpretation, and application of the Veda in the later Hinduism.

**Credit Hours:** 3

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**S\_A\_ST 7350: Special Readings in South Asian Studies Languages**

Individual advanced study of desired South Asian language.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**S\_A\_ST 7630: Sanskrit I**

(same as REL\_ST 7630). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**S\_A\_ST 7640: Sanskrit II**

(same as REL\_ST 7640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The

objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**S\_A\_ST 7700: Religious Narratives of South Asia**

(same as REL\_ST 7700). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

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**S\_A\_ST 7790: Cultures and Society in South Asia**

(same as ANTHRO 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

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**S\_A\_ST 8085: Problems in South Asian Studies**

(same as HIST 8085).

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**S\_A\_ST 9040: Indian Philosophy**

Reality, levels of being, status of the world, nature of knowledge in Indian philosophy in relation the Advaita Vedanta system of Samkara.

**Credit Hours:** 3

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## Spanish Courses

**SPAN 1100: Elementary Spanish I**

An introductory course for students who wish to begin their study of Spanish. It teaches the four skills - listening, speaking, reading, and writing. The class meets four days a week (with the exception of the online section, which taught completely online). Class time is used to integrate new structures and vocabulary into spoken and written language.

**Credit Hours:** 4

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**SPAN 1100H: Elementary Spanish I - Honors**

This designated honors section of Elementary Spanish will challenge students to explore more deeply the currently existing thematic units of the SPAN 1100 curriculum. Students will participate in group discussions, creative projects, independent study and use of authentic written and aural material from primary sources. Honors Spanish 1100 will integrate cultural events outside the classroom such as movies, guest lectures, art exhibits, seminars or concerts as available. Once a semester, Honors Spanish 1100 will meet with Honors SPAN 1200H and SPAN 2100H as a cohort group for further intellectual exchange and enrichment. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 1200: Elementary Spanish II**

The second course of the beginning sequence in the continuation of SPAN 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of Spanish are encouraged to take this course. NO credit for both SPAN 1200 and SPAN 1250.

**Credit Hours:** 4

**Prerequisites:** Grade of C or better in SPAN 1100 or equivalent

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**SPAN 1200H: Elementary Spanish II - Honors**

This course, designed for students who have taken SPAN 1100 or an equivalent course and enrolled in the Honors College, offers an introduction to the Spanish language and the many cultures it encompasses. Your course work will allow you to develop all four language skills: reading, speaking, listening and writing along with the cultural background necessary to help you to communicate effectively in Spanish. With the honors designation section, the course will allow students to access greater challenges in the existing thematic units in the curriculum through group discussion, creative projects and authentic situations. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2001: Undergraduate Topics in Spanish-General**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better

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**SPAN 2005: Undergraduate Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better

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**SPAN 2005H: Undergraduate Topics in Spanish-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better. Honors eligibility required

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**SPAN 2100: Elementary Spanish III**

A multi-skill course following SPAN 1200, centering on cultural/ literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in SPAN 1200 or SPAN 1250, or their equivalent courses

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**SPAN 2100H: Elementary Spanish III - Honors**

A multi-skill course following SPAN 1200, centering on cultural/literary readings, and including a grammar review, practice in the spoken

language, as well as some practice in written expression. The course seeks to improve student's fluency in Spanish and to expose them to the many cultures it encompasses. This course will integrate cultural events outside the classroom as well such as movies, guest lectures, art exhibits, seminars or concerts as available. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2160: Intermediate Spanish Composition and Conversation**

First course following required elementary sequence. Designed specifically to correct any remaining weaknesses in gross writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork involves written compositions and oral presentations.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent

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**SPAN 2160H: Intermediate Spanish Composition and Conversation - Honors**

First course following required elementary sequence. Designed specifically to correct any remaining weaknesses in gross writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork involves written compositions and oral presentations.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent. Honors eligibility required

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**SPAN 2310: Spanish Civilization**

Survey of Spanish history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**Credit Hours:** 3

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**SPAN 2320: Literature of Spanish Civil War**

(same as PEA\_ST 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 2330: Latin American Civilization**

Survey of Latin American history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**Credit Hours:** 3

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**SPAN 2340: Hispanic Minority Literature**

This course studies the literature of Hispanic minorities in the United States: Chicanos (Mexican American), Mainland Puerto Ricans, and Cuban exile writers. It explores the question of minority versus majority literatures and the creation of a Hispanic minority discourse. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SPAN 3001: Topics in Spanish-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3005: Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3150: Advanced Spanish Conversation**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3150H: Advanced Spanish Conversation**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent. Honors Eligibility required

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**SPAN 3160: Advanced Spanish Composition**

Course emphasizes writing at an advanced level, with a certain degree of sophistication about varied subjects and using different techniques of composition. Classwork consists mainly of the discussion of both the ideas and techniques used in different textual forms.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3170: Conversational Spanish Practice**

Study Abroad Conversational Spanish course for students who have already completed SPAN 3150, but want more practice. Does not count for majors/minors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and instructor's consent

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**SPAN 3280: Commercial Spanish**

Business terminology and forms. Translate and compose business letters and documents for advertising and promotion, trade and commerce, imports and exports, money and banking.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3400: Mexican Culture and Civilization**

Study of Mexican culture and civilization through field trips, excursions and selected readings in Mexican history and literature. No knowledge of Spanish required. Open only to participants in UMC's study programs in Mexico.

**Credit Hour:** 2-3

**Prerequisites:** sophomore standing or instructor's consent

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**SPAN 3420: Introduction to Hispanic Literature I**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3420W: Introduction to Hispanic Literature I - Writing Intensive**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430: Introduction to Hispanic Literature II**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430H: Introduction to Hispanic Literature II - Honors**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent. Honors eligibility required

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**SPAN 3430W: Introduction to Hispanic Literature II - Writing Intensive**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as FRENCH 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, culture and national identity (taught in Eng.).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 3721: Spanish Phonetics**

(same as LINGST 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3885: Twenty-First Century South American Cinema**

(same as FILM\_S 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**SPAN 4070: Intensive Beginning Spanish**

Designed for rapid acquisition of a reading knowledge of Spanish. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPAN 4120: Foreign Language Teaching Methodology**

(same as FRENCH 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**SPAN 4130: Stylistics**

Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4130W: Stylistics - Writing Intensive**

Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4410: Spanish Medieval Literature**

The principal periods, schools, and genres of Spanish medieval literature are surveyed through representative masterworks. Lectures and periodic student reports help relate works read to the rest of contemporary Spanish and European literature.



**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4420: Golden Age Poetry**

Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4421: Renaissance and Golden Age Prose**

Representative prose works from various genres are read as well as literary criticism devoted to them. Among the authors studied are Fernando de Rojas, Jorje Montemayor, Miguel de Cervantes, Francisco de Quevedo, and Maria de Zayas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4422: Spanish Theatre in the Golden Age**

Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4423: Don Quijote**

In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4441: Twentieth-Century Spanish Novel**

(cross-leveled with SPAN 7441). Reading and critical analysis of representative novels written in Spain from early century to the post-Franco period. The objectives of the course are to develop critical skills in dealing with these fictional works and to understand the major trends of the contemporary Spanish novel.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4442: Advanced Contemporary Culture of Spain**

(cross-leveled with SPAN 7442). Study of Spanish culture and civilization through field trips, excursions, and selected readings in history, literature, and contemporary print media.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150, SPAN 3160, SPAN 3721 or equivalent.  
Open only to participants in the UMC's summer study in Spain

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**SPAN 4450: Hispanic Literature of Resistance**

A study of the literature of commitment in the Hispanic world: literature in its historical and political contexts that makes a conscious effort to change social conditions.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 7460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4461: Advanced Spanish Civilization**

(cross-leveled with SPAN 7461). A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4470: Survey of Spanish American Literature I**

This is an introductory course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4471: Survey of Spanish American Literature II**

Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4480: Mexican Literature**

Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4490: Hispanic Oral Traditions**

This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4520: Modernista and Contemporary Poetry**

Careful study and analysis of selected poems by major figures in Hispanic poetry. The period covered includes the modernist movement to the present. Particular attention is given to the following figures: Ruben Dario, Octavio Paz, Pablo Neruda, and Nicolas Guillen.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4530: The Spanish American Theatre**

Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4540: Afro-Hispanic Literature**

A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4550: Nobel Laureates in Spanish American Literature**

Analyzes the creative expression of five Nobel laureates from Spanish America. Selected works of Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, Octavio Paz and Gabriel Garcia Marquez are read in relation to contemporary theory.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4711: History of the Spanish Language**

(same as LINGST 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4721: Structure of Modern Spanish**

(same as LINGST 4721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722: Spanish Across the Continents**

(same as LINGST 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722W: Spanish Across the Continents - Writing Intensive**

(same as LINGST 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4723: Language and Society: Spanish in the U.S.**

(same as LINGST 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 4940: Service Learning in Spanish**

(same as RM\_LAN 4940). Course offers our majors and advanced minors the opportunity to use their language skills in real-life community settings. Does not meet Art and Science general education requirements. May be repeated once for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior or senior standing and departmental consent

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**SPAN 4960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 3420 and SPAN 3430 and departmental consent

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**SPAN 4980: Special Themes in Spanish**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4993: The Capstone Experience in Spanish**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 7004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**SPAN 7120: Foreign Language Teaching Methodology**

(same as FRENCH 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and

strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

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**SPAN 7130: Stylistics**

Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 7410: Spanish Medieval Literature**

The principal periods, schools, and genres of Spanish medieval literature are surveyed through representative masterworks. Lectures and periodic student reports help relate works read to the rest of contemporary Spanish and European literature.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7420: Golden Age Poetry**

Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7421: Renaissance and Golden Age Prose**

Representative prose works from various genres are read as well as literary criticism devoted to them. Among the authors studied are Fernando de Rojas, Jorje Montemayor, Miguel de Cervantes, Francisco de Quevedo, and Maria de Zayas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7422: Spanish Theatre in the Golden Age**

Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7423: Don Quijote**

In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7441: Twentieth-Century Spanish Novel**

(cross-leveled with SPAN 4441). Reading and critical analysis of representative novels written in Spain from early century to the post-Franco period. The objectives of the course are to develop critical skills in dealing with these fictional works and to understand the major trends of the contemporary Spanish novel.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7442: Advanced Contemporary Culture of Spain**

(cross-leveled with SPAN 4442). Study of Spanish culture and civilization through field trips, excursions, and selected readings in history, literature, and contemporary print media.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150, SPAN 3160, SPAN 3721 or equivalent.

Open only to participants in the UMC's summer study in Spain

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**SPAN 7450: Hispanic Literature of Resistance**

A study of the literature of commitment in the Hispanic world: literature in its historical and political contexts that makes a conscious effort to change social conditions.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 4460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

---

**SPAN 7461: Advanced Spanish Civilization**

(cross-leveled with SPAN 4461). A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 7470: Survey of Spanish American Literature I**

This is a course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

---

**SPAN 7471: Survey of Spanish American Literature II**

Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7480: Mexican Literature**

Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7490: Hispanic Oral Traditions**

This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7520: Modernista and Contemporary Poetry**

Careful study and analysis of selected poems by major figures in Hispanic poetry. The period covered includes the modernist movement to the present. Particular attention is given to the following figures: Ruben Dario, Octavio Paz, Pablo Neruda, and Nicolas Guillen.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7530: The Spanish American Theatre**

Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7540: Afro-Hispanic Literature**

A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7550: Nobel Laureates in Spanish American Literature**

Analyzes the creative expression of five Nobel laureates from Spanish America. Selected works of Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, Octavio Paz and Gabriel Garcia Marquez are read in relation to contemporary theory.

**Credit Hours:** 3

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**SPAN 7711: History of the Spanish Language**

(same as LINGST 7711). Diachronic analysis of phonology, morphology, and syntax from Vulgar Latin to modern period.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

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**SPAN 7721: Structure of Modern Spanish**

(same as LINGST 7721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

---

**SPAN 7722: Spanish Across the Continents**

(same as LINGST 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

---

**SPAN 7723: Language and Society: Spanish in the US**

This class surveys linguistic and social issues pertaining to Spanish in the US (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 7960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**SPAN 7980: Special Themes in Spanish**

Subject varies according to instructor.

**Credit Hours:** 3

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**SPAN 7993: The Capstone Experience in Spanish**

Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 8080: Readings in Spanish**

Independent readings in preparation for MA or MALT comprehensive examination in Spanish. Graded on A-F basis only.

**Credit Hour:** 1-99

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**SPAN 8085: Problems in Spanish**

Problems in Spanish.

**Credit Hour:** 1-99

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**SPAN 8087: Seminar in Spanish**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**SPAN 8090: Research in Spanish**

Leads to preparation of MA or MALT thesis. Graded on S/U basis only.

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**Credit Hour:** 1-99

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**SPAN 8120: Bilingualism and Language Contact**

(same as FRENCH 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**SPAN 8412: Studies in Spanish Literature of the Medieval Period**

Studies in Spanish Literature of the Medieval Period.

**Credit Hours:** 3

**Recommended:** SPAN 8460

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**SPAN 8415: Studies in Spanish Literature of the Renaissance**

Studies in Spanish Literature of the Renaissance

**Credit Hours:** 3

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**SPAN 8416: Studies in Spanish Literature in the Golden Age**

Studies in Spanish Literature in the Golden Age

**Credit Hours:** 3

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**SPAN 8419: Studies in Nineteenth-Century Spanish Literature**

Studies in Nineteenth-Century Spanish Literature

**Credit Hours:** 3

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**SPAN 8420: Studies in Twentieth-Century Spanish Literature**

Studies in Twentieth-Century Spanish Literature

**Credit Hours:** 3

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**SPAN 8427: Studies in Colonial Spanish American Literature**

Analysis of seminal literary and "Historical" texts interpreting the Encounter, Conquest and Colonization of Spanish America.

**Credit Hours:** 3

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**SPAN 8431: Studies in Spanish-American Fiction**

Studies in Spanish-American Fiction

**Credit Hours:** 3

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**SPAN 8433: Studies in Latin American Literature**

Studies in Latin American Literature

**Credit Hours:** 3

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**SPAN 8460: Old Spanish--Phonology, Morphology and Syntax**

**Credit Hours:** 3

**Prerequisites:** knowledge of Latin, to be demonstrated by passing departmental written examination or by completing LATIN 7110 with grade of B or better

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**SPAN 9080: Readings in Spanish**

Independent readings in preparation for Ph.D. comprehensive examination in Spanish.

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**Credit Hour:** 3-6

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**SPAN 9090: Research in Spanish**

Leads to preparation of PhD dissertation in Spanish. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Special Education Courses

**SPC\_ED 4020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Progression into Phase II

---

**SPC\_ED 4300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 4310: Behavioral Management for Exceptional Students**

Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 4320: Assessment and Evaluation in Special Education**

Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 4325: Language Development of Exceptional Students**

Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 4330: Collaboration and Consultation in Special Education**

Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 4370: Literacy in Special Education**

Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4300

---

**SPC\_ED 4371: Literacy in Special Education II**

Advanced study in literacy methods and research for students with disabilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

---

**SPC\_ED 4375: Cross Categorical Special Education**

Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380: Methods in Cross-Categorical Special Education**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380W: Methods in Cross-Categorical Special Education - Writing Intensive**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4390: Methods in Vocational Education for the Disabled and Disadvantaged**

(same as LTC\_V 4770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 4401: Topics in Special Education**

In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**Credit Hours:** 3

---

**SPC\_ED 4940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from SPC\_ED 4375.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** SPC\_ED 4375

**Recommended:** Admittance to Phase II

---

**SPC\_ED 4941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 7941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 4972: Capstone Seminar and Portfolio in Special Education**

Students in final student teaching internship will meet weekly to examine and compare their internship experiences. Analysis, synthesis, evaluation and problem solving are the focus of the examination of various aspects of pedagogy and experience. Additionally, students will develop and submit for scoring their State mandated certification portfolio.

**Credit Hour:** 1

**Prerequisites:** SPC\_ED 4981

**Recommended:** Enrollment in final semester of student teaching internship

---

**SPC\_ED 4981: Internship in Special Education**

(cross-leveled with SPC\_ED 7981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 4060

**Recommended:** Admittance to Phase II

---

**SPC\_ED 7020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Progression into Phase II

---

**SPC\_ED 7300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

---

**SPC\_ED 7310: Behavioral Management for Exceptional Students**

Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7320: Assessment and Evaluation in Special Education**

Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7325: Language Development of Exceptional Students**

Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7330: Collaboration and Consultation in Special Education**

Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7370: Literacy in Special Education**

Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4300

---

**SPC\_ED 7371: Literacy in Special Education II**

Advanced study in literacy methods and research for students with disabilities. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

---

**SPC\_ED 7375: Cross Categorical Special Education**

Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3

**Prerequisites:** professional standing in Phase II

---

**SPC\_ED 7380: Methods in Cross-Categorical Special Education**

This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hours:** 4

**Prerequisites:** professional standing in Phase II, SPC\_ED 4375, SPC\_ED 4940

---

**SPC\_ED 7390: Methods in Vocational Education for the Disabled & Disadvantaged**

(same as LTC\_V 7770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7401: Topics in Special Education**

In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**Credit Hours:** 3

---

**SPC\_ED 7940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from Special Education 4375.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4375, professional standing in Phase II

---

**SPC\_ED 7941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 4941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

---

**SPC\_ED 7981: Internship in Special Education**

(cross-leveled with SPC\_ED 4981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 7060; Admittance to the College of Education

**Recommended:** Admittance into Phase II

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**SPC\_ED 8085: Problems in Special Education**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

---

**SPC\_ED 8090: Masters Thesis Research Hours**

Restricted to students enrolled in the graduate program. Graded S/U only.

**Credit Hours:** 3

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**SPC\_ED 8210: Using Assessment to Guide Instruction**

This course is designed to present information on the evaluation of individual student skills and the effects of instruction on those skills. Graded on A-F basis only.

**Credit Hours:** 3

---

**SPC\_ED 8220: School-Wide Positive Behavior Support**

Overview of theory, research, and methods related to establishing a system of positive behavior support in schools. Graded on A-F basis only.

**Credit Hours:** 3

---

**SPC\_ED 8287: Professional Seminar in Special Education**

Designed to provide overview of Special Education, COE program requirements, and general graduate student expectations. Students STRONGLY encouraged to take course first semester in graduate program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** acceptance into a master's degree program

---

**SPC\_ED 8300: Students with Behavioral Disorders**

Study of characteristics of students with behavioral disorders as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

---

**SPC\_ED 8310: Students With Learning Disabilities**

Study of characteristics of students with learning disabilities as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8340: Advanced Studies in Developmental Disabilities**

Current theories and practices and their historic roots through examination of empirical and descriptive literature.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

---

**SPC\_ED 8345: Trends and Issues in Special Education**

A study of the historical developments and related trends, issues and problems associated with the education of exceptional students.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

---

**SPC\_ED 8350: Research with Exceptional Children**

Explores significant, historical, and current research in special education. Emphasizes the application of research, methodology, and findings relative to problems facing the practitioner.

**Credit Hours:** 3

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**Prerequisites:** instructor's consent

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**SPC\_ED 8353: Advanced Studies: Single Subject Design**

The course is for advanced graduate students in special education, k psychology, related fields and includes behavioral measurement, single subject research designs, data analysis methods, critical analysis and evaluation of single subject research and research proposal. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 8355: Grant Writing**

Preparation of research, demonstration, training, or other grant proposals meeting the criteria for competitive funding by a federal agency; review and evaluation of proposals.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

---

**SPC\_ED 8360: Special Education Administration**

Principles, protective safeguards, and general practices associated with the organization and administration of special education; legal foundations for special education; selection, training, and supervision of personnel.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 8365: Research Design in Special Education**

Overview of professional writing and intermediate research applications with a focus on knowledge and skills needed for higher level doctoral work in statistics and research design.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or equivalent, SPC\_ED 8350 or equivalent, and instructor's consent

---

**SPC\_ED 8370: Foundations I: History, Law and Policy in Special Education**

The changing concept of disability will be viewed from the perspectives of history, legal issues, and policy traced from early Greek and European periods through contemporary times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 8375: Foundations II: Pedagogical Theories in Special Education**

A study of theories of teaching as they apply to special education with emphases on empirically based practices, historical trends, current theories, and the relationship between theories of learning and teaching.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 8380: Nature and Needs of Gifted and Talented Students**

A conceptual and empirical examination for educational personnel of student identification procedures, special populations, programming issues, research topics and teacher competencies.



**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8387: Seminar in Special Education**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SPC\_ED 8391: Curriculum Methods for Gifted and Talented Students**

A theoretical examination for educational personnel of specific instructional approaches including structure of intellect, enrichment triad, empirical research, and creative problem solving.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

---

**SPC\_ED 8400: Affective Development of Gifted Students**

Psychosocial development of gifted students; theories, and practices in affective development; strategies to develop positive self-concept, successful coping strategies, and effective peer relationships by gifted students.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

---

**SPC\_ED 8405: Assessment and Evaluation in Gifted Education**

Seminar focuses on practices for identifying students for gifted education programs, evaluation models applicable to school programs and strategies for grading and evaluation of gifted students.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

---

**SPC\_ED 8406: Differentiating Instruction: Reaching Gifted, Typical and Struggling Learners**

Explores various instructional approaches to help meet the learning needs of a range of learners from gifted through struggling and at-risk students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8440: Advanced Behavior Management: Applied Behavior Analysis**

This course will provide graduate students with advanced theory and knowledge in behavior management. Emphasis will be placed on understanding and using the principles of applied behavior analysis.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4310 and instructor's consent

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**SPC\_ED 8455: Advanced Studies in Behavioral Disorders**

Contemporary issues a historical perspective; theoretical perspectives or models which guide research, policy, and intervention approaches.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8470: Advanced Literacy in Special Education**

Study of literacy assessment and instruction methods specific to special education; formal and informal assessment: language and instructional strategies to improve literacy for students with disabilities.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 8475: Advanced Studies in Learning Disabilities**

Major current issues, trends, and controversies in learning disabilities; theories, research, and practices in learning disabilities.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

---

**SPC\_ED 8485: Introduction and Methods of Early Intervention**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in home and center-based programs for infants and toddlers with disabilities, consistent with the philosophical and legal requirements of IDEA Part C.

**Credit Hours:** 3

---

**SPC\_ED 8490: Assessment in Early Childhood Special Education**

Procedures and instruments used in assessment of children with special needs, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans.

**Credit Hours:** 3

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**SPC\_ED 8495: Introduction and Methods of Early Childhood Special Education**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in community or public school integrated programs for preschools with disabilities, consistent with the philosophical and legal requirements of IDEA Part B Section 619.

**Credit Hour:** 2-3

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**SPC\_ED 8505: Advanced Studies in Early Childhood Special Education**

Origins, theoretical perspectives, issues, scope and efficacy of the field of early childhood special education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8520: Meeting the Needs of all Learners**

The purpose of this course is to provide information on current research and methodology on teaching students who are struggling or who have disabilities. Open only to teaching fellows. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8601: Introduction to Autism**

This course provides an introduction of children youth with autism spectrum disorders. Topics include: historical and theoretical foundations, diagnostic and assessment approaches, and characteristics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8602: Methods of Instruction for Students with Autism**

Overview of interventions for individuals with autism spectrum disorders and strategies needed for teaching. Best practices and promising practices will be presented. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8603: Social Competency for Students with Autism**

Course provides a framework for addressing social competence deficits experienced by students with autism. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8604: High Functioning Students with Autism**

The course is designed to increase understanding and ability to support individuals on the Autism Spectrum who have average to above average intelligence. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 8605: Young Children with Autism**

Current research on characteristics, diagnosis, and intervention for very young children with autism. Strategies for support children and their families. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 8606: Assessment in Autism, Special Education**

This course covers procedures and instruments used in assessment of school-aged children with autism, including screening, diagnosis, interpretation of assessment findings, and application to instructional plans. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 7300

**Corequisites:** SPC\_ED 8601

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**SPC\_ED 8940: Practicum: Students with Behavioral Disorders**

Graduate field experience in educational setting for students with behavioral disorders. Application of competencies from Special Education 8300.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8941: Practicum: Students with Learning Disabilities**

Graduate field experience in educational setting for students with learning disabilities. Application of competencies from SPC\_ED 8310.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8942: Practicum: Students with Developmental Disabilities**

Graduate field experience in educational setting for students with mental retardation. Application of knowledge and skills from SPC\_ED 8320.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8943: Practicum in Special Education**

Provides graduate practicum experience relevant to the education of exceptional students.

**Credit Hour:** 1-10

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8944: Practicum I: Cross-Categorical Special Education**

Graduate field-based experience focused on observation and participation in programming for students with mild-moderate disabilities.

**Credit Hours:** 3

**Prerequisites:** instructor's and/or advisor's consent

---

**SPC\_ED 8945: Practicum II: Cross-Categorical Special Education**

Advanced graduate field experience. Demonstration of required competencies with mild-moderate disabilities.

**Credit Hour:** 3-8

**Prerequisites:** SPC\_ED 8944 and instructor and/or advisor's consent

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**SPC\_ED 8946: Practicum: Gifted Education**

Provides graduate field experience in the area of gifted education.

**Credit Hours:** 3

**Prerequisites:** instructor or advisor's consent

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**SPC\_ED 8947: Practicum: Early Childhood Special Education**

Graduate field experience in an approved setting for young children with special needs. May be repeated.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**SPC\_ED 9090: Research in Special Education**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

---

**SPC\_ED 9387: Professional Seminar in Special Education**

Designed to provide overview of Special Education, COE program requirements, and general graduate student expectations. Students STRONGLY encouraged to take course first semester in graduate program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** acceptance into a master's degree program

---

**SPC\_ED 9940: Internship: College Teaching in Special Education**

Individually guided and supervised college teaching experiences. Competency based activities using portfolio assessment methods. May be taken more than once. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**SPC\_ED 9941: Internship: Special Education Research**

Individually guided research internship with doctoral advisor and/or faculty mentor(s). Opportunity to develop research competencies either on individual or collaborative projects. May be taken more than once. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

---

**SPC\_ED 9942: Internship: Professional Practice in Special Education**

Individually guided internship in the public schools and/or agencies serving students with special needs or exceptionalities. Focus on professional practices, administrative practices, and/or evaluation practices. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Special Topics (Intensive English Program) Courses

**IEPS\_0001: Level I Guided Reading and Vocabulary**

Students will increase reading fluency and vocabulary in beginning-level texts while developing independence and an appreciation of reading. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Statistics Courses

**STAT 1200: Introductory Statistical Reasoning**

Statistical concepts for critically evaluation quantitative information. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for a higher numbered course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1050 or MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from College Algebra by examination

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**STAT 1300: Elementary Statistics**

Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade in C - or higher in MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination

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**STAT 1300H: Elementary Statistics - Honors**

Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C-or higher in MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination. Honors eligibility required

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**STAT 1400: Elementary Statistics for Life Sciences**

Designed for students studying agriculture and other life sciences. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade in C- or higher in MATH 1050 or MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination

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**STAT 2200: Introductory Statistical Methods**

Designed to upgrade the curriculum of STAT 1200 or STAT 1300 or STAT 1400 to the level of STAT 2500. Students may not receive credit for STAT 2200 if they have completed a course from the Department of Statistics numbered 2500 or higher. Math Reasoning Proficiency Course.

**Credit Hour:** 1

**Prerequisites:** grade in C- or higher in STAT 1200 or STAT 1300 or STAT 1400

---

**STAT 2500: Introduction to Probability and Statistics I**

Designed primarily for students in College of Business. Descriptive statistics, probability, random variables, sampling distributions, estimation, confidence intervals, hypothesis tests. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1300 or MATH 1400 or MATH 1500

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**STAT 2530: Statistical Methods in Natural Resources**

Statistical methods, with emphasis on applications to natural resources and including computer exercises. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** a college-level computing course and a grade in the C range or better in MATH 1100, MATH 1120, MATH 1160, or MATH 1180

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**STAT 3500: Introduction to Probability and Statistics II**

Continuation of STAT 2500. Coverage of additional topics including: Regression; model building; ANOVA; nonparametric methods; use of a statistical computer package.

**Credit Hours:** 3

**Prerequisites:** grade in the C - or higher in STAT 2200 or STAT 2500 or STAT 2530, or STAT 4710 or concurrent enrollment in STAT 2200

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**STAT 4002: Topics in Statistics-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Consent of instructor required

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**STAT 4050: Connecting Statistics to Middle and Secondary Schools**

Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or STAT 1400 or STAT 2500 or STAT 4710 or ESC\_PS 4170 or MATH 2320

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**STAT 4085: Problems in Statistics for Undergraduates**

Independent investigations. Reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**STAT 4110: Statistical Software and Data Analysis**

Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4150: Applied Categorical Data Analysis**

The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed STAT 4830. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4210: Applied Nonparametric Methods**

Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparisons with parametric procedures. Goodness of-fit, chi-square, comparison of several populations, measures of correlation.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4310: Sampling Techniques**

Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4410: Biostatistics and Clinical Trials**

(cross-leveled with STAT 7410). Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, carcinogenicity bioassay and case-cohort designs. Prerequisites: any of the following: STAT 3500, STAT 7070, STAT 4710, STAT 7710, STAT 4760, STAT 7760, or instructor's consent.

**Credit Hours:** 3

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**STAT 4420: Applied Survival Analysis**

Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4430: Applied Longitudinal Data Analysis**

Repeated measurements; event history studies; linear and nonlinear mixed effects models; growth models; marginal mean and rate models; pattern-mixture models; selection models; non-informative and informative drop-out; joint analysis of longitudinal and survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4450: Applied Statistical Methods for Bioinformatics**

Random variables; Point estimation; Multiple t-test; Likelihood principle; Analysis of variance; Probabilistic methods for sequence modeling; Gene expression analysis; Protein structure prediction; Genome analysis; Hierarchical clustering and Gene classification.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4510: Applied Statistical Models I**

Introduction to applied linear models including regression (simple and multiple, subset selection, estimation and testing) and analysis of variance (fixed and random effects, multifactor models, contrasts, multiple testing). No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760

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**STAT 4530: Analysis of Variance**

Study of analysis of variance and related modeling techniques for cases with fixed, random, and mixed effects. Exposure to designs other than completely randomized designs including factorial arrangements, repeated measures, nested, and unequal sample size designs.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710, STAT 4760 or STAT 7760

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**STAT 4540: Experimental Design**

Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or STAT 4530 or STAT 7530

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**STAT 4560: Applied Multivariate Data Analysis**

Testing mean vectors; Discriminant analysis; Principal components; Factor analysis; Cluster analysis; Structural equation modeling; Graphics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070 STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent. No credit towards a graduate degree in statistics

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**STAT 4580: Introduction to Statistical Methods for Customized Pricing**

(cross-leveled with STAT 7580). Introduction to basic concepts of and statistical methods used in customized pricing. Focuses on applying statistical methods to real customized pricing problems. Students will gain an understanding of customized pricing and some hands on experience with SAS Enterprise Miner.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

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**STAT 4610: Applied Spatial Statistics**

Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or instructor's consent

**Recommended:** basic knowledge of calculus and matrices

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**STAT 4640: Introduction to Bayesian Data Analysis**

Bayes formulas, choices of prior, empirical Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510

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**STAT 4710: Introduction to Mathematical Statistics**

(same as MATH 4315). Introduction to theory of probability and statistics using concepts and methods of calculus. No credit for Math 4315.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**STAT 4750: Introduction to Probability Theory**

(same as MATH 4320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**STAT 4760: Statistical Inference**

(same as MATH 4520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750

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**STAT 4810: Nonparametric Methods**

A first course in Non-parametric statistical methods based on ranks. Both theory and application are emphasized. Two-sample problems. K-sample problems. Tests for independence. Contingency tables. Goodness-of-fit tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4830: Categorical Data Analysis**

Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4850: Introduction to Stochastic Processes**

Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750

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**STAT 4870: Time Series Analysis**

A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory.

Examples are drawn from a variety of areas including business, economics and soil science.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4970: Senior Seminar**

A capstone course required of and open only to senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized.

**Credit Hours:** 3

**Prerequisites:** senior statistics major and 12 completed hours of statistics courses or instructor's consent

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**STAT 4970W: Junior/Senior Seminar - Writing Intensive**

A capstone course required of and open only to junior or senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized.

**Credit Hours:** 3

**Prerequisites:** Statistics major with Junior or Senior class standing or instructor's consent

**Recommended:** 12 completed hours of statistics courses with grade of C or better; STAT 4110

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**STAT 4999: Departmental Honors in Statistics**

Special work for Honors candidates in statistics. May be repeated for credit.

**Credit Hour:** 1-3

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**STAT 7002: Topics in Statistics-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 7020: Statistical Methods in the Health Sciences**

Basic inference methods, both parametric and non-parametric, appropriate for answering questions arising in health sciences research. Computer exercises involving data from real experiments from health science area.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 and instructor's consent

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**STAT 7050: Connecting Statistics to Middle and Secondary Schools**

Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** an introductory course in statistics or MATH 2320 or instructor's consent

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**STAT 7070: Statistical Methods for Research**

Designed for graduate students who have no previous training in statistics. Topics include descriptive statistics, probability distributions, estimation, hypothesis testing, regression, and ANOVA. No credit toward a degree in statistics.

**Credit Hours:** 3

**Prerequisites:** either MATH 1100 or MATH 1120

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**STAT 7085: Problems in Statistics for Non-majors**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 7110: Statistical Software and Data Analysis**

Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7150: Applied Categorical Data Analysis**

The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed STAT 4830. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 7210: Applied Nonparametric Methods**

Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparisons with parametric procedures. Goodness-of-fit, chi-square, comparison of several populations, measures of correlation.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7310: Sampling Techniques**

Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7410: Biostatistics and Clinical Trials**

(cross-leveled with STAT 4410). Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, carcinogenicity bioassay and case-cohort designs. Prerequisites: any of the following: STAT 3500, STAT 7070, STAT 4710, STAT 7710, STAT 4760, STAT 7760, or instructor's consent.

**Credit Hours:** 3

---

**STAT 7420: Applied Survival Analysis**

Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent

---

**STAT 7430: Applied Longitudinal Data Analysis**

Repeated measurements; event history studies; linear and nonlinear mixed effects models; growth models; marginal mean and rate models; pattern-mixture models; selection models; non-informative and informative drop-out; joint analysis of longitudinal and survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 7450: Applied Statistical Methods for Bioinformatics**

Random variables; Point estimation; Multiple t-test; Likelihood principle; Analysis of variance; Probabilistic methods for sequence modeling; Gene expression analysis; Protein structure prediction; Genome analysis; Hierarchical clustering and Gene classification.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7510: Applied Statistical Models I**

Introduction to applied linear models including regression (simple and multiple, subset selection, estimation and testing) and analysis of variance (fixed and random effects, multifactor models, contrasts, multiple testing). No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7530: Analysis of Variance**

Study of analysis of variance and related modeling techniques for cases with fixed, random, and mixed effects. Exposure to designs other than completely randomized designs including factorial arrangements, repeated measures, nested, and unequal sample size designs.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7540: Experimental Design**

Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or STAT 4530 or STAT 7530 or instructor's consent

---

**STAT 7560: Applied Multivariate Data Analysis**

Testing mean vectors; discriminant analysis; principal components; factor analysis; cluster analysis; structural equation modeling; graphics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760. No credit toward a graduate degree in statistics

---

**STAT 7580: Introduction to Statistical Methods for Customized Pricing**

(cross-leveled with STAT 4580). Introduction to basic concepts of and statistical methods used in customized pricing. Focuses on applying statistical methods to real customized pricing problems. Students will gain an understanding of customized pricing and some hands on experience with SAS Enterprise minor.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

---

**STAT 7610: Applied Spatial Statistics**

Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or STAT 7510 or instructor's consent

**Recommended:** Basic knowledge of calculus and matrices

---

**STAT 7640: Introduction to Bayesian Data Analysis**

Bayes formulas, choices of prior, empirical Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

---

**STAT 7710: Introduction to Mathematical Statistics**

(same as MATH 7315). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent. No credit MATH 7315

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**STAT 7750: Introduction to Probability Theory**

(same as MATH 7320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

---

**STAT 7760: Statistical Inference**

(same as MATH 7520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750 or instructor's consent

---

**STAT 7810: Nonparametric Methods**

A first course in Non-parametric statistical methods based on ranks. Both theory and application are emphasized. Two-sample problems. K-sample problems. Tests for independence. Contingency tables. Goodness-of-fit tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or instructor's consent

---

**STAT 7830: Categorical Data Analysis**

Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or instructor's consent

---

**STAT 7850: Introduction to Stochastic Processes**

Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750 or instructor's consent

---

**STAT 7870: Time Series Analysis**

A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory. Examples are drawn from a variety of areas including business, economics and soil science.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or STAT 7760 or instructor's consent

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**STAT 8085: Problems in Statistics for Majors - Masters**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 8090: Master's Thesis Research in Statistics**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**STAT 8100: Special Topics in Statistics**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 8220: Applied Statistical Models II**

Advanced applied linear models including mixed linear mixed models (fixed and random effects, variance components, correlated errors, split-plot designs, repeated measures, heterogeneous variance), generalized linear models (logistic and Poisson regression), nonlinear regression. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or STAT 7510 or instructor's consent

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**STAT 8310: Data Analysis I**

Applications of linear models including regression (simple and multiple, subset selection, regression diagnostics), analysis of variance (fixed, random and mixed effects, contrasts, multiple comparisons) and analysis of covariance; alternative nonparametric methods.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 8320: Data Analysis II**

Advanced applications including analysis of designs (e.g. repeated measures, hierarchical models, missing data), multivariate analysis (Hotelling's T<sup>2</sup>, MANOVA, discriminant analysis, principal components, factor analysis), nonlinear regression, generalized linear models, categorical data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 8310 or instructor's consent

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**STAT 8330: Data Analysis III**

An introduction to data analysis techniques associated with supervised and unsupervised statistical learning. Resampling methods, model

selection, regularization, generalized additive models, trees, support vector machines, clustering, nonlinear dimension reduction.

**Credit Hours:** 3

**Prerequisites:** STAT 8320

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**STAT 8370: Statistical Consulting**

Participation in statistical consulting under faculty supervision. Formulation of statistical problems. Planning of surveys and experiments. Statistical computing. Data analysis. Interpretation of results in statistical practice.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and STAT 8320 or instructor's consent

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**STAT 8410: Statistical Theory of Bioinformatics**

Study of statistical theory and methods underpinning bioinformatics. Topics include statistical theory used in biotechnologies such as gene sequencing, gene alignments, microarrays, phylogenetic trees, evolutionary models, proteomics and imaging.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760

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**STAT 8640: Bayesian Analysis I**

Bayes' theorem, subjective probability, non-informative priors, conjugate prior, asymptotic properties, model selection, computation, hierarchical models, hypothesis testing, inference, predication, applications.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140 or instructor's consent

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**STAT 8710: Intermediate Mathematical Statistics I**

Sample spaces, probability and conditional probability, independence, random variables, expectation, distribution theory, sampling distributions, laws of large numbers and asymptotic theory, order statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 8720: Intermediate Mathematical Statistics II**

Further development of estimation theory, including sufficiency, minimum variance principles and Bayesian estimation. Tests of hypotheses, including uniformly most powerful and likelihood ratio tests.

**Credit Hours:** 3

**Prerequisites:** STAT 8710 or instructor's consent

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**STAT 9085: Problems in Statistics for Majors - PhD**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 9090: Doctoral Dissertation Research in Statistics**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**STAT 9100: Recent Developments in Statistics**

The content of the course which varies from semester to semester, will be the study of some statistical theories or methodologies which are currently under development, such as bootstrapping, missing data, non-parametric regression, statistical computing, etc.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and instructor's consent

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**STAT 9250: Statistical Computation and Simulation**

Random number generation, acceptance/rejection methods; Monte Carlo; Laplace approximation; the EM algorithm; importance sampling; Markov chain Monte Carlo; Metropolis-Hasting algorithm; Gibbs sampling, marginal likelihood.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9310: Theory of Linear Models**

Theory of multiple regression and analysis of variance including matrix representation of linear models, estimation, testing hypotheses, model building, contrasts, multiple comparisons and fixed and random effects.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140, and instructor's consent

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**STAT 9320: Advanced Linear Models**

Advanced topics in the theory and application of linear models. Specific content varies with instructor.

**Credit Hours:** 3

**Prerequisites:** STAT 9310 or instructor's consent

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**STAT 9370: Multivariate Analysis**

Distribution of sample correlation coefficients. Derivation of generalized T-squared and Wishart distributions. Distribution of certain characteristic roots, vectors. Test of hypotheses about covariance matrices and mean vectors. Discriminant analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140 or instructor's consent

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**STAT 9410: Survival Analysis**

Statistical failure models, Kaplan-Meier estimator, Log-rank test, Cox's regression model, Multivariate failure time data analysis, Counting process approaches.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9510: Theory of Nonparametric Statistics**

Estimation, hypothesis testing, confidence intervals, etc., when functional form of the population distribution is unknown.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9530: Data Mining and Machine Learning Methods**

Approaches to estimating unspecified relationships and findings unexpected patterns in high dimensional data. Computationally intensive methods including splines, classifications, tree-based and bagging methods, support vector machines.

**Credit Hours:** 3

**Prerequisites:** STAT 4110 or STAT 7110, STAT 4760 or STAT 7760 and STAT 8320 or instructor's consent

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**STAT 9640: Bayesian Analysis II**

Likelihood principle, decision theory, asymptotic properties, advanced topics in Bayesian analysis at the instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** STAT 8640 and STAT 9710 or instructor's consent

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**STAT 9710: Advanced Mathematical Statistics I**

Advanced study of mathematical statistics appropriate for PhD students in statistics. Elements of probability theory, principles of data reduction, point and interval estimation, methods of finding estimators and their properties, hypothesis testing, methods of finding test functions and their properties. Decision theoretic, classical and Bayesian perspectives.

**Credit Hours:** 3

**Prerequisites:** STAT 8720 or instructor's consent

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**STAT 9720: Advanced Mathematical Statistics II**

Continuation of STAT 9710. Topics include distribution theory and convergence, laws of large numbers, central limit theorems, efficiency, large sample theory, and elements of advanced probability.

**Credit Hours:** 3

**Prerequisites:** STAT 9710 or instructor's consent

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**STAT 9810: Advanced Probability**

(same as MATH 8480). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 STAT 7750 or MATH 4700 or MATH 7700 or instructor's consent

---

**STAT 9820: Stochastic Processes**

(same as MATH 8680). Markov processes, martingales, orthogonal sequences, processes with independent and orthogonal increments, stationarity, linear prediction.

**Credit Hours:** 3

**Prerequisites:** STAT 9810 or instructor's consent

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## Student Success Center Courses

**SSC 1020: University Freshmen Seminar**

(same as INTDSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities.

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**Credit Hour:** 1

**Prerequisites:** Restricted to first time college student. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester

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**SSC 1020H: University Freshmen Seminar - Honors**

(same as INTDSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities.

**Credit Hour:** 1

**Prerequisites:** Restricted to first time college student. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester. Honors eligibility required

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**SSC 1150: College Success Seminar**

This course is designed to create a positive new student experience by connecting students with the Mizzou campus community and the academic resources essential to their success. Students' strengths will be assessed and used to assist each student in the development and implementation of an individualized and strategic approach to successfully navigating their way through collegiate life. Individual course sections may be restricted to specific majors or groups.

**Credit Hours:** 2

**Prerequisites:** Freshmen or sophomore standing required

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**SSC 1151: Academic Success Seminar**

Academic recovery strategies will be explored and implemented throughout the course. Students will learn to assess their academic situations, develop a plan of action, apply new strategies for success, and activate their success plan throughout all aspects of their collegiate career. Campus academic resources will be identified to meet students' specific needs. Each student will create an individual plan of action in order to recover academically and stay on the path toward success and graduation. Individual course sections may be restricted to specific majors or groups.

**Credit Hours:** 2

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**SSC 1155: Mindfulness and Academic Recovery**

This class includes instruction in mindfulness practices with a special emphasis on how these skills can positively help manage stress associated with work, school, family, relationships, finances and health concerns. The class is practically oriented and teaches breathing strategies, body awareness practices, mindful communication skills, and a variety of positive psychology practices designed to change the way we use our thoughts and emotions for greater personal and academic success. Graded on an A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor consent required

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**SSC 1500: Disney Internship**

Internship: Experiential learning as a "cast member" of the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney Classes. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent; departmental signature

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**SSC 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center.

**Credit Hour:** 1-3

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**SSC 2150: Tutoring University Students: Theory & Practice**

An introduction to tutoring university students. Provides a pedagogical foundation for tutoring college students in content areas. Topics include but are not limited to diversity, the tutoring relationship, plagiarism, learning strategies, and best practices. Students will observe tutorials during the first part of the course and will conduct their own tutorials later in the semester. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**SSC 3100: Advanced Disney Internship**

Advanced Internship: Experiential learning opportunity with the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney classes. This is a second internship that is more field-specific and carries with it more responsibilities. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent, departmental signature

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## Surgery Courses

**SURGRY 6006: Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Each student has a faculty mentor-advisor, attends faculty discussion sessions that cover objectives in the required textbooks and takes call under the supervision of surgical residents. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

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**SURGRY 6016: Rural Surgery Clerkship**

Rural Surgery Clerkship

**Credit Hours:** 8

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**SURGRY 6026: Springfield Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations,

assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**SURGRY 6039: SCC Vascular Surgery Selective**

The 4th year vascular surgery student will function similar to a "junior house officer" and be actively involved in the diagnosis and management of vascular disorders. They will work in the clinics, participate in ward rounds, teaching conferences, and will be a full member of the vascular team in and out of the operating room.

**Credit Hours:** 5

**Prerequisites:** Fourth Year Medical Student. Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Surgery Clerkship. SURGRY 6006, 6016, 6026, or 6106

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**SURGRY 6106: Remediation Surgery Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Surgery Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** SURGRY 6006 Surgery Clerkship, received unsatisfactory grade

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**SURGRY 6383: ABS Surgery Research**

ABS Surgery Research

**Credit Hour:** 5-10

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**SURGRY 6385: ABS Surgery Research and Review**

ABS Surgery Research and Review

**Credit Hours:** 5

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**SURGRY 6655: Surgical Off-Site Elective**

Surgical Off-Site Elective

**Credit Hours:** 5

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**SURGRY 6658: Burn Unit**

Burn Unit

**Credit Hours:** 5

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**SURGRY 6661: Surgery Research Elective**

Surgery Research Elective

**Credit Hours:** 5

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**SURGRY 6671: Oncology Multidisciplinary**

Oncology Multidisciplinary

**Credit Hours:** 5

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**SURGRY 6672: Neuro-Oncology/Radiosurgery**

Neuro-Oncology/Radiosurgery

**Credit Hours:** 5

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**SURGRY 6686: Neurosurgery B**

Neurosurgery B

**Credit Hours:** 5

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**SURGRY 6687: Advanced Neurosurgery**

Advanced Neurosurgery

**Credit Hours:** 5

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**SURGRY 6688: Orthopaedic Surgery Reserach Elective**

Student will identify interest in surgical clinical research and other topical areas of orthopaedic surgery. The research will define concepts relevant to the practice of orthopaedic surgery. The student will engage in self-directed learning and evaluation of new information.

**Credit Hours:** 5

**Prerequisites:** SURGRY 6006; level M4

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**SURGRY 6759: General Surgery Externship - Rural**

General Surgery Externship - Rural

**Credit Hours:** 5

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**SURGRY 6770: Surgery Rural Elective**

The 4th year surgery student will function as a surgical extern and be integrated into the pre-operative, operative, and post-operative care of surgical patients. The student will function as surgical extern with close supervision and one-on-one instruction.

**Credit Hours:** 5

**Prerequisites:** SURGRY 6002 and SURGRY 6006

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**SURGRY 6774: Otolaryngology - Rural**

Otolaryngology - Rural

**Credit Hours:** 3

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**SURGRY 6780: Urology - Rural**

Urology - Rural

**Credit Hours:** 5

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**SURGRY 6781: Orthopaedic Surgery A - Rural**

Orthopaedic Surgery A - Rural

**Credit Hours:** 5

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**SURGRY 6860: EMERGENCY MEDICINE**

EMERGENCY MEDICINE

**Credit Hours:** 5

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**SURGRY 6926: Ambulatory Otolaryngology**

The student will recognize all subspecialty areas included on this rotation: facial trauma, otology/neurotology, head and neck surgical oncology, facial plastic surgery, sinus surgery, pediatric ENT, laryngology and allergy. The student will be exposed to a broad spectrum of patients (adult and pediatric) in both procedural and clinical settings. Students will demonstrate improved technical skills during the 2 week rotation.

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**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school

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**SURGRY 6938: SCC Urology Two Week Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and physical exam, and develop a patient-centered assessment and plan. They will discuss their findings, assessment and plan with the faculty preceptor and see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will gain significant exposure to the Urologic operating room environment and procedural treatments, including open, laparoscopic, robotic, and endoscopic procedures.

**Credit Hours:** 2

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**SURGRY 6944: SCC Vascular Surgery 2-week**

This course is intended as an introduction to the specialty of vascular surgery. The vascular surgery student will be actively involved in the diagnosis and management of vascular disorders. They will work in the clinics, participate in ward rounds, teaching conferences, and will be a full member of the vascular team in and out of the operating room.

**Credit Hours:** 2**Prerequisites:** Successful completion of the Surgery Clerkship

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**SURGRY 6955: Ambulatory ENT/Urology**

Goals/Objectives: This elective will offer students an exposure to ambulatory care in urology and otolaryngology. Students will see a broad range of patients and numerous outpatient procedures. Students will have close supervision during this experience. Both services have a combined outpatient population of 24,000 visits per year. Students will be exposed to numerous situations they would face in a primary care office. Clinic is offered five days per week by each service. Observation in the O.R. is available and attendance at teaching conferences is required. There will be a written exam given at the completion of the 2 weeks of ENT.

**Credit Hours:** 5

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**SURGRY 6957: Cardiothoracic Surgery**

Cardiothoracic Surgery

**Credit Hours:** 5

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**SURGRY 6958: Surgical off-Site Selective**

Surgical off-Site Selective

**Credit Hours:** 5

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**SURGRY 6959: General Surgery Externship**

Goals/Objectives: 1. Provide the student with ability to function as a first year general surgery house officer with close supervision and one-on-one instruction. 2. Become familiar with pre-operative, operative, and post-operative care of general surgical patients. 3. Become familiar with the graded responsibility structure necessary to ethically conduct post-graduate surgical residency training. 4. Develop bedside patient care skills. 5. Develop reading and clinical research skills necessary for contemporary surgical care.

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**Credit Hours:** 5

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**SURGRY 6971: Surgical Critical Care**

The Surgical Critical Care student will acquire a broad exposure to assessment and management of critically ill and injured patients. The student will participate in daily rounds and patient care with the Surgical Critical Care service. Students will become an active member of the multidisciplinary ICU team and remain under the close supervision of Acute Care Surgery Faculty and Residents. Participation with the members of the multidisciplinary critical care team creates an excellent practical learning environment, while didactic conferences/case presentations compliment the experience.

**Credit Hours:** 5**Prerequisites:** Surgery Clerkship

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**SURGRY 6972: Surgical Oncology**

Surgical Oncology

**Credit Hours:** 5

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**SURGRY 6973: Head and Neck Surgical Oncology**

Head and Neck Surgical Oncology

**Credit Hours:** 5

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**SURGRY 6974: Otolaryngology**

Goals/Objectives: The Otolaryngology student rotation offers learning through participation in daily care of patients, case discussion in conferences, and didactic conferences. All subspecialty areas are included on this rotation, including facial trauma, otology, neurotology, head and neck surgical oncology, facial reconstruction, sinus surgery, pediatric ENT and allergy. Significant outpatient experience is provided and the extent of operating room participation to the student's needs and preferences. The student sees a full spectrum of patients (adult and pediatric) at the University and the VA. The student sees and learns about a variety of outpatient problems during the outpatient segment of this rotation. A wide variety of surgical procedures are observed in the operating room. The residents and faculty encourage an individually tailored learning experience for the student. Supplemental texts and other teaching aids are encouraged. Clinical research projects are available for interested and committed students.

**Credit Hours:** 5**Prerequisites:** Surgery Clerkship

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**SURGRY 6975: Pediatric Surgery**

Goals/Objectives: To gain a working knowledge of a) diagnosis, b) preoperative care, c) surgery, and d) postoperative care of the 1) congenital 2) traumatic 3) oncologic and 4) common surgical conditions affecting infants and children. This rotation is designed for the student planning a career that includes the care of infants and children. CURRICULUM: Attendance on daily rounds and participation in pediatric surgery clinic are mandatory. The student should also be present in radiology for all inpatient and outpatient contrast studies on surgical patients and consults. Operating room exposure can be individualized; the student is expected to be present, but not necessarily scrubbed, for the key portion of each case. Pediatric Surgical texts can be found in the Medical Library under RD 137, in the Pediatric or Surgery libraries, in the bookstore. Rowe - Essentials of Pediatric Surgery, Holder - Pediatric

Surgery, Welch - Pediatric Surgery (4th ed.), Coran - Surgery of the Neonate.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6976: Plastic Surgery**

Goals/Objectives: The plastic surgery student rotation is considered "hands on" experience for the student rotating in the division of plastic surgery. This is a busy rotation with good opportunity for clinical exposure. The patient population includes all subspecialty areas of plastic surgery including hand and microsurgery, head and neck cancer surgery, congenital deformities, burns, facial trauma, and major reconstruction, as well as cosmetic surgery. On this rotation, the student is expected to have an in-depth opportunity to learn, practice, and hone surgical suturing techniques and to first or second assist on many major surgical procedures. The graphic specialty of plastic surgery is best appreciated by participation and observation and there will be ample opportunity for this. In addition to the ward and major operating room duties, the student will obtain ambulatory patient care exposure by participating in the clinics, in the evaluation of new patients, and the after care of surgery patients. In addition, a significant percentage of the surgery is done as an outpatient and the student should have the opportunity to gain appreciation of the nuances of surgery done in the ambulatory environment. Incumbent to these considerations are exposure and appreciation of cost containment in plastic surgical procedures.

**Credit Hours:** 5

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**SURGRY 6977: Acute Care Surgery**

Students will participate in patient care, gather pertinent patient data, and develop plans of care for the patients on the surgery service. Case presentations will be given to the surgical team each day. Night and weekend call should be expected.

**Credit Hours:** 5

**Prerequisites:** Surgery and Internal Medicine Clerkship

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**SURGRY 6979: Vascular Surgery**

Vascular Surgery

**Credit Hours:** 5

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**SURGRY 6980: Urology**

The goal of the rotation is to provide a comprehensive urologic experience for those students who may be interested in Urology as a career as well as those students who simply want a more in-depth experience before pursuing another specialty. At the conclusion of the rotation, the student will be able to competently manage common urologic conditions such as hematuria, incontinence, and erectile dysfunction and recognize those patients who need referral to a specialist. To accomplish this, emphasis is placed on the management of both outpatients and inpatients. Active participation in the operating room is expected and the student will assist in a wide variety of urologic procedures. Students will also participate in outpatient procedures such as cystoscopy and vasectomy. Basically, the student will function as an extern on the University Urologic Service with appropriate patient care responsibilities.

**Credit Hours:** 5

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**SURGRY 6981: Orthopaedic Surgery Sub-Internship**

Goals/Objectives: Rotation for students actively interested (more aggressive) students in orthopaedics as a career. Emphasis will be placed on surgical indications, operative technique and post-operative care of orthopaedic patients. The student will be assigned by Ortho faculty to two different orthopaedic teams (sports medicine, foot and ankle, total joint, general, pediatrics, trauma, and hand) for two weeks at a time. Each student would be given an extensive reading schedule, a list of topics to be covered, given a written or oral examination including both services emphasized at the end of block. Brief oral presentation, to the residency or service on which they are working, on orthopaedic subject of choice pertaining to Ortho service/residency assigned. CURRICULUM: The student will spend two weeks on two different university teams during this rotation. The student will be expected to participate in all aspects of the orthopaedics services they are assigned. This will include outpatient clinics, elective and emergent OR time, routine day-to-day care of patients on the orthopaedic service, and consultations. The student will take four nights of call with the Ortho residents assigned to service. The student will be evaluated by the attending and residents on the two services to which they have been assigned.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6982: Introduction to Orthopaedic Surgery**

Goals/Objectives: Rotations for students interested in a career in primary care. The student will learn physical diagnosis and outpatient as well as surgical treatment of common orthopedic conditions. Each student will be given a list of topics that will be covered, a reading list to which the student would be obligated to read and given a short written and/or oral examination of the musculoskeletal system emphasized. Brief oral presentation, to the residency or service on which they are working, on an orthopedic subject of choice pertaining to Ortho service/residency assigned. The student will be assigned for the four weeks by Ortho Faculty to a preceptor from one of the following areas: sports medicine, foot and ankle, total joint, general, pediatrics, trauma or hand. CURRICULUM: The student on this rotation will be expected to learn to diagnose and manage commonly seen orthopedic conditions in the assigned orthopedic area. The student will participate in outpatient clinics, OR cases, rounds and conferences. The student will take two call nights with the Ortho Resident assigned to service. Basic techniques of splinting and cast application will be learned by sessions with the orthopedic cast technician.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6983: Advanced Orthopaedic Surgery**

Advanced Orthopaedic Surgery

**Credit Hours:** 5

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**SURGRY 6985: Neurosurgery A**

Goals/Objectives: This course will provide the conscientious student an opportunity to acquire the following: 1. The ability to perform comprehensive neurological evaluation of the patient including both history taking and physical examination. This will entail a review of basic neuroanatomy and neurophysiology and a correlation of that information with the requirements of clinical medicine. 2. A basic understanding of neurosurgical diseases and their evaluation and management. Of particular importance will be the emphasis placed upon the initial

evaluation of patients with central and peripheral nervous system trauma and neoplasms, cerebrovascular disease, congenital diseases of the nervous system, pain problems, diseases of the spine and lumbar discs. CURRICULUM: In order to direct the objectives of this course, students will be exposed to the following: 1. Individualized teaching sessions with the faculty. 2. Combined conferences with neurology, neuroradiology and neuropathology. 3. Outpatient clinics at the UMHSC and EFCC (Ellis Fischel). 4. The inpatient services of neurosurgery at UMHSC. 5. The operating room at UMHSC. Evaluations: The progress of the student will be evaluated through personal interaction with the faculty and residents and through an oral examination at the end of the course.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6986: Bariatric Surgery**

Bariatric Surgery

**Credit Hours:** 5

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**SURGRY 6988: Critical Care Neurosurgery**

Goals/Objectives: The student will gain experience with the clinical evaluation of patients with critical care neurosurgical problems such as head trauma, subarachnoid hemorrhage, and spinal cord injury. The student will perform neurologic assessments, evaluate laboratory data and participate in the decision making on patients with these disorders. CURRICULUM: 1. Daily inpatient rounds in the MNICU, SICU and CCU on the neurosurgical patients. 2. Individualized teaching with faculty. 3. Conferences: Neurosurgery Grand Rounds, Neuro-radiology, Neuro-pathology, Neuroscience. Evaluations: By interactions with faculty and residents and oral examination at the end of the rotation.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6989: Pediatric Neurosurgery**

Goals/Objectives: To provide interested students the opportunity to acquire exposure and knowledge in the field of pediatric neurosurgery. This elective will allow the student to learn about clinical entities such as craniofacial anomalies, hydrocephalus, neuroendoscopy, congenital and central nervous system anomalies, and trauma of the CNS. The student becomes part of a team and closely interacts with the attending physician, neurosurgery residents, and clinical nurse specialist. CURRICULUM: 1. Daily inpatient rounds. 2. Individualized teaching with faculty. 3. Clinics: Chiari and Pediatric Neurosurgery. 4. Conferences: Neurosurgery Grand Rounds, Neuro-radiology, Neuro-pathology, Neuroscience. Prerequisites: Surgery Clerkship

**Credit Hours:** 5

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## Textile And Apparel Management Courses

**T\_A\_M 1200: Basic Concepts of Apparel Design and Production**

Introduction to design techniques, coordination of fabric with design, selection of support materials, and basic understanding of garment assembly operations.

**Credit Hours:** 3

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**T\_A\_M 1300: Softgoods Retailing**

Surveys merchandising and retailing principles with specific applications to the softgoods industry.

**Credit Hours:** 3

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**T\_A\_M 2100: Presentation Techniques for Merchandising**

This class explores Adobe Creative Suite (Photoshop, Illustrator, and InDesign) as a tool for presentation techniques within the field of fashion merchandising.

**Credit Hour:** 1-3

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**T\_A\_M 2120: Professional Seminar**

Exploration of issues in professional activity/success including: evaluating opportunities, oral and written communication for presenting oneself, the articulation of professional/private life, and professional ethics.

**Credit Hour:** 1

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**T\_A\_M 2200: Science of Textiles**

Fundamental concepts of textiles. Chemical composition, molecular arrangement, and physical structure of natural and manufactured fibers. Yarn and fabric manufacturing and various finishing techniques. Impacts of such characteristics and techniques on function, performance, and quality. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 2280: Apparel Production**

Introduction to sewn products industry applications in which students assemble sample garments and products on industrial equipment. Order of operations is emphasized and industry specific software is introduced. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** T\_A\_M 1200 and T\_A\_M 2200

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**T\_A\_M 2300: Retail Finance and Merchandise Control**

Emphasizes assortment and financial planning utilizing computer applications in the retail environment. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 1300 or MRKTNG 3000, MATH 1100

**Recommended:** computer familiarity

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**T\_A\_M 2380: Integrated Apparel Design and Production I**

A beginning apparel product development course integrating pattern-making, apparel assembly decision-making and materials selection. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in T\_A\_M 2280 or instructor's consent

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**T\_A\_M 2400: Global Consumers**

This course uses consumer behavior and cultural frameworks, integrated with critical and creative thinking processes to develop global perspective that is sensitive to diverse consumers' needs and preferences for products and services in the global marketplace. Graded on A-F basis only.

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**Credit Hours:** 3

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**T\_A\_M 2480: Apparel and Textile Presentation Techniques**

Apparel and textile presentation processes. Introduction to a range of traditional and innovative presentation techniques using various media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2280

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**T\_A\_M 2500: Social Appearance in Time and Space**

An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2500W: Social Appearance in Time and Space - Writing Intensive**

An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2520: History of Western Dress**

Surveys the history of Western dress from prehistory through the 18th Century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2520W: History of Western Dress - Writing Intensive**

Surveys the history of Western dress from prehistory through the 18th Century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2580: Digital Textile and Apparel Applications**

Use of computer aided design technology to create designs for textiles and apparel. Includes portfolio development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or above in T\_A\_M 2480 or instructor's consent

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**T\_A\_M 2810: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, PEA\_ST 2810, JOURN 3510, DST 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

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**Credit Hours:** 3

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**T\_A\_M 2810H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, JOURN 3510H, PEA\_ST 2810H, DST 3510H). This interdepartmental course serves as the introductory seminar for students pursuing the Certificate of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Restricted to non-Journalism students. Journalism students should enroll in Journalism sides of this course

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**T\_A\_M 2810HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, JOURN 3510HW, PEA\_ST 2810HW). This interdepartmental course serves as the introductory seminar for students pursuing the Certificate of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Restricted to non-Journalism students. Journalism students should enroll in Journalism sides of this course

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**T\_A\_M 2810W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 2810W, JOURN 3510W, DST 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 3001: Recent Trends in Textiles and Apparel Management**

For upper-class students who wish additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-3

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**T\_A\_M 3110: Textiles and Apparel in the Global Economy**

Economic, social, and political dimensions of the textile complex and trade in a global economy; implications for production, distribution, and consumption of products.

**Credit Hours:** 3

**Recommended:** 6 hours of economics

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**T\_A\_M 3200: Softgoods Quality Evaluation**

Examination and evaluation of fabric and apparel structures with emphasis on principles of advanced textile performance and quality analysis. Includes end-use characteristics; price/quality relationships; textile and apparel product standards and specifications; and standard test methods to evaluate comfort, performance, and function of sewn products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2200

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**T\_A\_M 3210: Computer Aided Design**

Use of computer aided design technology to create designs for textiles and apparel.

**Credit Hours:** 3

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**T\_A\_M 3300: Retail and Merchandising Analysis**

This course provides an opportunity to apply the concepts of merchandise planning, financial control, and promotions to real life buying situations. It will employ a problem-based learning approach. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2300

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**T\_A\_M 3380: Integrated Apparel Design and Production II**

An intermediate apparel product development course integrating pattern-making, apparel assembly decision-making and materials selection. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in T\_A\_M 2380

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**T\_A\_M 3480: Technical Design**

Technical product development for the global sewn products industry. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3200

**Prerequisites:** T\_A\_M 3380

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**T\_A\_M 3520: 19th and 20th Century Western Dress**

A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Restricted to Textile and Apparel Management majors only

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**T\_A\_M 3520W: 19th and 20th Century Western Dress - Writing Intensive**

A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Restricted to Textile and Apparel Management majors only

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**T\_A\_M 3700: MultiChannel Retailing in the Digital World**

Assessing the integration of various retail channels and developing multichannel strategies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 3800: Fundamentals of Entrepreneurship**

This course covers the fundamental principles, practices, and procedures of entrepreneurship in a step-by-step approach, and generates a final

business plan. It delves into identifying viable target market through research, appealing to and securing customers, selecting a location, recruiting and retaining great employees and determining how much stock to carry and how to sell it. This course is designed for those who want to consider starting their own retail businesses, but not limited to those who want to reassess the direction of their existing businesses, or to those who want to build tangible as well as intangible entrepreneurial skill sets for their corporate careers. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 4001: Topics in Textiles and Apparel Management**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 4085: Problems in Textiles and Apparel Management**

Selected current problems in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**T\_A\_M 4087: Seminar in Textiles and Apparel Management**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-4

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**T\_A\_M 4100: Electronic Commerce Applications**

Integration of theory, design, management, and application processes used in Electronic Commerce.

**Credit Hours:** 3

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**T\_A\_M 4110: Global Sourcing**

(cross-leveled with T\_A\_M 7110). Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4130: Supply Chain Management**

This course examines how the supply chain management can be used to gain a competitive advantage in the softgoods industry.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4300: Softgoods Brand Management and Promotion**

(cross-leveled with T\_A\_M 7300). This course addresses how to build, measure, and manage brands specifically in the softgoods industry. It also covers the strategic implications of developing brand equity toward increasing customer loyalty.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4400: The Clothing/Textile Consumer: Research and Analysis**

Examines the effects of economic, social and marketing factors on the clothing consumption process. Legislative and quality issues related to clothing and textiles are also discussed.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 1300 or MRKTNG 3000

**Recommended:** 3 hours of statistics

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**T\_A\_M 4480: Creativity and Problem Solving**

Exploration of the creative process and sources of inspiration. Emphasis on research, design development for a variety of markets. Graded on A-F basis only. Prerequisites or Corequisites: T\_A\_M 3380.

**Credit Hours:** 3

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**T\_A\_M 4549: International Experiential Learning in Textiles and Apparel**

International experience of textile and apparel management, including visitation of foreign industries, government agencies, and cultural/historical sites. Destination may vary. Course may be repeated up to 3 times. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; Minimum GPA of 2.5

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**T\_A\_M 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, PEA\_ST 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 4949: Field Training in Textiles and Apparel Management**

Practical aspects of internship experience coordinated with the university curriculum. Available for various areas of emphasis.

**Credit Hour:** 1-99

**Prerequisites:** 2.5 GPA, T\_A\_M 2120, instructor's consent, and necessary prerequisite for area of emphasis

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**T\_A\_M 4960: Readings in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**T\_A\_M 4980: Apparel Production Management**

Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multifunctional team approach. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** T\_A\_M 3480 or T\_A\_M 4480

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**T\_A\_M 4990: Retail Marketing and Merchandising**

(cross-leveled with T\_A\_M 7990). Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use of these techniques and others in the development of a comprehensive retail marketing strategy.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2300, ACCTCY 2036 or ACCTCY 2026 or ACCTCY 2010, MRKTNG 3000

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**T\_A\_M 4998: Experiential Learning in Textiles and Apparel**

This course is designed to provide students with hands-on-experiences in the softgood industry. The purpose is to link classroom learning to business cultural centers, museums, workshops, and /or service learning opportunities achieved through experiential study. Additional field study fees might be applicable, depending on experience. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and minimum GPA of 2.5

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**T\_A\_M 7001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 7085: Problems in Clothing and Textiles**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** 3000-level course in field of problems and instructor's consent

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**T\_A\_M 7087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-99

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**T\_A\_M 7110: Global Sourcing**

Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 3110 or T\_A\_M 9100

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**T\_A\_M 7140: Web-Based Marketing Research**

This project-oriented course will focus on principles of marketing research applicable to textile/apparel online environments. Students will learn how to develop, utilize, and analyze web-based research.

**Credit Hours:** 3

**Prerequisites:** 3 hours of statistics

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**T\_A\_M 7300: Branding**

(cross-leveled with T\_A\_M 4300). This course addresses how to build, measure, and manage brands specifically in the softgoods industry. It also covers the strategic implications of developing brand equity toward increasing customer loyalty.

**Credit Hours:** 3

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**T\_A\_M 7960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** 20 hours in Textile and Apparel Management, and instructor's consent

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**T\_A\_M 7980: Softgoods Product Development**

Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multi-functional team approach.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3480 or T\_A\_M 4480

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**T\_A\_M 7990: Retail Marketing and Merchandising**

(cross-leveled with T\_A\_M 4990). Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use of these techniques and others in the development of a comprehensive retail marketing strategy.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2300, ACCTCY 2036 or ACCTCY 2026 or ACCTCY 2010, MRKTNG 3000

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**T\_A\_M 7999: International Experiential Learning in Textiles and Apparel**

Investigation of the complex interaction of manufacturing, marketing, and merchandising in the apparel industry, achieved through instructional and experiential study. Includes international or domestic study trip. Graded on A-F basis only.

**Credit Hour:** 1-9

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**T\_A\_M 8000: Readings in Textiles and Apparel Management**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** 20 hours in Textile and Apparel Management, and instructor's consent

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**T\_A\_M 8001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 8085: Problems in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**T\_A\_M 8087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-99

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**T\_A\_M 8090: Research in Clothing and Textiles**

Independent research leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-99

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**T\_A\_M 8130: Supply Chain Management in the Global Softgoods Industry**

This course examines supply chain management strategies to gain a competitive advantages in the global softgoods industry.

**Credit Hours:** 3

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**T\_A\_M 8190: Survey of Research in Textile and Apparel Management**

A survey of current research in textiles and apparel management. Underlying theory, research design and empirical techniques will be analyzed and critiqued.

**Credit Hour:** 1-6

**Prerequisites:** hours in Statistics and 3 hours in Research Methods

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**T\_A\_M 8410: Applied Research Procedures and Analyses in Textiles and Apparel**

Investigation of applied research techniques and analyses used in the field of Textile and Apparel Management.

**Credit Hours:** 3

**Prerequisites:** 3 credits of merchandising, marketing, or microeconomics; 3 credits in computer science and 3 credits in statistics

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**T\_A\_M 8500: Qualitative Social Research Methods**

Focus is on the philosophical differences inherent in an interpretivist versus a positivist approach to social research, the strategies and methods of qualitative research, and qualitative research design and criticism. May be repeated twice.

**Credit Hours:** 3

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**T\_A\_M 8510: Perspectives of 19th and 20th Century Dress**

A study of nineteenth and twentieth century western dress as influenced by time, place, and culture.

**Credit Hours:** 3

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**T\_A\_M 8600: Sustainable Softgoods: Global Policies and Practices**

This course examines sustainability in the soft goods industry in the context of cultural, economic, environmental, social, and technological policies and procedures of soft goods industries. Includes ethics, government policies international labor standards, environmental regulations, company priorities, consumer responsibilities, economic impact, and worker rights. The importance of establishing leadership for social change will be incorporated. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 8960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing, 20 hours in Textile and Apparel Management, and instructor's consent

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**T\_A\_M 9001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 9085: Problems in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**T\_A\_M 9087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-99

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**T\_A\_M 9090: Research in Textiles and Apparel Management**

Independent research leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**T\_A\_M 9190: Theory Development and Evaluation in Textile and Apparel Research**

This class examines and analyzes extant theories in textiles and apparel research in systemic manner to be able to construct new theories.

Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 9500: Cloth and the Human Experience**

Examines the social context of dress and other intimate manifestations of daily life using culture as the level of analysis.

**Credit Hours:** 3

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**T\_A\_M 9510: Textile History Seminar**

Investigation of research in textile and costume history with emphasis on developing questions, methods of analysis and interpretation appropriate for data sources used.

**Credit Hours:** 3

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**T\_A\_M 9960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** 20 hours in Textile and Apparel Management, and instructor's consent

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## Theatre Courses

**THEATR 1005: Topics in Theatre - Humanities/Fine Arts**

Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

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**THEATR 1100: The Theatre in Society**

Examines the form and meaning of theatre in civilizations of the West from the ancient Greeks to modern times.

**Credit Hours:** 3

**Recommended:** Freshman or Sophomore standing

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**THEATR 1200: Voice and Articulation**

Techniques for improving speaking voice; theories underlying techniques. Attention to student's articulation, pronunciation, voice quality, general expressiveness.

**Credit Hours:** 2

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**THEATR 1250: World Theatre Workshop**

(same as BL\_STU 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**THEATR 1320: Beginning Scenic Construction**

This course examines, through theory and practice, the art and science of technical theatre. Students explore the methods, equipment, and materials used in executing scenery, properties, and lighting designs for the stage, and participate in the backstage operation of a theatrical production.

**Credit Hours:** 3

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**THEATR 1340: Beginning Costume Construction**

This course examines, through theory and practice, the art and science of costume technology in the theatre. Students explore the methods, equipment, and materials used in executing costume designs for the stage, and participate in the backstage operation of a theatrical production.

**Credit Hours:** 3

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**THEATR 1360: Stage Makeup**

Character analysis, facial anatomy, color for stage and television makeup. Practice in application.

**Credit Hour:** 1

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**THEATR 1400: Acting for Non-Majors**

Basic theory and practice of acting for the non theatre major.

**Credit Hours:** 3

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**THEATR 1420: Stage Movement for the Actor**

Basic work in the techniques that comprise movement training for the actor.

**Credit Hours:** 2

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**THEATR 1720: African-American Theatre History**

(same as BL\_STU 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

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**Credit Hours: 3**

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**THEATR 2005: Topics in Theatre - Humanities**

Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with department consent.

**Credit Hours: 3**

**Prerequisites:** instructor's consent

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**THEATR 2150: African-American Cinema**

(same as BL\_STU 2150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

**Credit Hours: 3**

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**THEATR 2200: Introduction to Performance Studies**

This course focuses on the writing of adaptations for the stage through performance. Students develop skills in critical reading, writing, listening, speaking and analysis of performance as they study oral and literary texts, autobiography and narratives.

**Credit Hours: 3**

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**THEATR 2300: Production Workshop I**

Work backstage in support of university theatre productions. Scenery, lighting, costumes, properties or other responsibilities. May be repeated. Graded on a S/U basis only.

**Credit Hour: 1**

**Prerequisites:** instructor's consent

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**THEATR 2330: Stage Management**

Study of the role of the theatre stage manager. Practice in becoming effective in planning and stage managing theatre productions. Graded on A/F basis only.

**Credit Hours: 3**

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**THEATR 2360: Stagecraft**

Fundamentals of properties and scenic construction stressing terminology and practical production experience.

**Credit Hours: 3**

**Prerequisites:** THEATR 1320

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**THEATR 2410: Performance Workshop**

Credit for performance in University Theatre Production. Must audition and be cast to receive credit. May be repeated. Graded on S/U basis only.

**Credit Hour: 1**

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**THEATR 2510: Introduction to Theatre Design**

Design principles and elements as they relate to theatre performance. Use of drawing and creative 3-dimensional exercises to develop design concepts.

**Credit Hours: 3**

**Recommended:** to students interested in directing, playwriting, and design for the theatre

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**THEATR 2710: Introduction to Theatre History**

Survey of major periods emphasizing the produced play in its historical context.

**Credit Hours: 3**

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**THEATR 2800: Principles of Script Analysis**

Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

**Credit Hours: 3**

**Prerequisites:** ENGLISH 1000

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**THEATR 2800W: Principles of Script Analysis - Writing Intensive**

Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

**Credit Hours: 3**

**Prerequisites:** ENGLISH 1000

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**THEATR 2810: Script Analysis for Theatre Majors**

Advanced methodologies of script analysis. Critical analysis of scripts for theatre, film, and performance, including the analysis of plots, characters, themes, and language. Students in this class view performances and read scripts, then analyze the connections between the scripts and performances through extensive writing exercises.

**Credit Hours: 3**

**Prerequisites:** ENGLISH 1000

**Recommended:** Intended for Theatre Majors

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**THEATR 2920: Beginning Playwriting**

(same as ENGLISH 2560). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours: 3**

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**THEATR 3005: Topics in Theatre - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour: 1-99**

**Prerequisites:** instructor's consent

**Recommended:** Junior Standing

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**THEATR 3005H: Topics in Theatre - Honors - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour: 1-99**

**Prerequisites:** Instructor's consent and honors eligibility

**Recommended:** Junior standing

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**THEATR 3100: Summer Repertory Theatre**

Participation in production of Summer Repertory Theatre. May be repeated.

**Credit Hour: 1-99**

**Prerequisites:** instructor's consent

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**THEATR 3200: Performance of Literature**

(same as ENGLISH 3570 and COMMUN 3570). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**THEATR 3230: Vocal Performance Technique**

This course develops the ability to use the voice as a creative and expressive instrument through a comprehensive study of speech and voice dynamics which include the exploration of proper breathing, relaxation, tonal placement, and non-regional articulation.

**Credit Hours:** 3

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**THEATR 3300: Production Workshop II**

Credit earned in a technical project in support of a University Theatre production. Scenery, costumes, properties, or other responsibilities. May be repeated to total of 3 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 3310: Costume Crafts**

To develop the skills and techniques needed in executing costume crafts, including millinery, corsetry, painting and dyeing, and embellishment.

**Credit Hours:** 3

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**THEATR 3320: Theatrical Patternmaking**

Patternmaking for the theatre. Basic knowledge of sewing required.

**Credit Hours:** 3

**Prerequisites:** THEATR 1340 or T\_A\_M 1200

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**THEATR 3330: Advanced Costume Construction**

Learn advanced techniques in theatrical costuming through lecture, demonstration and practical application.

**Credit Hours:** 3

**Prerequisites:** THEATR 1340 and instructor's consent

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**THEATR 3340: Scene Painting**

Studio practice in techniques of painting scenery for the Theatre.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**THEATR 3420: Acting I**

Basic theory, practice of acting, stage movement.

**Credit Hours:** 3

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**THEATR 3430: Acting II**

Script analysis, character and role development in modern and contemporary non-realistic theatrical forms. Rehearsal and presentation of scenes, based on contemporary dramatic and performance theory.

**Credit Hours:** 3

**Recommended:** THEATR 2800

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**THEATR 3530: Computer Graphics in Theatre Design**

The use of graphics and CAD software to create theatre designs. The course will progress from 2D CAD drafting to 3D image rendering.

**Credit Hours:** 3

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**THEATR 3540: Advanced Stage Makeup**

Advanced practical experience in stage makeup techniques. Projects might include: mask making, ventilation, advanced character applications. Practice in application. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** THEATR 1360 and instructor's consent

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**THEATR 3550: Sound Design**

Beginning sound design for the theatre. Units include basics of researching, recording, and augmenting sound for the use in a theatrical production.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320 and instructor's consent

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**THEATR 3560: Scene Design**

Theory/practice of scenic design for the theatre with emphasis on the evolutionary process of design from concept to reality.

**Credit Hours:** 3

**Prerequisites:** THEATR 2510

**Recommended:** THEATR 3530

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**THEATR 3600: Theatrical Directing**

Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and instructor's consent

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**THEATR 3600W: Theatrical Directing - Writing Intensive**

Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and instructor's consent

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**THEATR 3700: World Dramatic Literature**

(same as ENGLISH 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance.

**Credit Hours:** 3

**Recommended:** THEATR 2710 and THEATR 2800

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**THEATR 3700W: World Dramatic Literature - Writing Intensive**

(same as ENGLISH 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance.

**Credit Hours:** 3

**Recommended:** THEATR 2710 and THEATR 2800

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**THEATR 3750: New American Theatre**

Survey of drama of the most recent decade as it documents contemporary mores and amplifies cultural themes.

**Credit Hours:** 3

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**THEATR 3770: The Theatre Experience: From Page to Stage and Screen**

Stimulates critical thinking about theatrical performance, its relationship to the society of which it is a part, and its past and present significance as an art form, a cultural resource, a social institution, and a commercial enterprise.

**Credit Hours:** 3

**Prerequisites:** Journalism Majors only

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**THEATR 3920: Intermediate Playwriting**

(same as ENGLISH 3560). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

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**THEATR 3930: Screenwriting for Television and Film**

(same as FILM\_S 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**THEATR 4005: Topics in Theatre - Humanities**

Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 4220: Acting III**

(cross-leveled with THEATR 7220). Period acting styles. Special projects in interpretation, rehearsal, creation of roles.

**Credit Hours:** 3

**Prerequisites:** THEATR 3420 or THEATR 3430

**Recommended:** THEATR 2800

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**THEATR 4240: Theory and Practice of Theatre of the Oppressed**

(same as PEA\_ST 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4280: Digital Media and Performance**

(cross-leveled with THEATR 7280). This course introduces students to the history and practice of the combination of live actors and digital media within the context of theatre and performance. Students learn about developments in the history of this topic as well as significant individuals, groups of artists, and theorists who have contributed to the field. Theories of performance are utilized as a way to understand subjects such as the

development of computers and the Internet, the impact of technology and social media on society, virtual reality, telematics, robotics, and video games. Students create their own performances that combine live performances with digital media elements, and learn basic approaches to using computer software that is employed in creating these types of performances.

**Credit Hours:** 3

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**THEATR 4460: Musical Theatre Performance**

A practical study for the actor of theatrical songs through character analysis, lyric interpretation and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4530: Stage Lighting Design**

Theory and practice of lighting for theatre production.

**Credit Hours:** 3

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**THEATR 4570: Theatrical Costume Design**

Basic practice in costume rendering using charcoal, crayon, ink, watercolor and other media. Costume history, both theatrical and general, will be surveyed. Basic problems of theatre design will be considered.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320 or THEATR 1340

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**THEATR 4600: Advanced Directing**

(cross-leveled with THEATR 7600). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once.

**Credit Hours:** 3

**Prerequisites:** THEATR 3600 and instructor's consent

---

**THEATR 4650: Introduction to Dramaturgy**

The course focuses on the practice of dramaturgy and the various functions currently performed by the artist/scholar identified as "dramaturg" including research, dramatic criticism/interpretation, new play development, marketing and educational outreach, and textual adaptation.

**Credit Hours:** 3

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**THEATR 4700: Studies in Theatre History**

Advanced survey of major periods, movements. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4720: American Musicals**

(same as MUS\_H\_LI 4376). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**THEATR 4730: Theatre Architecture**

Examines the renovation of existing buildings into workable theatre spaces. Includes history of theatre architecture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4800: Studies in Dramatic Theory**

Analysis of history, meaning and function of selected concepts of contemporary dramatic and performance theory.

**Credit Hours:** 3

**Recommended:** senior standing

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**THEATR 4820: Studies in Dramatic Literature**

(cross-leveled with THEATR 7820). Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4820W: Studies in Dramatic Literature - Writing Intensive**

Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4830: Studies in Dramatic Criticism**

Survey of methods of criticism of scripts and performances.

**Credit Hours:** 3

**Recommended:** senior standing

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**THEATR 4920: Advanced Playwriting: Problems**

(same as ENGLISH 4560; cross-leveled with THEATR 7920 and ENGLISH 7560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLISH 3560

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**THEATR 4920W: Advanced Playwriting: Problems - Writing Intensive**

(same as ENGLISH 4560; cross-leveled with THEATR 7920 and ENGLISH 7560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLISH 3560

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**THEATR 4930: Adaptation of Literature for the Stage**

(same as ENGLISH 4570; cross-leveled with THEATR 7930 and ENGLISH 7570). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

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**THEATR 4935: Adaptation of Literature for Film**

(same as FILM\_S 4935 and ENGLISH 4935; cross-leveled with THEATR 7935, ENGLISH 7580 and FILM\_S 7935). This upper-division course will

explore adaptation principles and practices with a variety of forms for literature that were not originally written for film.

**Credit Hours:** 3

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**THEATR 4938: Advanced Screenwriting: Styles**

(same as ENGLISH 4938; cross-leveled with THEATR 7938, ENGLISH 7938). To develop advanced skills of screenwriting through a focus on a non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**THEATR 4940: Internship in Theatre**

Internship: Experimental learning as an actor, designer, technician, publicist/manager, or dramaturg with an approved theatre company. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

**Recommended:** junior or senior standing

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**THEATR 4960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 4990: Capstone in Theatre**

Theatre experiences and knowledge gained by students are connected through compilation of resume and portfolio. Student will meet with faculty jury to discuss his/her body of theatrical work. Required for senior theatre students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 7005: Topics**

Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 7220: Acting III**

(cross-leveled with THEATR 7220). Period acting styles. Special projects in interpretation, rehearsal, creation of roles.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and THEATR 3420 or THEATR 3430

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**THEATR 7240: Theory and Practice of Theatre of the Oppressed**

(same as PEA\_ST 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7280: Digital Media and Performance**

(cross-leveled with THEATR 4280). This course introduces students to the history and practice of the combination of live actors and digital media within the context of theatre and performance. Students learn about developments in the history of this topic as well as significant individuals, groups of artists, and theorists who have contributed to the field. Theories of performance are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology and social media on society, virtual reality, telematics, robotics, and video games. Students create their own performances that combine live performances with digital media elements, and learn basic approaches to using computer software that is employed in creating these types of performances.

**Credit Hours:** 3

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**THEATR 7530: Stage Lighting Design**

Theory and practice of lighting for theatre production.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7600: Advanced Directing**

(cross-leveled with THEATR 4600). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once.

**Credit Hours:** 3

**Prerequisites:** THEATR 3600 and instructor's consent

---

**THEATR 7700: Studies in Theatre History**

Advanced survey of major periods, movements. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

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**THEATR 7710: History of American Theatre I**

Examination of theatrical literature and production from the beginnings to World War One.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7720: History of the American Theatre II**

Examination of theatrical literature and production from World War One to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7730: Theatre Architecture**

Examines the renovation of existing buildings into workable theatre spaces. Includes history of theatre architecture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**THEATR 7800: Studies in Dramatic Theory**

Analysis of history, meaning and function of selected concepts of contemporary dramatic and performance theory.

**Credit Hours:** 3

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**THEATR 7820: Studies in Dramatic Literature**

Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

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**THEATR 7830: Studies in Dramatic Criticism**

Survey of methods of criticism of scripts and performances.

**Credit Hours:** 3

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**THEATR 7920: Advanced Playwriting: Problems**

(same as ENGLSH 7560; cross-leveled with THEATR 4920 and ENGLSH 4560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLSH 3560

---

**THEATR 7930: Adaptation of Literature for the Stage**

(same as ENGLSH 7570; cross-leveled with THEATR 4930). Explores adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7935: Adaptation of Literature for Film**

(same as ENGLSH 7580 and FILM\_S 7935; cross-leveled with THEATR 4935, FILM\_S 4935 and ENGLSH 4935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**THEATR 7938: Advanced Screenwriting: Styles**

(same as ENGLSH 7938; cross-leveled with THEATR 4938, ENGLSH 4938). To develop advanced skills of screenwriting through a focus on a non-realistic dramatic writing technique in the development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

---

**THEATR 7950: Introduction to Dramaturgy**

This course focuses on the practice of dramaturgy and the various functions currently performed by the artist/scholar identified as "dramaturg" including research, dramatic criticism/interpretation, new play development, marketing and educational outreach, and textual adaptation. Graded on A-F basis only.

**Credit Hours:** 3

---

**THEATR 7960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 8005: Topics in Theatre**

Organized study of selected topics. Topic and credit may vary from semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8090: Research in Theatre**

Independent research of advanced nature leading to report. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8100: Theatre Scholarship**

History, goals, and techniques of academic writing in theatre including research, types of studies, primary materials, interpretation, writing techniques, and publication.

**Credit Hours:** 3

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**THEATR 8200: Performance Ethnography**

This graduate seminar will explore intersections of the fields of ethnography and performance: both studies of ethnographic research conducted within a performance paradigm and the performance of ethnographic research. The class will explore major critical and theoretical issues about ethnography and performance, including the conflation and differences between the forms of ethnographic texts and traditional performance scripts, questions about what constitutes performance ethnography as a genre, the construction and deconstruction of identities and communities inherent in performance ethnography, strategies for creating and critiquing the performance of ethnographic research, ethical questions related to representation and the performance of ethnographic research, writing performance ethnography, and the staging of texts based on ethnographic research.

**Credit Hours:** 3

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**THEATR 8385: Problems in Theatre**

Individual study/project not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8720: Backgrounds of Modern Theatre Practice**

Survey of modern performance theory, aesthetics and practice. Emphasis on European theatre since 1875. May be repeated or credit.

**Credit Hours:** 3

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**THEATR 8787: Seminar in Theatre History**

Selected problems in theatre history. May be repeated.

**Credit Hours:** 3

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**THEATR 8820: Graduate Seminar in Dramatic Literature**

This is a course that explores the influence of major playwrights and playwriting in society--specific playwrights and their works are determined by the course professor.

**Credit Hours:** 3

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**THEATR 8887: Seminar in Dramatic Theory and Criticism**

Selected topics in dramatic theory and criticism. May be repeated.

**Credit Hours:** 3

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**THEATR 8960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 8987: Graduate Seminar in Playwriting**

(same as ENGLSH 8560). Seminar in theory, practice, and pedagogy of playwriting, students prepare a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**THEATR 9090: Research in Theatre**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Veterinary Biomedical Science Courses

**V\_BSCI 5011: Veterinary Anatomy**

In-depth study of the structure of the horse, ox, sheep, goat, pig and avian species. (Instructional periods 3 and 4).

**Credit Hours:** 3

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**V\_BSCI 5012: Veterinary Anatomy with Laboratory**

Continuation of V\_BSCI 5011. In-depth study of the structure of the horse, ox, sheep, goat, pig and avian species. (Instructional periods 3 and 4).

**Credit Hours:** 3

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**V\_BSCI 5020: Developmental Anatomy**

Provides a comprehensive and rational interpretation of the intricate mechanisms of normal development to better understanding the complex anatomy of the adult. A substantial portion will be dedicated to commonly encountered congenital abnormalities for each major organ system.

**Credit Hours:** 0.5

**Prerequisites:** 1st year Veterinary students

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**V\_BSCI 5021: Developmental Anatomy**

Provides a comprehensive and rational interpretation of the intricate mechanisms of normal development to better understanding the complex anatomy of the adult. A substantial portion will be dedicated to commonly encountered congenital abnormalities for each major organ system.

**Credit Hours:** 0.5

**Prerequisites:** 1st year Veterinary students

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**V\_BSCI 5051: Veterinary Gastrointestinal**

Continuation of V\_BSCI 5504. Physiology of the gastrointestinal tract, exocrine pancreas and liver. Lecture and lab designed to emphasize principles important to the practice of veterinary medicine.

**Credit Hours:** 2

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**V\_BSCI 5052: Veterinary Endocrinology and Reproductive Physiology**

Continuation of Veterinary Biomedical Science 5051. Comparative endocrinology and reproductive biology.

**Credit Hours:** 2

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**V\_BSCI 5100: Veterinary Neuroscience**

A laboratory and lecture-based course emphasizing the applied anatomy and physiology of the nervous system of domestic animals.

**Credit Hours:** 2

**Prerequisites:** first year Veterinary students

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**V\_BSCI 5500: Veterinary Anatomy with Laboratory**

Correlative study of the anatomy of domestic and laboratory animals in which the developmental and gross anatomy are integrated. A segment is devoted to neuroanatomy. Dissection includes the dog, cat and common laboratory animals. (Instructional periods 1 and 2).

**Credit Hours:** 4

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**V\_BSCI 5502: Veterinary Microscopic Anatomy with Laboratory**

A study of microscopic anatomy including cytology, histology of basic tissues and microscopic anatomy of cardiovascular, urinary, respiratory systems and the special senses and integument. (Instructional periods 1 and 2).

**Credit Hours:** 3

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**V\_BSCI 5503: Veterinary Microscopic Anatomy**

Particular attention to digestive systems, endocrine organs and reproductive systems. (Instructional period 3).

**Credit Hours:** 2

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**V\_BSCI 5504: Veterinary Physiology**

This course is designed to provide an opportunity and motivation for the student to acquire an understanding of the physiological principles on which rational therapy in medical practice is based. Topics include: Cellular Neurophysiology, Muscle, Cardiovascular, Renal and Respiratory Physiology. The course also encourages the student to apply these principles in solving problems so that it becomes habitual for him or her to think in terms of "mechanisms of action" as he or she approaches a problem in disturbed physiology.

**Credit Hours:** 5

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**V\_BSCI 5506: Veterinary Molecular and Cellular Biology**

(same as V\_BSCI 7333) A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

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**V\_BSCI 5507: Veterinary Pharmacology with Laboratory**

General principles of pharmacy, pharmacokinetics, and pharmacodynamics, with emphasis on drugs affecting the central and autonomic nervous system, cardiovascular and hematologic systems.

**Credit Hours:** 3

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**V\_BSCI 5508: Veterinary Pharmacology**

Continuation of V\_PBIO 5507. Antiseptics, autocooids, hemostatics and anticoagulants, fluid and electrolytes, reproductive, endocrine, and gastrointestinal drugs.

**Credit Hours:** 2

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**V\_BSCI 5509: Veterinary Toxicology**

(Same as V\_BSCI 8509) Local and various systemic clinical responses of domestic animals to foreign chemicals including metals, pesticides, water-and food-borne agents, biotoxins, industrial and plant toxins. The principles, mechanism(s) of action, diagnosis, prevention and treatment of chemical intoxications are also presented.

**Credit Hours:** 3

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**V\_BSCI 7302: Cytology, Histology, and Organology of Domestic Animals I**

Detailed study of the structure and function of the cell, basic tissues (epithelium, connective tissue, muscle, nervous tissue) and several organ systems (cardiovascular, lymphatic, integument, digestive, visual, auditory) of domestic mammals and birds.

**Credit Hours:** 3

**Prerequisites:** background in biological sciences, instructor's consent

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**V\_BSCI 7303: Cytology, Histology and Organology of Domestic Animals II**

Detailed study of the liver, gallbladder, and pancreas, urinary system, respiratory system, endocrine glands, female reproductive system, placenta, male reproductive system, and integument (hoof and claw) of domestic mammals and birds.

**Credit Hours:** 2

**Prerequisites:** V\_BSCI 7303 and instructor's consent

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**V\_BSCI 7307: Embryology and Development of Domestic Animals**

Developmental anatomy of domestic animals. Special written report and/or review required.

**Credit Hours:** 2

**Prerequisites:** background in biological science and departmental consent

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**V\_BSCI 7333: Veterinary Cell Biology**

(same as V\_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**V\_BSCI 7510: Equine Clinical Anatomy: Forelimbs**

(cross-leveled with BIOCHM 4510). Basic foundation in selected aspects of equine clinical anatomy for veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structures of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** A bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_BSCI 8010: Comparative Anatomy of Cardiovascular System**

The systemic and pulmonary circulation. The heart and vessels in detail. One midterm exam and final paper. Laboratory included.

**Credit Hour:** 1

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**V\_BSCI 8085: Problems in Veterinary Biomedical Science**

Selected problems and/or topics for advanced study in special areas to meet needs of individual students.

**Credit Hour:** 1-99

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**V\_BSCI 8090: Research in Veterinary Biomedical Science**

Open to graduate students with requisite preparation. Research expected to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_BSCI 8100: Veterinary Neuroscience**

A laboratory and lecture based course emphasizing the applied anatomy and physiology of the nervous system of domestic animals.

**Credit Hours:** 2

**Prerequisites:** Restricted to first year veterinary students or graduate students

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**V\_BSCI 8200: Multidisciplinary Approaches to Biomedical Sciences**

The goal of this course is to aid the student in developing a multidisciplinary philosophy to problem solving in biomedical research. Methods used in molecular, biochemical, cellular, tissue, organ, and whole animal studies will be emphasized.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**V\_BSCI 8410: Seminar in Veterinary Biomedical Science**

Presentation and discussion of investigations and topics in veterinary anatomy-physiology or related fields, by qualified students, instructors, and guests.

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**V\_BSCI 8420: Veterinary Physiology**

This course is designed to provide an opportunity and motivation for the student to acquire an understanding of the physiological principles on which rational therapy in medical practice is based. Topics include: Cellular Neurophysiology, Muscle, Cardiovascular, Renal and Respiratory Physiology. The course also encourages the student to apply these principles in solving problems so that it becomes habitual for him or her

to think in terms of "mechanisms of action" as he or she approaches a problem in disturbed physiology.

**Credit Hours:** 5

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**V\_BSCI 8421: Veterinary Physiology**

Continuation of V\_BSCI 8420. Physiology of the gastrointestinal tract, exocrine pancreas, liver, endocrine system and reproduction.

**Credit Hours:** 4

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**V\_BSCI 8509: Veterinary Toxicology**

(Same as V\_BSCI 5509) Local and various systemic clinical responses of domestic animals to foreign chemicals including metals, pesticides, water-and food-borne agents, biotoxins, industrial and plant toxins. The principles, mechanism(s) of action, diagnosis, prevention and treatment of chemical intoxications are also presented. Graded A-F only.

**Credit Hours:** 3

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**V\_BSCI 9090: Research in Veterinary Biomedical Sciences**

Research in Veterinary Biomedical Sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**V\_BSCI 9425: Microvascular Circulatory Function**

(same as MPP 9434). An in-depth study of microcirculatory structure and function in various tissues with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function and fluid balance.

**Credit Hours:** 3

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8422 or Mammalian Physiology or equivalent

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**V\_BSCI 9431: Control of Energy Metabolism**

(same as MPP 9431). This advanced elective is in a lecture/discussion format using primary literature to explore how cells organize and regulate metabolism to meet energy demands.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**V\_BSCI 9435: Molecular Exercise Biology**

(same as MPP 9435). Integrated adaptations of adipose tissue, blood vessels, bone, brain, heart, immune, liver, microbiome, and skeletal muscle to physical training during life. Lifecourse emphasis will be placed upon the role of physical activity during growth and aging in increasing and decreasing, respectively, cardiovascular fitness and strength fitness. The roles of the level of cardiovascular and strength fitness in slowing the onset of chronic diseases and death will be one outcome of the curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Introductory physiology and molecular biology

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**V\_BSCI 9462: Hormone Action**

(same as BIOCHM 9462). A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second

messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

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#### **V\_BSCI 9467: Neural Cardiorespiratory Control**

(same as MPP 9437). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular and respiratory system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods used to study CNS cardiorespiratory regulation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **Veterinary Medicine - Interdisciplinary Courses**

#### **VMED\_I 5120: Full-Time Enrollment**

Full-Time Enrollment

**Credit Hour:** 16-99

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#### **VMED\_I 5190: Full-Time Enrollment**

Full-Time Enrollment

**Credit Hour:** 16-99

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### **Veterinary Medicine And Surgery Courses**

#### **V\_M\_S 6001: Topics in Veterinary Medicine**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only. Course instructor consent prior to enrollment is required.

**Credit Hour:** 0.5-6

**Prerequisites:** Restricted to Veterinary Medicine students

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#### **V\_M\_S 6005: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students. Graded on S/U basis only

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#### **V\_M\_S 6006: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students. Graded on S/U basis only.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students

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#### **V\_M\_S 6010: Evaluated Veterinary Preceptorship**

This required co-op style course provides the student with practical exposure and experience in nonacademic veterinary medicine. Duration of 2-6 weeks. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** VM-3 standing

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#### **V\_M\_S 6020: Veterinary Radiology with Laboratory**

Introduces through lectures and demonstrations the principles of radiographic examination and interpretation of disease processes of domestic animals. Instructional period 8.

**Credit Hours:** 2

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#### **V\_M\_S 6030: Veterinary Anesthesiology with Laboratory**

Basic principles of anesthesiology for any species of domestic and exotic animals. Instructional period 9.

**Credit Hours:** 2

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#### **V\_M\_S 6040: Companion Animal Medicine with Laboratory**

Covers basic principles of veterinary internal medicine and selected subdisciplines. Instructional period 9.

**Credit Hours:** 4

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#### **V\_M\_S 6050: Small Animal Medicine**

Didactic presentations regarding pathophysiology, diagnosis and therapeutic management of organ system diseases in small animals.

**Credit Hours:** 2.5

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#### **V\_M\_S 6060: Small Animal Surgery with Laboratory**

Basic principles including suture materials, suture patterns, operative techniques, wound healing, and body system approach to soft tissue surgery conditions.

**Credit Hours:** 2

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#### **V\_M\_S 6071: Small Animal Surgery**

Continuation of V\_M\_S 6060 lectures, focusing primarily on orthopedics.

**Credit Hours:** 2

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#### **V\_M\_S 6072: Optional Surgery and Anesthesia Laboratory**

Designed to teach entry-level surgical and anesthesia skills using models, live animals, and cadavers. This laboratory is offered as a substitute to V\_M\_S 6073 for students who wish to gain anesthesia and surgical experience with live tissues. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6060

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#### **V\_M\_S 6073: Fundamental Surgery Laboratory**

Designed to teach entry-level surgical skills using models and cadavers. Canine cadavers will be substituted for pigs in the first two celiotomy laboratories. Students will not anesthetize pigs but will observe clinical anesthesia by following one clinical case from start to finish. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** complete V\_M\_S 6060

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**V\_M\_S 6081: Food Animal Medicine and Surgery**

Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2.5

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**V\_M\_S 6082: Food Animal Medicine and Surgery**

Continuation of V\_M\_S 6081. Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2

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**V\_M\_S 6090: Small Animal Emergency and Critical Care with Laboratory**

Basic principles of emergency and critical care of companion animals, and body system approach to emergency and critical care.

**Credit Hour:** 1

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**V\_M\_S 6110: Theriogenology**

Reproductive function, estrous cycle manipulation, and breeding of individual domestic animals and herds. Pathogenesis, diagnosis and management (medical and surgical) of common reproductive disorders.

**Credit Hours:** 3

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**V\_M\_S 6120: Veterinary Ophthalmology**

Covers examination, diagnostic procedures and treatment of important eye diseases of domestic animals.

**Credit Hour:** 1

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**V\_M\_S 6130: Fundamentals of Veterinary Business Management**

To realistically present to the second-year veterinary student a basic explanation of the essential need for strong base of knowledge pertaining to business and management in order to be successful in the veterinary profession.

**Credit Hour:** 1

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**V\_M\_S 6140: Nutrition with Laboratory**

Nutrition of companion and food producing animals and nutritional principles important to veterinary medicine. Subjects presented include feeding of animals for maintenance of healthy conditions during all life stages, evaluation of foods and supplements, and methods of diet formulation and evaluation.

**Credit Hour:** 1.5

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**V\_M\_S 6151: Equine Medicine and Surgery**

Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hours:** 2

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**V\_M\_S 6152: Equine Medicine and Surgery**

Continuation of V\_M\_S 6151. Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hour:** 1.5

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**V\_M\_S 6400: Food Animal Medicine and Surgery I**

Clinical Rotation. Technical, diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Experience in the operation of a large animal hospital and farm outpatient practice.

**Credit Hours:** 6

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**V\_M\_S 6411: Small Animal Internal Medicine**

Clinical rotation in small animal internal medicine for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; that is, students must have successfully completed the DVM curriculum through instruction period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6412: Small Animal Community Practice**

Clinical rotation in small animal general medicine and surgery for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. The entire course may not be repeated for credit but smaller sections may with approval.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; students must have successfully completed the DVM curriculum through instructional period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6413: Small Animal Behavior and Dermatology**

The Small Animal Behavior and Dermatology Rotation is designed to give students experience in the evaluation and management of dogs and cats with behavioral problems and to provide students with hands-on experience in the evaluation, diagnosis and management of dermatology cases. During the rotation the student will develop skills in history taking, behavioral evaluations, dermatology examinations and diagnostic procedures and in the management of behavioral and dermatology cases. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to third- and fourth-year Veterinary Medicine students

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**V\_M\_S 6420: Equine Medicine and Surgery I**

Clinical rotation. Technical, diagnostic and therapeutic procedures common to equine practice. Emphasis on fundamental principles.

**Credit Hours:** 6

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**V\_M\_S 6430: Small Animal Surgery I**

Diagnostic procedures and surgical techniques applicable to companion animal surgery. Practical experience in the operation of a small animal surgical practice. Six times per year.

**Credit Hours:** 6

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**V\_M\_S 6432: Small Animal Soft Tissue Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal soft tissue surgery. Practical experience in the operation of a small animal soft tissue surgical practice.

**Credit Hours:** 2

**Prerequisites:** completion of Vet Med years 1 and 2 and specifically V\_M\_S 6072 or V\_M\_S 6073

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**V\_M\_S 6434: Small Animal Orthopedic Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal orthopedic surgery. Practical experience in the operation of a small animal orthopedic surgical practice. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** completion of Veterinary Medicine years 1 and 2

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**V\_M\_S 6436: Veterinary Neurology/Neurosurgery**

Clinical rotation. A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6441: Clinical Radiology I**

Clinical rotation. Fundamentals of radiology: indications for use, techniques, pathophysiologic alterations, interpretation of results, patient aftercare, protective measures against radiation hazards.

**Credit Hours:** 3

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**V\_M\_S 6442: Clinical Anesthesiology I**

Clinical rotation. Fundamentals of anesthesiology: indications for use techniques, pathophysiologic alterations, and interpretations of results, patient aftercare.

**Credit Hours:** 3

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**V\_M\_S 6450: Theriogenology I**

Clinical rotation. Practical experience in reproductive techniques, obstetrics, breeding soundness and herd reproductive problems.

**Credit Hours:** 2

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**V\_M\_S 6460: Clinical Ophthalmology I**

Clinical rotation. Practical application in problem solving and medical and surgical management of eye conditions of domestic animals.

**Credit Hours:** 2

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**V\_M\_S 6480: Cardiology**

Cardiology

**Credit Hours:** 2

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**V\_M\_S 6490: Small Animal Specialty Medicine I**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hours:** 2

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**V\_M\_S 6700: Food Animal Medicine and Surgery II Elective**

Additional food animal experience located off-site or on-site under special circumstances.

**Credit Hour:** 2-6

**Prerequisites:** V\_M\_S 6400. Consent required

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**V\_M\_S 6710: Small Animal Medicine II Elective**

Clinical rotation offered to VM3 and VM4 students. Opportunity for concentrated study and experience in medical areas. Enrollment subject to approval of course coordinator.

**Credit Hour:** 2-6

**Prerequisites:** The entire pre-clinical curriculum of the CVM must be completed before taking this course

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**V\_M\_S 6711: Small Animal Internal Medicine Elective Clinical or Research Rotation**

Clinical rotation in SAIM to focus on either clinical diagnostics and therapy, or research relevant to clinically important issues of pet animals.

**Credit Hours:** 2

**Prerequisites:** Veterinary curriculum up until the clinical rotations; must be VM3 or VM4 students

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**V\_M\_S 6712: Private Practice Small Animal Internal Medicine Elective**

Clinical rotation. Improve critical thinking skills in disease diagnosis and management for internal medicine of dogs and cats. Clinical rotation off-site at Associated Veterinary Specialists. Teaching by cases seen by AVS clinician on duty. Student participation determined by supervising clinician.

**Credit Hours:** 2

**Prerequisites:** All required VM1 and VM2 courses. VM3 or VM4 standing required

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**V\_M\_S 6713: Shelter Medicine Elective at the Humane Society of Missouri**

Comprehensive shelter medicine rotation at Humane Society of Missouri.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to VM3 and VM4 students

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**V\_M\_S 6720: Equine Medicine and Surgery II Elective**

Clinical rotation. Continuation of V\_M\_S 6420. Open to VM3 and VM4 students, subject to approval of course coordinator. Opportunity for concentration in specific area of interest.

**Credit Hour:** 2-6

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**V\_M\_S 6730: Small Animal Surgery II Elective**

Opportunity for concentration study and advanced surgical experience.

**Credit Hour:** 3-6

**Prerequisites:** V\_M\_S 6430 or equivalent

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**V\_M\_S 6732: Small Animal Soft Tissue Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced soft tissue surgical experience.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6432 and completion of year VM1 and VM2

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**V\_M\_S 6734: Small Animal Orthopedic Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced orthopedic surgical experience.

**Credit Hours:** 2

**Prerequisites:** completion of VM years 1 and 2

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**V\_M\_S 6736: Veterinary Neurology/ Neurosurgery-Elective**

A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6741: Clinical Radiology II Elective**

Clinical rotation. Continuation of V\_M\_S 6441.

**Credit Hour:** 1-99

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**V\_M\_S 6742: Clinical Anesthesiology II Elective**

Clinical rotation. Continuations of V\_M\_S 6442. This course will focus on anesthetizing and monitoring the more challenging anesthetic cases during rotation. Required projects include a review paper on a relevant topic of choice, a written case report and assistance in research activities.

**Credit Hour:** 1-99

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**V\_M\_S 6743: Radiology - Special Imaging Elective**

Introduction to special imaging modalities including ultrasound, computed tomography, magnetic resonance and nuclear scintigraphy with emphasis towards small animal patients. A major part of the course will be devoted to recognition and interpretation of abdominal ultrasound. Graded on A-F basis only. Prerequisites: V\_M\_S 6020; VM III and VM IV

**Credit Hour:** 2-3

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**V\_M\_S 6744: Veterinary Radiation Oncology -Clinical Elective**

Training in radiation therapy planning, treatment execution, and case management. Develop a better understand of the radiation therapy patient, including side effects of therapy and expected outcomes, that will position them to be quality collaborators on radiation therapy cases as referring veterinarians. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** completed and passed the preclinical veterinary curriculum

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**V\_M\_S 6750: Theriogenology II Elective**

Continuation of V\_M\_S 6450. Opportunity for concentrated study and experience. An elective, subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6751: External Food Animal Service and Theriogenology Teaching Program**

Additional options for off-site clinical training in Theriogenology and Food Supply Veterinary Medicine beyond the core curriculum.

**Credit Hour:** 1-99

**Prerequisites:** V\_M\_S 6081, V\_M\_S 6082, V\_M\_S 6110, and VM3 or VM4 students

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**V\_M\_S 6760: Small Animal Nutrition**

Clinical rotation designed to allow students to gain hands-on experience with canine and feline nutrition.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6140. Restricted to VM3 or VM4

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**V\_M\_S 6770: Herd Health Management and Nutrition II Elective**

Concentrated study/experience in feed lot, dairy, cow/calf swine herd agribusiness enterprises applicable to veterinary practice.

**Credit Hour:** 2-6

**Prerequisites:** V\_M\_S 6400 and VM-4 status

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**V\_M\_S 6800: Clinical Ophthalmology II Elective**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience. Subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6810: Cardiology II Elective**

Cardiology course consists of a three-week clinical rotation in the small animal clinic. Duties include primary care receiving and patient care with clinical case work-up. Additional responsibilities include attendance at clinical rounds and participating in related clinical activities.

**Credit Hour:** 1-99

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**V\_M\_S 6820: Small Animal Emergency and Critical Care**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience in small animal emergency and critical care.

**Credit Hour:** 1-99

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**V\_M\_S 6821: Small Animal Emergency Critical Care Elective**

Clinical rotation providing focused experience in care management and issues pertinent to small animal emergency and critical care. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to levels VM 3 or VM 4

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**V\_M\_S 6830: Food Animal Production Medicine**

Clinical rotation will focus primarily on beef, dairy, and swine with emphasis on preventive medicine by looking at the herd incorporating spreadsheet and the date base application analysis. The course participants will visit various operations and write reports to the producer, which will enhance their farms.

**Credit Hour:** 1-99

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**V\_M\_S 6850: Clinical Oncology**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hour:** 1-99

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**V\_M\_S 6920: Equine Techniques Elective**

This course provides an opportunity for equine oriented veterinary students wishing to enhance their understanding of the clinical techniques used in equine veterinary medicine and gain hands on practical experience in selected clinical techniques. It is offered as a 2 credit, 2 week elective clinical rotation.

**Credit Hours:** 2

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**V\_M\_S 6986: Advanced Clinical Neurology and Neurosurgery**

This is a supplement to neurology taught in the small animal course to improve preparedness for clinical practice. Topics include neurolocalization techniques, electrodiagnostic and CT/MR interpretation, wider exposure to differential diagnosis, and neurosurgical principals.

**Credit Hour:** 1

**Prerequisites:** Passing grade in V\_M\_S 6040

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**V\_M\_S 6987: Problem-Based Learning Clinic Preparation**

This course is designed to prepare the VM 3 student about to enter clinics for a systematic approach to a clinical case. Emphasis will be placed on developing focused problem and differential lists, and logical choices of diagnostic tests. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VM 3 level

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**V\_M\_S 6988: Small Animal Clinical Nutrition**

Application of nutritional principles to prevention and management of common diseases of dogs and cats. Including review of nutrients, commercial and home diets, and basic pathophysiology of nutritional aspects of disorders seen in companion animal practice.

**Credit Hour:** 1

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**V\_M\_S 6989: Advanced Oncology of Animals**

Expanded discussion of veterinary oncology topics not covered in the oncology section V\_M\_S 6050. Important for veterinary students who intend to enter private or academic practice and manage oncology cases, specific tumor types, diagnostic tools, and treatment modalities.

**Credit Hour:** 1

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**V\_M\_S 6990: Zoological Medicine**

Interested students of Zoological Medicine would significantly broaden their understanding of this discipline and increase the likelihood they could enter zoological veterinary practice or a zoological veterinary medical residency. Graded on A-F basis only

**Credit Hours:** 2

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**V\_M\_S 6991: Advanced Equine Lameness with Laboratory**

Learn to recognized forelimb and hind limb lameness through diagnostic techniques for localization of lameness. Gain practical experience in limb support for sever musculoskeletal injuries. One surgical laboratory using equine cadaver limbs to illustrate and practice common distal limb surgeries.

**Credit Hour:** 1

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**V\_M\_S 6992: Small Animal Endoscopy**

Small Animal Endoscopy

**Credit Hour:** 1

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**V\_M\_S 6993: Advanced Veterinary Anesthesia**

Advanced Veterinary Anesthesia

**Credit Hour:** 1

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**V\_M\_S 6994: Advanced Techniques in Small Animal Surgery with Laboratory**

Course designed for students who want exposure to small animal surgical techniques above and beyond the experience gained from the basic surgical training in V\_M\_S.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6072; limited enrollment

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**V\_M\_S 6995: Clinical Cardiology**

Students will utilize a combination of lectures, hands on laboratories, and problem based clinical correlates covering cardiovascular physical examination, radiographic and electrocardiographic interpretation, and the pathophysiology and management of congenital and acquired cardiac diseases.

**Credit Hour:** 1

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**V\_M\_S 6996: Advanced Dermatology**

This is a lecture course that will supplement and expand upon the canine and feline dermatology principles covered in the general pathology and small animal medicine courses. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6050

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**V\_M\_S 6997: Food Animal Diagnostic Exercises**

Discussion based course designed to integrate and review didactic coursework to increase knowledge of livestock diseases. A list of appropriate differential diagnoses will be generated for each problem.

**Credit Hour:** 1

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**V\_M\_S 6998: Small Animal Behavioral Medicine**

Small Animal Behavioral Medicine

**Credit Hour:** 1

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**V\_M\_S 6999: Food Animal Surgery Laboratory**

Routine food animal surgical procedures laboratory.

**Credit Hour:** 1

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**V\_M\_S 7301: Topics in Veterinary Medicine and Surgery**

Organized study of select topics.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**V\_M\_S 7303: Advanced Topics in Veterinary Anesthesia**

(same as V\_M\_S 6993).

**Credit Hour:** 1

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**V\_M\_S 7304: Advanced Equine Surgery**

The purpose of the course is to aid in the preparation of the resident for Board certification in the American College of Veterinary Surgeons.

**Credit Hours:** 2

**Prerequisites:** a DVM or equivalent degree, acceptance to the graduate school, acceptance to the residency program, and instructor approval

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**V\_M\_S 7320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with BIOMED 4320). This course will provide students with the knowledge and skills to assist in a small animal medical emergency and critical care facility.

**Credit Hours:** 3

**Prerequisites:** a bachelor's degree in biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 7328: Introductory Radiation Biology**

(same as RADIOL 7328, NU\_ENG 7328, BIO\_SC 7328).

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in biological sciences and physics/chemistry; or instructor's consent

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**V\_M\_S 7351: Advanced Surgical Techniques**

Special application to large, small animals.

**Credit Hour:** 1-99

**Prerequisites:** D.V.M

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**V\_M\_S 7355: Advanced Techniques in Radiology**

Special application to domestic animals.

**Credit Hour:** 1-99

**Prerequisites:** D.V.M

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**V\_M\_S 7370: Orthopaedic Biomechanics**

(same as BIOL\_EN 7370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, BIOL\_EN 3170; departmental consent

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**V\_M\_S 7385: Problems in Veterinary Medicine and Surgery**

Studies in specific areas of veterinary medicine and surgery.

**Credit Hour:** 1-99

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**V\_M\_S 7510: Equine Clinical Anatomy: Forelimbs**

Basic Foundation in selected aspects of equine clinical anatomy for veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structure of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** A bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

---

**V\_M\_S 8021: Neurology Journal Review**

Weekly journal review and seminar on current topics in veterinary neurology, related clinical disciplines and basic neurosciences. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8022: Internal Medicine Clinicopathologic Conference**

Advanced discussion of small animal medicine cases with an emphasis on pathophysiology and clinicopathologic findings. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8023: Internal Medicine Journal Review**

Resident led review of the current veterinary internal medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8024: Medicine-Surgery-Pathology Conference**

This is a case-based course in which clinical and pathological findings of interesting cases from the VMTH are presented by those who treated and interpreted the case. Dogs, cats, cows, horses, and small ruminants are included with occasional non-traditional species. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8025: Equine Medicine Journal Review**

Aid Residents in preparing for board certification in ACVIM and ACVS. Articles pertaining to current equine veterinary literature are reviewed on a weekly basis. Participants select, distribute articles to group prior to meeting, then present short review with a discussion following. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8026: Surgery Journal Review**

Resident led review of the current veterinary surgical peer-reviewed literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8027: Food Animal Medicine Journal Review**

Critical review of the scientific literature with a focus on ACVIM board preparation. May also be used as a forum for information exchanged relevant to ACVIM board preparation. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8028: Cardiovascular Medicine Journal Review**

Resident led review of the current veterinary cardiovascular medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8029: Emergency and Critical Care Journal Review**

This course will concentrate on review of emergency and critical care literature. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8030: Seminars in Vet. Med. & Surgery: Ophthalmology Pathology Seminar**

Review of clinical cases presented in two formats: histopathology slides and kodachrome slides. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree or equivalent and acceptance into an ophthalmology residency program

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**V\_M\_S 8031: Sem. in Vet. Med & Surgery: Ophthalmology Seminar & Journal Review**

Weekly journal review and seminar on current topics in veterinary ophthalmology, review of pertinent literature in human ophthalmology, and review of ophthalmic texts. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8032: Seminars in Veterinary Anesthesiology**

A journal review will focus on advances in veterinary anesthesiology, pharmacology, and physiology. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8033: Seminars in Clinical Sciences-Equine Surgery Journal Review**

Journal review will focus on advances in equine surgery and will consist of a review of recent manuscripts pertaining to equine surgery in current journals and review of pertinent book chapters. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree and instructor's consent

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**V\_M\_S 8034: Seminars in Veterinary Radiology**

This journal review will focus on advances in veterinary radiology, ultrasound and alternate imaging. Current and past literature will be reviewed weekly and will be chosen by the class coordinator. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8035: Current Topics in Veterinary Clinical Nutrition**

Review and critical analysis of recently published articles in veterinary nutrition and discussion of aspects relevant to clinical application and management of veterinary patients. Can be repeated for a total of six credit hours. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Graduate Veterinary Medicine majors or instructor's consent

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**V\_M\_S 8036: Advanced Physiology of the Dog and Cat**

To understand advanced medical physiology: cell physiology, muscle function, cardiac and circulatory physiology, renal function, distribution of fluid in the body, functions of red and white blood cells, mechanisms of hemostasis, resistance to infection and pulmonary physiology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent

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**V\_M\_S 8040: Advanced Small Animal Clinical Nutrition**

Advanced study of veterinary clinical nutrition in the dog and cat. Includes review of applied biochemistry, nutrients, and feeding principles along with pathophysiology and nutritional management of common diseases. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Introductory Veterinary Nutrition

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**V\_M\_S 8041: Current Topics in Dairy Production Medicine**

The course will focus on the presentation, evaluation and discussion of contemporary scientific peer-reviewed literature published in indexed journal related to current concepts on dairy production medicine. Participating students will be aimed to critically review current research publication with special emphasis on study design, hypothesis and objectives. Through the analysis of results and discussion, concepts of dairy production medicine will be imparted. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_M\_S 8090: Research in Veterinary Medicine and Surgery (Thesis)**

Thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_M\_S 8400: Clinical Veterinary Regulatory Medicine and Public Health**

(same as P\_HLTH 8400). The goal of this course is to familiarize the student with clinical aspects of veterinary public health/regulatory medicine.

**Credit Hours:** 2

**Prerequisites:** Must be enrolled in MPH (veterinary public health concentration) or DVM curriculum

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**V\_M\_S 8401: Topics in Veterinary Clinical Sciences**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8402: Seminar in Veterinary Clinical Sciences**

Graduate seminars and conferences with a focus on current literature within a specialty area. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8405: Comparative Respiratory Pathophysiology**

A consideration of clinical pathophysiology of the respiratory system relative to diseases of the thorax and clinical anesthesiology.

**Credit Hour:** 1

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**V\_M\_S 8406: Topics in Veterinary Medicine and Surgery**

Current topics, infrequently taught courses, or new courses not yet designated by a permanent course number.

**Credit Hour:** 1-99

**Prerequisites:** must be a DVM or be enrolled in the Veterinary curriculum; instructor's consent

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**V\_M\_S 8410: Veterinary Medicine and Surgery Research Seminar**

Current research in veterinary medicine and surgery. Literature reviews and presentation or original graduate student research. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8411: Clinical Veterinary Endocrinology**

A 2-hour course for post-DMV graduate students. It will focus on clinically relevant physiology, pathophysiology, and diagnostic evaluation of hormone systems.

**Credit Hours:** 2

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**V\_M\_S 8413: Equine Internal Medicine**

The purpose of the course is to aid in the preparation of the Resident for board certification in the American College of Veterinary Internal Medicine-LAIM. Current concepts in the pathophysiology, diagnosis and management of medical disorders of horses.

**Credit Hours:** 2

**Prerequisites:** DVM degree or equivalent

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**V\_M\_S 8415: Advanced Veterinary Neurology**

Basic neuroscience as it relates to clinical neurology and the pathophysiology of diseases of the brain, spinal cord, peripheral nerve and muscle in domestic animals. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM degree

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**V\_M\_S 8416: Advanced Veterinary Internal Medicine: Cardiovascular Medicine**

Pathologic, pathophysiologic, hemodynamic and pharmacological mechanisms of important to the diagnosis, assessment, management and research of cardiovascular diseases of animals.

**Credit Hours:** 3

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**V\_M\_S 8417: Advanced Veterinary Internal Medicine - Clinical Oncology**

Provides graduate students in the clinical and basic sciences alike with a working knowledge of the biological mechanisms of cancer development and progression and the related approaches to cancer prevention and therapy. It is assumed that students will have a strong background in biology as a foundation for discussion.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree recommended

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**V\_M\_S 8418: Advanced Veterinary Internal Medicine: Food Animal Medicine**

Current concepts in the pathophysiology, diagnosis and management of medical disorders, diseases of the limbs, and infectious diseases of cattle and food producing animals.

**Credit Hours:** 2

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**V\_M\_S 8419: Advanced Topics in Cancer Biology and Clinical Oncology**

This course will provide students with a knowledge base in cancer cell biology that may be applied to the practice of clinical oncology. Monthly clinically-oriented seminars by invited speakers will be preceded by a weekly in-depth review of the basic science related to the seminar topic.

**Credit Hours:** 2

**Recommended:** MD or DVM

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**V\_M\_S 8421: Advanced Veterinary Surgery: Small Animal Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disease of the dog and the cat. Includes laboratories of advanced surgical techniques.

**Credit Hour:** 2-4

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**V\_M\_S 8423: Comparative Arthrology**

Lectures and discussion covering anatomy, physiology, biomechanics, pathophysiology, and clinical aspects of mammalian diarthrodial joints.

**Credit Hours:** 3

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**V\_M\_S 8425: Advanced Veterinary Surgery: Equine Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disorders of the horse. Taught yearly as sections A, B, C. Repeatable to a maximum of 10 credit hours (individual sections may be taken once).

**Credit Hour:** 2-4

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**V\_M\_S 8426: Advanced Veterinary Surgery - Ophthalmic Surgery**

Surgery labs consisting of 2-4 hours of surgical instruction per week. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8431: Research Methods and Data Analysis**

A consideration of research methods, data analysis, and practical approaches to analyzing data sets derived from veterinary and biomedical studies.

**Credit Hours:** 2

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**V\_M\_S 8432: Applied Statistics and Informatics**

Educate students in the practical application of statistics and information research tools. Students will learn about application of statistical modeling to biomedical research. They will be trained to use statistical software programs and then use those skills to analyze data sets. Additionally, students will learn about the use of informatics systems for researching scientific questions, data searching, and data dissemination. At the end of the course successful students should be able to develop and perform statistical analyses appropriate for most basic research study designs. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree and enrollment in a veterinary residency program unless an exception is approved by the course coordinator

**Recommended:** Successful completion of a general statistics course is highly recommended prior to taking this course

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**V\_M\_S 8435: Veterinary Clinical Sciences: Clinical Immunology**

Advanced concepts in veterinary immunology and immunopathology.

**Credit Hours:** 2

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**V\_M\_S 8436: Veterinary Clinical Sciences: Clinical Pharmacology**

Advanced concepts in veterinary clinical pharmacology, pharmacokinetics, and anesthesiology.

**Credit Hour:** 1

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**V\_M\_S 8437: Advanced Topics in Veterinary Medicine (Nuclear Medicine)**

An in-depth review of veterinary nuclear medicine. Includes the physics of nuclear medicine, common imaging techniques, common radiopharmaceuticals, radiopharmaceutical kinetic evaluation and some common physiological applications.

**Credit Hour:** 1

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**V\_M\_S 8439: Advanced Veterinary Ultrasonography**

Advanced concepts in veterinary ultrasonography; including ultrasound and Doppler physics, instrumentation, examination methodology, and interpretation of studies.

**Credit Hour:** 2-3

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**V\_M\_S 8440: Adv Veterinary Clinical Sciences: Advanced Clinical Ophthalmology**

Case-based discussion course. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8445: Veterinary Critical Care and Emergency Medicine**

Advanced study of veterinary critical care and emergency medicine and surgery focusing on current research and literature as well as clinical application.

**Credit Hour:** 2-3

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**V\_M\_S 8450: Research in Veterinary Medicine and Surgery (non-thesis)**

Non-Thesis research.

**Credit Hour:** 1-99

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**V\_M\_S 8485: Problems in Veterinary Clinical Sciences**

Supervised individuals studies arranged with a faculty member and approved by the advisory committee. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8487: Nuclear Medicine**

Principles of radiation detection instrumentation, monitoring radiological safety and diagnostic procedures used on veterinary nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** one year College Physics, D.V.M. degree, and departmental consent

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**V\_M\_S 8488: Radiation Therapy**

Intermediate level course to review basic and advanced concepts in radiation biology, radiation physics, and clinical application of ionizing radiation for the treatment of cancer Teletherapy, brachytherapy and radiation oncology are covered.

**Credit Hours:** 3

**Prerequisites:** A basic course in radiation physics/dosimetry, radiation biology and medical oncology. One year college physics, DVM degree and departmental consent

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**V\_M\_S 8489: Veterinary Radiographic Physics**

In depth review of the fundamental principles of radiographic physics, with an emphasis on preparation for the American college of Veterinary Radiology board examination. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 9090: Research in Veterinary Medicine and Surgery**

PhD Dissertation research. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Veterinary Pathobiology Courses

**V\_PBIO 3551: Introduction to Immunology I**

Comprehensive introduction to the basic principles of immunology. The course is designed for undergraduates majoring in biology, biochemistry or health professions. Introduction to cells and organs of the immune system, innate and adaptive immunity, development, activation and effector functions of lymphocytes, hypersensitivity, host response

to infection and vaccination, autoimmunity and tumor immunology. Introduction to Immunology 1. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300

**Recommended:** BIO\_SC 2200

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**V\_PBIO 3554: Introduction to Virology**

Comprehensive introduction to the basic principles of virology. The course is designed for undergraduates majoring in biology, biochemistry, or health professions. The course covers general virology including the molecular structure of viruses, the multiplication strategies of the major virus families, and viral latency, persistence, and oncology. The major families of the bacterial, plant, and animal viruses are discussed. Human viruses and infectious diseases are emphasized. Viral immunology, viral defenses, viral vaccines and antiviral compounds will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300

**Recommended:** BIO\_SC 3750

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**V\_PBIO 4787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBIO 7787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** B or better in BIO\_SC 2300 and BIO\_SC 2200

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**V\_PBIO 5511: Veterinary Immunology**

(same as V\_PBIO 8451). Basic immunology techniques. Topics include innate and adaptive immunity, development of the immune system, induction and expression of the immune response, structure and function of antibodies, antigen-antibody reactions, the major histocompatibility complex, aspects of immunology in disease.

**Credit Hour:** 1.5

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**V\_PBIO 5512: Veterinary Immunology**

(same as V\_PBIO 8451). Continuation of V\_PBIO 5511.

**Credit Hour:** 1.5

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**V\_PBIO 5552: Veterinary Bacteriology with Laboratory**

Classification and properties of pathogenic bacteria and fungi of animals; relationship to public health; considers pathogenesis, immunology of infection. Instructional period 5.

**Credit Hours:** 3

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBIO 5553: Veterinary Bacteriology II**

Continuation of V\_PBIO 5552. Instructional period 6.

**Credit Hours:** 2.5

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**V\_PBIO 5554: Veterinary Virology**

(same as V\_PBIO 8454). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6 and 7.

**Credit Hours:** 2.5

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBIO 5555: Epidemiology and Biostatistics with Laboratory**

(same as V\_PBIO 8455). This course introduces students to methods of determining the influence of disease on populations and how this information is applied to individual animals. Biostatistics and evidence based medicine are also discussed in this course. The knowledge gained in this course is applied to reading professional literature during the course. Instructional period 4.

**Credit Hours:** 2

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**V\_PBIO 5557: Veterinary Parasitology with Laboratory**

(same as V\_PBIO 8457). Parasites and parasitic diseases of ruminants, horses, swine, dogs, cats, poultry and other animals. Includes classification, morphology, and bionomics of protozoa, helminths, and arthropods. Instructional period 6.

**Credit Hours:** 3

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**V\_PBIO 5558: Veterinary Public Health**

(same as V\_PBIO 8458). In this course students are introduced to the wide range of veterinary involvement in maintaining and assuring human health, nationally and globally. Topics discussed include: agencies such as USDA, FDA, CDC, food safety and meat inspection, veterinary responsibility in identifying diseases, legal issues of drug use, and zoonotic diseases. Instructional period 7.

**Credit Hours:** 2

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**V\_PBIO 5575: Veterinary Pathology with Laboratory**

General Pathology. Tissue reactions to various disease agents in domestic animals. Instructional period 5.

**Credit Hours:** 3

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**V\_PBIO 5576: Veterinary Systemic and Special Pathology with Laboratories**

Special and systemic pathology. Tissue reactions to disease in special systems in domestic animals. Instructional period 6.

**Credit Hours:** 3

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**V\_PBIO 5577: Veterinary Systemic and Special Pathology II with**

Follows the general pathology and continues the systemic pathology taught in V\_PBIO 5576. The course, consisting of daily lectures and weekly laboratories, covers disease, mainly in domestic animals, of the following systems or organs: cardiovascular, respiratory, lymphoid, cutaneous, mammary, ophthalmic, and otic. Instructional period 7.

**Credit Hours:** 3

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**V\_PBIO 5578: Veterinary Clinical Pathology with Laboratory**

Physiologic basis, interpretation and clinical application of laboratory assays in hematology, chemistry, cytology, and urinalysis, utilization of laboratory methods to define pathological states and to diagnose disorders of domestic animals. Instructional period 8.

**Credit Hours:** 3

**Prerequisites:** enrollment in College of Veterinary Medicine

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**V\_PBIO 5579: Veterinary Genomics**

Study of genomes, an organism's entire set of the genetic information. Used for detection of pathogen genomes, and markers for mutation causing inherited disease. Instructional period 5.

**Credit Hour:** 1

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**V\_PBIO 5580: Introduction to Veterinary Informatics with Laboratory**

Introduces concepts of veterinary informatics and development of core informatics competencies necessary for successful veterinary practice. The knowledge and skills in this course address topics such as data retrieval, information evaluation, medical records, practice management, communication skills and telemedicine. Instructional period 5.

**Credit Hour:** 1

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**V\_PBIO 5601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBIO 5991: Introduction to Avian Medicine**

Introduction to Avian Medicine

**Credit Hour:** 1

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**V\_PBIO 5995: Foundations in Veterinary Research and Discovery**

This course will introduce veterinary students to concepts of research including hypothesis development, experimental design, data interpretation, grantsmanship, responsible conduct of research, biomedical research careers and presentation and publication methods.

**Credit Hours:** 2

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**V\_PBIO 6010: Laboratory Animal Medicine**

Principles of Veterinary Medicine applied to laboratory animals as pets and in research. Husbandry, handling and clinical techniques, diseases, and use as disease models are discussed. Instructional period 8.

**Credit Hour:** 1.5

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**V\_PBIO 6647: Diagnostic Pathology and Special Species Medicine**

Application of laboratory techniques used to diagnose disease by macroscopic, microscopic, biochemical, microbiologic, and toxicologic

findings. Case method of teaching. Domestic avian species and laboratory animals included. Six times yearly.

**Credit Hours:** 8

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**V\_PBIO 6676: Laboratory Animal Medicine and Management Elective**

Elective offered 3rd- and 4th-year students, subject to approval of course coordinator and supervising faculty. Concentrated study/experience in laboratory animal disease(s)/colony management. Available to veterinarians as a continuing education program.

**Credit Hour:** 2-6

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**V\_PBIO 6678: Epidemiology and Community Health**

Elective covering advanced aspects of epidemiology and community health. Emphasizes problem solving and is designed to meet needs of the individual student. Instructional period arranged.

**Credit Hour:** 2-6

**Prerequisites:** V\_PBIO 5558 or instructor's consent

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**V\_PBIO 6679: Diagnostic Pathology and Special Species Medicine**

Third- and fourth-year students. Elective. Approval of coordinator and supervisory staff. Continuation of V\_PBIO 6647 with more depth. Available to D.V.M.'s as part of continuing education program.

**Credit Hour:** 2-6

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**V\_PBIO 6684: Research Techniques in Veterinary Pathobiology**

Research Techniques in Veterinary Pathobiology

**Credit Hour:** 1-6

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**V\_PBIO 7100: Veterinary Clinical Chemistry**

(cross-leveled with BIOMED 4100). This course is designed to hone the skills of the practicing veterinary technician, veterinary student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.

**Credit Hours:** 3

**Prerequisites:** A BS or BSA in veterinary technology or DVM

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**V\_PBIO 7110: Veterinary Cytology**

(cross-leveled with BIOMED 4110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree or instructor's consent

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**V\_PBio 7120: Principles of Toxicology**

(cross-leveled with BIOMED 4120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** BS in Biology, Biochemistry, or equivalent, or permission of instructor

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**V\_PBio 7210: Animal Issues in Disasters**

(cross-leveled BIOMED 4210). Animal Issues in Disasters describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** a bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_PBio 7787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBio 4787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Consent of Instructor

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**V\_PBio 8090: Thesis Research in Veterinary Pathobiology**

Open to graduate students with requisite preparation. Research on specific animal diseases, prevention and treatment. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_PBio 8401: Topics in Veterinary Pathobiology**

Courses with lectures in various topics in veterinary pathobiology will be given on a trial basis, depending on faculty expertise and student demand. Credit hours are usually 1 or 3. Specialized topics will be covered.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**V\_PBio 8410: Seminar in Veterinary Pathobiology**

Discussion of current research methods in veterinary pathobiology.

**Credit Hour:** 1

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**V\_PBio 8411: Seminar in Histopathology**

Discussion of current research and/or case studies in pathology of diseases of domestic animals, laboratory animals and avian species. Team taught.

**Credit Hour:** 1

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**V\_PBio 8421: Advanced Epidemiology**

(same as F\_C\_MD 8421).

**Credit Hours:** 3

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**V\_PBio 8430: Comparative Pathology**

(same as PTH\_AS 8000). Biochemical and morphologic lesions related to the mechanism of disease expression in plants and animals.

**Credit Hours:** 3

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**V\_PBio 8431: Research Methods and Data Analysis**

Specific assignments on diagnostic methods including surgical pathology, necropsies, toxicology.

**Credit Hour:** 2-4

**Prerequisites:** departmental consent

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**V\_PBio 8432: Advanced Histopathology**

Advanced microscopic study of pathological tissues.

**Credit Hours:** 5

**Prerequisites:** departmental consent

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**V\_PBio 8433: Veterinary Oncology**

History and molecular biology of neoplasia; laboratory for discussion of practical aspects of diagnosis.

**Credit Hours:** 2

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**V\_PBio 8434: Advanced Clinical Pathology**

Lecture/tutorial teaching; pathogenesis of clinical laboratory abnormalities in the common domesticated species. Emphasis is placed on mechanisms of disease and pathophysiology of the changes seen in each organ system.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**V\_PBio 8435: Advanced Microscopy in Veterinary Clinical Pathology**

Recognition and pathogenesis of abnormalities found via microscopic analysis of blood smears or cytology.

**Credit Hour:** 1

**Prerequisites:** V\_PBio 5578 and departmental consent; DVM or current enrollment in veterinary curriculum

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**V\_PBio 8436: Pathogenic Mechanisms in Veterinary Pathobiology**

This course will include disease mechanisms, described at the cellular and molecular level, which result in tissue morphologic (gross and microscopic) and clinical abnormalities. Examples of discussion topics include soluble mediators of inflammatory processes, host-agent interactions, and host defense mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBIO 8437: Pathology of Laboratory Animals**

Gross and microscopic study of spontaneous and naturally occurring diseases in laboratory animals.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**V\_PBIO 8438: Primatology**

Disease and pathology of primates.

**Credit Hours:** 3

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**V\_PBIO 8441: Topics in Veterinary Pathobiology**

Subjects appropriate to veterinary pathobiology and/or epidemiology, taught on a one-time basis or infrequently. May include highly specialized topics. Specific course must be approved by departmental faculty.

**Credit Hour:** 1-3

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**V\_PBIO 8442: Advanced Veterinary Pathogenic Bacteriology**

Study of pathogenic bacteria causing animal disease. Pathogenic mechanisms and host-parasite relationships are emphasized. Laboratory procedures for isolation and identification of pathogens are included.

**Credit Hours:** 3

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**V\_PBIO 8443: Viral Infection and Immunity**

Study of virus infection at the level of the intact animal. Includes immunology of domestic animal species.

**Credit Hours:** 3

**Prerequisites:** graduate standing and instructor's consent

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**V\_PBIO 8445: Vectors and Vector-borne Diseases**

This course will focus on arthropod vectors (insects and ticks) and the medically important pathogens / diseases that they transmit, including arboviruses, bacteria, protozoa and nematodes. An emphasis will be on the interactions between the vectors and disease-causing pathogens. Topics include: introductions to systematics, anatomy, physiology, life cycles, and ecology of vectors and classification and biology of the pathogens responsible for such diseases as dengue, yellow fever, malaria, leishmaniasis, lymphatic filariasis, etc. The focus will be not only on specific pathogen-vector interactions but also on big picture topics / discussions of vector competence, insecticide resistance, vector control (including genetically modified insects) and other current issues in vector biology research. Students will learn how these important vector-borne diseases are transmitted, how they are spread and introduced into new regions, and what control strategies exist or are currently under development. Students will realize what impact vector-borne diseases have on global human and animal health as well as develop and hone critical thinking skills.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in the Life Sciences

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**V\_PBIO 8446: Advanced Immunology and Immunopathology**

Study of the immune system at the level of the intact animal. Includes a discussion of immunity-infectious diseases.

**Credit Hours:** 3

**Prerequisites:** MICROB 4304 and instructor's consent

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**V\_PBIO 8447: Oncogenic Animal Viruses**

Biology of RNA-and DNA-containing animal tumor viruses and their in vitro and in vivo interactions with host cells.

**Credit Hours:** 3

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**V\_PBIO 8448: Molecular Methods in Nucleic Acids**

The course will focus on the most recent developments in technology related to eukaryotic and prokaryotic molecular biology and as analysis a manipulation of nucleic acids and their application to define structure, function and biosynthesis of macromolecules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBIO 8450: Non-Thesis Research in Veterinary Pathobiology**

Research not expected to terminate in dissertation.

**Credit Hour:** 1-99

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**V\_PBIO 8451: Introduction to Immunology**

(same as V\_PBIO 5511 and V\_PBIO 5512). Fundamentals of immunology as applied to domestic animals.

**Credit Hours:** 3

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**V\_PBIO 8452: Cell and Molecular Electron Microscopy**

Lecture class that describes the use of electron microscopy (transmission and scanning) in biomedical research. Students receive hands-on experience by completing a laboratory project.

**Credit Hours:** 4

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**V\_PBIO 8454: Domestic Animal Virology**

(cross-leveled with V\_PBIO 5554). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6.

**Credit Hours:** 2.5

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**V\_PBIO 8455: Epidemiology and Biostatistics**

Graduate level introduction to veterinary epidemiology and bio-statistics.

**Credit Hour:** 2-3

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**V\_PBIO 8457: Animal Parasitology**

(same as V\_PBIO 5557).

**Credit Hour:** 3-5

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**V\_PBIO 8458: Veterinary Public Health**

(same as V\_PBIO 5558).

**Credit Hours:** 2

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**V\_PBIO 8468: Laboratory Animal Biology**

Taxonomy, anatomy, physiology, nutrition and behavior of laboratory animals including non-human primates and less common species are



covered. Genetics, gnostobiology, housing and production are also presented.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**V\_PBio 8552: Veterinary Pathogenic Bacteriology and Mycology I**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic problems, appropriate treatments and prevention measures. Course graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8553: Veterinary Pathogenic Bacteriology and Mycology II**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic procedures, appropriate treatments and prevention measures. Graded on A-F basis only.

**Credit Hours:** 2.5

**Prerequisites:** V\_PBio 5552 or V\_PBio 8552 and instructor's consent

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**V\_PBio 8601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBio 8641: Introduction to Research Ethics**

This course provides students with a brief overview of many of the ethical issues that confront today's scientist. It is important that scientist think about and develop their abilities to make well-reasoned responses to ethical problems.

**Credit Hour:** 1

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**V\_PBio 9090: Area Veterinary Pathobiology Dissertation Research**

Dissertation Research for PhD students. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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## Women's and Gender Studies Courses

**WGST 1001: Topics in Women's and Gender Studies-General**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1003: Topics in Women's and Gender Studies-Behavioral**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1004: Topics in Women's and Gender Studies-Social Science**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1120: Introduction to Women's and Gender Studies**

Introduction to the basic issues of Western feminist thought through a study of classical and contemporary sources. Course will consider images, conditions, activities and visions of women as they vary historically and socially.

**Credit Hours:** 3

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**WGST 1360: The Female Experience: Body, Identity, and Culture**

(same as SOCIOL 1360). Study of the experience of being female in American Culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**WGST 1500: The Black Woman in America**

(same as BL\_STU 1500). Review and critique of a variety of materials about Black women from slavery to the social and philosophical impact of the Black woman's struggle on all women.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**WGST 2001: Topics in Women's and Gender Studies-General**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2003: Topics in Women's and Gender Studies-Behavioral**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

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**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2004: Topics in Women's and Gender Studies-Social Science**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2005H: Topics in Women's and Gender Studies-Humanities - Honors**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2010: Gender and Identity: Understanding Intersectionality**

Explores historical and contemporary dimensions of social inequality in gender, race, class and sexuality. Uses an interdisciplinary lens and feminist analysis to analyze social, cultural, political and economic experiences of individuals and communities. Prerequisites: WGST 1120

**Credit Hours:** 3

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**WGST 2020: Feminist Theory**

Introduces central themes and problems in feminist thought, including consciousness-raising, motherhood, class, race, sexuality, nationalism, and transnational feminism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or sophomore standing

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**WGST 2030: Gender Perspectives: Colonial Histories, Post-Colonial Challenges**

Identifies and interrogates key gender issues in post-colonial countries with an acute awareness of their constructions through western and local knowledge, patriarchy, the nation-state, and globalization. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2040: Perspectives on Empowerment**

Women's Empowerment is a popular catch phrase in culture, politics and research. This course explores the meaning of empowerment, the ways empowerment is practiced in organizations and in the everyday lives of girls and women, and the challenges in empowering girls and women in contemporary society. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2050: Gender Perspectives: Issues in Public Health**

Addresses issues of gender and public health in the US and abroad. Considers how race, class, gender, sexuality, and geopolitical context may impact health. May focus on specific health issues. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2080: Perspectives on Sexual and Gender Diversity**

This interdisciplinary, cross-cultural course investigates modern constructions of sexed and gendered bodies, paying particular attention to those systems of gender-based oppression that suppress multiple gender identities and expressions. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2180: Introduction to Women's Literature**

(same as ENGLISH 2180). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**WGST 2186: Introduction to Women's Literature, Beginning to 1603**

(same as ENGLISH 2186). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2187: Introduction to Women's Literature, 1603 to 1789**

(same as ENGLISH 2187). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2188: Introduction to Women's Literature, 1789 to 1890**

(same as ENGLISH 2188). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2189: Introduction to Women's Literature, 1890 to Present**

(same as ENGLISH 2189). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2200H: British Women Writers - Honors**

Study of works by important British women writers. We also consider the development of women's writing and the contribution of women writers to literature and to larger societal debates. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

**Recommended:** sophomore standing

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**WGST 2250: Perspectives on Gender, Race, Class and Sexuality in the Americas**

Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2250W: Perspectives on Gender, Race, Class and Sexuality in the Americas - Writing Intensive**

Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2260: Perspectives on Mass Media: Constructions of Gender, Race and Sexuality**

Examines constructions of gender, race, class and sexuality in the US media in the twentieth and twenty first centuries. Emphasis placed on media's coverage and uses of various socially constructed identities. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2340: Perspectives on Gender and Popular Culture**

Explores issues in popular culture in the 20th and 21st centuries with respect to feminism, gender, sexuality, race, class, and ability. Areas of study may include television, movies, music, advertisements, magazines, fiction, newspapers, the internet, and social media. May be repeated for credit.

**Credit Hours:** 3

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**WGST 2370: French and Francophone Women Writers**

(same as FRENCH 2370). This course will address issues of race, gender and class in selected works originally written by women of different historical periods and geographical areas. (metropolitan France, French colonies, and territories such as the Caribbean).

**Credit Hours:** 3

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**WGST 2400: Social History of U.S. Women**

(same as HIST 2400). This course, the social history of US women, offers a general overview of US women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**WGST 2410: African American Women in History**

(same as HIST 2410 and BL\_STU 2410). Covers major issues affecting black women since their introduction into English-speaking North America to the present.

**Credit Hours:** 3

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**WGST 2500: Philosophy and Gender**

(same as PHIL 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2960: Sexual Health Advocacy and Service Learning**

Students will critically investigate sexuality and reproductive health within a cultural context including religious, political, social justice, familial, and societal influences. Through assigned readings, reflection, experiential learning, small group activities and discussion, students will increase their awareness of sexual health issues, enhance self awareness, and learn how to effectively educate their peers surrounding issues of sexual health.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3004: Topics in Women's and Gender Studies-Social Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3005H: Topics in Women's and Gender Studies-Humanities - Honors**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** honors eligibility required

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**Recommended:** junior standing and/or WGST 1120

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**WGST 3080: Sexuality and Gender Theory**

(same as ENGLSH 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with departments consent.

**Credit Hours:** 3

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**WGST 3150: Themes in Gender and Work**

This is an interdisciplinary course on gender and work. The course addresses topics such as contemporary and historical feminist debates about gender and work; problems of gender inequality at the workplace; historical context of contemporary patterns of gender inequality at work; and how gender intersects with race, class, sexuality and other social categories to shape people's work lives.

**Credit Hours:** 3

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**WGST 3180: Historical Survey of Women Writers**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3180W: Historical Survey of Women Writers - Writing Intensive**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3220: U.S. Women's Political History, 1880-Present**

(same as HIST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3230: Themes in Sexual Politics**

Explores transnational politics of sex/sexuality, examines the theoretical, historical, analytical, and socio-cultural context of race, gender and sexuality. Students learn and apply a transdisciplinary approach and analyze shifts in the field of sexuality studies. May be repeated for credit with different themes.

**Credit Hours:** 3

**Prerequisites:** WGST 1120

**Recommended:** sophomore standing

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**WGST 3240: Nonprofit Work and the Pursuit of Social Justice**

This course provides an overview of the work of nonprofit organizations. It will be framed in a social justice paradigm and will explore women's role in nonprofit organizations, why women gravitate to nonprofits, and the implications of their work to achieve social justice.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3260: Themes in Gender, Law and Justice**

Course addresses issues related to gender, law and the justice system in the U.S. and /or globally. Topics may include history of women's rights in the U.S.; contemporary issues in law and justice such as incarceration, human trafficking, and gay marriage; and the ways race, class, sexuality and citizenship shape experiences of justice. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3270: Themes in Masculinities**

Explores how male experiences are shaped by gender expectations and social context, with emphasis on psychosocial challenges and privileges associated with negotiating masculine gender role expectations. Evaluates the psychological impact of gender, especially in American popular culture, on diverse men and their families. Studies how gender interacts with other aspects of identity, such as race, religion, ethnicity, socioeconomic status, sexual orientation and non-conforming gender identity. Course may be repeated for credit. Recommended: WGST 1120 and sophomore standing,

**Credit Hours:** 3

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**WGST 3300: Queer Theories/Identities**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3300W: Queer Theories/Identities - Writing Intensive**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3320: Sociology of Gender**

(same as SOCIOL 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1360

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**WGST 3370: Themes in Gender and Religion**

Students acquire a basic knowledge and understanding of gender in religious communities including the construction of women's/men's religious identities, their gender relations, societal roles and status. Themes may explore how the organizational structures of religion can be a vehicle of oppression and a place for justice and autonomy; may explore the representation and practices of specific religions; or may address the intersections of gender, class, race, geopolitics, and religion. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3430: Sex Radicals in U. S. History**

(same as HIST 3430). Survey of the history of sexuality in the United States.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3450: Feminist Methodologies**

This course is an opportunity to explore the difference that feminism makes in doing research. Students can begin to identify the research tools and strategies suited to questions they want to pursue.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3480: Themes in Sexuality and Literature**

Examines sexuality and representations of sexuality in literature. The specific topic will be announced at the time of registration. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3560: Themes in Gender and Immigration**

Explores current controversies in immigration in various locations. The course will cover a number of topics including nationalism and citizenship, national identity, identity and fluidity, social inequality and others. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 3570: European Women in the 19th Century**

(same as HIST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's role in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3650: Themes in Feminism**

Course may cover historical and contemporary understandings of feminism, feminist movements in the U.S. and globally, and key debates in feminism. The specific topics will be announced at the time of registration. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3670: Themes in Gender and Globalization**

Introduces transnational feminist theories, considers the practices and material circumstances related to globalization, and explores how class, gender, place/nation, (dis) ability, sexuality and colonial practices complicate our understanding of globalization. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** WGST 1120

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**Recommended:** sophomore standing

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**WGST 3750: Women and Religions**

(same as REL\_ST 3750). A rediscovery of the wealth of religious activity which women have created and enacted. Investigates women's roles and rituals in large-scale and local religions, including ancient Goddess religions, Hinduism, Buddhism, Judaism, Christianity, Islam, and African, South American, and native American groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3850: Themes in Gender and the Politics of Representation**

Examines the gendered politics of representation by analyzing film, literature, popular media, and/or other popular cultural texts. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 3870: Russian Women and Film**

(same as RUSS 3870 and FILM\_S 3870) Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3960: Strategies for Effective Peer Education**

Course is designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**WGST 4001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4004: Topics in Women's and Gender Studies-Social Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4020: Studies in Feminist Thought**

(same as BL\_STU 4020; cross-leveled with WGST 7020). Examines recent problems and critical debates within feminist theory. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** WGST 2020

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**WGST 4110: Feminist Research and Criticism**

(same as SOCIOL 4110) Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 4120: Women, Art and Society**

(same as AR\_H\_A 4120). Analysis of the careers and works of women artists, and images of women (by female and male artists), in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 4180: Major Women Writers**

(same as ENGLSH 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. Repeatable with department's consent maximum of six hours for WGST 4180 and WGST 4480.

**Credit Hours:** 3

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**WGST 4181: Themes in Literature by Women**

(same as ENGLSH 4181 and BL\_STU 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4186: Major Women Writers, Beginning to 1603**

(same as ENGLSH 4186). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4187: Major Women Writers, 1603-1789**

(same as ENGLSH 4187). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4188: Major Women Writers, 1789-1890**

(same as ENGLSH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as ENGLSH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4189: Major Women Writers, 1890-Present**

(same as ENGLSH 4189). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, BL\_STU 4230 and PEA\_ST 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332, BL\_STU 2200; SOCIOL 2200; WGST 1332 or WGST 2010

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**WGST 4235: Social Perspectives on Gender and Emotion**

(same as BL\_STU 4235, SOCIOL 4235; cross-leveled with BL\_STU 7235, SOCIOL 7235, WGST 7235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** WGST 1332 or WGST 1360; SOCIOL 1360 or SOCIOL 2300; BL\_STU 1332 or BL\_STU 2200; junior standing

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**WGST 4310: Adoption, Child Welfare and the Family, 1850-Present**

(same as HIST 4310; cross-leveled with WGST 7310, HIST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**WGST 4350: Studies in Gender and the Environment**

(cross-leveled with WGST 7350). Explores how gendered social relations affect the relationship between human beings, non-human nature, and the environment. Also examines how historically, the human relationship with nature has been governed by a dualism of culture and nature that enables both an ideology of technical control and the objectification of the environment and people. Draws from ecological feminism, the environmental justice movement, feminist science studies, materialist feminism, and feminist dystopian fiction. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** WGST 1120

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**WGST 4370: Anthropology of Gender**

(same as ANTHRO 4370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 4400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 4400). This 3-hour course covers history of battered women's movement, violence theories, policy issues, prevention and intervention practice models for working with battered women, their children, and abusers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**WGST 4420: Studies in Gender, Culture, and Politics**

Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**WGST 4480: Major African Diaspora Women Writers**

(same as BL\_STU 4480 and ENGLSH 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for WGST 4180 and WGST 4480.

**Credit Hours:** 3

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**WGST 4487: Major African Diaspora Women Writers, 1603 to 1789**

(same as BL\_STU 4487, ENGLSH 4487). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as BL\_STU 4488, ENGLSH 4488). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as BL\_STU 4489, ENGLSH 4489). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 4550 and PEA\_ST 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and

nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200

**Recommended:** senior standing required

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**WGST 4550W: Gender and Human Rights in Cross Cultural Perspective - Writing Intensive**

(same as SOCIOL 4550 and PEA\_ST 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200

**Recommended:** senior standing required

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**WGST 4600: Studies in Women and Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 4640: Studies in Gender and Performance**

Examines the relationship among gender, race, class, and/or sexuality, and performance. Course materials may include theatre performance, visual art, literacy context, theoretical essays, films, and popular culture. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4660: European Women in the 20th Century**

(same as HIST 4660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4716: Women and the Media**

(same as JOURN 4716; cross-leveled with WGST 7716, JOURN 7716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

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**WGST 4730: Women and Politics**

(same as POL\_SC 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4750: Women, Religion and Culture**

(same as REL\_ST 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3**Prerequisites:** REL\_ST 3750 or WGST 3750**WGST 4780: Women's Folklore and Feminist Theory**

(same as ENGLSH 4780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3**Recommended:** junior standing**WGST 4873: Women's and Gender Studies Abroad - Behavioral Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3**WGST 4874: Women's and Gender Studies Abroad - Social Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3**WGST 4875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3**WGST 4875H: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required**WGST 4940: Internship in Women's and Gender Studies**

Directed professional experience in appropriate feminist related agency or organization. Graded on S/U basis only.

**Credit Hour:** 1-12**Prerequisites:** junior standing; departmental consent**WGST 4965: Special Readings in Women's and Gender Studies**

Independent readings in women's and gender studies for highly qualified and motivated students. Topic selected in consultation with supervisory faculty member. Repeatable up to 6 hours.

**Credit Hour:** 1-6**Prerequisites:** junior standing or WGST 1120**WGST 4990: Capstone: Senior Research Seminar in Women's and Gender Studies**

Seminar for senior students earning interdisciplinary B.A. with emphasis in WGST. Students will reflect knowledge and experience gained as WGST majors and explore taking that knowledge and experience out in the "real world".

**Credit Hours:** 3**Prerequisites:** instructor's consent**WGST 4990W: Capstone: Senior Research Seminar in Women's and Gender Studies - Writing Intensive**

Seminar for senior students earning interdisciplinary B.A. with emphasis in WGST. Students will reflect knowledge and experience gained as WGST majors and explore taking that knowledge and experience out in the "real world".

**Credit Hours:** 3**Prerequisites:** instructor's consent**WGST 7001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3**WGST 7003: Topics in Women's and Gender Studies-Behavioral Studies**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3**WGST 7004: Topics in Women's and Gender Studies-Social Science**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3**WGST 7005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3



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**WGST 7020: Studies in Feminist Thought**

(same as BL\_STU 7020; cross-leveled with WGST 4020). Examines recent problems and critical debates within feminist theory.

**Credit Hours:** 3

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**WGST 7110: Feminist Research and Criticism**

(same as SOCIOL 7110). Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 7120: Women, Art and Society**

(same as AR\_H\_A 7120). Analysis of the careers and works of women artists, and images of women (by female and male artists), in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7180: Major Women Writers**

(same as ENGLSH 7180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. Repeatable with department's consent maximum of six hours for WGST 7180 and WGST 7480.

**Credit Hours:** 3

**Prerequisites:** two courses in British or American Literature

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**WGST 7181: Themes in Literature by Women**

(same as ENGLSH 7181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**WGST 7186: Major Women Writers, Beginning to 1603**

(same as ENGLSH 7186). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7187: Major Women Writers, 1603-1789**

(same as ENGLSH 7187). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7188: Major Women Writers, 1789-1890**

(same as ENGLSH 7188). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7189: Major Women Writers, 1890-Present**

(same as ENGLSH 7189). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7230: Women, Development, and Globalization**

(same as SOCIOL 7230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**WGST 7235: Social Perspectives on Gender and Emotion**

(same as BL\_STU 7235, SOCIOL 7235; cross-leveled with SOCIOL 4235, BL\_STU 4235, WGST 4235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

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**WGST 7310: Adoption, Child Welfare and the Family, 1850-present**

(same as HIST 7310; cross-leveled with WGST 4310, HIST 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meanings of adoption since 1850; historical connections between adoption and poverty, family, gender, race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**WGST 7350: Studies in Gender and the Environment**

(cross-leveled with WGST 4350). Explores how gendered social relations affect the relationship between human beings, non-human nature, and the environment. Also examines how historically, the human relationship with nature has been governed by a dualism of culture and nature that enables both an ideology of technical control and the objectification of the environment and people. Draws from ecological feminism, the environmental justice movement, feminist science studies, materialist feminism, and feminist dystopian fiction. May be repeated for credit.

**Credit Hours:** 3

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**WGST 7370: Anthropology of Gender**

(same as ANTHRO 7370) The Anthropology of Gender Introduces the student to the variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 7400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 7400; cross-leveled with WGST 4400, SOC\_WK 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma. Graded on A-F basis only.

**Credit Hours:** 3

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**WGST 7420: Studies in Gender, Culture, and Politics**

Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts.

**Credit Hours:** 3

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**WGST 7480: Major African Diaspora Women Writers**

(same as BL\_STU 7480 and ENGLSH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English.

Repeatable with department's consent. Maximum of 6 hours for WGST 7180 and WGST 7480.

**Credit Hours:** 3

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**WGST 7487: Major African Diaspora Women Writers, 1603 to 1789**  
(same as BL\_STU 7487 and ENGLSH 7487). See WGST 7480 for course description.

**Credit Hours:** 3

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**WGST 7488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as BL\_STU 7488 and ENGLSH 7488). See WGST 7480 for course description.

**Credit Hours:** 3

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**WGST 7489: Major African Diaspora Women Writers, 1890 to Present**  
(same as BL\_STU 7489 and ENGLSH 7489). See WGST 7480 for course description.

**Credit Hours:** 3

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**WGST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7550 and PEA\_ST 7550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**WGST 7600: Studies in Women and Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**Credit Hours:** 3

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**WGST 7640: Studies in Gender and Performance**

Examines the relationships among gender, race, class, and/or sexuality, and performance. Course materials may include theatre performance, visual art, literary texts, theoretical essays, films, and popular culture. May be repeated for credit.

**Credit Hours:** 3

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**WGST 7660: European Women in the 20th Century**

(same as HIST 7660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community.

**Credit Hours:** 3

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**WGST 7716: Women and the Media**

(same as JOURN 7716; cross-leveled with WGST 4716, JOURN 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7750: Women, Religion and Culture**

(same as REL\_ST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**WGST 7780: Women's Folklore and Feminist Theory**

(same as ENGLSH 7780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**WGST 7873: Women's and Gender Studies Abroad - Behavioral Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 7874: Women's and Gender Studies Abroad-Social Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 7875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 8001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8003: Topics in Women's and Gender Studies-Behavioral**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8004: Topics in Women's and Gender Studies-Social Science**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8020: Graduate Feminist Theory**

This course will explore the texts and contexts of feminist theories including women of color socialist/Marxist feminism, queer theory, postmodern feminism, and feminist postcolonial theory.

**Credit Hours:** 3

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**WGST 8040: Seminar: Problems and Issues in Feminist Scholarship**

This course is a broad based exploration of a range of current feminist scholarship, both multidisciplinary and interdisciplinary. Issues of identity and difference, community and change are explored through the complicating lenses of race and sexuality.

**Credit Hours:** 3

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**WGST 8060: New Directions in Feminist Theory**

Offers an in-depth exploration of a recent direction in feminist theory. Students will learn a specific feminist approach to scholarship. Theory explored will change based on the semester and professor teaching the course.

**Credit Hours:** 3

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**WGST 8400: Women Writers of the African Diaspora**

Closely studies the works of women writers in the African Diaspora.

**Credit Hours:** 3

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**WGST 8405: Readings in Feminist and Gender Studies**

Graduate-level exploration of concentrated readings that address gender, sexuality, and/or feminist theory within a specific disciplinary area. May be repeated for credit

**Credit Hours:** 3

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**WGST 8410: Africana Theory and Literature Criticism: Black Feminist/Womanist Thought**

Modern and contemporary Africana Diaspora criticism and theory including the diverse approaches to literary and cultural studies.

**Credit Hours:** 3

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**WGST 8620: Work and Family Seminar**

(same as H\_D\_FS 8620). Interaction of family life and income-producing work with attention to how these interconnections vary by social class, gender, race/ethnicity, and age.

**Credit Hours:** 3

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**WGST 8630: Gendered Relations in Families**

(same as H\_D\_FS 8630). From a feminist perspective, the roles of gender in shaping family life experience and of family life experience in shaping gender will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 8965: Problems in Women's and Gender Studies**

Directed individual study on selected topics for qualified graduate students. Plan of study subject to approval by supervising faculty.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**WGST 9001: Topics in Women's and Gender Studies**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**WGST 9440: Race, Gender, Ethnicity in Higher Education**

(same as ED\_LPA 9440). Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**Credit Hours:** 3

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## Writing (Intensive English Program) Courses

**IEPW\_0001: Grammar with Writing I**

(same as IEPG\_0001: Grammar with Writing 1). Students will learn to recognize and use basic grammatical structures. Students will use these structures to produce basic sentences and short paragraphs on topics from daily life. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW\_0002: Writing II**

Students will develop their writing skills with a focus on paragraphs and attention to sentence structure and English mechanics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW\_0030: Writing for Academic Purposes III**

Students will improve their paragraph-writing skills and develop the writing skills required to produce short essays. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW \_0040: Writing for Academic Purposes IV**

Students will develop the writing and critical thinking skills required to produce academic essays. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW \_0050: Writing for Academic Purposes V**

Using university-level texts, students will build the writing skills required to produce well-developed academic papers and become more proficient at writing for different audiences in a variety of formal and informal contexts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required; concurrent enrollment in IEPR \_0050 Reading for Academic Purposes required

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## Accountancy (ACCTCY)

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**ACCTCY 2010: Introduction to Accounting**

Introduction to accounting for non-business majors. Emphasis on introducing students to business operations, as well as preparing and using management information and financial accounting information for business decisions (does not count as either ACCTCY 2036 or ACCTCY 2037).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ACCTCY 2026: Accounting I**

An introduction to the field of accounting, this course covers the fundamentals of financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2026 and ACCTCY 2036.

**Credit Hours:** 3

**Prerequisites:** Sophomore Standing

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**ACCTCY 2027: Accounting II**

This course covers the fundamentals of managerial accounting and additional topics in financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2027 and ACCTCY 2037. Course only offered through Mizzou Online (self paced).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2026

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**ACCTCY 2036: Accounting I**

First half of two-part course focusing on the business environment and the use of managerial and financial accounting information for decision making in various business settings. Emphasizes the use of accounting information about a retail company (sole proprietorship) by internal and external users, followed by an introduction to other forms of business and, then, planning for corporate operations.

**Credit Hours:** 3

**Prerequisites:** Completion of 28 credit hours. May be restricted to lower-level business and lower-level accountancy students during early registration

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**ACCTCY 2037: Accounting II**

Second half of two-part course focusing on the business environment and the use of managerial and financial accounting information for decision making in various business settings. This half emphasizes the use of accounting information about a manufacturing company (corporation) by internal and external users.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2036 or ACCTCY 2136H

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**ACCTCY 2136H: Honors Accounting I**

First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users.

**Credit Hours:** 3

**Prerequisites:** sophomore standing in Accounting or Business, 3.3 or higher GPA. Honors eligibility required

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**ACCTCY 2137H: Honors Accounting II**

Continuation of Accountancy 2136H.

**Credit Hours:** 3

**Prerequisites:** C or better ACCTCY 2136H. Honors eligibility required

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**ACCTCY 2258: Computer-Based Data Systems**

Introduces the computer as a tool in the efficient operation of a business. Skills developed in the course include electronic information retrieval, information analysis using a spreadsheet, what-if analysis macro development, and information presentation. In addition, computer components, data storage, networks, and information technology are discussed.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**ACCTCY 3326: Financial Accounting Theory and Practice I**

Institutional structure, conceptual framework, and reporting standards and practices of financial accounting, with special emphasis on accounting for assets.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

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**ACCTCY 3328: Accounting Information Systems**

Introduction to accounting information systems (AIS). General AIS concepts. Transaction processing systems and accounting cycles. Alternative platforms for computerized transaction processing. Database management and data modeling. Control concepts and design.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 3346: Financial Accounting Theory and Practice II**

Continuation of Accountancy 3326, with special emphasis on income recognition and accounting for liabilities and ownership equity.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 3347: Cost and Managerial Accounting**

Activity based and traditional job order and process cost systems for service, merchandising, and multinational manufacturing companies; Cost accounting techniques and procedures for financial reporting by multinational companies. Strategic focus to management accounting measurement and reporting. Standard costs and variances, capital budgeting.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

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**ACCTCY 4000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 7000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 4301: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 4353: Introduction to Taxation**

(cross-leveled with ACCTCY 7353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 4356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 7356). Current issues in the financial reporting of business corporations to external parties.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310. Not open to accountancy majors

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**ACCTCY 4365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 7365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting,

budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 4384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 7384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 4940: Professional Accounting Internship**

(cross-leveled with ACCTCY 7940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Accountancy Majors only and 105 credit hours completed and ACCTCY 3326 and ACCTCY 3328 and ACCTCY 3346 and ACCTCY 3347 and ACCTCY 4353, and GPA of 3.0 or higher

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**ACCTCY 7000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 4000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 7310: Accounting for Managers**

Introduction to understanding how accounting information is used to help make informed decisions in various business settings. Includes an introduction to basic financial and management accounting concepts and procedures.

**Credit Hours:** 3

**Prerequisites:** MBA or MSPA candidate, or departmental consent

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**ACCTCY 7353: Introduction to Taxation**

(cross-leveled with ACCTCY 4353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 7356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 4356). Current issues in the financial reporting of business corporations to external parties. Not open to accountancy majors.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310

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**ACCTCY 7365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 4365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 7384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 4384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 7940: Professional Accounting Internship**

(cross-leveled with ACCTCY 4940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Completion of undergraduate portion of 150 hour program (or equivalent) and consent of Internship Coordinator

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**ACCTCY 8358: Systems Analysis and Design**

Modern information systems analysis and design, focusing on business process modeling.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Recommended:** CMP\_SC 1001 or CMP\_SC 1050

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**ACCTCY 8363: Multi-Jurisdictional Tax**

This course takes a practical approach to exploring multistate and international tax concepts by focusing on tax issues that can arise as a company expands from a single business location into a multinational corporation. Part 1 of this course focuses on the economic, political, and constitutional constraints imposed on state and local taxation, including the due process clause, the commerce clause and state uniformity and equality clauses. Part 2 of the course includes a survey of state and local tax laws, with a particular emphasis on the imposition of sales and use taxes and the allocation and apportionment of state income taxes. Part 3 of the course surveys principals of international taxation, including U.S. taxation of the foreign investments or activities of U.S. taxpayers (outbound) and U.S. taxation of the U.S. activity or investments of foreign taxpayers (inbound).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353. Restricted to Accountancy Majors

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**ACCTCY 8373: Taxation of Corporations and Shareholders**

Life cycle of a corporation including formations, operations, distributions, and liquidations of corporations.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8383: Taxation of Flow-Through Entities**

This course covers formations, operations, distributions, and liquidations of partnerships and S-Corporations. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8393: Taxation of Trust, Gifts and Estates**

This course covers two main topics. Students are introduced to the construction, operation and income taxation of trusts. After this portion of the course students will learn about the gift tax consequences of completed exchanges. Finally, students will learn the basic rules regarding the estate tax. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8401: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 8404: Internal Auditing**

This course covers the concepts, practices, and application of internal audit activities. The course will review the entire internal audit process including annual audit and engagement planning, fieldwork, reporting, and management communication. Other topics including internal controls, enterprise risk management, and key behavior skills will be discussed. The Professional Practices Framework and industry best practices will be incorporated throughout the semester. This course will prepare students for entry-level internal audit positions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8408: Advanced Accounting Information Systems**

Emerging concepts and technologies in accounting information systems, with an emphasis on E-Business. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328. Restricted to Accountancy Majors

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**ACCTCY 8414: Audit of Internal Controls**

A combination of control theory, concept application, demonstration of actual practice, and student research to develop an understanding of the concepts and practices used in the design, development or assurance of information systems (IS) controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, and ACCTCY 4384 or ACCTCY 7384.  
Restricted to Accountancy Majors

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**ACCTCY 8419: International Accounting**

Introduction to accounting regulations and practices outside of the U.S., accounting regulations for foreign registrants on the NYSE and NASDAQ, international accounting standards and international management control issues. Review of cultural frameworks; transfer pricing methods and international accounting standards.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 and ACCTCY 3347. Restricted to Accountancy Majors

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**ACCTCY 8423: Tax Research and Planning**

Applied tax research using print and electronic data bases; heuristic biases in tax judgments; responsibilities of professional tax practices.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373  
**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8424: Fraud Examination**

A study of the methods and techniques of fraud examination, particularly with regard to frauds perpetrated by the company against the public. The ethical and professional standards that underlie the accountant's responsibility for fraud detection and prevention are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8425: Accounting for Governments and Other NonProfit Entities**

Role of accounting information in planning, managing, and controlling nonbusiness organizations; reporting to external parties; concepts of governmental auditing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4365 or ACCTCY 7365 or instructor's consent.  
Restricted to Accountancy Majors

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**ACCTCY 8428: Data Warehousing and Data Mining**

Enterprise-wide view of data and transaction processing. Concepts and techniques of data warehousing and data mining of business-critical data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 or departmental consent. Restricted to Accountancy Majors

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**ACCTCY 8433: Mergers and Acquisitions Taxation**

This course covers the basic taxation of mergers and acquisitions, both taxable and tax-free acquisitions; issues in merger and acquisition deal making, such as due diligence and understanding contract tax provisions; and an overview of securities regulations with respect to publicly traded companies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373

**Prerequisites:** ACCTCY 4353

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**ACCTCY 8434: Applications of Auditing Concepts**

Application of auditing concepts and techniques in various phases of audit engagements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384. Restricted to Accountancy Majors

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**ACCTCY 8436: Advanced Accounting**

Continuation of ACCTCY 3346. Addresses a series of special financial accounting topics including income taxes, pensions, leases, business combinations, consolidated statements, and foreign currency translation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 8437: Strategic Cost Analysis**

Analysis to support organizational strategy including cost management, performance evaluation, and control of responsibility centers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3347, MATH 1320 and STAT 3500, or the equivalent. Restricted to Accountancy Majors

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**ACCTCY 8438: Forensic Accounting**

Coverage of forensic accounting processes and tools used in the detection and prevention of fraud against the company. Topics include skimming, cash larceny, check tampering, billing schemes and others. An emphasis of the course will be upon the use of computer aids. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, ACCTCY 4384 or ACCTCY 7384.  
Restricted to Accountancy Majors

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**ACCTCY 8444: Advanced Audit**

The Advanced Auditing course helps students develop a better understanding of the audit environment and gives them the opportunity to gain hands-on experience planning for an audit engagement, performing test work, and completing an audit engagement. The course also addresses additional topics not covered in detail in the Audit Theory and Practice I course, including inventory observation, legal liability issues faced by auditors today, the regulatory environment, professional responsibilities of auditors, preparing appropriate documentation for audit engagements, providing required communications to clients, and performing Single Audits. The course is designed to encourage open discussions of cases and current issues and provide learning opportunities for the students. The class meetings and assignments are designed to improve the student's critical thinking skills, communication skills, and team-building skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8446: Application of Financial Accounting Pronouncements**

Development, content and application of authoritative pronouncements in financial accounting. Problems and case studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8436. Restricted to Accountancy Majors

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**ACCTCY 8448: Emerging Issues in Accounting Information Systems**

Current developments in the implementation of accounting information systems. Topics may vary. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8408. Restricted to Accountancy Majors

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**ACCTCY 8450: Accounting and Strategic Business Analysis**

Capstone course in the Master of Accountancy program. Emphasis on case analysis to develop critical thinking and analytical skills in the use of accounting reports for broad-based business analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 or equivalent. Restricted to Accountancy Majors

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**ACCTCY 8453: Taxes and Business Strategies**

This class examines the role taxes in business decisions. The analysis involved considers 1) tax consequences of all parties to a transaction, 2) both explicit and implicit taxes, and 3) tax as well as non-tax costs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8456: Corporate Governance**

Corporate governance has taken on new prominence in light of the accounting scandals of the early 2000's (e.g., Enron) and the new regulatory regime of Sarbanes-Oxley. As a result, corporations, investors, auditors, and others are paying more attention to corporate governance. This course will familiarize students with corporate governance mechanisms and how they interact with financial reporting. This course should appeal to students pursuing careers in auditing, finance, management, as well as anyone seeking a deeper understanding of relations between financial reporting and corporate governance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8436. Restricted to Accountancy Majors

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**ACCTCY 8463: Partnership Taxation**

Formations, operations, distributions, and liquidations of partnerships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or 7353

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**ACCTCY 9090: Research in Accounting**

Each student is under direction and guidance of an accountancy professor in writing a dissertation. Periodic seminars discuss research projects. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** doctoral candidacy and instructor's consent

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**ACCTCY 9401: Doctoral Research Problems in Accounting**

Independent investigations, reports on approved topics. Restricted to Doctoral level students only

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and director's consent

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**ACCTCY 9444: Seminar in Auditing Research**

The economic role of auditing; the audit process; audit reports and the consequences of auditing on financial statements; new audit directions and perspectives.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9455: Seminar in Governmental and Nonprofit Accounting**

Critical review of the governmental and nonprofit accounting research literature, with emphasis on auditing issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent. ACCTCY 4384 or ACCTCY 7384 and ACCTCY 4365 or ACCTCY 7365

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**ACCTCY 9457: Quantitative Methods in Accounting**

Application of mathematics and statistics to managerial and financial accounting problems.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3347, MATH 1300 and MATH 1320 and STAT 3500, or instructor's consent

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**ACCTCY 9460: Research Methods in Accounting**

Application of research methods to the investigation of current accounting issues. A research paper is required.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9466: Seminar in Financial Accounting Research**

Theory of financial accounting and regulated disclosure; empirical tests of financial accounting theory, with emphasis on the nature of the research question addressed, and the method used to address the research question.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9467: Seminar in Behavioral Accounting Research**

Critical review of the Behavioral accounting research literature with emphasis on issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy and instructor's consent

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**ACCTCY 9468: Seminar in Information Systems Research**

Overview of research related to advanced systems and how accounting information is processed, with emphasis on current issues and research methods.



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**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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## Aerospace Studies (AERO)

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### **AERO 1100: The Foundations of the United States Air Force**

Introduces the Air Force and Air Force ROTC. Topics include professional appearance, military customs and courtesies, core values, equal opportunity and treatment, officer opportunities, group leadership problems. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 1200: The Foundations of the United States Air Force**

Continues the introduction to the Air Force and Air Force ROTC. Topics include Air Force origins, organizations, major commands, installations, sister services (Army and Navy), group leadership problems. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 2100: The Evolution of USAF Air and Space Power**

A survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC officer candidate. Explores Air Force heritage, Air Force leaders and Air Power doctrine. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 2200: The Evolution of USAF Air and Space Power**

Continues the examination of air and space power from the Vietnam era through the present. Topics include the Vietnam War, the Persian Gulf War, and overseas contingency operations. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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### **AERO 3100: Air Force Leadership Studies**

An integrated leadership and management survey course emphasizing development of the individual as an Air Force leader. Special topics include situational leadership, principle centered leadership, corrective supervision and counseling. Leadership lab.

**Credit Hours:** 3

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### **AERO 3200: Air Force Leadership Studies**

Air Force leadership principles are examined from the foundation developed in AERO 3100. Ethical decision making, personal core values, and character development are discussed. Military evaluation systems are outlined. Leadership lab.

**Credit Hours:** 3

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### **AERO 4100: National Security Affairs/Preparation for Active Duty**

Examines the national security process, regional studies, Air Force and joint doctrine. Special topics include the military as a profession and civilian control of the military. Continued emphasis on communicative skills. Leadership lab.

**Credit Hours:** 3

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### **AERO 4200: National Security Affairs/Preparation for Active Duty**

Examines civilian control of the military, officership, the military justice system, and current issues affecting military professionalism. Continued refinement of communicative skills. Leadership laboratory.

**Credit Hours:** 3

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## Agricultural Economics (AG\_EC)

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### **AG\_EC 1010: Introduction to Agribusiness Management**

Agribusiness and agricultural economics touches many parts of business, agriculture, the environment and other areas. This course is designed to help students successfully make the adjustment to college/MU, provide an overview of the Department of Agricultural and Applied Economics degree programs and, enhance professional and career development.

**Credit Hours:** 3

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### **AG\_EC 1011: Survey of Global Agribusiness**

Economic, social and political forces and trends and the impact on U.S. and global agribusinesses. Global production, consumption trade, and investment patterns in agriculture-food sector. Developing management strategy in changing economic political environment.

**Credit Hour:** 1

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### **AG\_EC 1041: Applied Microeconomics**

Introduction to the microeconomic principles and their application to decision-making in agribusinesses. Consumer decision analysis, producer goals and optimization and the market environment where they meet and trade. Applications to current issues. Students who complete AG\_EC 1041 may not have credit for ECONOM 1014.

**Credit Hours:** 3

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### **AG\_EC 1042: Applied Macroeconomics**

Introduction to macroeconomic principles and their application to agriculture-food sector and natural resource issues. Using macroeconomic principles in decision making and in evaluating national and regional economic problems and issues. Students who complete AG\_EC 1042 may not have credit for ECONOM 1015.

**Credit Hours:** 3

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### **AG\_EC 1200: Applied Computer Applications**

This course is an applied problem based learning opportunity for students to gain Excel spreadsheet related skills critical to careers in agriculture, food and natural resources. Students will learn intermediate and advanced spreadsheet skills essential for problem solving and decision making in these biologically influenced fields.

**Credit Hours:** 3

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### **AG\_EC 2050: For the Love of Food: Global Food System Debate**

This course is designed to develop students' understanding of the food system from farm to plate and the consumer's role in the global food system. Gaining a knowledge base on food system dynamics will allow students to better understand the societal and policy making processes behind food production. Each week we will discuss key topics and issues

facing the food system today. This class will help students develop critical thinking skills to address challenges in the global food system.

**Credit Hours:** 3

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**AG\_EC 2070: Environmental Economics and Policy**

(same as ENV\_ST 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** ENGLISH 1000

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**AG\_EC 2070W: Environmental Economics and Policy - Writing Intensive**

(same as ENV\_ST 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** ENGLISH 1000

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**AG\_EC 2123: Quantitative Applications in Agricultural Economics**

Familiarize students with the use of calculus and other quantitative tools in developing and analyzing fundamental economic concepts.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and MATH 1400

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**AG\_EC 2156: Introduction to Environmental Law**

Environmental issues from a legal perspective, using current controversies from both the USA and other countries. Major environmental laws dealing with water, air, noise, endangered species, waste disposal, and land use.

**Credit Hours:** 3

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**AG\_EC 2183: The Agricultural Marketing System**

Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

**Recommended:** AG\_EC 1042 or ECONOM 1015

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**AG\_EC 2183W: The Agricultural Marketing System - Writing Intensive**

Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

**Recommended:** AG\_EC 1042 or ECONOM 1015

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**AG\_EC 2223: Agricultural Sales**

Principles of salesmanship in agricultural input and output markets; buyer motivations; time and territory management; communication models and techniques; planning and executing sales calls; after-sale service.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or AG\_EC 1042 or ECONOM 1014 or ECONOM 1015 and sophomore standing

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**AG\_EC 2225: Statistical Analysis**

Elementary statistical inference. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_EC 2940: Practicum in Agricultural Economics**

Off-campus integrated working and learning experience for departmental majors and minors. Application of economic concepts in business or government. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**AG\_EC 3150: International Agribusiness**

This course covers the primary factors that shape the business environment for food and agricultural firms conducting business across borders. The course examines how culture, institutions and public policy affect business operations and business strategies.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183

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**AG\_EC 3224: New Products Marketing**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3224W: New Products Marketing - Writing Intensive**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3230: Agricultural and Rural Economic Policy**

Study and analysis of past and present government policies affecting agriculture and rural economy.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 1042 or ECONOM 1015

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**AG\_EC 3241: Ethical Issues in Agriculture**

The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and junior standing

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**AG\_EC 3241W: Ethical Issues in Agriculture - Writing Intensive**

The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and junior standing

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**AG\_EC 3256: Agribusiness and Biotechnology Law**

Legal concepts applicable to agribusiness and biotech firms. To include contracts, torts, product liability, warranties, corporate farming laws, UCC, corporations/partnerships/limited liability companies, labor laws, patent copyrights/trademark laws, international and ethical perspectives.

**Credit Hours:** 3

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**AG\_EC 3257: Rural and Agricultural Law**

Everyday practical legal problems facing rural residents, farmers, agribusiness, and local government. Laws include statutes, common law (cases), customs, and administrative regulations. Topics include corporate/contract farming, right-to-farm, leases, fence laws, estate planning and water rights.

**Credit Hours:** 3

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**AG\_EC 3260: General Farm Management**

Economics and management principles applied to planning and operating farm businesses. Includes enterprise combination, resource acquisition, water management, profit maximizing techniques and annual adjustments to changing conditions.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3270: Conservation and Use of Protected Areas**

Evaluation of socioeconomic, cultural and ecological values influencing the development and management of protected areas including parks, forests, wildlife refuges, wilderness and wild/scenic rivers.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 2070

**Recommended:** Introductory natural resources courses

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**AG\_EC 3271: International Agricultural Development**

Examines world food problem; analyzes its causes; economic and noneconomic policy alternatives for modernizing agriculture in less-developed countries.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 1042 or ECONOM 1015

**Recommended:** junior standing

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**AG\_EC 3272: International Food Trade and Policy**

Examines food trade; develops economic analyses of trade impacts on domestic agricultural policies; examines international trade agreements; and interface of trade and environment.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and AG\_EC 1042 or ECONOM 1015

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**AG\_EC 3282: Agribusiness Finance**

Application of the concepts and methods of finance to the management of agribusiness firms, including cooperatives. Special attention is given to the working capital needs of agribusiness and to the specialized lending institutions in the agricultural economy.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026

**Recommended:** ACCTCY 2037 or ACCTCY 2027

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**AG\_EC 3283: Fundamentals of Entrepreneurship**

Introduce students to entrepreneurial way of thinking. Entrepreneurship is a way of thinking about identifying/creating opportunities and transforming those opportunities into new businesses, new institutions, or solutions to problems. Students will participate in the process of formulating and evaluating solutions to problems and identifying and exploiting opportunities.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026. Restricted to Agricultural Economics and Agribusiness Management majors during early registration

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**AG\_EC 3285: Problems in Agricultural Economics**

Supervised study in a specialized phase of agricultural economics. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AG\_EC 3286: Economics of Managerial Decision Making**

Introduces tools and concepts from price theory, game theory, industrial organization and organizational economics, and applies them to managerial decision making activities for businesses in the agrifood system and for natural resource and environmental management.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2123 and AG\_EC 2183

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**AG\_EC 3294: Agricultural Marketing and Procurement**

Content of course focuses on marketing issues in the agriculture supply chain. Topics covered include price discovery, basis, futures/options, contracting, logistics, and management decision making.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183

**Recommended:** AG\_EC 2225 or STAT 2500

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**AG\_EC 3295: Real Money: Speculative Trading for Beginners**

Familiarize students with the learning components of commodity future/option trading. Students learn through involvement by investing in a commodity pool and trading futures/options. Students apply both fundamental and technical analysis. Students taking this course are required to invest from \$200 to \$600 in \$200 increments. Students cannot lose more money than invested.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183

**Recommended:** AG\_EC 3294

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**AG\_EC 3296: In the Money with Options Trading**

This online course focuses on learning the basics of trading options market contracts. Students will be investing/contributing members of the University of Missouri Educational Marketing Club. Students will be introduced to principles of price forecasting using technical and fundamental analysis and will study a variety of trading strategies.

**Credit Hours:** 2

**Prerequisites:** AG\_EC 3295

**Recommended:** AG\_EC 3294

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**AG\_EC 3297: Technical Trading Tactics**

Learn the tactics of technical trading through student investment and commodity futures contracts. Technical Trading Tactics will provide students with tools to support trade recommendations based on technical analysis. Each student invests real money as a learning incentive and will complete one trade recommendation during the course.

**Credit Hour:** 1

**Prerequisites:** AG\_EC 3295

**Recommended:** AG\_EC 3294

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**AG\_EC 3321: Economic History of Agriculture**

Emphasizes Europe and U.S. historical interpretation; usefulness in evaluating present and probable future developments in agriculture.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1041 or ECONOM 1014

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**AG\_EC 3383: Rural Entrepreneurship II**

Rural Entrepreneurship II is designed for students that realize they may need to create their own career or opportunity if they want to return to their rural community and for students who would like to better understand how to create that option in their career choice set.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3283

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**AG\_EC 4110: In-Service Course in Agricultural Economics**

(cross-leveled with AG\_EC 7110). A. Profit Maximizing Principles B. Farm Planning C. Farm Records and Analysis D. Business Management E. Using Computers in Farm Management Decision Making. Basic principles of farm management. Applications of principles and subject matter in successful classroom presentation primarily for high school teachers. Course is offered in sections A-E as listed, for 2 hours each.

**Credit Hour:** 2-10

**Prerequisites:** instructor's consent. Recommended AG\_EC 3260

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**AG\_EC 4230: Understanding the Agricultural Policy Process**

The goal of this course is to prepare students for a career in agricultural policy and will build the skill set needed in the agricultural policy environment.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3230

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**AG\_EC 4251: Agricultural Prices**

(cross-leveled with AG\_EC 7251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2123 and AG\_EC 2225 or STAT 2500

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**AG\_EC 4295: Agricultural Risk Management**

(cross-leveled with AG\_EC 7295). This class will examine the range of risks business face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183 and AG\_EC 2225 or STAT 2500

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**AG\_EC 4301: Topics in Agricultural Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**Credit Hour:** 1-6

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**AG\_EC 4301H: Topics in Agricultural Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**Credit Hour:** 1-6

**Prerequisites:** honors eligibility required

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**AG\_EC 4310: Local Economic Analysis**

(cross-leveled with AG\_EC 7310). Economic based theory, including multipliers and how local economies are affected by external events. Methods for local economic analysis: trends, location quotients, shift-share, and retail analyses.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AG\_EC 4340: Rural Real Estate Appraisal**

(cross-leveled with AG\_EC 7340). Principles, techniques, practices of rural real estate appraisal. Field trips.

**Credit Hours:** 3

**Recommended:** AG\_EC 3260

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**AG\_EC 4356: Environmental Law and Policy**

(cross-leveled with AG\_EC 7356). Legislative, administrative, and common law dealing with the environment. Introduces the fundamental concepts and classic issues underlying the body of law and policy dealing with the environment. Includes air and water quality, endangered species preservation, land use, and waste disposal.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Recommended AG\_EC 3256, senior or graduate standing. For non-law students

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**AG\_EC 4940: Internship Opportunities**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** 75 hours completed

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**AG\_EC 4962: Planning the Farm Business**

(cross-leveled with AG\_EC 7962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3260

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**AG\_EC 4971: Agribusiness Management Strategy**

(cross-leveled with AG\_EC 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3282 or FINANC 3000 and AG\_EC 3286 or MANGMT 3000

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**AG\_EC 4971W: Agribusiness Management Strategy - Writing Intensive**

(cross-leveled with AG\_EC 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3282 or FINANC 3000 and AG\_EC 3286 or MANGMT 3000

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**AG\_EC 4972: Agri-Food Business and Cooperative Management**

(cross-leveled with AG\_EC 7972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4971 and AG\_EC 3286 or MANGMT 3000

**Recommended:** AG\_EC 3256

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**AG\_EC 4983: Strategic Entrepreneurship in Agri-Food**

Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3283 and AG\_EC 3282 or FINANC 3000

**Recommended:** senior standing

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**AG\_EC 4990: Economic Analysis of Policy and Regulation**

(cross-leveled with AG\_EC 7990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4251

**Recommended:** ECONOM 4351

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**AG\_EC 4995: Economics of Agricultural Production and Distribution**

(cross-leveled with AG\_EC 7995). Applies economic principles to agricultural production including price theory, linear programming and uncertainty.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 and AG\_EC 2225 or STAT 2500

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**AG\_EC 7110: In-Service Course in Agricultural Economics**

(cross-leveled with AG\_EC 4110). A. Profit Maximizing Principles B. Farm Planning C. Farm Records and Analysis D. Business Management E. Using Computers in Farm Management Decision Making. Basic principles of farm management. Applications of principles and subject matter in successful classroom presentation primarily for high school teachers. Course is offered in sections A-E as listed, for 2 hours each. Prerequisites:

**Credit Hour:** 2-10

**Prerequisites:** instructor's consent. Recommended AG\_EC 3260

---

**AG\_EC 7251: Agricultural Prices**

(cross-leveled with AG\_EC 4251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2123 and AG\_EC 2225 or STAT 2500

---

**AG\_EC 7295: Agricultural Risk Management**

(cross-leveled with AG\_EC 4295). This class will examine the range of risks businesses face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 2183 and AG\_EC 2225 or STAT 2500

---

**AG\_EC 7301: Topics in Agricultural Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural Economics.

**Credit Hour:** 1-6

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**AG\_EC 7310: Local Economics Analysis**

(cross-leveled with AG\_EC 4310). Economic based theory, including multipliers and how local economies are affected by external events. Methods for local economic analysis: trends, location quotients, shift-share, and retail analyses. On-line course.

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**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AG\_EC 7340: Rural Real Estate Appraisal**

(cross-leveled with AG\_EC 4340). Principles, techniques, practices of rural real estate appraisal. Field trips.

**Credit Hours:** 3

**Recommended:** AG\_EC 3260

---

**AG\_EC 7356: Environmental Law and Policy**

(cross-leveled with AG\_EC 4356). Legislative, administrative, and common law dealing with the environment. Introduces the fundamental concepts and classic issues underlying the body of law and policy dealing with the environment. Includes air and water quality, endangered species preservation, land use, and waste disposal.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Recommended AG\_EC 3256, senior or graduate standing. For non-law students

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**AG\_EC 7940: Internship Experiences in Agricultural Economics**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** 2.5 GPA; 75 hours of course work and instructor's consent

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**AG\_EC 7962: Planning the Farm Business**

(cross-leveled with AG\_EC 4962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3260

---

**AG\_EC 7971: Agribusiness Management Strategy**

(cross-leveled with AG\_EC 4971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 3282 or FINANC 3000 and AG\_EC 3286 or MANGMT 3000

---

**AG\_EC 7972: Agri-Food Business and Cooperative Management**

(cross-leveled with AG\_EC 4972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4971 and AG\_EC 3286 or MANGMT 3000

**Recommended:** AG\_EC 3256

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**AG\_EC 7990: Economic Analysis of Policy and Regulation**

(cross-leveled with AG\_EC 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 4251

**Recommended:** ECONOM 4351

---

**AG\_EC 7995: Economics of Agricultural Production and Distribution**

(cross-leveled with Applies economic principles to agricultural production including price theory, linear programming and uncertainty. Prerequisites:

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 and AG\_EC 2225 or STAT 2500

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**AG\_EC 8001: Advanced Topics in Economics**

Analyzes economic logic problems. Current agricultural economic problems.

**Credit Hours:** 3

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**AG\_EC 8010: Research Methodology**

Students explore the roles of theory and methods in economics research, develop a program of research, and critique published research. Students also study the scientific methods and the research process, including problem definition, research design, data collection and analysis, and generalization.

**Credit Hours:** 3

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**AG\_EC 8024: Advanced Production Economics**

Production function analyses and advanced theory of the firm as applied to agricultural production problems. Concepts of input demand, production supply, quality, time and technology, dynamic analysis and production under uncertainty.

**Credit Hours:** 3

**Prerequisites:** MATH 1500, AG\_EC 4995; ECONOM 8451; STAT 4510 or ECONOM 8472

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**AG\_EC 8050: Economics of Institutions and Organizations**

This course expands upon the fundamental principles of neo-classical economics by relaxing traditional behavioral and informational assumptions and by introducing the importance of transaction costs and institutions for economic analysis.

**Credit Hours:** 3

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**AG\_EC 8060: Mathematical Modeling for Social Scientist**

Introduction to mathematical programming, emphasizing problem formulation and solution interpretation. Computer applications are stressed.

**Credit Hours:** 3

**Prerequisites:** STAT 4510

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**AG\_EC 8085: Masters Problems in Agricultural Economics**

Supervised study, research in specialized phases of agricultural economics.

**Credit Hour:** 1-99

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**AG\_EC 8087: Seminar in Agricultural Economics**

Lectures, reports on economic problems in agriculture.

**Credit Hour:** 1

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**AG\_EC 8090: Masters Thesis Research in Agricultural Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-6

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**AG\_EC 8210: Theory of Markets**

Development of theories of monopolistic, monopolistic competition; application to agricultural markets. Market structure influence on price, nonprice competition in buying, selling of farm products and inputs.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351

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**AG\_EC 8350: Regional Development Issues and Analysis**

(same as PUB\_AF 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**AG\_EC 8410: Natural Resource and Environmental Economics**

Contemporary natural resource/environmental problems; natural resource capacity, alternative economic theories, property rights, externalities, market failures, efficient use of exhaustible and renewable resources, and economics of environmental pollution.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351

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**AG\_EC 8430: International Agricultural Development Policy**

An analytical review of economic policies directed toward stimulating agricultural development in the world's low income countries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and ECONOM 7353

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**AG\_EC 8448: Society and Ecosystems Research Seminar**

(same as RU\_SOC 8448 and NAT\_R 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**AG\_EC 8450: Masters Non Thesis Research**

Independent investigation of advanced nature. Report required.

**Credit Hour:** 1-6

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**AG\_EC 8520: Economics of Transaction and Contracting**

This course focuses on the economic incentives underlying transaction relationships and develops and implements a framework for analyzing contract documents governing various kinds of transactions.

**Credit Hours:** 3

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**AG\_EC 8610: Economic and Sociological Approaches to Collective Action**

(same as RU\_SOC 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 7972

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**AG\_EC 8860: International Comparative Rural Policy**

(same as PUB\_AF 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AG\_EC 9001: Advanced Topics in Economics II**

Analyzes economic logic problems. Current agricultural economic problems.

**Credit Hours:** 3

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**AG\_EC 9040: Advanced Microeconomics Theory and Applications I**

First semester course that rigorously examines the microeconomic theory of producer and consumer behavior, combined with applications of the theoretical concepts to empirical economic research on agricultural, business, development, and environmental issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructors consent

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**AG\_EC 9042: Advanced Microeconomics Theory and Applications II**

Second semester advanced micro theory covering choice under uncertainty, industry structure, game theory, information econ, and political economy of regulation. Includes applications of micro models to issues in agricultural, natural resource, and development sectors.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 9040

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**AG\_EC 9085: Doctoral Problems in Agricultural Economics**

Supervised study, research in specialized phases of agricultural economics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_EC 9090: Doctoral Dissertation Research in Agricultural Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AG\_EC 9220: Advanced Price Analysis**

Applies economic theory and quantitative methods to analyze agricultural price issues. Examines problem formulation, estimation, and model evaluation applied to demand and supply situations.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or ECONOM 8472; STAT 4510

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**AG\_EC 9230: Welfare and Consumption Economics**

Introduces welfare economic principles; application to problems of resource allocation. Appraises economic policies, programs; consumers' choice; measurement of consumption; living standards; household decisions and markets relation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or instructor's consent

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**AG\_EC 9265: Food, Agricultural and Rural Policy**

Application of welfare economics theory to food, agricultural and rural development policy analysis. Historical perspective and economics analysis of contemporary issues in national and international policy and institutions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and AG\_EC 9230

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**AG\_EC 9320: Regional Economic Theory and Methods**

Theory of spatial economics: Central place theory, spatial labor markets, location theory, social accounting matrices, input-output, computable general equilibrium, geographic information systems and regional econometric models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351, ECONOM 7353, and matrix algebra

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**AG\_EC 9475: Econometrics I**

Emphasis is given to special estimation problems which occur in integrating the theory with various types of economic data.

**Credit Hours:** 3

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**AG\_EC 9476: Econometrics II**

(same as ECONOM 9476).

**Credit Hours:** 3

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**AG\_EC 9510: Economics of Agribusiness Firm**

This course builds on transaction cost-based theories and tools to study the economic underpinnings of intra-firm organization, firm boundaries, and the structure of inter-firm transactions.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 8050

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**AG\_EC 9520: Economics of Agribusiness Markets**

Relationships of neoclassical and new institutional economics to designing organizational strategy and structure. Internal coordination and structure, organizational boundaries, and competitiveness and sustainability of food system organizations.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 8050

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## Agricultural Systems Management (AG\_S\_M)

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**AG\_S\_M 1002: Topics in Agricultural Systems Management-Biological/Physical/Math**

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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**AG\_S\_M 1020: Introduction to Agricultural Systems Management**

Introductory course that acquaints students with the general technical areas of Agricultural Systems Management. A systematic problem-solving approach is applied to problems derived from each of the technical areas within Agricultural Systems Management .

**Credit Hours:** 3

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**AG\_S\_M 1040: Physical Principles for Agricultural Applications**

Introductory survey course to help students: formulate problems; understand units/accuracy; learn basic definitions; understand simple machines, power transmission, fluid statics, electricity, heat-flow, and temperature/moisture relationships.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 1120: Agricultural/Industrial Materials and Processes**

Structure and properties of manufacturing materials; conditioning and machining materials; assembling processes; finishing processes; automation of manufacturing systems.

**Credit Hours:** 3

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**AG\_S\_M 2002: Topics in Agricultural Systems Management-Biological/Physical/Math**

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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**AG\_S\_M 2020: Environmental Ethics in Agriculture**

Influence of agricultural technology and production practices on environmental quality. Stewardship concepts. Long-term vs. short-term consequences. Development of a scientifically sound ethic toward agricultural production.



**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**AG\_S\_M 2199: Seminar in Professional Development**

This course is taught once a year in the Spring semester. The course explores the concept of what it means to be a professional in the field of Agricultural Systems Management. The course includes aspects of what it means to be a professional, such as resume writing, interviewing, finding a job, and building one's career. A second major aspect of the course is to explore the field of Agricultural Systems Management to gain a better understanding of various potential career paths available to students in Agricultural Systems Management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ASM Freshman or Sophomores or instructor consent

**Recommended:** AG\_S\_M 1020

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**AG\_S\_M 2220: Agricultural/Industrial Structures**

A building science course looking at construction materials, structural component selection, ventilation, moisture control and energy use. Math reasoning proficiency course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 2320: Internal Combustion Power**

Basic internal combustion engine principles, mechanisms, combustion cycles, fuels, fuel injection, electrical systems, engine testing.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 1040

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**AG\_S\_M 2340: Pesticide Application Equipment**

Principles of pesticide application; sprayer hydraulics and spray atomization; calibration, mixing calculations and compatibility of tank mixes; personal and environmental protection; pesticide labels and regulations. Students earn their private applicators license.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AS\_S\_M 1040

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**AG\_S\_M 2345: Chemical Application Systems**

Systems, components and operation practices used in the chemical application industry. Liquid and granular application systems and respective components will be studied along with procedures for minimizing drift, system calibration, recommended maintenance, and off-season storage procedures.

**Credit Hour:** 2-3

**Prerequisites:** MATH 1100 or equivalent

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**AG\_S\_M 2360: Fluid Power**

Basic power hydraulic theory. Hydraulic systems, components and circuits. Math reasoning proficiency course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 3350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 7020). Analysis, organization and implementation of agriculture safety and health programs. Physical and economic impact of accidents, standards and liabilities. Role of man in the man-machine system.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**AG\_S\_M 4120: Advanced Agricultural/Industrial Materials and Processes**

(cross-leveled with AG\_S\_M 7120). Primarily for students majoring in agricultural education. Applies shop principles to the design and construction of projects.

**Credit Hour:** 2-3

**Prerequisites:** instructor's consent

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**AG\_S\_M 4140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 7140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Basic electrical theory.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 4145: Sensors and Control Systems for Agri-Industries**

This course helps one understand sensors including performance, data acquisition systems and selection. In addition, introduction to programmable logic controllers, ladder-rung diagram programming, fluid flow rate, and associated analysis is discussed.

**Credit Hours:** 2

**Prerequisites:** AG\_S\_M 1040 and AG\_S\_M 4140

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**AG\_S\_M 4150: Biorenewable Systems Technology**

Converting biorenewable resources into bioenergy and biobased products. Biorenewable concepts as they relate to drivers of change, feedstock production, processes, products, co-products, economics, transportation and logistics, and marketing.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 and AG\_EC 1041

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**AG\_S\_M 4220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 7220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk material.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, AG\_S\_M 1040 and junior standing

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**AG\_S\_M 4225: Preservation of Grain Quality**

Principles and management for grain quality preservation. Grain drying and grain storage. Psychrometrics. Fan and airflow. Grain handling methods and system planning. Grain quality measurement and end-use value analysis.

**Credit Hours:** 2

**Prerequisites:** MATH 1100. Recommended AG\_S\_M 1040 and AG\_S\_M 4220

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**AG\_S\_M 4320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 7320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 1040

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**AG\_S\_M 4330: Principles for Food Processing**

(same as F\_S 4330; cross-leveled with AG\_S\_M 7330, F\_S 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy and material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, AG\_S\_M 1040 or PHYSICS 1210

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**AG\_S\_M 4350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4360: Precision Agriculture Science and Technology**

(same as PLNT\_S 4360, SOIL 4360; cross-leveled with AG\_S\_M 7360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110

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**AG\_S\_M 4365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7365). Planters, combines, fertilizer application equipment, and sprayer management along with GPS technologies are the focus of the course. One will learn how to manage these tools efficiently and accurately. Valuable precision agriculture management skills emphasized.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AG\_S\_M 1040, and AG\_S\_M 4360

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**AG\_S\_M 4366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time

sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360 and AG\_S\_M 4365

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**AG\_S\_M 4368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360 or instructor consent, or equivalent

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**AG\_S\_M 4370: In-Service Course Agriculture System Management-Farm Power and Machinery**

A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level.

**Credit Hour:** 1-8

**Prerequisites:** Instructor's consent

**Recommended:** 10 credits from Agricultural System Management courses; a B.S. degree in Agriculture

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**AG\_S\_M 4390: Optimization and Management of Food and Agricultural Systems**

(same as F\_S 4390, HSP\_MGMT 4390; cross-leveled with AG\_S\_M 7390, F\_S 7390, HSP\_MNGMT 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function. Recommended AG\_S\_M 1040

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 4420: Surface Water Management**

(cross-leveled with AG\_S\_M 7420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

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**Prerequisites:** MATH 1100 or higher

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**AG\_S\_M 4440: Water Quality and Pollution Control**

(cross-leveled with AG\_S\_M 7440). Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 7460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems. Recommended: AG\_S\_M 1040

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 4940: Agricultural Systems Management Internship**

Combines study, observation, and employment with industry or government agency in an area of Agricultural Systems Management. A special problem / learning experience is selected by internship company representative, faculty problem advisor and student. Written and oral reports evaluated by faculty.

**Credit Hour:** 2-5

**Prerequisites:** Instructor's consent

**Recommended:** Sophomore standing and minor or major in Agricultural Systems Management

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**AG\_S\_M 4970: Agricultural Systems Management - Capstone**

Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** Senior Standing

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**AG\_S\_M 4970W: Agricultural Systems Management - Capstone - Writing Intensive**

Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** Senior Standing

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**AG\_S\_M 7001: Topics in Agricultural Systems Management**

Initial offering of a course in a specific subject matter area related to Agricultural Systems Management. The course is offered when proposed by a faculty member in that area of expertise.

**Credit Hours:** 3

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**AG\_S\_M 7020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 4020). Analysis, organization and implementation of agriculture safety and health programs. Physical and economic impacts of accidents, standards and liabilities. Role of man in the man-machine system.

**Credit Hours:** 3

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**AG\_S\_M 7085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

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**AG\_S\_M 7120: Advanced Agricultural/Industrial Materials and Processes**

(cross-leveled with AG\_S\_M 4120). Primarily for students majoring in agricultural education. Applies shop principles to the design and construction of projects.

**Credit Hour:** 2-3

**Prerequisites:** instructor's consent

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**AG\_S\_M 7140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 4140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Basic electrical theory.

**Credit Hours:** 3

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**AG\_S\_M 7220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 4220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 and AG\_S\_M 1040

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**AG\_S\_M 7320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 4320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 1040

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**AG\_S\_M 7330: Principles for Food Processing**

(same as F\_S 7330; cross-leveled with AG\_S\_M 4330, F\_S 4330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy and material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Instructor's consent

**Prerequisites:** MATH 1100 and AG\_S\_M 1040 or PHYSCS 1210

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**AG\_S\_M 7340: Agricultural Mechanization Systems**

Review of current literature. Case study of mechanization systems. Computer analysis of management alternatives.

**Credit Hours:** 3

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**AG\_S\_M 7360: Precision Agriculture Science and Technology**

(same as PLNT\_S 7360 and SOIL 7360; cross-leveled with AG\_S\_M 4360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PLNT\_S 2110 or instructor's consent

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**AG\_S\_M 7365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4365). This course focuses on agricultural equipment that is commonly used in conjunction with GPS technology. Planters, combines, fertilizer application equipment and sprayer application equipment are commonly equipped with GPS equipment to control and record operational parameters. These parameters focus around the equipments geographic location and can be recorded simultaneously with the volume of product applied and weather information (wind, temperature, humidity, etc.). GPS guidance is one of the main technologies to be studied throughout this course. The management of this equipment and the GPS technologies used to control and record this information is the focus of the course.

**Credit Hours:** 3

**Recommended:** AG\_S\_M 7360

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**AG\_S\_M 7366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 7360, AG\_S\_M 7365, instructor consent, or equivalent

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**AG\_S\_M 7368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360 or instructor consent, or equivalent

---

**AG\_S\_M 7370: In-Service Course Agriculture Systems Management-Farm Power and Machinery**

A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level.

**Credit Hour:** 1-8

**Prerequisites:** 10 credits from Agricultural Systems Management courses; a B.S. degree in Agriculture or instructor's consent

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**AG\_S\_M 7390: Optimization and Management of Food and Agriculture Systems**

(same as F\_S 7390, HSP\_MGMT 7390; cross-leveled with AG\_S\_M 4390, F\_S 4390, HSP\_MGMT 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AG\_S\_M 7420: Surface Water Management**

(cross-leveled with AG\_S\_M 4420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

---

**AG\_S\_M 7440: Water Quality and Pollution Control**

(cross-leveled with AG\_S\_M 4440). Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 7460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 4460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4420 or instructor's consent

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**AG\_S\_M 8085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hours:** 3

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**AG\_S\_M 8090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

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**Credit Hour:** 1-99

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**AG\_S\_M 8142: Agricultural Energy Efficiency**

The study of the efficient use of energy concerning the planning, economics, and finance of efficient technology for livestock, crops, farm buildings including alternative energy resources, and associated environmental systems.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4140 or consent of instructor

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**AG\_S\_M 8340: Agricultural Mechanization Systems**

Review of current literature. Case study of mechanization systems. Computer analysis of management alternatives.

**Credit Hours:** 3

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**AG\_S\_M 9090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Agriculture, Food and Natural Resources (AFNR)

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**AFNR 1101: Special Topics in Agriculture**

Selected topics not offered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AFNR 1111: Computing and Information Systems I**

Provide students with a basic understanding of microcomputer usage, electronic communications, and use of the internet. Topics include operating systems, word processing, database management systems, spreadsheets, electronic mail, online library searches, and the World Wide Web.

**Credit Hours:** 3

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**AFNR 1115: Foundations for College Success**

An investigation of principles and practices associated with academic success and the interpersonal challenges encountered in collegiate life. Learning preferences, time investment, study skills, degree requirements, and personal development opportunities available in the College and across campus are explored. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AFNR 1120: Computing and Information Technology**

Provides students with a basic understanding of computer usage, electronic communications and use of the internet. Topics include understanding of operating systems, word processing, and presentation media.

**Credit Hours:** 2

**Prerequisites:** Restricted to freshmen and sophomores

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**AFNR 2115: College to Career: Strategies for Success**

Systematic approach to self-assessment, career research and exploration, goal-setting and implementation of a career development plan. Students will learn specific skills, research knowledge and lifelong career management techniques.

**Credit Hour:** 1

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**AFNR 2120: Working with Data Using Excel**

Provide students with a basic understanding of computer usage and spreadsheet applications.

**Credit Hour:** 1

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**AFNR 2150: Agricultural Travel Course**

General travel course designed to broaden the perspective of agricultural students. Cost of course is borne by the student.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AFNR 2190: International Agriculture and Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-15

**Prerequisites:** instructor's consent

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**AFNR 2191: International Agriculture and Natural Resources - Humanities**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2191W: International Agriculture and Natural Resources - Humanities - Writing Intensive**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2192: International Agriculture/Natural Resources-Social Science**

This course is designed to provide students with an examination of the social sciences of the host country; including the sociology, psychology, economics, government, and history of the country; including the dynamics of urban and rural communities. May be repeated for credit.

Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture**

This experiential course provides an overview of the theoretical and practical principles of sustainable agriculture by exploring the holistic nature of sustainable agriculture, and analyzing agriculture systems based on their impact on the environment, economy and community.

**Credit Hours:** 3

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**AFNR 3115: Lifelong Career Management and Success Strategies**

Systematic approach to understanding the importance of effective leadership in the professional world, obtaining transferable skills necessary in the work force, and understanding important aspects that allow one's career to grow over the course of one's professional life. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** junior standing or higher

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**AFNR 3215: Community Food Systems**

Essential concepts in research, implementation and understanding of community food systems and macro-level global trends in food production and distribution will be discussed. Students will examine the social, economic and health implications of conventional and alternative food systems.

**Credit Hours:** 3

**Recommended:** AFNR 2215

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**AFNR 3315: Advanced Practices in Sustainable Agriculture**

Course furthers students' understanding of sustainable production systems with an emphasis on stewarding natural resources (soil, water, biodiversity and energy) while maintaining and economically profitable enterprise that provides for a good quality of life.

**Credit Hours:** 3

**Recommended:** AFNR 2215; SOIL 2100

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**AFNR 4001: Topics in Agriculture-General**

Topics in Agriculture-General

**Credit Hour:** 1-99

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**AFNR 4972: Capstone Project in Agriculture, Food and Natural Resources**

A culminating learning experience focused on student's area of concentration that requires the application of knowledge and skills taught in the undergraduate curriculum. The capstone project comprises independent, original work culminating in a scholarly project, written document, and/or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**AFNR 4993: Internship in Agriculture, Food and Natural Resources**

Field-based learning experience combining the study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about agriculture, food and natural resources in a practical context. The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**AFNR 7190: International Agriculture/Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** advisor and instructor's consent

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## Anesthesiology (ANESTH)

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**ANESTH 6203: ABS Anesthesiology Research**

ABS Anesthesiology Research

**Credit Hour:** 5-10

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**ANESTH 6205: ABS Anesthesiology Research and Review**

ABS Anesthesiology Research and Review

**Credit Hour:** 5-10

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**ANESTH 6400: Anesthesiology**

**Goals/Objectives:** The goals are providing students with opportunities to: 1. Understand the anesthetic state (e.g. the inability of a person to protect themselves from the environment; concomitant and common depression of other systems of the body other than the nervous system). 2. Learn how to think and react quickly and correctly in times of stress. 3. Develop knowledge and skill at maintaining artificial ventilation and circulation. 4. Develop technical skills (e.g. insertion of endotracheal tubes, intravenous catheters). 5. Understand the rationale behind the choice of an anesthetic agent or technique. 6. Learn the function of an anesthesiologist as a perioperative physician and pain consultant. 7. Learn about the specialty of anesthesiology as a possible future career. **Notes:** Curriculum: Direct participation in anesthetic evaluation and administration for surgical procedures is combined with close individual supervision. Attendance at weekly teaching conferences is expected. Each student will follow a patient pre, intra, and post operatively and write a case presentation. Interblock: First consideration given to students interested in anesthesia as a career choice; honors considered only with documentation of participation and completion of a research project related to anesthesia. Evaluations: Evaluations are compiled from daily encounter cards completed by anesthesia providers, a written paper that discusses one patient's anesthetic, and a 50 question written examination at the end of the rotation.

**Credit Hours:** 5

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**ANESTH 6927: Anesthesiology Two-Week**

Through daily participation, students will gain insight into the specialty of anesthesiology and will develop an appreciation for the integration of basic science knowledge (especially anatomy, physiology, and pharmacology) in the clinical care of patients.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**Animal Science (AN\_SCI)**

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**AN\_SCI 1001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 1011: Animal Science**

Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 3

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**AN\_SCI 1011H: Animal Science - Honors**

Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AN\_SCI 1012: Introduction to Captive Wild Animal Management**

(same as F\_W 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1013: Biotechnology in Animal Agriculture**

Concepts, discoveries, and applications of biotechnology ranging from the discovery of brewing and baking to animal cloning and genetic engineering are covered. Students will acquire a foundation to understand how biotechnology affects agriculture and our everyday lives. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1065: Animal Science Laboratory Practicum**

An introductory course in skill, related to the care and management of livestock and poultry plus a section dealing with meats and a section dealing with research methods. Students will be expected to participate in hands-on learning development of fundamental skills and animal husbandry. This class will include one 3 hour lab and 1 hour DIS per week.

**Credit Hours:** 2

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**AN\_SCI 2001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 2045: Equine Practicum**

Focus on learning hands-on equine skills through the care of horses at the university's equine facility. Experiential learning is emphasized. Skills include: how to identify the general health and well-being of horses, recognize early onset of illness or lameness, understand basic feeding, housing, and daily care, and demonstrate the ability to handle and feed horses in a safe manner. Monthly meetings, scheduled feed shifts, monthly journals, required skill assessments, and attendance at various educational activities are required. Feed shift scheduling is determined around individual availability and no equine or animal experience is required. To enroll, students should contact the instructor for an application. Graded on A-F basis only.

**Credit Hour:** 1-2

**Prerequisites:** Instructor consent required

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**AN\_SCI 2085: Problems in Animal Science**

Library and laboratory study of assigned problems in animal breeding, nutrition, physiology or production and management. Planning, conduction and reporting to be in consultation with instructor.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AN\_SCI 2095: Equine Behavior and Training**

Students learn the psychology and ethology of equine behavior and how it relates to training. The use and proper fitting of equipment is taught and students learn to teach horses to perform the basic movements needed prior to advancing to specialized training.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 2110: Global Animal Agriculture**

Animal Agriculture as influenced globally by political, religious cultural, economic and climatic factors.

**Credit Hours:** 2

**Prerequisites:** sophomore standing

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**AN\_SCI 2111: Sophomore Seminar: Societal Issues Facing Animal Agriculture**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**AN\_SCI 2111W: Sophomore Seminar: Societal Issues Facing Animal Agriculture - Writing Intensive**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**AN\_SCI 2114: Live Animal and Meat Evaluation**

(same as F\_S 2114). The composition and quality meat produced from food animals is the driving component of livestock economic value. This course will teach the principles and procedures involved in evaluation, grading, selection, and economic value of meat animals and poultry and the carcasses they produce. This course is an excellent introduction and (or) prerequisite for all livestock production courses and will provide a baseline of information for students interested in livestock or meat judging.

**Credit Hours:** 3

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**AN\_SCI 2115: Livestock Judging**

Comparative judging and evaluation; various classes of farm animals; particular reference to utility. Reference reading; illustrated lectures.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065

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**AN\_SCI 2131: Dairy Products Evaluation**

(same as F\_S 2131) Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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**AN\_SCI 2135: Horse Selection and Evaluation**

Techniques of selecting and evaluating horses based on conformation and performance characteristics. Effects of conformation on soundness. Includes learning to organize observations on the relative merits of a group of horses into an oral presentation.

**Credit Hours:** 2

**Recommended:** AN\_SCI 1065

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**AN\_SCI 2140: Companion Animals**

(same as BIOMED 2140). Focus on companion dog, cat, and horse owners concerns re: health zoonoses, legal responsibilities, inbreeding, choice of breeds, behavioral problems and loss of companion animals.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**AN\_SCI 2165: Introduction to Ruminant Livestock Production**

This is an introductory theory course which provides fundamental understanding of ruminant livestock - beef cattle and dairy cattle, production, management and associate industries. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065

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**AN\_SCI 2175: Introduction to Monogastric Production**

Introductory course which provides fundamental understanding of hogs, horses and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065

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**AN\_SCI 2195: Equine Facility Management and Marketing**

Focuses on learning equine facility management through student care and management of the University's equine facility and breeding herd. Students also learn handling techniques for a wide variety of horses and gain experience in general equine facility maintenance. Students will be responsible for marketing horses sold in the annual MU online horse auction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** AN\_SCI 2135 and instructor's consent. Cannot be taken at the same time as AN\_SCI 2095

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**AN\_SCI 3001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 3085: Problems in Animal Science**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3085W: Problems in Animal Science - Writing Intensive**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3190: Study Abroad: International Meat, Dairy and Enology**

(same as F\_S 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparisons to the US industries. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 3212: Principles of Animal Nutrition**

The purpose of this course is to teach students the essential nutrients for animal life and to understand the basic principles of nutrition. Graded on



A-F basis only. Recommend: 1 course in biochemistry or at least 4 hours of chemistry and MATH 1100 or equivalent.

**Credit Hours:** 3

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**AN\_SCI 3213: Genetics of Agricultural Plants and Animals**

(same as PLNT\_S 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200 or BIO\_SC 1500.

**Credit Hours:** 3

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**AN\_SCI 3214: Principles of Meat Science**

(same as F\_S 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biology

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**AN\_SCI 3231: Principles of Dairy Foods Science**

(same as F\_S 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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**AN\_SCI 3232: Animal Feeds and Feeding**

Description of feed ingredients, formulation of diets, and animal feeding management.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212 and MATH 1100 or equivalent

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**AN\_SCI 3242: Principles and Applications of Animal Nutrition**

Fundamentals of animal nutrition, including digestion, absorption, metabolism, and function of nutrients; nutrient and energy requirements; feedstuffs used in livestock and companion animal nutrition; and integration of these principles with nutrition-based calculations to make nutritional management decisions. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or higher, CHEM 1320 or higher, Sophomore standing or higher

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**AN\_SCI 3254: Physiology of Domestic Animals**

A lecture and laboratory course that covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 5

**Prerequisites:** F\_W 1100 or BIO\_SC 1100 or BIO\_SC 1500; CHEM 1320; MATH 1100

**Recommended:** CHEM 1330; CHEM 2030 or CHEM 2100

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**AN\_SCI 3254H: Physiology of Domestic Animals - Honors**

Basic concepts of physiology and anatomy as related to domestic animals.

**Credit Hours:** 3

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**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500; CHEM 1310 and CHEM 1320; Honors eligibility required

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**AN\_SCI 3255: Physiology of Domestic Animals Laboratory**

This laboratory course covers the basic concepts of physiology as related to domestic animals.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500; CHEM 1310 and CHEM 1320; AN\_SCI 3254 or equivalent

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**AN\_SCI 3275: Meat Animal Evaluation**

Meat animal evaluation highlights the relationships and limitations that exist when evaluating market and breeding animals and develops an appreciation for carcass excellence as it relates to production, merchandising and consumption. Some travel time and commitments will be necessary.

**Credit Hours:** 2

**Prerequisites:** AN\_SCI 2114 and AN\_SCI 2115

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**AN\_SCI 4001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4001W: Topics in Animal Science - Writing Intensive**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 7010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to Junior and Seniors

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 4011: Pasture Based Dairy Management Lab**

This course is a hands-on experience class taught over 4 days during spring break. The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Students will have the opportunity to interact with

successful pasture-based dairy producers in Missouri and apply their experience from AN\_SCI 4010 on real farm situations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** AN\_SCI 4010

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**AN\_SCI 4312: Monogastric Nutrition**

(same as NEP 4020; cross-leveled with AN\_SCI 7312 and NUTRIT 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 4314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 7314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254

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**AN\_SCI 4314H: Physiology of Reproduction - Honors**

Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254

**Prerequisites:** BIO\_SC 1500; Honors eligibility required

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**AN\_SCI 4323: Applied Livestock Genetics**

Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500 and MATH 1100

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**AN\_SCI 4324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 7324). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 2

**Recommended:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500, MATH 1100, AN\_SCI 3213 /PLNT\_S 3213 or equivalent

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**AN\_SCI 4332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 7332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 4344: Processing Muscle Foods**

(same as F\_S 4344; cross-leveled with AN\_SCI 7344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further

processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Recommended:** One Chemistry course

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**AN\_SCI 4354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 4354; cross-leveled with AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or AN\_SCI 3214 or instructor's consent

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**AN\_SCI 4384: Reproductive Management**

Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies.

**Credit Hours:** 3

**Prerequisites:** senior standing and AN\_SCI 4314 and instructor's consent

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**AN\_SCI 4386: Equine Reproduction**

Focuses on reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 and AN\_SCI 4314 or instructor's consent

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**AN\_SCI 4387: Equine Breeding Management**

Focuses on practical applications of reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Students will gain hands-on experience in each of these areas.

**Credit Hours:** 5

**Prerequisites:** instructor's consent

**Recommended:** AN\_SCI 2175 and AN\_SCI 4314

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**AN\_SCI 4437: Environmental Physiology**

Principles of environmental physiology and animal adaptation with emphasis on mechanisms of temperature regulation and related nutritional and metabolic-hormonal functions.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254

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**AN\_SCI 4910: Senior Seminar in Captive Wild Animal Management**

(same as F\_W 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded A-F only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012 or instructor's consent; junior or senior standing

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**AN\_SCI 4940: Internship in Animal Science & Technology**

Off-campus training to develop technical skills and understanding of an area of animal science. Written reports required. Graded on an S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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**AN\_SCI 4950: Undergraduate Research in Animal Science**

Individually directed field or laboratory research culminating in a poster or oral presentation for upper-class students under faculty supervision.

**Credit Hour:** 1-3

**Prerequisites:** At least sophomore standing or instructor's consent

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**AN\_SCI 4973: Molecular and Cellular Techniques in Animal Science**

A directed research project that employs current molecular and cellular technologies. Students will generate experimental data, analyze the data and draft a research report in the format of a scientific paper.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** an introductory course in biology and a course in organic chemistry, at least junior standing

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**AN\_SCI 4975: Beef Production and Management**

(cross-leveled with AN\_SIC 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4975W: Beef Production and Management - Writing Intensive**

(cross-leveled with AN\_SIC 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4976: Dairy Production**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165, AN\_SCI 3212, and AN\_SCI 3232 or instructor's consent

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**AN\_SCI 4976W: Dairy Production - Writing Intensive**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165, AN\_SCI 3212, and AN\_SCI 3232 or instructor's consent

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**AN\_SCI 4977: Horse Production**

(cross-leveled with AN\_SCI 7977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4978: Swine Production**

Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4978W: Swine Production - Writing Intensive**

Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4979: Poultry Production**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 4979W: Poultry Production Writing Intensive**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 7001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 7010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 4010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also

cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 7312: Monogastric Nutrition**

(same as NUTRIT 7020 and NEP 7020; cross-leveled with AN\_SCI 4312 and NEP 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 7314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 4314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 and BIO\_SC 1500 or equivalent; or AN\_SCI 3254 as a co-requisite and instructor's consent

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**AN\_SCI 7323: Applied Livestock Genetics**

(cross-leveled with AN\_SCI 4323). Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500 and MATH 1100

---

**AN\_SCI 7324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 4323). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1020 or BIO\_SC 1500, MATH 1100, AN\_SCI 3213 /PLNT\_S 3213 or equivalent; and instructor's consent

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**AN\_SCI 7332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 4332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212

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**AN\_SCI 7344: Processing Muscle Foods**

(same as F\_S 7344; cross-leveled with AN\_SCI 4344, F\_S 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

---

**AN\_SCI 7354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 7354; cross-leveled with AN\_SCI 4354, F\_S 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or AN\_SCI 3214 or instructor's consent

---

**AN\_SCI 7384: Reproductive Management**

(cross-leveled with AN\_SC 4384). Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314 and instructor's consent

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**AN\_SCI 7437: Environmental Physiology**

(cross-leveled with AN\_SCI 4437). Principles of environmental physiology and animal adaptation with emphasis on mechanisms of temperature regulation and related nutritional and metabolic-hormonal functions.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or equivalent

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**AN\_SCI 7975: Beef Production and Management**

(cross-leveled with AN\_SCI 4975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165 and AN\_SCI 3212 or instructor's consent

---

**AN\_SCI 7976: Dairy Production**

(cross-leveled with AN\_SCI 4976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2165, AN\_SCI 3212 and AN\_SCI 3232 or instructor's consent

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**AN\_SCI 7977: Horse Production**

(cross-leveled with AN\_SCI 4977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

---

**AN\_SCI 7978: Swine Production**

(same as AN\_SCI 4978). Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 7979: Poultry Production**

(cross-leveled with AN\_SCI 4979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065, AN\_SCI 2175 and AN\_SCI 3212 or instructor's consent

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**AN\_SCI 8085: Problems in Animal Science**

Advanced independent studies in fields not directly related to thesis or non-thesis degree research program. May be graded on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 8087: Seminar in Animal Science**

Critical consideration of research and other selected subjects in animal breeding, animal nutrition, reproductive physiology, growth and development and livestock production and management.

**Credit Hour:** 1

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**AN\_SCI 8090: Thesis Research in Animal Science**

Investigations in animal breeding, animal nutrition, reproduction physiology, growth and development livestock production and management. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AN\_SCI 8413: Reproductive Biology Seminar**

Presentation and discussion of selected topics from all phases of reproductive biology. Open to qualified students of graduate standing in the field of Reproductive Biology.

**Credit Hour:** 1

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**AN\_SCI 8414: Meat Quality**

(same as F\_S 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3214 or equivalent

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**AN\_SCI 8415: Survey of Epigenetics**

This course will introduce graduate students to the basic concepts in epigenetics, including DNA methylation, histone modifications, epigenetic modifiers/transacting factors, non-coding RNAs, genomic imprinting, and dosage compensation. The course is designed to be a combination of lectures, paper discussions, and research talks by invited faculty speakers from across campus.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 8420: Endocrinology**

Hormones of pituitary and endocrine glands; special reference to influence on growth, reproduction, milk secretion.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 7314 or equivalent

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**AN\_SCI 8424: Meat Investigations**

(same as F\_S 8424). Discussions of scientific literature and hands-on experimentation with research techniques customarily used in the field of meat science. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 /AN\_SCI 3214 or equivalent; instructor's consent

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**AN\_SCI 8430: Introduction to Bioinformatics Programming**

(same as PLNT\_S 8430). This course provides the basics of programming and database development to students in the life sciences who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**AN\_SCI 8431: Nutritional Biochemistry of Lipids**

(Same as NEP 8310 and NUTRIT 8310). Current concepts in the nutritional regulations of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**AN\_SCI 8438: Nutrient Regulation of Gene Expression**

(same as NUTRIT 8438, NEP 8438 and BIOCHM 8438). This second semester of the graduate nutritional sciences core curriculum will cover nutritional biochemistry of minerals and on research literature, with an emphasis on in-depth coverage of several minerals that illustrate emerging themes in mineral nutritional biochemistry and nutrient regulation of gene expression. The course will be taught in tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272 and 1st semester Graduate Nutrition core curriculum

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**AN\_SCI 8441: Livestock Production and Management Research Methods**

Techniques of experimentation, with application to livestock production and management. Exercises in methods of planning, conducting, analyzing, evaluating and reporting research.

**Credit Hours:** 3

**Prerequisites:** STAT 4530/STAT 7530 or equivalent or instructor's consent

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**AN\_SCI 8443: Functional Genomics of Mammalian Genomes: Focus on Microarray**

The curriculum covers methods for functional genomics. It explores experimental designs, data filtering, ANOVA analysis, power calculations, clustering and classification systems, and functional annotation of genes through lectures, and bioinformatics and regular laboratories. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 4974 and BIO\_SC 4374 or equivalent courses, Anova analysis course (STAT 7530) or equivalent experience in using Anova analysis

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**AN\_SCI 8447: Recent Advances in Environmental and Endocrine Physiology**

Seminar. Presentation, discussion, and critical evaluation of current status of selected topics in environmental and endocrine physiology.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 3254 or equivalent

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**AN\_SCI 8450: Research in Animal Science**

Research in Animal Science

**Credit Hour:** 1-99**AN\_SCI 8472: Amino Acid Metabolism**

An in-depth study of amino acid metabolism and their relationship to animal nutrition.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**AN\_SCI 8633: Molecular and Network Evolution**

(same as BIO\_SC 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**AN\_SCI 8725: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725, PHYSCS 8350 and LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2**AN\_SCI 9001: Topics in Animal Science**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AN\_SCI 9090: Dissertation Research in Animal Science**

Investigations in animal breeding, animal nutrition, livestock production and management. Dissertation required. Graded on a S/U basis only.

**Credit Hour:** 1-99**AN\_SCI 9423: Genetics of Populations**

Introduction to quantitative genetics with application to animal and plant breeding.

**Credit Hours:** 4

**Prerequisites:** STAT 4530 or STAT 7530

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**AN\_SCI 9432: Ruminant Nutrition**

(same as NUTRIT 8320). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, metabolism, utilization of nutrients. Lecture, laboratory, assigned readings.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4332/AN\_SCI 7332 or equivalent and BIOCHM 4270

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**AN\_SCI 9433: Gamete and Embryo Development**

A classical and molecular approach to spermatogenesis, oogenesis, fertilization and preimplantation development in the domestic species.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314/AN\_SCI 7314 or BIO\_SC 4984 or equivalent

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**AN\_SCI 9434: Gonadal Function**

(same as BIOMED 9434).

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314, biochemistry or cell biology and AN\_SCI 8420

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**AN\_SCI 9435: Placentation**

Provide students with current and in-depth information about the mechanisms involved in placental development and how the placenta (and placental products) influence maternal physiology - both locally at the placenta-uterine interface and systemically. All course topics will be covered in a comparative cross-species approach whenever possible. Emphasis will be placed on the most recent literature regarding the interactions taking place between the placenta and maternal system and how these interactions lead to the eventual birth of live young.

**Credit Hours:** 3

**Recommended:** It is preferred that students take AN\_SCI 9433 prior to this class, but this is not an absolute requirement

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**AN\_SCI 9441: Bioenergetics**

(same as NUTRIT 8400). Energetic interactions of animals and their physical and nutritional environments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 9442: Vitamins and Minerals**

Designed to provide students with an understanding of the chemical, metabolic, and functional role of vitamins and minerals in nutrition. While the primary focus will be on animals, comparative aspects to human nutrition will be discussed.

**Credit Hours:** 4

**Prerequisites:** AN\_SCI 3212, BIOCHM 4270 or equivalent

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**AN\_SCI 9452: Mycotoxins**

Designed to provide students with an understanding of the occurrence of mycotoxins, mechanisms of toxicity, analytical methodology, and approaches for ameliorating the toxic effects of mycotoxin in animals.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and courses in Nutrition and Biochemistry

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## Anthropology (ANTHRO)

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### **ANTHRO 1000: General Anthropology**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, physical anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

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### **ANTHRO 1000H: General Anthropology - Honors**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, physical anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **ANTHRO 1001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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### **ANTHRO 1002: Topics in Anthropology - Biological/Physical/Mathematics**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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### **ANTHRO 1003: Topics in Anthropology - Behavioral**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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### **ANTHRO 1004: Topics in Anthropology - Social Science**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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### **ANTHRO 1005: Topics in Anthropology - Humanities**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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### **ANTHRO 1060: Human Language**

(same as LINGST 1060, C\_S\_D 1060 and ENGLISH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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### **ANTHRO 1150: Introduction to Folklore Genres**

(same as ENGLISH 1700). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A-F basis only.

**Credit Hours:** 3

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### **ANTHRO 1200: Significant Discoveries of Archaeology**

Detailed consideration of approximately 20 archaeological discoveries and conclusions, from the field and the laboratory, which have been of surpassing importance for an understanding of human origins, behavior, culture and past experiences on earth.

**Credit Hours:** 3

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### **ANTHRO 1300: Multiculturalism: An Introduction**

Examines contemporary multiculturalism (and its origins) globally; introduces key concepts; uses diverse, extended cross-cultural and American examples; and emphasizes complexity of cultures, practicality of issues, and change.

**Credit Hours:** 3

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### **ANTHRO 1350: Deviance: A Cross-Cultural Perspective**

Cross-cultural studies of problem behavior with emphasis on violence, suicide, sexual misconduct, drug use and mental disorder.

**Credit Hours:** 3

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### **ANTHRO 1500: Monkeys, Apes and Humans**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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### **ANTHRO 1500W: Monkeys, Apes and Humans - Writing Intensive**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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### **ANTHRO 2001: Topics in Anthropology-General**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2002: Topics in Anthropology-Biological/Physical/Mathematics**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2003: Topics in Anthropology - Behavioral**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2004: Topics in Anthropology - Social Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 2005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2020: Fundamentals of Archaeology with Laboratory**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. The lab involves hands-on experience with archaeological materials. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 4

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**ANTHRO 2021: Fundamentals of Archaeology**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 3

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**ANTHRO 2022: Fundamentals of Archaeology Lab**

Involves hands-on experience with archaeological materials. No credit given to students who have taken ANTHRO 2020.

**Credit Hour:** 1

**Prerequisites:** must have completed ANTHRO 2021

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**ANTHRO 2030: Cultural Anthropology**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2030W: Cultural Anthropology - Writing Intensive**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2040: Anthropological Linguistics**

(same as LINGST 2040). Language in relation to other aspects of human behavior. Introduction to description and analysis of the basic units of language. Emphasis on non-Indo-European and preliterate languages.

**Credit Hours:** 3

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**ANTHRO 2050: Introduction to Biological Anthropology with Laboratory**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. Three hours lecture and two hours lab. No credit for both ANTHRO 2050 and ANTHRO 2051. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** MATH 1100 or MATH 1160

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**ANTHRO 2051: Introduction to Biological Anthropology**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. No credit for both ANTHRO 2050 and ANTHRO 2051.

**Credit Hours:** 3

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**ANTHRO 2052: Biological Anthropology Laboratory**

Laboratory exercises dealing with human genetics, non-human primates, the human fossil record, and human variation. Credit not given for students who have taken ANTHRO 2050. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites:** ANTHRO 2051 (or equivalent) and MATH 1100

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**ANTHRO 2100: Indigenous Religions**

(same as REL\_ST 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

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**ANTHRO 2100H: Indigenous Religions - Honors**

(same as REL\_ST 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3



**Prerequisites:** Honors eligibility required

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**ANTHRO 2150: Introduction to Folklore Field Research**

(same as ENGLISH 2700). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ANTHRO 2215: World Archaeology**

Major events in cultural evolution such as control of fire, invention of ceramic and metallurgical technologies, colonization of Australia and the Americas, development of agriculture, and emergence of complex sociopolitical organization are described in all regions of the world.

**Credit Hours:** 3

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**ANTHRO 2300: Anthropology of War**

Anthropological approaches to tribal and modern war; theories of war's origins; relation to ecology, economy, gender, belief systems, politics; transformation of tribal warfare by state expansion; peace.

**Credit Hours:** 3

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**ANTHRO 2340: Hunters and Gatherers**

Exploration of how different hunter-gatherer groups interact with their physical and social environment. Topics include food acquisition, allocation of labor, reproduction and family life, and deciding where to live and when to move.

**Credit Hours:** 3

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**ANTHRO 2500: Primate Anatomy and Evolution**

This course will explore why primates (and humans) are built the way they are, how they evolved, and what their anatomy tells us about their biology. We will cover basic primate anatomy and ecology, and then survey the fossil record of primate evolution.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2520: Forensic Anthropology**

This course will introduce students to how biological anthropologists apply expertise in human osteology, skeletal variation and plasticity, skeletal pathology, body decomposition, and archaeological recovery of evidence to medicolegal investigations.

**Credit Hours:** 3

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**ANTHRO 2530: Human Evolution through Film and Literature**

This course will use recent films and novels as starting points to introduce students to concepts in human biology, history and evolution. Topics will range broadly from genetics and mutation to primatology to paleoanthropology and the human fossil record.

**Credit Hour:** 1-3

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**ANTHRO 2570: Parents and Offspring**

A comparative investigation of the evolution of parental behaviors and family interactions in humans and other primates.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580: Evolution of Human Sexuality**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580W: Evolution of Human Sexuality - Writing Intensive**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2800: Introduction to Field Methods in Archaeology**

Techniques of field research and laboratory analysis through field experience.

**Credit Hour:** 1-6

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 2825: Analyzing Artifacts**

A brief introduction to the main methods used to analyze artifacts.

**Credit Hours:** 3

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**ANTHRO 2950: Research Skills in Anthropology**

Participation in faculty research activities. Course coordinator matches students with participating faculty. Three hours of research activities per week per credit hour. May be repeated to a maximum of nine hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ANTHRO 3001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3002: Topics in Anthropology-Biological/Physical/Mathematics**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3003: Topics in Anthropology - Behavioral Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3004: Topics in Anthropology - Social Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3150: American Folklore**

(same as ENGLSH 3700). Regional and ethnic American folklore, with emphasis on analysis of folklore in context. Book reports and two analytical papers based on student field research required.

**Credit Hours:** 3

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**ANTHRO 3340: The Evolution of Human Nature**

(same as ANTHRO 3340H, ANTHRO 3340HW, GN\_HON 3241H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with the capacity?). Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 3340H: The Evolution of Human Nature - Honors**

(same as GN\_HON 3241H, ANTHRO 3340, ANTHRO 3340HW). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 3340HW: The Evolution of Human Nature - Honors/Writing Intensive**

(same as ANTHRO 3340, ANTHRO 3340H GN\_HON 3241H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with the capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility Required

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**ANTHRO 3380: Native American Religions**

(same as REL\_ST 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**ANTHRO 3380H: Native American Religions - Honors**

(same as REL\_ST 3380H). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 3470: Culture as Communication**

(same as COMMUN 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ANTHRO 3490: Indian Cinema**

(same as AR\_H\_A 3790, S\_A\_ST 3490 and FILM\_S 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**ANTHRO 3540: Human Biology and Life History**

A general survey of human biology, focusing on the development of the individual from infancy to adult and the biology of human populations.

**Credit Hours:** 3

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**ANTHRO 3560: Plagues and Peoples**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3560W: Plagues and Peoples - Writing Intensive**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3600: North American Indian Culture**

Comparative study of American Indians north of Mexico, emphasizes eastern United States.

**Credit Hours:** 3

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**ANTHRO 3610: Peoples of Canada**

This course provides an anthropological approach to the culture and peoples of Canada. The course will include in depth studies of several First Nations People, Quebec, various recent immigrant populations, and the modern popular culture of Canada.

**Credit Hours:** 3

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**ANTHRO 3660: Peoples of the Andes**

Archaeological and linguistic prehistory set the stage for the clash of Iberian and indigenous peoples whose descendants make up the Andean countries. Ethnographic studies provides a basis for their understanding.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3680: Plants and People in Native America**

Explores the present and past interactions between people and the plant world, covering use of plants as foods, medicines, and in rituals, and reviewing the origin of major food plants.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3700: Cultures of Europe**

Examines ethnic, linguistic, and folk cultural backgrounds of contemporary Europe and the articulation of local sociocultural units with national society and culture.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3780: Cultures of Southeast Asia**

Survey of peoples and cultures of Southeast Asia; topics include regional geography and prehistory, European colonialism, economic and social organization, religious practices, changing status of women, urban and rural poverty, and environmental transformations.

**Credit Hours:** 3

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**ANTHRO 4001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4002: Topics in Anthropology - Biological/Physical/Mathematics**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4003: Topics in Anthropology - Behavioral Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4004: Topics in Anthropology - Social Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4005: Topics in Anthropology - Humanities**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 4150: Special Themes in Folklore**

(same as ENGLISH 4700; cross-leveled with ANTHRO 7150 and ENGLISH 7700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ANTHRO 4160: Themes in African Diaspora Folklore**

(same as ENGLISH 4710 and BL\_STU 4710; cross-leveled with ENGLISH 7710 and BL\_STU 7710). Intensive study in a selected area of African

Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. ANTHRO 4150 and ANTHRO 4160 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4200: Environment and Archaeology**

(cross-leveled with ANTHRO 7200). Study of Quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4240: History of Archaeology**

(cross-leveled with ANTHRO 7240). Growth of archaeology worldwide since AD 1700. Emphases include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 4280: Archaeology of Religion**

(same as REL\_ST 4280; cross-leveled with ANTHRO 7280 and REL\_ST 7280). Examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmogonical constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or REL\_ST 2100

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**ANTHRO 4300: Comparative Social Organization**

(cross-leveled with ANTHRO 7300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross-culturally.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030

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**ANTHRO 4320: Ecological and Environmental Anthropology**

(cross-leveled with ANTHRO 7320). Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 7340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030 or instructor's consent

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**ANTHRO 4350: Psychological Anthropology**

(cross-leveled with ANTHRO 4350). Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 4360: Medical Anthropology**

(cross-leveled with ANTHRO 7360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4370: Anthropology of Gender**

(same as WGST 4370; cross-leveled with ANTHRO 7370 and WGST 7370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 4380: Anthropological Theories of Religion**

(same as REL\_ST 4380; cross-leveled with ANTHRO 7380 and REL\_ST 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 4385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 7385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4400: Language and Culture**

(same as LINGST 4400; cross-leveled with ANTHRO 7400 and LINGST 7400). Interrelations between language, thought, culture, and society;

role of language in cognition; methods and concepts of linguistics in cultural analysis.

**Credit Hours:** 3

**Recommended:** ANTHRO 2040 or LINGST 2040

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**ANTHRO 4412: Gender, Language, and Communication**

(same as COMMUN 4412 and LINGST 4412; cross-leveled with COMMUN 7412 and LINGST 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**ANTHRO 4420: Historical Linguistics**

(same as LINGST 4420; cross-leveled with ANTHRO 7420 and LINGST 7420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4500: Human Origins**

(cross-leveled with ANTHRO 7500). History and theory in the study of human paleontology.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 7520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4540: Human Biological Variation**

(cross-leveled with ANTHRO 7540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 or ANTHRO 2051 or BIO\_SC 1010

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**ANTHRO 4580: Evolutionary Medicine**

(cross-leveled with ANTHRO 7580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

**Recommended:** lower level course in Biology or Biological Anthropology, junior or senior standing

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**ANTHRO 4600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 7600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4620: North American Archaeology**

(cross-leveled with ANTHRO 7620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 7640). The course will introduce students to the archaeology of aboriginal peoples of the American Southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 7650). Archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 4670: Archaeology of South America**

(cross-leveled with ANTHRO 7670). Development of culture in South America from the Pleistocene to European contact.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 7680). Ethnographic survey of indigenous Amazonian cultures.

**Credit Hours:** 3

**Recommended:** Junior standing required

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**ANTHRO 4700: Old World Prehistory**

(cross-leveled with ANTHRO 7700). Beginnings of culture in the Old World through the early Iron Age.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4720: Mesolithic, Neolithic, and Bronze Age Archaeology**

(cross-leveled with ANTHRO 7720). Analysis of both hunter-gatherer and food-producing prehistoric sociocultural systems in western Eurasia and

adjacent areas from the end of the Pleistocene until the development of iron metallurgy. Includes the symbolic material of these periods.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4740: Celtic and Iron Age Archaeology**

(cross-leveled with ANTHRO 7740). Analysis of the pre-and protohistoric sociocultural systems of the Celts and other iron-using tribal cultures of western Eurasia from the inception of an iron based technology until the full historic period. Includes the symbolic material of these cultures.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4770: Asiatic Prehistory**

(cross-leveled with ANTHRO 7770). Prehistory and early cultures of Asia excluding the Near East. Emphasis on Northern Asia, China, Japan, South and Southeast Asia and Oceania.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4790: Culture and Society in South Asia**

(same as S\_A\_ST 4790; cross-leveled with ANTHRO 7790 and S\_A\_ST 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4800: Field Methods in Archaeology**

(cross-leveled with ANTHRO 7800). Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 4810: Paleoethnobotany**

(cross-leveled with ANTHRO 7810). Application of ethnobotanical approaches in archaeology; techniques to recover and interpret floral remains (macroremains, phytoliths, pollen); research questions in ethnobotany; integration of ethnobiological and archaeological data. Critique of original works in the field emphasized.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4820: Zooarchaeology**

(cross-leveled with ANTHRO 7820). Survey of specialized techniques for archaeological faunal analysis, including zooarchaeological sampling, taphonomy, study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 7826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations.

Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 7828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022

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**ANTHRO 4830: Ethnographic Methods**

(cross-leveled ANTHRO 7830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

**Recommended:** ANTHRO 2030

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**ANTHRO 4840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 7840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4850: Practical Phonetics for Fieldwork**

(same as LINGST 4850; cross-leveled with ANTHRO 7850 and LINGST 7850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4860: Techniques in Linguistic Analysis**

(same as LINGST 4860; cross-leveled with ANTHRO 7860 and LINGST 7860). Problems in analyzing data from various languages.

**Credit Hours:** 3

**Recommended:** introductory course in Linguistics

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**ANTHRO 4870: Field Methods in Linguistics**

(same as LINGST 4870, ENGLISH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLISH 7670). Intensive training in collection

and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4870W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870, ENGLSH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4880: Demographic Anthropology**

(cross-leveled with ANTHRO 7880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** junior or senior standing

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**ANTHRO 4885: Anthropological Genetics**

(cross-leveled with ANTHRO 7885). Population genetics theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050, or ANTHRO 2051 and ANTHRO 2052, or BIO\_SC 1500, or instructor's consent

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**ANTHRO 4890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 7890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4894: Skeletal Biology**

(cross-leveled with ANTHRO 7894). This course is designed to provide students advanced and in-depth training in skeletal biology. Basic bone biology will be studied and advanced methods of skeletal analysis applicable to forensic anthropology and bioarchaeology will be explored.

**Credit Hours:** 3

**Recommended:** ANTHRO 4890 or equivalent background in osteology and/ or anatomy

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**ANTHRO 4940: Internship in Anthropology**

(cross-leveled with ANTHRO 7940). Students will work for a semester in a community-based organization (NGO, nonprofit, for profit, or governmental). They will conduct a research study in coordination with that agency. Upon completion of the research study, students will prepare a final report to be given to the agency and turned in for course credit.

The course coordinator will help students identify and make contact with interested organization and oversee their progress during the internship. Graded on S/U basis only. Enrollment is limited to Anthropology Majors with Junior Standing or higher with a 3.5 GPA in Anthropology.

**Credit Hour:** 3-6

**Prerequisites:** coordinator's consent

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**ANTHRO 4950: Undergraduate Research in Anthropology**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4950H: Honors Research in Anthropology**

Individual study and research leading to Honors in Anthropology. In consultation with instructor, student works on Honors Thesis. May be repeated for up to 6 credit hours. Enrollment is limited to Anthropology Majors with Junior Standing or higher, honors eligibility and a 3.5 GPA in Anthropology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 4950HW: Undergraduate Research in Anthropology - Honors/Writing Intensive**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors with Honors Eligibility.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4960: Undergraduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 4990: Capstone Seminar in Anthropology**

Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 4990W: Capstone Seminar in Anthropology - Writing Intensive**

Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 7001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on needs of faculty or students and will be announced in advance.

**Credit Hours:** 3

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**ANTHRO 7150: Special Themes in Folklore**

(same as ENGLISH 7700; cross-leveled with ANTHRO 4150 and ENGLISH 4700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours. Instructor's consent for repetition.

**Credit Hours:** 3

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**ANTHRO 7160: Themes in African Diaspora Folklore**

(same as ENGLISH 7710 and BL\_STU 7710; cross-leveled with ANTHRO 4160, ENGLISH 4710 and BL\_STU 4710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 7700 and ENGLISH 7710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

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**ANTHRO 7200: Environment and Archaeology**

(cross-leveled with ANTHRO 4200). Study of quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

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**ANTHRO 7240: History of Archaeology**

(cross-leveled with ANTHRO 4240). Growth of archaeology worldwide since AD 1700. Emphasis include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

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**ANTHRO 7280: Archaeology of Religion**

(Same as REL\_ST 7280; cross-leveled with ANTHRO 4280 and REL\_ST 4280) This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**ANTHRO 7300: Comparative Social Organization**

(cross-leveled with ANTHRO 4300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross culturally.

**Credit Hours:** 3

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**ANTHRO 7320: Ecological and Environmental Anthropology**

(cross-leveled with ANTHRO 4320). Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use.

**Credit Hours:** 3

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**ANTHRO 7340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 4340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

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**ANTHRO 7350: Psychological Anthropology**

Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 7360: Medical Anthropology**

(cross-leveled with ANTHRO 4360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

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**ANTHRO 7370: Anthropology of Gender**

(same as WGST 7370; cross-leveled with ANTHRO 4370 and WGST 4370) The Anthropology of Gender Introduces the student to the variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 7380: Anthropological Theory of Religions**

(same as REL\_ST 7380; cross-leveled with ANTHRO 4380 and REL\_ST 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 7385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 4385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will



also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7400: Language and Culture**

(same as LINGST 7400; cross-leveled with ANTHRO 4400 and LINGST 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis.

**Credit Hours:** 3

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**ANTHRO 7412: Gender, Language, and Communication**

(same as COMMUN 7412 and LINGST 7412; cross-leveled with ANTHRO 4412, COMMUN 4412 and LINGST 4412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**ANTHRO 7420: Historical Linguistics**

(same as LINGST 7420; cross-leveled with ANTHRO 4420 and LINGST 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**ANTHRO 7500: Human Origins**

(cross-leveled with ANTHRO 4500). History and theory in the study of human paleontology.

**Credit Hours:** 5

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**ANTHRO 7520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 4520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7540: Human Biological Variation**

(cross-leveled with ANTHRO 4540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

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**ANTHRO 7580: Evolutionary Medicine**

(cross-leveled with ANTHRO 4580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

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**ANTHRO 7600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 4600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

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**ANTHRO 7620: North American Archaeology**

(cross-leveled with ANTHRO 4620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

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**ANTHRO 7640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 4640). The course will introduce students to the archaeology of aboriginal peoples of the American southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 7650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 4650). Covers the archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 7680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 4680). Ethnographic survey of indigenous Amazonian cultures

**Credit Hours:** 3

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**ANTHRO 7700: Old World Prehistory**

(cross-leveled with ANTHRO 4700). Beginnings of culture in the old world through the early Iron Age.

**Credit Hours:** 3

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**ANTHRO 7720: Mesolithic, Neolithic, and Bronze Age Archaeology**

(cross-leveled with ANTHRO 4720). Analysis of both hunter-gatherer and food-producing prehistoric sociocultural systems in western Eurasia and adjacent areas from the end of the Pleistocene until the development of iron metallurgy. Includes the symbolic material of these periods.

**Credit Hours:** 3

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**ANTHRO 7740: Celtic and Iron Age Archaeology**

(cross-leveled with ANTHRO 4740). Analysis of the pre-and protohistoric sociocultural systems of the Celts and other iron-using tribal cultures of western Eurasia from the inception of an iron based technology until the full historic period. Includes the symbolic material of these cultures.

**Credit Hours:** 3

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**ANTHRO 7770: Asiatic Prehistory**

(cross-leveled with ANTHRO 4770). Survey of the prehistory and early cultures of Asia excluding the Near East. Emphasis on Northern Asia, China, Japan, South and Southeast Asia and Oceania.

**Credit Hours:** 3

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**ANTHRO 7790: Cultures and Society in South Asia**

(same as S\_A\_ST 7790; cross-leveled with ANTHRO 4790 and S\_A\_ST 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian Diaspora.

**Credit Hours:** 3

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**ANTHRO 7800: Field Methods in Archaeology**

Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 7810: Paleoethnobotany**

(cross-leveled with ANTHRO 4810). Application of ethnobotanical approaches in archaeology; techniques to recover and interpret floral remains (macroremains, phytoliths, pollen); research questions in ethnobotany; integration of ethnobiological and archaeological data. Critique of original works in the field emphasized.

**Credit Hours:** 3

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**ANTHRO 7820: Zooarchaeology**

(cross-leveled with ANTHRO 4820). Survey of specialized techniques for archaeological/faunal analysis, including zoo archaeological sampling, taphonomy study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

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**ANTHRO 7826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 4826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

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**ANTHRO 7828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 4828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain

insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or ANTHRO 2022

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**ANTHRO 7830: Ethnographic Methods**

(cross-leveled with ANTHRO 4830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

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**ANTHRO 7840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 4840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7850: Practical Phonetics for Fieldwork**

(same as LINGST 7850; cross-leveled with ANTHRO 4850 and LINGST 4850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

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**ANTHRO 7860: Techniques in Linguistic Analysis**

(same as LINGST 7860; cross-leveled with ANTHRO 4860 and LINGST 4860). Problems in analyzing data from various languages.

**Credit Hours:** 3

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**ANTHRO 7870: Field Methods in Linguistics**

(same as LINGST 7870 and ENGLSH 7670; cross-leveled with ANTHRO, LINGST 4870 and ENGLSH 4870). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** 6 hours of Linguistics and instructor's consent

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**ANTHRO 7880: Demographic Anthropology**

(cross-leveled with ANTHRO 4880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography.

**Credit Hours:** 3

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**ANTHRO 7885: Anthropological Genetics**

(cross-leveled with ANTHRO 4885). Population genetic theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 and ANTHRO 2052 or BIO\_SC 1500

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**ANTHRO 7890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 4890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

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**ANTHRO 7894: Skeletal Biology**

(cross-leveled with ANTHRO 4894). This course is designed to provide students advanced and in-depth training in skeletal biology. Basic bone biology will be studied and advanced methods of skeletal analysis applicable to forensic anthropology and bioarchaeology will be explored.

**Credit Hours:** 3

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**ANTHRO 7940: Internship in Anthropology**

Students will work for a semester in a community-based organization (NGO, nonprofit, for profit, or governmental). They will conduct a research study in coordination with that agency. Upon completion of the research study, students will prepare a final report to be given to the agency and turned in for course credit. The course coordinator will help students identify and make contact with interested organization and oversee their progress during the internship. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** coordinator's consent

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**ANTHRO 7950: Introduction to Post-Graduate Anthropology**

How to succeed in graduate school and profession, and who is MU Anthropology. Introduces skills for success in graduate school, describes attributes of a professional anthropologist and how to find a job. Handouts and readings supplement discussions. Graded on S/U basis only.

**Credit Hour:** 1

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**ANTHRO 7960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 7990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending

on needs of faculty or students and is announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 8010: History of Anthropology I**

Development of anthropological theories, methods, perspectives, major figures and contributions in cultural and linguistic subfields.

**Credit Hours:** 3

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**ANTHRO 8020: History of Anthropology II**

Development of anthropological theories, methods, perspectives, major figures and contributions in archaeology and biological anthropology.

**Credit Hours:** 3

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**ANTHRO 8090: Masters Thesis Research in Anthropology**

Advanced work leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 8157: Seminar in Folklore**

(same as ENGLSH 8700 and REL\_ST 8700). Roots of folklore scholarship and methodology; their evolution in modern approaches to the study of oral, traditional, verbal genres; and their performance in natural folk groups. May repeat to twelve hours with departments consent.

**Credit Hours:** 3

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**ANTHRO 8187: Seminar in Ecological Adaptation**

Relationships and interactions between humans and their environments, with emphasis on the physical and cultural adaptations to environment. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8257: Seminar in Ethnohistory**

Introduction to the uses of historical documents and historical methods in anthropological research. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8287: Seminar in Theory and Methods in Archaeology**

Application of theory and conceptual frameworks to archaeological studies drawn from both Old and New Worlds. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8357: Seminar in Psychological Anthropology**

Focuses on developments in psychological anthropology, cross-cultural psychology. Special attention on cognition, perception, socialization, personality assessment, psycho-cultural change, psycho-linguistics, psychometrics, within cross-cultural contexts. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8387: Seminar in Health Anthropology**

We survey the field of health behaviors from an anthropological perspective. We ask, what are health behaviors? and what models have social scientists proposed to account for such actions? May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8487: Seminar in Anthropological Linguistics**

(same as LINGST 8487). Topics: Ethnolinguistics, linguistic prehistory, pidgin and Creole languages, linguistic theories and cultural and cultural analysis. French structural anthropology. May be repeated for 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 8587: Seminar in Physical Anthropology**

Readings and discussion concerning current problems in human and nonhuman primate evolution, with emphasis on taxonomy, morphology, and behavior. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8687: Seminar in Cultural Dynamics**

Focuses on geographical, topical, and/or theoretical developments within cultural anthropology. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8787: Seminar in Old World Archaeology**

Intensive studies in application of anthropological concepts to problems in Old World archaeology and prehistory. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8857: Scientific Writing in Anthropology**

Students will be taught to construct research papers that reflect logic, organization, and clarity. Topics covered include outline preparation, syntax, punctuation, sentence construction, and correct reference citation.

**Credit Hours:** 3

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**ANTHRO 8887: Seminar in Anthropological Methods**

Focuses on specific methods/techniques for collecting and analyzing data in archaeological, biological, linguistic, and/or cultural anthropology. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8888: Analyzing Anthropological Data I**

Provides students with the conceptual and analytic tools necessary to conduct and evaluate the analysis of anthropological data. Examples gleaned from archaeology, bioanthropology, ethnography, and linguistics will provide a broad perspective of the application and utility of the various methods discussed.

**Credit Hours:** 3

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**ANTHRO 8889: Analyzing Anthropological Data II**

This course introduces a variety of conceptual tools and advanced quantitative methods that anthropologists use to analyze their data. It includes an introduction of common software packages used to manipulate and analyze anthropological data.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 8888 or grad-level intro stats or instructor's consent

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**ANTHRO 8960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8987: Seminar in Formal Anthropological Research Design**

Methods of fitting statistical and formal research designs to quantitative and qualitative data discussed and illustrated, with research by participants. May be repeated to 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** introductory course in statistics

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**ANTHRO 8990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a dissertation.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 9090: Doctoral Dissertation Research in Anthropology**

Advanced work leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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## Arabic (ARABIC)

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**ARABIC 1100: Elementary Arabic I**

For beginners with no prior knowledge of Arabic. An elementary level course designed to facilitate student's acquisition of basic proficiency in communication within culturally significant contexts. Students learn Modern Standard Arabic language skills in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

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**ARABIC 1200: Elementary Arabic II**

This course builds upon the foundation established in ARABIC 1100. Greater emphasis is placed on oral and written expression. Cultural issues are explored in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

**Prerequisites:** C- or higher in ARABIC 1100, or instructor's permission

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**ARABIC 2005: Undergraduate Topics in Arabic - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**ARABIC 2130: Intermediate Arabic**

Builds on students' knowledge of Elementary Arabic by investing in four language skills of listening, speaking, reading, and writing.

Course is culturally oriented and considers various social, political, and religious forces to play in Arab world. Offers a unique blend of modern standards and colloquial Arabic. Enables students to develop listening comprehension, initiate and sustain conversations on daily-life topics, read texts on familiar topics, and write informal essays on topics, and write informal essays on topics connected to daily life.

**Credit Hours:** 3

**Prerequisites:** ARABIC 1200 or equivalent

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## Architectural Studies (ARCHST)

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**ARCHST 1005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 1100: Visual Design**

Design study as an introduction to basic design and visual composition with application to creating two- and three-dimensional abstract and /or functional design work. Studio exercises expressed through drawings and abstract models, using various media.

**Credit Hours:** 3

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**ARCHST 1200: Architectural Drafting and Working Drawings**

Beginning drafting including equipment and materials; lettering; floor plans, sections, elevations; orthographic and axonometric drawings; working drawings; and details.

**Credit Hours:** 3

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**ARCHST 1600: Fundamentals of Environmental Design**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ARCHST 1600W: Fundamentals of Environmental Design - Writing Intensive**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ARCHST 2005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 2085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 2100: Understanding Architecture and the American City**

Multifaceted introduction to the architectural and social roots of urban form in the U. S.: historic precedents from around the world; growth, decline and revival of cities; rise of suburbia; tradition and transformation in campus communities; continuing housing challenges; sustainable design and the future of urbanism. Explores a diverse range of opportunities to improve communities available to professionals and general public.

**Credit Hours:** 3

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**ARCHST 2210: Understanding Visualization for Animated Films**

Provides a critical overview of design and visualization techniques in animated film making. Emphasizes the role of built environment and spatial design features.

**Credit Hours:** 3

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**ARCHST 2220: Introduction to CAD**

Introduction to computer-aided drafting and design with AutoCad software. Emphasis will be placed on development of skills and problem solving related to the professions of environmental and interior design.

**Credit Hours:** 3

**Recommended:** ARCHST 1200

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**ARCHST 2230: Design Communication I**

Beginning studio course in techniques and conventions of graphic communication as an aid in the design process for interior designers.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 2310: Building Systems**

Integrated building systems: structure, construction, technology, comfort; including voice-data communication, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems; and project estimating.

**Credit Hours:** 3

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**ARCHST 2315: Introduction to Building Systems Laboratory**

Building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. All equipment training and safety is covered in this introductory course.

**Credit Hour:** 1

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**ARCHST 2316: Advanced Building Systems Lab**

Advanced exposure to building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ARCHST 2315

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**ARCHST 2323: Sustainable Building Design Fundamentals**

Environmental concerns addressed by green building design practices for consumers and owners of homes and businesses. Overview of how green buildings improve prospects for ecology, economy, social equity, and human health. Hands-on lab experiments reference national performance standards for decision making in sustainable building projects. Emphasis on energy and water use, sustainable sites, environmentally friendly building products, indoor air quality, and design for sustainable behaviors. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 2620: People, Places and Design**

Understanding human behavior and interaction with environments; the influence of architectural design on built places. Practical application for design.

**Credit Hours:** 3

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**ARCHST 2811: Studio I**

Application of basic design and composition to built form. Studio exercises in two and three dimensions using various media relating to usable spaces. Formation of design concept, development of form and space, and application in built environment.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**ARCHST 3100: Color and Light**

The theory, application, and specification of color and light for interior and architectural design. Includes assigned lab exercises for color and light portfolio.

**Credit Hours:** 3

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**ARCHST 3182: Studio II**

Application of basic design principles to built forms and functional spaces. Identification and manipulation of elements of design, understanding spatial relationships between human body and spatial enclosures related to built forms. Spatial organization and familiarity with role of immediate context.

**Credit Hours:** 4

**Prerequisites:** ARCHST 2811

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**ARCHST 3230: Advanced Design Communication Using BIM**

Advanced course in techniques and conventions of computer aided design (CAD) and Building Information Modeling (BIM) for contemporary design process.

**Credit Hours:** 3

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**Prerequisites:** ARCHST 2230

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**ARCHST 3371: Design Resource Management**

Field experience (5 hours per week) in organization and management of resources used by interior designers, including references, product information, and samples of materials and finishes.

**Credit Hour:** 1

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**ARCHST 3600: Environmental Analysis**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 3600W: Environmental Analysis - Writing Intensive**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 3860: Human Factors Programming**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 3860W: Human Factors Programming - Writing Intensive**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 4001: Topics in Architectural Studies**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 4085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4230: Computer Graphic Application for Design I**

Applications of computer graphics for design and art; includes visualization, animation and creative development. May repeat up to 12 credit hours maximum.

**Credit Hours:** 3

**Recommended:** junior standing

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**ARCHST 4320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Recommended:** ARCHST 2310

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**ARCHST 4323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in building and interiors.

**Credit Hours:** 3

---

**ARCHST 4333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2220 and ARCHST 2811

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**ARCHST 4355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 1-99

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**ARCHST 4411: Study Abroad in Architectural History**

Discovery of historic architecture through on-site tour of timeless cities and places. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARCHST 4420: History of the Designed Environment after 1750**

An in-depth study of the designed environment, including housing, interiors, and furniture of the major historical periods from the Industrial Revolution to today.

**Credit Hours:** 3

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**ARCHST 4430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 7430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Recommended:** American History or Government, or Art History

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**ARCHST 4435: History of the Designed Environment to 1750**

An in-depth study of the designed environment including interiors, architecture, art, and the decorative arts within the major historical periods and cultural context from prehistory to the Industrial Revolution.

**Credit Hours:** 3

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**ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 7440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for

approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

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**ARCHST 4550: Visual Presentation for Design**

Emphasizes principles and techniques for effective visual design presentation. Focuses on concepts of design, layout, storytelling, critiques, and hands on exercise.

**Credit Hours:** 3

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**ARCHST 4555: Recent Trends**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 4630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 4660: Housing Concepts and Issues**

Evaluate housing policies, regulations, codes, programs; global and ecological perspectives of environment and behavior; historic preservation; financial issues; trends and projections.

**Credit Hours:** 3

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**ARCHST 4700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 4710: Design Business Practices**

Analysis of the basic professional, human, and business skills necessary for the successful design practice.

**Credit Hours:** 3

**Prerequisites:** ARCHST 4814 or ARCHST 4824

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**ARCHST 4760: Healthcare Facilities Design**

(cross-leveled with ARCHST 7760). Health care facilities design and planning course provides an in-depth investigation of best practice examples. Design and research methods include evidence-based design, simulation, and space syntax analysis leading to high-performance healthcare design. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4813: Interiors Studio III**

Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design processes. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to interiors.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4814: Interiors Studio IV**

Continuation of ARCHST 4813. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces--both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4813

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**ARCHST 4815: Construction Documents and Building Information Modeling Studio**

Studio of how materials, systems, and assemblies reinforce and extend intentions of designers. Course teaches strategies and techniques for integration and coordination of the building components and details in construction documents and building information modeling.

**Credit Hours:** 4

**Prerequisites or Corequisites:** ARCHST 4814 or ARCHST 4824

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**ARCHST 4823: Architectural Studio III**

Continuation of ARCHST 3182. Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design process. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specifics to architecture.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4824: Architectural Studio IV**

Continuation of ARCHST 4823. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces - both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4823

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**ARCHST 4860: Programming for Thesis Design Studio**

Develop written comprehensive program for thesis design studio project. Supervised by student-selected committee -- one departmental thesis advisor and at least one additional faculty member.

**Credit Hour:** 0-1

**Prerequisites:** ARCHST 3860 and ARCHST 4814 or ARCHST 4824

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**ARCHST 4940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4960: Readings in Architectural Studio**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 4961: Design Research and Service Design**

(cross-leveled with ARCHST 7961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and Communication of research findings to informed design concepts.

**Credit Hours:** 3

**Recommended:** senior standing

---

**ARCHST 4962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 7962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4963: Human Factors Research for Design**

(cross-leveled with ARCHST 7963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

**Recommended:** ARCHST 3860

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**ARCHST 4964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 7964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition computations, and design protocol studies.

**Credit Hours:** 3

**Recommended:** ARCHST 4813 or ARCHST 4823

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**ARCHST 4990: Thesis Design Studio**

Capstone experience on a single comprehensive project. Objective is to enable synthesis of previous course work by addressing a design problem defined in ARCHST 4860.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4860, ARCHST 4814 or ARCHST 4824

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**ARCHST 7001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 7085: Problems in Environmental Design**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** 3000-level course in field of problem and instructor's consent

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**ARCHST 7100: Allied Architecture and Urban Design**

Overview of the built environment in relation to architecture and allied design. Emphasis on architecture, interior, landscape and urban design studies.

**Credit Hours:** 3

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**ARCHST 7230: Computer Graphic Application for Design I**

Applications of computer graphics for design and art; includes visualization, animation and creative development. May repeat up to 12 credit hours maximum.

**Credit Hours:** 3

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**ARCHST 7232: Graduate Design Communication I**

Studio course in techniques and conventions of graphic communication as an aid in the design process of built forms.

**Credit Hours:** 3

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**ARCHST 7310: Graduate Building Systems**

Integrated building systems; structure construction, technology, comfort; including voice-communications, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems, project estimating and management.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7315: Graduate Systems Laboratory**

Experimental learning setting involving building construction systems, renovation, materials and finishes testing and experimentation. Focus on hands-on opportunities investigating building technology properties in detail. Laboratory 3 hrs/week.

**Credit Hour:** 1-9

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**ARCHST 7320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in buildings and interiors.

**Credit Hours:** 3

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**ARCHST 7325: Energy-Efficient Building Design**

This course is a broad study of energy use and energy-efficient strategies for buildings. The course will cover the fundamentals of climate-based design, energy-efficient heating/cooling/daylighting strategies, alternative energy systems applicable to buildings, energy auditing/modeling/verification, applicable building energy codes, and high performance building technologies. Recommended for graduate students with undergraduate degrees and experience in engineering, architecture, and/or building science.

**Credit Hours:** 3

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**ARCHST 7333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2100 and MATH 1100 or MATH 1120

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**ARCHST 7355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 2-4

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**ARCHST 7410: History of the Designed Environment to 1750**

An in-depth study of the designed environment including housing interiors, and furniture of the major historical periods from prehistory to the Industrial Revolution.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 1110 and AR\_H\_A 1120

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**ARCHST 7411: Study Abroad in Architectural History**

Discovery of historic architecture through on-site tour of timeless cities and places. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 7420: History of the Designed Environment after 1750**

An in-depth study of the designed environment, including housing, interiors, and furniture of the major historical periods from the Industrial Revolution to today.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 1110 or AR\_H\_A 1120

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**ARCHST 7430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 4430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Prerequisites:** American History or Government or Art History or instructor's consent

---

**ARCHST 7440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 4440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

---

**ARCHST 7550: Visual Presentation for Design**

Emphasizes principles and techniques for effective visual design presentation. Focuses on concepts of design, layout storytelling, critiques and hands on exercises.

**Credit Hours:** 3

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**ARCHST 7555: Recent Trends in Environmental Design**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 7620: Environment and Behavior**

Evaluate relationships between human behavior and environmental design. Survey of environment and behavior theoretical foundations examining how these concepts translate into a more responsive theory of design.

**Credit Hours:** 3

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**ARCHST 7630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 7640: Physical Function and Older Adults**

(same as F\_C\_MD 7750, HMI 7750, H\_D\_FS 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7650: Psychosocial Function and Older Adults**

(same as F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7660: Housing Concepts and Issues**

Evaluate housing policies, regulations, codes, programs; global and ecological perspectives of environment and behavior; historic preservation; financial issues; trends and projections.

**Credit Hour:** 1-12

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**ARCHST 7700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 7710: Design Business Practices**

Analysis of the basic professional, human, and business skills necessary for the successful design practice. Prerequisites or Corequisites of Studio IV and anticipated graduation during final academic year.

**Credit Hours:** 3

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**ARCHST 7760: Healthcare Facilities Design**

(cross-leveled with ARCHST 4760). Health care facilities design and planning course provides an in-depth investigation of best practice examples. Design and research methods include evidence-based design, simulation, and space syntax analysis leading to high-performance healthcare design. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7815: Studio V**

A continuation of previous studio with emphasis on digital media.

**Credit Hours:** 4

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**ARCHST 7840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 7940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 7960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 7961: Design Research and Service Design**

(cross-leveled with ARCHST 4961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and communication of research findings to inform design concepts.

**Credit Hours:** 3

---

**ARCHST 7962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 4962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

---

**ARCHST 7963: Human Factors Research for Design**

(cross-leveled with ARCHST 4963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

---

**ARCHST 7964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 4964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes

design methods, design cognition and computations, and design protocol studies.

**Credit Hours:** 3

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**ARCHST 8001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 8050: Research Methods in Environmental Design**

A comparative study of quantitative and qualitative methods in environmental design with emphasis on research results and analyses. Lectures and seminar discussions.

**Credit Hours:** 3

**Prerequisites:** 12 hours advanced design

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**ARCHST 8085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 8090: Master's Research in Environmental Design**

Independent research leading to a creative project. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 8230: Computer Graphic Application for Design II**

Creative computer graphic modeling, rendering and animation projects related to the academic background and interests of individual students. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ARCHST 8233: Graduate Design Communication II**

Advanced studio in techniques and conventions of graphic communication as aides in the design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 7232 or advisor's consent

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**ARCHST 8600: Graduate Environmental Analysis**

Analysis of design principles and organizational factors operating in a building by means of dissection. Volumetric disposition, circulation pattern, axes, structural system, materials, purpose, and symbolism.

**Credit Hours:** 3

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**ARCHST 8630: Philosophy of Environmental Design Research**

Formal environmental design theory concerning historical precedents, current aesthetic trends, and design processes. Assignments investigate philosophical influences, architectonic vocabularies, and communication of idea and artifact. May be repeated up to 12 credit hours.

**Credit Hours:** 3

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**ARCHST 8633: Theoretical Perspectives of Design Computing**

Key theoretical ideas underlying the relationship between design and computing. Main research topics relevant to current discourse in design computing.

**Credit Hours:** 3

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**ARCHST 8650: Theories in Architectural and Interior Design**

Architectural and interior design theory is explored as a field of inquiry. Students become familiar with a theoretical framework that is sensitive to the play between the principles of a building (what it is as a design) and the circumstances of a building (what it becomes to be).

**Credit Hours:** 3

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**ARCHST 8820: Graduate Digital Design Studio**

Graduate level design experience emphasizing project complexity, design skill refinement, and use of digital media for design representation.

**Credit Hour:** 1-99

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**ARCHST 8830: Digital Design Studio II**

Advanced graduate level design experience emphasizing design, documentation, and representation using digital media. Optional development of graduate thesis project may be scheduled in this studio.

**Credit Hours:** 4

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**ARCHST 8840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 8850: Seminar in Environmental Design**

Reports, discussion of recent work in area of concentration.

**Credit Hour:** 1-4

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**ARCHST 8887: Environment and Behavior II**

Synthesis of environment and behavior themes in design research and application to professional practice. Research on socio-behavioral phenomena, user groups, places. Emphasis on integrated interactive character of elements.

**Credit Hours:** 3

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**ARCHST 8950: Qualitative Research Methods**

Explores qualitative research methods as foundation for subsequent study. Focuses on qualitative research of the built environment. Course may be repeated for credit.

**Credit Hours:** 3

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**ARCHST 8960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

**Prerequisites:** ARCHST 4960 or ARCHST 7960

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**ARCHST 8990: Thesis Project Proposal**

The formal opportunity to express the intent and scope of the thesis project.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ARCHST 9001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 9085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 9090: Doctoral Research in Environmental Design**

Independent research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 9555: Recent Trends in Environmental Design**

For students seeking additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-99

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**ARCHST 9990: Dissertation Proposal**

A formal dissertation proposal is written and presented to the dissertation committee for approval.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**ARCHST 9995: Pilot Project for Dissertation**

Working with advisor, student proposes, conducts, and reports the findings from a pilot study germane to the dissertation topic in preparation for the dissertation research.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art History And Archaeology (AR\_H\_A)

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**AR\_H\_A 1005: Undergraduate Topics in Art History and Archaeology- Humanities**

Special studies in Art History and Archaeology.

**Credit Hour:** 1

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**AR\_H\_A 1010: Introduction to Museum of Art and Archaeology, UMC**

This course is a brief introduction to the Museum of Art and Archaeology on Francis Quadrangle. Special attention will be given to the history of the Museum, to its operation and to its collection. Guest lecturers from the from the Museum will provide first hand accounts of their contributions

to the day-to-day operations of the Museum and to the academic mission of the University.

**Credit Hour:** 1

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**AR\_H\_A 1020: Giotto and the Arena Chapel**

This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) Chapel of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**Credit Hour:** 1

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**AR\_H\_A 1030: Early Works of Michelangelo**

This course is a brief introduction to the life and work of Michelangelo. Special attention will be given to his early works and to stories about him, especially those by Giorgio Vasari in his Lives of the Artist, Florence, 1568.

**Credit Hour:** 1

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**AR\_H\_A 1040: Rembrandt**

This course is a brief introduction to the life and work of the seventeenth-century Dutch painter Rembrandt van Rijn. Special attention is give to the appreciation of his art by his contemporaries.

**Credit Hour:** 1

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**AR\_H\_A 1105: Undergraduate Topics in Art History and Archaeology**

Special studies in Art History and Archaeology.

**Credit Hours:** 3

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**AR\_H\_A 1110: Ancient and Medieval Art**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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**AR\_H\_A 1110H: Ancient & Medieval Art - Honors**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AR\_H\_A 1110W: Ancient and Medieval Art - Writing Intensive**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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**AR\_H\_A 1120: Renaissance through Modern Art**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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**AR\_H\_A 1120H: Renaissance through Modern Art - Honors**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

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**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AR\_H\_A 1120W: Renaissance through Modern Art - Writing Intensive**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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**AR\_H\_A 1230: Introduction to Asian Arts**

(same as HIST 1820, REL\_ST 1820, S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**AR\_H\_A 2005: Topics Art History and Archaeology - Humanities**

Study of special topics in Art History and Archaeology.

**Credit Hour:** 1-3

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**AR\_H\_A 2150: The Art of the Book**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**AR\_H\_A 2150W: The Art of the Book - Writing Intensive**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**AR\_H\_A 2230: Introduction to the Arts of Islam**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AR\_H\_A 2230W: Introduction to the Arts of Islam - Writing Intensive**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AR\_H\_A 2410: Ancient Technology**

Engineering, architecture, and military technology in the ancient world.

**Credit Hours:** 3

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**AR\_H\_A 2720: African-American Visual Culture**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**AR\_H\_A 2720W: African-American Visual Culture - Writing Intensive**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**AR\_H\_A 2830: American Art and Architecture**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**AR\_H\_A 2830W: American Art and Architecture - Writing Intensive**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**AR\_H\_A 2850: Introduction to Visual Culture**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**AR\_H\_A 2850W: Introduction to Visual Culture - Writing Intensive**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**AR\_H\_A 2860: The Lives of Objects**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**AR\_H\_A 2860W: The Lives of Objects - Writing Intensive**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**AR\_H\_A 2940: Archaeological Methods**

Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AR\_H\_A 2960: Special Readings in Art History and Archeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AR\_H\_A 3005: Topics in Art History and Archaeology- Humanities**

Selected studies in various facets of art history and archaeology.

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**Credit Hour:** 1-3

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**AR\_H\_A 3005H: Topics in Art History and Archaeology- Humanities - Honors**

Selected studies in various facets of art history and archaeology. Enrollment limited to students with Honor's eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AR\_H\_A 3010: Study Abroad in Art History and Archaeology**

Instruction in art history, architecture, or archaeology takes place in a foreign country or countries. Trips are led and taught by University of Missouri faculty.

**Credit Hour:** 3-6

**Prerequisites:** departmental consent

**Recommended:** Sophomore standing or higher

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**AR\_H\_A 3120: Art and Gender in Antiquity**

Comparative survey of Egypt, Greece, and Rome, focusing on gender construction and cultural perception through material resources.

**Credit Hours:** 3

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**AR\_H\_A 3210: Near Eastern and Egyptian Art and Archaeology**

General survey of material culture of the Near East and Egypt from the earliest times to the early Iron Age.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3310: Greek Art and Archaeology**

General survey of material culture in Greece from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3410: Roman Art and Archaeology**

General survey of material culture in the Roman world from earliest times through the 3rd century.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3510: Byzantine and Islamic Art and Archaeology**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3510W: Byzantine and Islamic Art and Archaeology - Writing Intensive**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3520: Early Medieval Art and Archaeology**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3520W: Early Medieval Art and Archaeology - Writing Intensive**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3530: Late Medieval Art**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3530W: Late Medieval Art - Writing Intensive**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or equivalent

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**AR\_H\_A 3620: Italian Renaissance Art**

General survey of the architecture, painting and sculpture of Italy from the 14th through the 16th century.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1110 or AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3630: Northern Renaissance Art**

General survey of northern European art and architecture from the late 14th through the late 16th century.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3640: Baroque Art**

General survey of 17th century European architecture, painting and sculpture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3720: Cities in the Western Imagination**

Interdisciplinary introduction to the forms, functions, and meanings of cities in Europe and the Americas from ancient to modern times; plans and predictions for the future also considered. Emphasis is placed on cities as fields for imaginative activity on the part of those who have designed, built, used, and interpreted them.

**Credit Hours:** 3

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**AR\_H\_A 3730: Eighteenth Century European Art**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3730W: Eighteenth Century European Art - Writing Intensive**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3740: Nineteenth Century European Art**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3740W: Nineteenth Century European Art - Writing Intensive**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3750: Modern Art in Europe and America**

General survey of international directions in painting, sculpture, and architecture from 1885 to ca. 1940.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3760: Contemporary Art**

General survey of painting, sculpture, and architecture from the Second World War to the present.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3775: The Ancient World on Film**

(same as CL\_HUM 3775 and FILM\_S 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** Prior 2000 level coursework in Classical Humanities, Art History and Archaeology, or Film Studies

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**AR\_H\_A 3780: Architecture in Film**

(same as FILM\_S 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a

variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**AR\_H\_A 3785: Arts and Artists on Film**

(same as FILM\_S 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**AR\_H\_A 3790: Indian Cinema**

(same as ANTHRO 3490, S\_A\_ST 3490 and FILM\_S 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**AR\_H\_A 3830: American Art and Culture, 1500-1820**

General survey of American visual culture - painting, sculpture, architecture-between 1500 and 1820.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or equivalent

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**AR\_H\_A 3840: American Art and Culture, 1820-1913**

General survey of American visual culture - painting, sculpture, architecture, photography - between 1820-1913.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or AR\_H\_A 2830 or equivalent

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**AR\_H\_A 3850: American Art and Culture, 1913-Present**

General survey of American visual culture - painting, sculpture, architecture, photography, advertising, film, new media - between 1913 and the present.

**Credit Hours:** 3

**Recommended:** AR\_H\_A 1120 or AR\_H\_A 2830 or equivalent

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**AR\_H\_A 4005: Topics in Art History and Archaeology-Humanities**

Special studies in art history/archaeology; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 4120: Gender and the Arts**

(same as WGST 4120; cross-leveled with WGST 7120, AR\_H\_A 7120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4320: Archaeology of the Aegean Bronze Age**  
(cross-leveled with AR\_H\_A 7320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4340: Greek Architecture**  
(cross-leveled with AR\_H\_A 7340). Survey of the art of building in the Aegean and Classical world from earliest times to the Hellenistic period.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4350: Greek Pottery**  
(cross-leveled with AR\_H\_A 7350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4360: Greek Sculpture**  
(cross-leveled with AR\_H\_A 7360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4420: Minor Arts of Antiquity**  
(cross-leveled with AR\_H\_A 7420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4440: Roman Architecture**  
(cross-leveled with AR\_H\_A 7440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4460: Roman Sculpture**  
(cross-leveled with AR\_H\_A 7460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4490: Late Antique Art and Archaeology**  
(cross-leveled with AR\_H\_A 7490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4510: Byzantine Art and Archaeology**  
(cross-leveled with AR\_H\_A 7510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4520: Art and Archaeology of Early Medieval Europe**  
(cross-leveled with AR\_H\_A 7520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4530: Romanesque Art and Architecture**  
(cross-leveled with AR\_H\_A 7530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4540: Gothic Art and Architecture**  
(cross-leveled with AR\_H\_A 7540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4620: Michelangelo and the High Renaissance**  
(cross-leveled with AR\_H\_A 7620). Sculpture, architecture, paintings, and drawings of Michelangelo in the context of his times.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4630: The Renaissance Artist**  
(cross-leveled with AR\_H\_A 7630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4640: Renaissance and Baroque Architecture**  
(cross-leveled with AR\_H\_A 7640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4650: Venetian Painting**  
(cross-leveled with AR\_H\_A 7650). Survey of Venetian Painting from the 14th through the 18th century.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent

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**AR\_H\_A 4660: Art and Ideas in the Northern Renaissance**  
(cross-leveled with AR\_H\_A 7660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3  
**Prerequisites:** instructor's consent



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**AR\_H\_A 4670: Baroque Figural Arts**

(cross-leveled with AR\_H\_A 7670). Painting and sculpture of Italy in the 17th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4710: The Arts of the Rococo**

(cross-leveled with AR\_H\_A 7710). This course explores European Art from approximately 1710 to 1770, focusing on art associated with two different social sectors: The early modern aristocratic court culture whose artistic predilections had formed the European norm, and the increasingly powerful merchant classes whose newfound wealth enabled new artistic genres and styles to proliferate. Our inquiry begins with an exploration of the rococo as an ornamental style; we examine its origins in Italian garden architecture and subsequent transformation into a decoration for both French palatial interiors and German Churches. We then launch a succession of case studies of important artists, media, and objects in order to assess the varied ways that diverse social identities were deflected through the periods' art an architecture. Students will pursue a research topic on rococo art for their semester project.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4720: Revolution and Romanticism: Art C. 1800**

(cross-leveled with AR\_H\_A 7720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4730: Realism Through Post-Impressionism**

(cross-leveled with AR\_H\_A 7730). Styles and issues in nineteenth-century art.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4740: Modern Architecture**

(cross-leveled with AR\_H\_A 7740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4750: Contemporary World Architecture**

(cross-leveled with AR\_H\_A 7750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films, and field trips. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4760: Modern Sculpture**

(cross-leveled with AR\_H\_A 7760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4780: Advanced Course in Contemporary Art**

(cross-leveled with AR\_H\_A 7780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4820: American Material Culture**

(cross-leveled with AR\_H\_A 7820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4840: American Architecture**

(cross-leveled with AR\_H\_A 7840). An exploration of architecture and urbanism from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4960: Special Readings in Art History and Archaeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4970: Capstone: Art History and Archaeology**

Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**AR\_H\_A 4980: Internship**

A one-semester or full summer intensive internship for departmental majors with specific projects and responsibilities to be arranged by the student in cooperation with a faculty member and an appropriate agent of the museum involved. May be taken as an elective only. May be repeated for a maximum of 6 hours credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4996: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 4999: Honors Reading and Research I**

Individual research projects in preparation of senior thesis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7005: Topics in Art History and Archaeology**

Special studies in art history or archaeology; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 7120: Gender and the Arts**

(same as WGST 7120; cross-leveled with AR\_H\_A 4120, WGST 4120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7130: Museum Studies**

Functions and history of museums and interrelations among departments, including those of director, curator, registrar, education, conservation, and marketing. Topics include acquisitions policies; public outreach; role of architecture; and philosophical and legal issues pertaining to administration of museums.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7170: Historic Preservation**

(same as HIST 7450). Survey of the historic preservation movement and techniques by faculty and guest speakers active in the field.

**Credit Hour:** 3-9

**Prerequisites:** instructor's consent

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**AR\_H\_A 7320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AR\_H\_A 4320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7340: Greek Architecture**

(cross-leveled with AR\_H\_A 4340). Survey of the art of building in the Aegean and Classical world from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7350: Greek Pottery**

(cross-leveled with AR\_H\_A 4350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7360: Greek Sculpture**

(cross-leveled with AR\_H\_A 4360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7420: Minor Arts of Antiquity**

(cross-leveled with AR\_H\_A 4420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7440: Roman Architecture**

(cross-leveled with AR\_H\_A 4440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7460: Roman Sculpture**

(cross-leveled with AR\_H\_A 4460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7490: Late Antique Art and Archaeology**

(cross-leveled with AR\_H\_A 4490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7510: Byzantine Art and Archaeology**

(cross-leveled with AR\_H\_A 4510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AR\_H\_A 4520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7530: Romanesque Art and Architecture**

(cross-leveled with AR\_H\_A 4530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7540: Gothic Art and Architecture**

(cross-leveled with AR\_H\_A 4540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7620: Michelangelo and the High Renaissance**

(cross-leveled with AR\_H\_A 4620). Sculpture, architecture, paintings, and drawings of Michelangelo in the context of his times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7630: The Renaissance Artist**

(cross-leveled with AR\_H\_A 4630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7640: Renaissance and Baroque Architecture**

(cross-leveled with AR\_H\_A 4640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**AR\_H\_A 7650: Venetian Painting**

(cross-leveled with AR\_H\_A 4650). Survey of Venetian painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7660: Art and Ideas in the Northern Renaissance**

(cross-leveled with AR\_H\_A 4660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7670: Baroque Figural Arts**

(cross-leveled with AR\_H\_A 4670). Painting and sculpture of Italy in the 17th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7710: The Arts of the Rococo**

(cross-leveled with AR\_H\_A 4710). This course explores European art from 1710 to 1770, beginning with an exploration of the rococo as an ornamental language and then moving to case studies of artists, media, and objects in order to assess how social identities were expressed through design.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 8110 and instructor's consent

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**AR\_H\_A 7720: Revolution and Romanticism: Art Circa 1800**

(cross-leveled with AR\_H\_A 4720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with

the major events of the French Revolution, its aftermath, and its global repercussions.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 8110 and instructor's consent

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**AR\_H\_A 7730: Realism Through Post-Impressionism**

(cross-leveled with AR\_H\_A 4730). Styles and issues in nineteenth-century art.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7740: Modern Architecture**

(cross-leveled with AR\_H\_A 4740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7750: Contemporary World Architecture**

(cross-leveled with AR\_H\_A 4750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective, topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films and field trips. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 1120 and instructor's consent

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**AR\_H\_A 7760: Modern Sculpture**

(cross-leveled with AR\_H\_A 4760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**AR\_H\_A 7780: Advanced Course in Contemporary Art**

(cross-leveled with AR\_H\_A 4780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7820: American Material Culture**

(cross-leveled with AR\_H\_A 4820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7840: American Architecture**

(cross-leveled with AR\_H\_A 4840). An exploration of architecture from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 7940: Archaeological Methods**

(cross-leveled with AR\_H\_A 4940). Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AR\_H\_A 7960: Special Readings in Art History or Archaeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 7980: Internship in Art History and Archaeology**

A one semester or full summer intensive internship with specific projects and responsibilities to be arranged by the student and the program director.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8070: Master's Tutorial**

Consultation with faculty advisory and preparation of a scholarly essay based on a graduate research paper. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** AR\_H\_A 8110, and other graduate courses in Art History & Archaeology

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**AR\_H\_A 8080: Readings for MA Thesis in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8090: Master's Thesis Research and Thesis**

Individual research leading to preparation of the M.A. thesis Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8110: Introduction to Graduate Study**

Research methods, bibliography, use and criticism of source material. Required of graduate students in Art History and Archaeology who have not had AR\_H\_A 4996.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**AR\_H\_A 8120: Theories and Methodologies in Art History and Archaeology**

Literature of art and archaeology in terms of works of leading European and American art historians, archaeologists.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8130: Museum Studies Seminar**

Appropriate means for care and display of artifacts. Topics include: accessioning, cataloging, retrieval of information, and laws and ethics of collecting; the museum environment and its monitoring; condition reports, shipping and storage, and conservation. Field trips.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8140: Art Theory and Criticism**

Theoretical and critical literature of art from earliest times to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8170: Historic Preservation Seminar**

Research techniques to solve research problems and conduct field recording in historic preservation, material culture, historic architecture, and cultural heritage studies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8320: Seminar in Greek Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8420: Seminar in Roman Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8440: Ancient/Medieval Topography**

(same as CLASS 8440). Descriptive and historical analysis of a selected city or site. Subject varies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8490: Seminar in Late Antique Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** AR\_H\_A 7490 or equivalent

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**AR\_H\_A 8520: Seminar in Medieval Art and Archaeology**

Specific subjects of study will be assigned to students for presentation in relation to broader questions of the cultural/ historical phenomena of the time, from ca 700 to ca 1400.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8620: Seminar in Renaissance Art**

Special subjects of study assigned for Northern or Southern Renaissance for individual research, discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AR\_H\_A 8710: Seminar in 18th Century Art**

Special subjects of study in 18th century art assigned for individual research; reports to be presented and discussed by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8720: Seminar in 19th Century Art**

Special subjects of study in 19th century art assigned for individual research; reports to be presented and discussed by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8740: Seminar in Modern Architecture**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8750: Seminar in Modern and Contemporary Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 8800: Seminar in American Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 9080: Readings for PhD Dissertation in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AR\_H\_A 9090: Doctoral Dissertation Research in Art History and Archaeology**

Individual research leading to preparation of the Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## **Art-Ceramics (ART\_CERM)**

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**ART\_CERM 2100: Beginning Ceramics**

Exploration of ceramic art as an expressive, communicative medium. Study of ceramic design, technique and historic and contemporary

models within the context of the creative process. Group critiques, slides, demonstrations. Expendable materials fee.

**Credit Hours:** 3

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**ART\_CERM 3100: Intermediate Ceramics**

Continuation of ART\_CERM 2100 with emphasis on wheel throwing and the vessel format. Further exploration of glazing and firing techniques. Group and individual critiques, demonstrations, slide lectures and visiting artists. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_CERM 4100: Advanced Ceramics**

Continuation of ART\_CERM 3100. Includes advanced problems in firing, clay and glaze technology, forming and ornamentation. Payment of expendable materials fee required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_CERM 4110: Ceramics Sculpture**

Sculptural forms constructed of slabs, coils and wheel-thrown elements. Payment of expendable materials expense is required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

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**ART\_CERM 4185: Problems in Ceramics**

Problems in Ceramics.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_CERM 7100: Graduate Ceramics**

Advanced study of ceramic technology and design concepts with emphasis on directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_CERM 4100

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**ART\_CERM 7110: Graduate Ceramic Sculpture**

Directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_CERM 4100

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**ART\_CERM 7185: Problems in Ceramics**

Graduate level work in ceramics.

**Credit Hour:** 1-3

**Prerequisites:** ART\_CERM 7100 and ART\_CERM 7110 and departmental consent

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**ART\_CERM 8100: Graduate Ceramics II**

Continuation of ART\_CERM 7100. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_CERM 7100 or equivalent

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## Art-Drawing (ART\_DRAW)

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### ART\_DRAW 1050: Drawing I

An introduction to visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

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### ART\_DRAW 2200: Drawing II

An introduction to drawing systems, problem solving and study of the proportions of the human form. Development of skills and concepts in drawing based on historical and contemporary models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050

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### ART\_DRAW 2210: Beginning Color Drawing

Theory and practice in the use of pastel working from stilllife, landscape, and portrait. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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### ART\_DRAW 3200: Drawing III

Development of drawing techniques with an emphasis on materials and methods. Emphasis in conceptual and formal skills based on contemporary and historical models. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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### ART\_DRAW 3210: Intermediate Color Drawing

Continuation of ART\_DRAW 2210 with emphasis on design and organization. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050, ART\_DRAW 2200 and ART\_DRAW 2210

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### ART\_DRAW 3220: Anatomical Drawing

Anatomical structure of human figure as it relates to art. Drawing from live model; emphasis on gross anatomy as defined by skeletal and muscular structure. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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### ART\_DRAW 3230: Beginning Illustration

An introduction to visual problem solving from initial concept through final execution. Emphasis in drawing and painting skills and exploration of

mixed media techniques including drawing from the model. Graded on A-F basis only. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

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### ART\_DRAW 4200: Drawing IV

This course will provide an intensive experience in the development of a portfolio of artwork. Students will explore the connections between their work and contemporary art. May be repeated 3 times. Expendable Materials Fee Required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050, ART\_DRAW 2200 and ART\_DRAW 3200

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### ART\_DRAW 4210: Advanced Color Drawing

Continuation of ART\_DRAW 3210 with emphasis on the expressive properties of color in figural compositions. Repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050, ART\_DRAW 2200, ART\_DRAW 2210 and ART\_DRAW 3210

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### ART\_DRAW 4220: Advanced Anatomical Drawing

Continuation of ART\_DRAW 3220 with and emphasis on formal analysis of the figure in drawing based on superficial and deep anatomical structure. May be repeated to 15 hour maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 3220

**Recommended:** ART\_DRAW 2200 and ART\_DRAW 3200 before taking this class

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### ART\_DRAW 4230: Advanced Illustration

Further development of conceptual problem solving skills and technical proficiency through self generated assignments. Emphasis is placed on portfolio development by exploring sequential and narrative themes. Topics include contract, copyrights, and the art of freelancing. Students are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 1050 and ART\_DRAW 2200

**Recommended:** ART\_DRAW 3230

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### ART\_DRAW 4285: Problems in Drawing

Problems in Drawing.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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### ART\_DRAW 7200: Graduate Drawing: Studio Practice and Critique

Drawing with emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ART\_DRAW 7210: Graduate Color Drawing**

Continuation of ART\_DRAW 4210 with emphasis on individual creative expression. Repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 4210 and instructor's consent

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**ART\_DRAW 7285: Problems in Drawing**

**Credit Hour:** 1-3

**Prerequisites:** ART\_DRAW 7200 and departmental consent

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**ART\_DRAW 8200: Graduate Drawing: Advanced Studio Practice and Critique**

Continuation of ART\_DRAW 7200. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 7200 or equivalent

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**ART\_DRAW 8210: Graduate Color Drawing II**

Continuation of ART\_DRAW 7210. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_DRAW 7210 or equivalent

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**ART\_DRAW 8270: Graduate Drawing - Theory and Context**

Contextualizing artwork in culture, history, and theory, May be repeated to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art Majors

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**ART\_DRAW 8285: Problems in Drawing II**

Advanced independent studio practice including critical evaluation of student's creative work. Individual study in drawing is to be proposed by the student and approved by the instructor. The student will meet on a regular basis with the instructor to review student progress. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** for students with strong preparation in Art; departmental consent; ART\_DRAW 7285

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**Art-Fibers (ART\_FIBR)**

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**ART\_FIBR 2300: Beginning Fibers**

Exploration of various fiber and media including papermaking, weaving, surface design and sculptural techniques. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_FIBR 3300: Intermediate Fibers**

Continuation of ART\_FIBR 2300 with emphasis on utilizing acquired technical processes in loom and off weaving, paper making and surface design and a means of developing visual statements. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 2300

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**ART\_FIBR 4300: Advanced Fibers**

Exploration of aesthetic concepts, development of personal style and instruction in advanced fiber techniques within medium selected by student. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 3300 or approved equivalents

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**ART\_FIBR 4385: Problems in Fibers**

Problems in Fibers.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_FIBR 7300: Graduate Fibers**

Advanced technical and aesthetic study in medium of choice with emphasis on development of the individual student's ideas and goals. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 4300

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**ART\_FIBR 7385: Problems in Fibers**

Graduate level work in fibers.

**Credit Hour:** 1-3

**Prerequisites:** ART\_FIBR 7300 and departmental consent

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**ART\_FIBR 8300: Graduate Fibers II**

Continuation of ART\_FIBR 7300. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_FIBR 7300 or equivalent

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**Art-General (ART\_GNRL)**

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**ART\_GNRL 1010: Introduction to Art**

Basic practice in drawing, painting, design. Exploratory course for beginners.

**Credit Hours:** 3

**Prerequisites:** Restricted to Non-majors only

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**ART\_GNRL 1020: Appreciation of Art**

Illustrated discussion with examples from varied historic and contemporary art fields on nature of art, functions, methods of creative expression. One section is writing intensive each semester and the other is NON writing intensive each semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 may be required on some sections

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**ART\_GNRL 1020W: Appreciation of Art - Writing Intensive**

Illustrated discussion with examples from varied historic and contemporary art fields on nature of art, functions, methods of creative expression. One section is writing intensive each semester and the other is NON writing intensive each semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ART\_GNRL 1030: Basic 2-D Design**

(Art Foundations) Study of the basic principles and elements of two-dimensional composition in art. These principles of organization are the bases for expression and critical analysis of the visual arts. Students will create several studio projects exploring design variables, while employing a range of tools and materials from drawing to digital methods.

**Credit Hours:** 3

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**ART\_GNRL 1040: Basic 3-D Design**

A foundational course designed to familiarize students with the elements and principles of three-dimensional design as well as some of the materials, tools, processes and techniques used in the creation of sculptural art. Study and development of formal aesthetic ideas, conceptual vocabulary and technical skills is emphasized. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_GNRL 2000: Color Theory**

An investigation of various color systems and their application to art.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030

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**ART\_GNRL 2001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics course are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 2001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 2005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ART\_GNRL 2005H: Topics in Art - Humanities - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 2020: International Summer Study Abroad**

A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for

review at schedule critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit.

**Credit Hours:** 4

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**ART\_GNRL 2030: Context and Culture**

The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand.

**Credit Hours:** 3

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**ART\_GNRL 2030H: Context and Culture - Honors**

The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ART\_GNRL 2040: Sophomore Seminar**

This course is a bridge between contemporary art practices and developing a strong independent studio practice. Students develop a foundational sense of being a visual artist from the perspective of studio practice, professional application and creating an artistic identity through contemporary theory and short critical writings. Students will learn how to document and create a digital platform for their work, as well as search for internships, residencies and other professional arts opportunities. Through lectures, demonstrations, student collaborations, and visits with the local arts community, students will create a sphere of professional influences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030, ART\_GNRL 1040 and ART\_DRAW 1050

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**ART\_GNRL 3001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with junior standing.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 3001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 3005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3



**Prerequisites:** Instructor's consent

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**ART\_GNRL 3005H: Topics in Art - Humanities Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 3020: International Summer Study Abroad**

A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at scheduled critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**ART\_GNRL 3030: Undergraduate Internship in Art**

Special learning situations not covered by coursework. Credit standards pre-arranged with dept. Limit on total hours of problems courses applies. Enrollment limited to Art and Art Education majors with Junior Standing.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_GNRL 4001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 4001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 4005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ART\_GNRL 4005H: Topics in Art - Humanities Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 4030: Video Art and the Moving Image**

(same as FILM\_S 4030; cross-leveled with ART\_GNRL 7030). Video as a fine art form intersection sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Final Cut Pro demonstrating technical ability and aesthetic vision. May be repeated for credit.

**Credit Hours:** 3

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**ART\_GNRL 4040: 2-D Portfolio Development**

This course will provide an intensive experience in the development of a portfolio of personal work outside the traditional media boundaries. Students will explore media relevant to their particular needs and begin to explore the connections between their work and contemporary art and culture through readings, discussions and critiques. Expendable Materials Fee Required. May be repeated t 6 credits. Enrollment limited to students with Junior Standing. Recommended: 3000-level or above course in one of the following media areas: Drawing, Painting or Printmaking.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**ART\_GNRL 4050: Performance Art**

(cross-leveled with ART\_GNRL 7050). This studio art course will survey the practices in Performance Art and its intersections with visual and media-based art, experimental theater, music and dance. Modules will include performance and: the object, culture, the mediatized body and alternative spaces. Graded on A-F basis only. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**ART\_GNRL 4975: Senior Seminar in Art**

A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 4975W: Senior Seminar in Art - Writing Intensive**

A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 4976: Design - Senior Seminar**

Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. Students connect with Graphic Design Alumni who are working in the field of design. All students will participate in a final, formal portfolio review.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 4976W: Design - Senior Seminar - Writing Intensive**

Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. Students connect with Graphic Design Alumni who are working in the field of design. All students will participate in a final, formal portfolio review.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ART\_GNRL 7000: Graduate Art - Studio Practice and Critique**

Art studio practice emphasis on individual creative expression. Course may be repeated for up to 15 credit hours. Expendable materials fee required. Graded on A-F basis only. Prerequisites: Graduate Art Major

**Credit Hours:** 3

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**ART\_GNRL 7001: Topics in Art**

Special studies in studio art at the graduate level; covers subjects not included in regularly offered courses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_GNRL 7005: Topics in Art - Humanities**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 7020: International Summer Study Abroad**

A four-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at scheduled critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated for credit.

**Credit Hours:** 4

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**ART\_GNRL 7030: Video Art and the Moving Image**

(cross-leveled with ART\_GNRL 4030). Video as a fine art form intersecting sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is integrated with studio practice. Students create video works in final Cut Pro demonstrating technical ability and aesthetic vision. May be repeated for credit.

**Credit Hours:** 3

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**ART\_GNRL 7050: Performance Art**

(cross-leveled with ART\_GNRL 4050) This studio art course will survey the practices in Performance Art and its intersections with visual and media-based art, experimental theater, music and dance. Modules will include performance and: the object, culture, the mediatized body body, culture and alternative spaces. Graded on A-F basis only.

**Credit Hours:** 3

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**ART\_GNRL 7085: Problems in Art**

Individual study in a subject area to be proposed by the student and approved by the instructor. The student will meet periodically on a regular

basis with the instructor to review progress on the work assigned. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** for students with strong preparation in Art; departmental consent

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**ART\_GNRL 8000: Graduate Art - Advanced Studio Practice and Critique**

Continuation of ART\_GNRL 7000. Art studio practice with emphasis on individual creative expression. Course may be repeated for up to 15 credit hours. Expendable materials fee required. Graded on A-F basis only. Prerequisites: Graduate Art Major

**Credit Hours:** 3

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**ART\_GNRL 8001: Topics in Art**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 8005: Topics in Art - Humanities**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ART\_GNRL 8020: International Summer Study Abroad**

A four week study abroad in studio art with required participation in scheduled excursion to art-related sites. Students create original art for review at schedule critiques in 1) Florence, Italy and surrounding cities, or 2) The Netherlands and Belgium. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 4

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**ART\_GNRL 8070: Graduate Art - Theory and Context**

Contextualizing artwork in culture, history, and theory. May be repeated up to 18 hours for credit. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ART\_GNRL 8090: MFA Thesis Exhibition Documentation**

Preparation of materials deemed necessary to document in a permanent form the thesis exhibition. Credit will be granted upon the satisfactory completion of the document, which will be retained by the Department of Art. Required of all MFA candidates. Graded on S/U basis only.

**Credit Hour:** 1

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**ART\_GNRL 9010: Graduate Studio Seminar**

Practical and philosophical concerns of the visual artist. Mandated for all MFA candidates.

**Credit Hour:** 1-2

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## Art-Graphic Design (ART\_GRDN)

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### ART\_GRDN 1400: Beginning Digital Imaging

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

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### ART\_GRDN 2400: Advanced Digital Imaging

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** ART\_GRDN 1400

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### ART\_GRDN 2410: Graphic Design I

Emphasis on developing a design language and vocabulary. Projects explore visual images in two-dimensional space, each one focusing on a specific set of relationships. Introduction to methodological and research practices for designers. Course concludes with portfolio review for admission to ART\_GRDN 2420 and further Graphic Design Courses. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030, ART\_DRAW 1050; restricted to BA/BFA art majors

**Recommended:** ART\_GNRL 1040

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### ART\_GRDN 2420: Graphic Design II

Introduction to the discipline, function and tradition of typography. Topics include communication, text intensive documents, legibility/readability, movement, language sequence and information hierarchy. Payment of expendable materials fee is required. Enrollment is limited to students who have completed ART\_GRDN 2410 and successful completion of the graphic design portfolio review.

**Credit Hours:** 3

**Prerequisites:** consent of instructor

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### ART\_GRDN 2430: Calligraphy and Hand Lettering

Technical and historical instruction on several calligraphic alphabets. Application of hand lettering to both two and three-dimensional design projects. Emphasis placed on both technical mastery of letters, development of personal style and creative expression in projects.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030, ART\_DRAW 1050 or instructor's consent

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### ART\_GRDN 3410: Graphic Design III

Digital media and motion graphics are explored through the development of interactive presentations and web site design. Students experiment with the computer as a medium for delivery of communication. New, practical and conceptual skills will be discussed in order to develop meaningful, interactive user experiences. Payment of expendable materials fees is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 2420

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### ART\_GRDN 3420: Graphic Design IV

Goal directed graphic design problem solving stressing the integration of theory and practical applications while sharpening conceptual, computer, and research skills. Topics include current design theory, advanced typographic study, production methods and design/client interaction. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3410

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### ART\_GRDN 3430: Advanced Calligraphy and Hand Lettering

Continuation of ART\_GRDN 2430. Students will expand their personal including study of more complex alphabets and further their personal style. Emphasis placed on both mastery of letters and creative exploration in projects. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 2430

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### ART\_GRDN 3440: Packaging Design

This course will look at the discipline of packaging design from a three-dimensional perspective. By gaining an understanding of the materials and processes that relate to packaging, students will develop a selection of packaging solutions for a variety of different clients. Payment of expendable material fee is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3410

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### ART\_GRDN 3441: The History of Graphic Design

Broad overview of the history of graphic design. Topics will range from the history of printing, the beginnings of the profession, major movements and developments to the practice of design. Also looks at how the history of design and printing apply to today's visual communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### ART\_GRDN 3442: Design for Corporate Identity and Branding

Planning, strategy, and design of the visual components necessary to create a corporate identity. Course will focus on how cohesive design programs function across various mediums and engage specific audiences. Payment of expendable materials fees is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3410

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### ART\_GRDN 3443: Letterpress

This course is about creating conceptual design solutions using the letterpress printing process. Projects are very broad, conceptual and highly individual with the opportunity to explore letterpress printing processes using several different presses and printing techniques. Each project will require a limited edition print run. Repeatable to 9 hours.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ART\_GRDN 4410: Graphic Design V**

Directed research, study and critical analysis in graphic design. Emphasis placed on research, writing, problem solving, aesthetic perception, conceptual thinking skills and technical proficiency. Students will focus on portfolio preparation and are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 3420

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**ART\_GRDN 4485: Problems in Graphic Design**

Problems in Graphic Design.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_GRDN 4996: Imprint - Design Practicum**

Class operates as professional design studio doing work for university, local and regional clients. Focus on client/designer relationships, contracts and teamwork. Students passing with grade in A range will graduate with departmental honors. May be repeated for credit. Admission based on GPA (3.3 in art courses) and portfolio review. Enrollment limited to students with junior standing or higher.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**ART\_GRDN 7400: Graduate Graphic Design**

Graduate level work in graphic design. Emphasis on self-directed research and critical analysis. Students are encouraged to focus on conceptual development of their design work. Instruction is tailored to the student's individual investigations. Repeatable to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ART\_GRDN 7485: Problems in Graphic Design**

Graduate level work in graphic design.

**Credit Hour:** 1-3

**Prerequisites:** ART\_GRDN 4410 and departmental consent

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**ART\_GRDN 8400: Graduate Graphic Design II**

Continuation of ART\_GRDN 7400. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_GRDN 7400 or equivalent

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## Art-Painting (ART\_PNT)

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**ART\_PNT 2500: Beginning Painting**

Introduces primary techniques of painting. Emphasis on conceptualization of visual perception (understanding how we see) and the creative processes (understanding how we create). Sections either in oil or acrylic; contact instructor. Expendable material fee required.

**Credit Hours:** 3

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**ART\_PNT 2510: Beginning Watercolor Painting**

Theory, practice of painting in water color from still life, landscape, figure. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_PNT 3500: Intermediate Painting**

Continuation of ART\_PNT 2500 with the addition of portrait painting. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 2500

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**ART\_PNT 3510: Intermediate Watercolor Painting**

Continuation of ART\_PNT 2510. Theory and practice of painting in watercolor. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 2510

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**ART\_PNT 4500: Advanced Painting**

Advanced problems in oil and acrylic painting. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 3500

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**ART\_PNT 4510: Advanced Watercolor Painting**

(cross-leveled with ART\_PNT 7510). Advanced problems in watercolor. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 3510

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**ART\_PNT 4585: Problems in Painting**

Problems in Painting. Enrollment limited to students who have taken ART\_PNT 4500.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_PNT 7500: Graduate Painting: Studio Practice and Critique**

Advanced study. Emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ART\_PNT 7510: Graduate Watercolor Painting**

(cross-leveled with ART\_PNT 4510). Advanced study in watercolor. Emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 4510

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**ART\_PNT 7585: Problems in Painting**

**Credit Hour:** 1-3

**Prerequisites:** ART\_PNT 7500 and departmental consent

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**ART\_PNT 8500: Graduate Painting: Advanced Studio Practice and Critique**

Continuation of ART\_PNT 7500. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 7500 or equivalent

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**ART\_PNT 8510: Graduate Watercolor Painting**

Continuation of ART\_PNT 7510. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 7510 or equivalent

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**ART\_PNT 8570: Graduate Painting - Theory and Context**

Contextualizing artwork in culture, history, and theory. Repeatable to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ART\_PNT 8585: Problems in Painting II**

Advanced independent studio practice including critical evaluation of student's creative work. Individual study in painting is to be proposed by the student and approved by the instructor. The student will meet on a regular basis with the instructor to review student progress. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** For students with strong preparation in Art; departmental consent; ART\_PNT 7585

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## **Art-Photography (ART\_PHOT)**

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**ART\_PHOT 2600: Beginning Photography**

Introduction to photography within an art context; digital workflow including use of camera, software, and digital output methods; and a survey of both contemporary and historical topics related to visual and conceptual concerns. Digital camera with RAW capability and manual aperture + shutter controls required. DSLR recommended. Payment of expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** BA/BFA art majors only through early registration  
**Recommended:** ART\_GNRL 1030, ART\_GNRL 1040, ART\_DRAW 1050

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**ART\_PHOT 3600: Intermediate Photography**

Continuation of ART\_PHOT 2600 with emphasis utilizing acquired technical process to facilitate use of the camera as a means of developing awareness of immediate environment and the capabilities of Photography as a communicative, documentary, and expressive medium. Payment of expendable material fee is required.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 2600

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**ART\_PHOT 4600: Advanced Photography**

Exploration of aesthetic concepts, development of personal vision, and instruction in advanced technical process including fine B&W printing, negative and positive color, large format, zone system, and portfolios

and book design to facilitate critical observation and personal expression through the medium of Photography. Payment of expendable materials fee is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 2600 and ART\_PHOT 3600

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**ART\_PHOT 4685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_PHOT 7600: Graduate Photography**

Advanced technical study with emphasis on development of the individual student's creative ideas. Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 3600 and consent required

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**ART\_PHOT 7685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** ART\_PHOT 4410

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**ART\_PHOT 8600: Graduate Photography II**

Continuation of ART\_PHOT 7600. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 7600 or equivalent

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## **Art-Printmaking (ART\_PRNT)**

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**ART\_PRNT 2700: Beginning Printmaking**

Introductory Relief, Intaglio and Lithography techniques in color and black and white including woodcut, linocut reduction, etching; aquatint, dry point, photo mechanics and pronto plate lithography. May be repeated to six hours maximum. Expendable materials fee required.

**Credit Hours:** 3

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**ART\_PRNT 2730: Serigraphy**

Introduces methods, materials, and techniques of printmaking with the silk screen. Payment of expendable materials expense is required. May repeat to 6 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_GNRL 1030

**Recommended:** one semester of Drawing

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**ART\_PRNT 3700: Intermediate Printmaking**

Continuing work in litho, intaglio, relief or serigraphy. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 2700

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**ART\_PRNT 4700: Advanced Printmaking**

Advanced study in relief, intaglio, lithographic and/or serigraphy printmaking with emphasis on individual creative expression. May be repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 3700

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**ART\_PRNT 4785: Problems in Printmaking**

Problems in Printmaking.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_PRNT 7700: Graduate Printmaking**

Graduate level study in relief, intaglio or lithographic printmaking with emphasis on individual creative expression. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 4700

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**ART\_PRNT 7785: Problems in Printmaking**

**Credit Hour:** 1-3

**Prerequisites:** ART\_PRNT 7700 and departmental consent

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**ART\_PRNT 8700: Graduate Printmaking II**

Continuation of ART\_PRNT 7700. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 7700 or equivalent

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## Art-Sculpture (ART\_SCUL)

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**ART\_SCUL 2800: Beginning Sculpture**

Principles of sculptural organization, figure studies, modeling techniques, simple plaster casting. Payment of expendable materials expense is required.

**Credit Hours:** 3

**Prerequisites:** BA/BFA Art majors only through early registration

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**ART\_SCUL 2810: Experimental Media I**

Ordering and structuring materials into compositional forms, using various media, traditional as well as new. Subject matter will vary each semester.

**Credit Hours:** 3

**Prerequisites:** permission of instructor

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**ART\_SCUL 2820: Beginning Welding And Casting**

This course is intended to foster critical thinking, creative problem solving, and cultural/visual literacy through the introduction of sculptural welding and metal casting techniques. Projects will address the sculptural methods of manipulation, addition, and substitution as well as the principles of three-dimensional design. Students will become conversant with MIG and gas welding as well as centrifugal and ceramic shell casting. The relationship of form and content will be discussed during class critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BA/BFA Art majors only through early registration

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**ART\_SCUL 3800: Intermediate Sculpture**

Continuation of ART\_SCUL 2800. This course is designed to allow the student to pursue self-initiated imagery and ideas through the manipulation of mass and volume in time/space. A wide range of materials and techniques are available including the following: substitution casting (resin or bronze), subtraction (stone or wood), manipulation (terra-cotta or plaster), addition (welding, mixed media or assemblage) and/or time (video or performance). The relationship of form and content will be discussed during class critiques.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 2800 or ART\_SCUL 2820

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**ART\_SCUL 3810: Experimental Media II**

Continuation of ART\_SCUL 2810.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 2810

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**ART\_SCUL 4800: Advanced Sculpture**

This course will build skills acquired in ART\_SCUL 3800. Includes welding, casting, carving and assemblage with emphasis on the development of a personal visual language. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 3800

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**ART\_SCUL 4810: Experimental Media III**

Continuation of ART\_SCUL 3810. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 3810

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**ART\_SCUL 4885: Problems in Sculpture**

Problems in Sculpture.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ART\_SCUL 7800: Graduate Sculpture**

Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

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**ART\_SCUL 7810: Experimental Media IV**

Advanced study of compositional organization at the graduate level. May repeat to 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 4810

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**ART\_SCUL 7885: Problems in Sculpture**

**Credit Hour:** 1-3

**Prerequisites:** ART\_SCUL 7800 and departmental consent

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**ART\_SCUL 8800: Graduate Sculpture II**

Continuation of ART\_SCUL 7800. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 7800 or equivalent

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## Astronomy (ASTRON)

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### **ASTRON 1010: Introduction to Astronomy**

Survey of methods of astronomy; description of the solar system, stellar astronomy, structure of the galaxy and the universe. Three hours of lecture and one hour of lab per week (scheduled by the instructor). Satisfies physical science laboratory requirement. Laboratory section: Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 4

**Recommended:** MATH 1100 or MATH 1120 or equivalent

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### **ASTRON 1020: Introduction to Laboratory Astronomy**

Laboratory supplement to Astronomy 1010. Satisfies physical science laboratory requirement. Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 2

**Recommended:** MATH 1100 or MATH 1120

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### **ASTRON 3010: Introduction to Modern Astrophysics**

(same as PHYSCS 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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### **ASTRON 4020: Astrophysical Techniques**

(same as PHYSCS 4020; cross-leveled with ASTRON 7020, PHYSCS 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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### **ASTRON 4180: Solar System Science**

(same as PHYSCS 4180, GEOL 4180; cross-leveled with ASTRON 7180, PHYSCS 7180, GEOL 7180). Investigates physical states, interior structures and comparative geology of solar system bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220 or instructor's consent

**Recommended:** MATH 1700

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### **ASTRON 4250: Stellar Astrophysics**

(same as PHYSCS 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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### **ASTRON 4350: Galactic Astronomy**

(same as PHYSCS 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3010 or instructor's consent

**Recommended:** PHYSCS 4140

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### **ASTRON 4360: Extragalactic Astronomy**

(same as PHYSCS 4360; cross-leveled with ASTRON 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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### **ASTRON 4460: Interstellar Medium**

(same as PHYSCS 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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### **ASTRON 4550: Cosmochemistry**

(same as PHYSCS 4550; cross-leveled with ASTRON 7550, PHYSCS 7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220 or instructor's consent

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### **ASTRON 4950: Undergraduate Research in Astronomy**

Special studies in astronomy; covers subjects not included in courses regularly offered.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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### **ASTRON 4960: Senior Thesis in Astronomy**

Special studies for senior undergraduate students in astronomy. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research. Departmental consent required for repetition. Enrollment limited to students who have completed 3 credit hours of ASTRON 4950 or PHYSCS 4950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **ASTRON 7020: Astrophysical Techniques**

(same as PHYSCS 7020; cross-leveled with ASTRON 4020, PHYSCS 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 7180: Solar System Science**

(same as PHYSCS 7180, GEOL 7180; cross-leveled with ASTRON 4180, PHYSCS 4180, GEOL 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**ASTRON 7360: Extragalactic Astronomy**

(same as PHYSCS 7360; cross-leveled with ASTRON 4360, PHYSICS 4360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 7550: Cosmochemistry**

(same as PHYSCS 7550; cross-leveled with ASTRON 4550, PHYSCS 4550). Chemistry of cosmic dust and molecules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220; instructor's consent

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**ASTRON 7750: Interstellar Medium**

(same as PHYSCS 7750; cross-leveled with ASTRON 4750, PHYSCS 4750). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760

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**ASTRON 8301: Topics in Astronomy and Astrophysics**

(same as PHYSCS 8301). Selected topics from solar system, stellar galactic and extragalactic astronomy and astrophysics. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ASTRON 8310: College Science Teaching**

(same as PHYSCS 8310, BIO\_SC 8724 and LTC 8724). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**ASTRON 8550: Stellar Structure and Evolution**

(same as PHYSCS 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** ASTRON 4250, PHYSCS 4800, or instructor's consent

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## Athletic Training (ATHTRN)

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**ATHTRN 1100: Athletic Training Skills I**

Introduction to athletic training skills. Clinical observation hours required. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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**ATHTRN 1200: Athletic Training Skills II**

Continuation of athletic training skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Pre-Athletic Training majors; Completion of ATHTRN 1100 with minimum grade of B-

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**ATHTRN 2001: Topics in Athletic Training**

Organized study of selected topics in Athletic Training. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-15

**Prerequisites:** Instructor's consent

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**ATHTRN 2100: Principles and Fundamentals of Athletic Training**

Introduces students to the common principles and fundamentals associated with the profession of athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors

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**ATHTRN 2150: Athletic Training Practicum I**

The first in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; ATHTRN 1100, ATHTRN 1200, and ATHTRN 2100

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**ATHTRN 2250: Athletic Training Practicum II**

The second in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2150 with minimum grade of B-

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**ATHTRN 2500: Elementary Human Anatomy**

Analysis of the structure and function of cells, tissue, and organ systems. Emphasis is placed on the muscular, skeletal, and nervous systems as they relate to human movement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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**ATHTRN 2550: Examination of Cadaveric Human Anatomy**

Study of the human body utilizing cadaver specimens. Special emphasis will be placed upon the skeletal, muscular and nervous systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2500 with a minimum grade of C

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**ATHTRN 2600: Human Physiology**

Investigation into the structure, function, physiology, and biochemistry of the cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine, and reproductive systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2500 with a minimum grade of C

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**ATHTRN 3100: Mental Health in Athletic Training**

Study of psychosocial strategies, mental health referral policies and clinical application to athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PSYCH 1000

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**ATHTRN 3150: Athletic Training Practicum III**

The third in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2250 with a minimum grade of B-

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**ATHTRN 3200: Therapeutic Modalities**

Study of therapeutic modalities utilized in the treatment and rehabilitation of athletic injuries. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2250 with a minimum grade of B-

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**ATHTRN 3250: Athletic Training Practicum IV**

The fourth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3150 with a minimum grade of B-

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**ATHTRN 3300: Injury Assessment I**

A systematic approach to injury evaluation of the lower extremity and spine. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2100 with a minimum grade of B- and ATHTRN 2500 and ATHTRN 2550 with a minimum grade of C

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**ATHTRN 3400: Injury Assessment II**

A systematic approach to injury evaluation of the upper extremity, spine and head. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3300 with a minimum grade of B-

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**ATHTRN 3500: Rehabilitation of Athletic Injuries**

Study of rehabilitation principles and techniques used to return active individuals to their sport/activity. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3200 with a minimum grade of B-

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**ATHTRN 3600: Administration of Athletic Training**

Examines the organizational and administrative aspects of Athletic Training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors

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**ATHTRN 3800: General Medical Conditions**

Examination of illness and disease found within the athletic population. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only, Completion of ATHTRN 3150 with a minimum grade of B-

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**ATHTRN 4150: Athletic Training Practicum V**

The fifth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4250: Athletic Training Practicum VI**

The sixth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 4150 with a minimum grade of B-

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**ATHTRN 4500: Nutrition for Athletic Performance and Rehabilitation**

Nutritional study examining how nutrition impacts sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PH\_THR 4420

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**ATHTRN 4970: Seminar in Athletic Training**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4970W: Seminar in Athletic Training - Writing Intensive**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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## Atmospheric Science (ATM\_SC)

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### **ATM\_SC 1050: Introductory Meteorology**

(same as GEOG 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

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### **ATM\_SC 2100: Introduction to Atmospheric Science**

Physical process of the atmospheric and climate system will be related to day-to-day weather changes. Students will be introduced to the laws of motion and thermodynamics that govern motions in geophysical fluid. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1160 or concurrent enrollment in MATH 1500

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### **ATM\_SC 2150: Natural Hazards**

A survey of natural hazards, including severe thunderstorms, tornadoes, flooding, tropical storms, ocean movements, earthquakes, tsunamis, volcanoes, asteroids, solar weather, managing risk and human impacts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or equivalent

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### **ATM\_SC 2720: Weather Briefing**

Student participation in daily discussions of current weather patterns and forecasts and their applications to weather sensitive activities including aviation, agriculture and industry.

**Credit Hour:** 1

**Prerequisites:** ATM\_SC 1050

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### **ATM\_SC 2792: Weather Communication**

Methods of surface and upper air weather observation. How such data are distributed to users in the meteorological community is also addressed.

**Credit Hour:** 1

**Prerequisites:** ATM\_SC 1050; sophomore standing

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### **ATM\_SC 3000: Independent Study in Atmospheric Science**

Independent study of a topic dealing with meteorological theory or application of meteorological science to the solution of relevant problem.

**Credit Hour:** 1-3

**Prerequisites:** ATM\_SC 1050

**Recommended:** Upper level standing

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### **ATM\_SC 3600: Climates of the World**

(same as GEOG 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or graduate standing

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### **ATM\_SC 4001: Topics in Atmospheric Science**

Development of theory and applications for selected topics in atmospheric science.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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### **ATM\_SC 4110: Broadcast Meteorology I**

An introduction to broadcast meteorology including the business of media, use of meteorological data to produce a forecast, and television and radio presentation skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ATM\_SC 1110, ATM\_SC 2720, or equivalents

**Corequisites:** ATM\_SC 4710. Restricted to Atmospheric Science majors or instructor's consent

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### **ATM\_SC 4310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 7310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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### **ATM\_SC 4320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 7320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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### **ATM\_SC 4350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 7350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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### **ATM\_SC 4400: Micrometeorology**

(cross-leveled with ATM\_SC 7400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4310 or PHYSICS 2760, MATH 2300

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### **ATM\_SC 4500: Advanced Meteorological Observation and Instrumentation**

Automated weather observation and instrumentation used in networks of remote automated weather stations. Emphasis on electronic instrumentation, datalogger programming, data collection and data management, generating dynamic reports on the World Wide Web. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050

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**ATM\_SC 4510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 7510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1110, MATH 1500, junior standing or instructor's consent

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**ATM\_SC 4520: Environmental Biophysics**

(same as GEOG 4520; cross-leveled with ATM\_SC 7520, GEOG 7520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**ATM\_SC 4550: Atmospheric Physics**

(cross-leveled with ATM\_SC 7550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing. Recommended: 1 year of college Physics

**Credit Hours:** 3

**Prerequisites:** MATH 1700

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**ATM\_SC 4590: Radar Meteorology**

(cross-leveled with ATM\_SC 7590). Course concerns the theory and application of radar in meteorology. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1110, MATH 1700, PHYSICS 2750

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**ATM\_SC 4650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 7650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 4710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 7710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)  
**Recommended:** one physics course

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**ATM\_SC 4720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4720W: Synoptic Meteorology II - Writing Intensive**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4730: Advanced Forecasting Laboratory**

Advanced principles of weather forecasting will be addressed via online electronic modules and weekly laboratory exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720

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**ATM\_SC 4800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 7800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** senior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4949: Internship in Meteorology**

Practical professional work experience with professional or scientific meteorologists in off-campus work environment. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** junior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4950: Undergraduate Research in Atmospheric Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** STAT 1400, MATH 1500

**Recommended:** 10 hours of Atmospheric Science courses

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**ATM\_SC 4990: Daily Analysis and Forecast Interpretation**

A Capstone experience. In depth daily analysis and interpretation by students of the current and forecast states of the atmosphere. Discussions of implications to specific weather sensitive activities.

**Credit Hours:** 3

**Prerequisites:** senior standing and Atmospheric Science major

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**ATM\_SC 7001: Topics in Atmospheric Science**

Development of theory and applications for selected topics in atmospheric science.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ATM\_SC 7310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 4310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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**ATM\_SC 7320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 4320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 7350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 4350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 7400: Micrometeorology**

(cross-leveled with ATM\_SC 4400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050

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**ATM\_SC 7510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 4510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features. Graduate student credit is dependent upon completion of additional advanced research assignments. Graded on A-F basis only.

**Credit Hours:** 3

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**ATM\_SC 7520: Environmental Biophysics**

(same as GEOG 7520; cross-leveled with ATM\_SC 4520, GEOG 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water, and gas.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus I

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**ATM\_SC 7550: Atmospheric Physics**

(cross-leveled with ATM\_SC 4550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing.

**Credit Hours:** 3

**Prerequisites:** 1 year of college Physics and MATH 1700

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**ATM\_SC 7590: Radar Meteorology**

(cross-leveled with ATM\_SC 4590). Course concerns the theory and application of radar in meteorology. Graduate students will be required to conduct an independent research project using radar, in addition to the undergraduate requirements for the class. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSICS 2760

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**ATM\_SC 7650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 4650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 7710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 4710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites or Corequisites:** one physics course

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

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**ATM\_SC 7720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 4720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

---

**ATM\_SC 7800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 4800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** Math through Calculus III

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**ATM\_SC 8001: Topics in Atmospheric Science**

Development of the theory with its application for selected topics in atmospheric science.

**Credit Hours:** 3

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**ATM\_SC 8085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 8090: Masters Research in Atmospheric Science**

Original investigation in atmospheric science in support of a master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 8400: Atmospheric General Circulation**

Comprehensive review of dynamical theories of general circulation with intensive discussion of current problems.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 8450: Tropical Meteorology**

Study of the synoptic and dynamic character of the atmosphere in the tropical regions, including an examination of the general circulation and tropical storms.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300; instructor's consent. Graded on A-F basis only

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**ATM\_SC 8500: Radiation in the Atmosphere**

Physics of solar and infrared radiative transfer in the atmosphere, including energy conversion effects, atmospheric optics, and photochemical processes.

**Credit Hours:** 3

**Prerequisites:** one year College Physics and MATH 1700

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**ATM\_SC 8550: Nowcasting**

Students will learn the science of nowcasting through the study of the various methods used and apply their knowledge in the design of the elements of a nowcast system and practical nowcasting exercises.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 8500, instructor's consent

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**ATM\_SC 8600: Advanced Climate Dynamics**

Study of global climate; application of large scale atmospheric dynamics; conservation of various forms of energy, climatic evaluation, large scale climatic modification.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320 and ATM\_SC 8400 or ATM\_SC 3600

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**ATM\_SC 9001: Topics in Atmospheric Science**

Development of the theory with its application for selected topics in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 9085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 9087: Seminar in Atmospheric Science**

Seminar in Atmospheric Science.

**Credit Hour:** 1-99

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**ATM\_SC 9090: Doctoral Research in Atmospheric Science**

Original investigation in atmospheric science in support of a doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 9300: Introduction to Chaos Theory**

Atmospheric predictability and related topics are examined as they relate to governing equations of motion and their non-linear solutions.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320, MATH 4100

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**ATM\_SC 9350: Advanced Dynamic Meteorology**

Application of perturbation dynamics, advanced dynamics, and numerical methods to study of atmospheric circulations.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 9590: Advanced Applications of Weather Radar**

This course will investigate quantitative uses of weather radar data that go beyond standard reflectivity and velocity image interpretation, particularly those that use new techniques such as dual-polarization. Students will develop methods to analyze and display meteorological radar data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** MATH 1700, PHYSCS 2760, INFOTC 1040 or equivalent, ATM\_SC 4590

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**ATM\_SC 9700: Advanced Synoptic Meteorology**

Detailed examination of vertical motions, their forcing, and how each is diagnosed (quasigeostrophic theory, the Trenberth approximation, Q-vectors). Current issues in synoptic meteorology and operational forecasting are discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720

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**ATM\_SC 9712: Convection and Lightning**

Cumulus convection and cloud physics topics that will facilitate a deeper understanding of cloud electrification and lightning production are studied. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720, MATH 2300; instructor's consent

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**ATM\_SC 9800: Numerical Weather Prediction**

Examination of finite difference and objective analysis techniques, basic physical concepts, and parameterization of physical processes. Experience with a range of models (1-D cloud to operational PE models) stressed.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Biochemistry (BIOCHM)

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**BIOCHM 1090: Introduction to Biochemistry**

Fundamental concepts in biochemistry and molecular biology: structure function relationships, reactivity, thermodynamics, gene expression. Professional skills for biomedical careers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1320

**Prerequisites:** MATH 1100 or MATH 1160 or MATH 1500 and Freshman or Sophomore standing

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**BIOCHM 1094: Introductory Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes, PCR and cloning. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 1090; Biochemistry majors only

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**BIOCHM 2110: The Living World: Molecular Scale**

Survey of modern biochemistry and biotechnology. Structure and function of DNA, proteins, lipids and carbohydrates. The role of biopolymers in life processes and everyday living is emphasized.

**Credit Hours:** 3

**Prerequisites:** for non-Biochemistry majors only

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**BIOCHM 2112: Biotechnology in Society**

Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**Credit Hours:** 3

**Prerequisites:** for non-biochemistry majors only

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**BIOCHM 2480: Introduction to Macromolecular Structure and Function**

The function of biochemical macromolecules is directly related to their structure. The three-dimensional structures of proteins, nucleic acids, polysaccharides and membranes are each explored in the context of their functions and their microenvironments within living organisms. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** C- or higher in BIOCHM 1090; CHEM 2100

**Corequisites:** CHEM 2110

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**BIOCHM 2484: Macromolecular Techniques Laboratory**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** sophomore standing; restricted to Biochemistry majors only

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**BIOCHM 2484H: Macromolecular Techniques Laboratory - Honors**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged

chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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**BIOCHM 2484HW: Macromolecular Techniques Laboratory - Honors/ Writing Intensive**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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**BIOCHM 2950: Undergraduate Research in Biochemistry**

Research for students in which independent research is less than 50% of total. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 3630: General Biochemistry**

Survey of biochemistry; static/dynamic aspects of carbohydrates, lipids, proteins, nucleic acid. Discussion of metabolic pathways, energy production, and metabolic regulatory mechanism.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100

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**BIOCHM 4001: Topics in Biochemistry**

Experimental courses; highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-99

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**BIOCHM 4120: Medicinal Plant Science**

Presentation of core topics, including an overview of plant groups with medicinal properties, botanical nomenclature, important biochemical pathways, exposure to journals, texts, and online databases that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has an international flavor. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies will also be emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320

**Recommended:** BIO\_SC 1200 or BIO\_SC 1500 or BIOCHM 1090

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**BIOCHM 4270: Biochemistry**

(cross-leveled with BIOCHM 7270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 4272: Biochemistry**

(cross-leveled with BIOCHM 7272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** C- or higher in BIOCHM 4270

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**BIOCHM 4300: Physical Chemistry of Biological Systems**

To present fundamental principles of physical chemistry in the context of the structure and function of biological macromolecules. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** BIOCHM 4270

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**BIOCHM 4376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 7376). Employs the use of computer-based interactive molecular graphics and sequence analysis software to analyze the three dimensional structures of macromolecules.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 4385: Problems in Biochemistry**

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 4460: Cancer Biology**

(same as BIO\_SC 4460; cross-leveled with BIOCHM 7978, BIO\_SC 7978). Cancer, cell biology, genetics, biochemistry.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4272, BIO\_SC 2300 and BIO\_SC 2200

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**BIOCHM 4510: Single Molecule Biophysics**

(same as PHYSCS 4510; cross-leveled with BIOCHM 7510, PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOCHM 4940: Internship in Biochemistry**

Field-based learning experience combining study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about biochemistry in a practical context. The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**Recommended:** junior standing

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**BIOCHM 4950: Advanced Undergraduate Research in Biochemistry**

Research credit for students doing an independent research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 4964: Industrial Internship with ABC Laboratories**

This 5-credit course is a school and field-based learning experience combining the study, observation, and employment with ABC Laboratories in Columbia, MO. The internship provides opportunities to apply skills, concepts and theories about biochemistry and analytical chemistry in a practical context. The purpose of the internship experience is to provide the intern with the opportunity to develop knowledge and skills deemed desirable for a career in the biotechnology industries. During the time indicated in this agreement for the internship experience, the intern is expected to become a productive employee of ABC Laboratories. This course will provide technical instruction on commonly used laboratory skills and instrumentation at the University of Missouri followed by technical instruction on software and instrumentation at ABC Laboratories. After the training period, the interns will have the opportunity to work at ABC Laboratories full time for the summer.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHEM 4272, CHEM 3200

**Prerequisites:** BIOCHM 1090, BIOCHM 2484, BIOCHM 4270

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**BIOCHM 4970: Senior Capstone in Biochemistry**

Problem-based course on fundamental concepts of biochemistry. Requires written and oral presentations. One of two capstone courses required for biochemistry majors. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Departmental consent required

**Recommended:** Corequisite of BIOCHM 4974

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**BIOCHM 4974: Biochemistry Laboratory**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4974W: Biochemistry Laboratory - Writing Intensive**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4996H: Honors Thesis Research in Biochemistry**

Laboratory research for honors students doing an honors thesis research project in their final two semesters. Enrollment limited to Honors eligible students with senior standing who have CAFNR honors approval. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 7085: Problems in Biochemistry**

Problems in Biochemistry.

**Credit Hour:** 1-6

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 7110: Maps in Medicine Summer Institute**

Lab/lecture course in which high school teachers gain knowledge of two innovative, inquiry-based programs, Mapping Health and Mapping Cell Fate, that focus on influenza and developmental biology and Missouri science standards for biology and health. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** departmental consent

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**BIOCHM 7270: Biochemistry**

(cross-leveled with BIOCHM 4270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 7272: Biochemistry**

(cross-leveled with BIOCHM 4272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7270

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**BIOCHM 7274: Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; radioisotope tracers in metabolism; isolation, purification and kinetics of enzymes.

**Credit Hours:** 5

**Corequisites:** concurrent enrollment in BIOCHM 7270

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**BIOCHM 7376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 4376). This course uses advanced computer graphics and computational techniques to analyze protein and nucleic acid sequences and their three-dimensional structures.

**Credit Hours:** 2

**Prerequisites:** CHEM 2110

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**BIOCHM 7510: Single Molecule Biophysics**

(same as PHYSICS 7510; cross-leveled with BIOCHM 4510, PHYSICS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**BIOCHM 7978: Cancer Biology**

(same as BIO\_SC 7978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976

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**BIOCHM 8060: Ethical Conduct of Research**

(same as BIO\_SC 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIOCHM 8090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 8120: Advanced Medicinal Plant Science**

Presentation of core topics in pharmacognosy, including an overview of plant groups with medicinal properties, essentials of botanical nomenclature, Overview of pharmacological activities of plant-sourced products and evidence-based research, phytochemical variation and significance, important biochemical pathways, origins of secondary metabolites, some major groups of phytochemicals, observations on economic and social trends in the use of medicinal plant products in developed and developing countries, overview of modern technology, high throughput screening, bioinformatics. Considerable exposure to key articles in journals, based on internationally accepted text (Trease & Evans), exposure to online databases - all sources of information that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has considerable international flavor and directly applicable to medicinal flora world-wide. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies is also emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320 or BIOCHM 1090 and BIO\_SC 1200 or BIO\_SC 1500 or the equivalent of these courses for non-MU students

**Recommended:** A Freshman level course in the Life Sciences or General Botany will also be advantageous but not essential

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**BIOCHM 8240: Introduction to Graduate Biochemistry I**

Introduction to biochemistry for life science graduate students. Core course for Biochemistry students. Structures and interactions of biological macromolecules including thermodynamics, binding, enzyme action and biological membranes as well as techniques of analysis and structure determination.

**Credit Hours:** 4

**Prerequisites:** Undergraduate organic chemistry plus undergraduate biochemistry or molecular biology, their equivalent or permission of instructor

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**BIOCHM 8260: Macromolecular Systems Integration**

To introduce graduate students to biochemistry at the graduate level with particular emphasis on genomics/gene expression and replication; proteomics/cell signaling and metabolism. Course graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIOCHM 8240

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**BIOCHM 8360: Nutritional Biochemistry of Carbohydrates**

(same as NUTRIT 8360 and NEP 8360). Current concepts with in-depth coverage of selected examples of key regulatory steps controlling carbohydrate metabolism; emphasizing molecular mechanisms. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272

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**BIOCHM 8362: Introduction to Plant Metabolism**

(same as PLNT\_S 8362 and BIO\_SC 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOCHM 8365: Introduction to Molecular Cell Biology**

(same as BIO\_SC 8365 and PLNT\_S 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOCHM 8390: Molecular Biology of Mineral Nutrition**

(same as NUTRIT 8390 and NEP 8390). Current concepts of metal ion transport, intracellular metal trafficking and metal-dependent regulation of gene expression. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272 and a 4000-level nutrition course

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**BIOCHM 8430: Physical Biochemistry**

Physical concepts underlying a variety of physical chemical methods as they apply to biochemical research.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272 and CHEM 3300

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**BIOCHM 8432: Enzymology and Metabolic Regulation**

A basic introduction to the study of enzymes and their role in intermediary metabolism. Topics include enzyme kinetics, mechanisms of enzymatic catalysis and control of metabolic pathways.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272

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**BIOCHM 8434: Signaling in Molecular Cell Biology**

The objective of this course is to provide important foundations in cellular signaling in the context of biochemistry and cell biology for first and second year graduate students. The course focuses on cell-to-cell communication and intracellular signaling via different classes of cell surface receptors using specific receptor paradigms from human, other animals, plants, yeast and E.coli. Primary literature will be used for in-class discussions and homework assignments to highlight key experiments and introduce students to relevant experimental techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 2300, BIOCHM 4270

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**BIOCHM 8438: Nutrient Regulation of Gene Expression**

(same as AN\_SCI 8438, NUTRIT 8438, and NEP 8438). Current concepts with in-depth coverage of several minerals that illustrate themes in molecular mineral nutrition. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272 and a 4000-level nutrition course

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**BIOCHM 8450: Rotation Research**

Introductory laboratory research. Graded on A-F basis only. Normally 1 hour per advisor per semester, two-1 hour sections can be taken per semester.

**Credit Hour:** 1-2

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**BIOCHM 9001: Topics in Biochemistry**

Experimental courses, highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-9

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**BIOCHM 9085: Problems in Biochemistry**

Problems in Biochemistry

**Credit Hour:** 1-6

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**BIOCHM 9087: Seminar in Biochemistry**

Review of current literature; individual presentation of research or classical science topics.

**Credit Hour:** 1

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**BIOCHM 9090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**BIOCHM 9430: Molecular Biology I**

(same as MICROB 9430). Detailed examination of current fundamental concepts of molecular genetics of bacteria, bacteriophages and yeast. Experimental approaches to analysis of the physical structures of genomic nucleic acids, the biochemistry and genetics of mutations, replication, gene transfer and gene expression will be examined in depth from reports in the current literature.

**Credit Hours:** 4

**BIOCHM 9432: Molecular Biology II**

(same as MICROB and BIO\_SC 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

**BIOCHM 9462: Hormone Action**

A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

**BIOCHM 9466: Plant Biochemistry**

Emphasizes biochemistry unique to plants; biochemical events plants share with other organisms discussed, compared. Photosynthesis, metabolism, composition, compartmentation, regulation of biochemical events included.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270

**BIOCHM 9468: Molecular Biology of Plant Growth and Development**

(same as BIO\_SC 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

**BIOCHM 9470: Analytical Biochemistry--Chromatography**

Principles, experimental design, capabilities, limitations, and applications of the general field of chromatography of biologically important molecules. Eight (2-hour) lectures, eight (4-hour) labs. Four weeks.

**Credit Hours:** 2

**BIOCHM 9472: Analytical Biochemistry--Mass Spectrometry**

Instrumentation, fragmentation mechanisms, interpretation of spectra, combined gas chromatography--mass spectrometry. Eight (2-hour) lectures, eight (4-hour) labs.

**Credit Hours:** 2

## Biological Engineering (BIOL\_EN)

**BIOL\_EN 1000: Introduction to Biological Engineering**

For first semester engineering students. Develop appreciation for professional engineering. Students will participate with senior design students to conceptualize a case-study problem.

**Credit Hour:** 1-2

**BIOL\_EN 2000: Professional Development in Engineering**

A review of professional opportunities, registration, ethics, and societies.

**Credit Hour:** 1-2

**Prerequisites:** sophomore standing

**BIOL\_EN 2080: Introduction to Programming for Engineers**

This course teaches how to write scientific programs for analysis of data and simulation of physical phenomena using Matlab. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

**BIOL\_EN 2180: Engineering Analysis of Bioprocesses**

Material and Energy Balances. Integrating principles of physics, chemistry and mathematics to analyze steady state and transient biological/biomedical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, CHEM 1320, PHYSCS 2750. Restricted to Biological Engineering students only

**Recommended:** BIOL\_EN 2080

**BIOL\_EN 3001: Topics in Biological Engineering**

Current and new technical developments in biological engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**BIOL\_EN 3050: Environmental Control for Biological Systems**

Systems for controlling the physical environments (heat, moisture, light, contaminating organism, chemicals) for plant and animal systems including livestock, aquacultures, crops and agricultural products.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 and MATH 4100

**BIOL\_EN 3070: Biological Fluid Mechanics**

Basic principles of fluid mechanics applied to transport processes in biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750 and MATH 1700

**BIOL\_EN 3075: Introduction to Materials Engineering**

Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and

fundamentals; intended for undergraduate engineering students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, ENGINR 1200

**Corequisites:** One of the following BIOL\_EN 3180, CH\_ENG 3261, MAE 4231, MAE 4300, or instructor consent

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#### **BIOL\_EN 3170: Biomaterials**

Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3

**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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#### **BIOL\_EN 3170W: Biomaterials - Writing Intensive**

Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3

**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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#### **BIOL\_EN 3180: Heat and Mass Transfer in Biological Systems**

Principles of heat and mass transfer and their applications in biomedical, bioenvironmental, and bioprocessing engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2300 or CH\_ENG 3261

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225

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#### **BIOL\_EN 4001: Topics in Biological Engineering**

Current and new technical developments in biological engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **BIOL\_EN 4070: Bioelectricity**

(cross-leveled with BIOL\_EN 7070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and BIOL\_EN 3180

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#### **BIOL\_EN 4080: Engineering Computation**

(cross-leveled with BIOL\_EN 7080). An introduction to numerical methods relevant to biological engineering in the context of scientific computing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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#### **BIOL\_EN 4085: Problems in Biological Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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#### **BIOL\_EN 4150: Soil and Water Conservation Engineering**

(same as CV\_ENG 4710; cross-leveled with BIOL\_EN 7150, CV\_ENG 7710). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200

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#### **BIOL\_EN 4160: Food Process Engineering**

(cross-leveled with BIOL\_EN 7160). Study of transport phenomena and unit operations in food processing systems. Emphasis on fluid flow and heat transfer in food processing, preservation processes, refrigeration, freezing, psychrometrics, and dehydration.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180

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#### **BIOL\_EN 4170: Biomaterials Interfaces of Implantable Devices**

(cross-leveled with BIOL\_EN 7170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170

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#### **BIOL\_EN 4231: Transport Phenomena in Materials Processing**

(same as MAE 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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#### **BIOL\_EN 4250: Irrigation and Drainage Engineering**

(cross-leveled with BIOL\_EN 7250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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#### **BIOL\_EN 4260: Food Process Engineering II**

(cross-leveled with BIOL\_EN 7260). Continuing study of transport phenomena and unit operations in food processing systems. Emphasis on fluid food evaporation concentration food dehydration, contact equilibrium processes and mechanical separation processes.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 4160

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#### **BIOL\_EN 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as CH\_ENG 4270; cross-leveled with BIOL\_EN 7270, CH\_ENG 7270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**BIOL\_EN 4280: Survey of Bioengineering Techniques**

Laboratory techniques to train students in Bioelectricity, Biomechanics, Bioenvironment, Biomaterials, Biophotonics, Bioprocessing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**BIOL\_EN 4310: Feedback Control Systems**

(same as ECE 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 and junior/senior standing

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**BIOL\_EN 4315: Introduction to Bioprocess Engineering**

(same as CH\_ENG 4315; cross-leveled with BIOL\_EN 7315, CH\_ENG 7315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students)

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**BIOL\_EN 4316: Biomass Refinery Operations**

(same as CH\_ENG 4316; cross-leveled with BIOL\_EN 7316, CH\_ENG 7316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**BIOL\_EN 4350: Watershed Modeling Using GIS**

(same as CV\_ENG 4720; cross-leveled with BIOL\_EN 7350, CV\_ENG 7720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 4370: Orthopaedic Biomechanics**

(cross-leveled with BIOL\_EN 7370, V\_M\_S 7370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ENGINR 1200 and BIOL\_EN 3170

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**BIOL\_EN 4380: Applied Electronic Instrumentation**

(cross-leveled with BIOL\_EN 7380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems.

**Credit Hours:** 4

**Prerequisites:** BIOL\_EN 2080 and PHYSCS 2760

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**BIOL\_EN 4420: Introduction to Biomedical Imaging**

(same as PHYSCS 4420; cross-leveled with BIOL\_EN 7420, PHYSCS 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 4470: Biomolecular Engineering and Nanobiotechnology**

(cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

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**BIOL\_EN 4480: Physics and Chemistry of Materials**

(same as PHYSCS 4190, CHEM 4490, NU\_ENG 4319; cross-leveled with BIOL\_EN 7480, PHYSIC 7190, CHEM 7490, NU\_ENG 7319). Physics and Chemistry of Materials is a 3 credit hours undergraduate/graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid term and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Recommended:** PHYSCS 2760 or CHEM 1320 or equivalent

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**BIOL\_EN 4550: Design of Livestock Waste Management Systems**

(cross-leveled with BIOL\_EN 7550). Development and application of design criteria to the design of agricultural waste management facilities.

**Credit Hours:** 3

**Prerequisites:** CHEM 1310 and CV\_ENG 3700, MAE 3400 or instructor's consent

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**BIOL\_EN 4570: Fluorescent Imaging**

(cross-leveled with BIOL\_EN 7570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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**BIOL\_EN 4575: Computational Neuroscience**

(same as BIO\_SC 4580, ECE 4580; cross-leveled with BIOL\_EN 7575, BIO\_SC 7580, ECE 7580). An interdisciplinary course with a strong

foundation in quantitative science for students in biological-behavioral sciences. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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**BIOL\_EN 4580: Mechanical Systems Engineering**

(cross-leveled with BIOL\_EN 7580). Fundamentals and applications of prime movers and power transmissions for the design of engineering systems.

**Credit Hours:** 3

**Corequisites:** ENGINR 2100 or BIOL\_EN 4380 or instructor's consent

**Recommended:** Thermodynamics course, Fluid Mechanics course

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**BIOL\_EN 4670: Photonics and Nanotechnologies in Optical Biosensors**

(cross-leveled with BIOL\_EN 7670). Latest applications of photonics and nanotechnologies in optical bio-chemical sensors will be reviewed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 4770: Biomedical Optics**

(cross-leveled with BIOL\_EN 7770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** BIOL\_EN 3180

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**BIOL\_EN 4870: Molecular and Cell Mechanics**

Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**BIOL\_EN 4940: Engineering Internship**

Problem course following prior approved work experience. Problem selected by internship company representative, faculty problem adviser and student. Supervised by faculty problem advisor and presented in engineering report form. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** advisor's consent

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**BIOL\_EN 4980: Biological Engineering Design**

Capstone design course for the Biological Engineering major. Design of biological system devices or processes.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**BIOL\_EN 4980W: Biological Engineering Design - Writing Intensive**

Capstone design course for the Biological Engineering major. Design of biological system devices or processes.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**BIOL\_EN 4990: Undergraduate Research in Biological Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**BIOL\_EN 4995: Undergraduate Honors Research in Biological Engineering**

Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** advisor's consent

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**BIOL\_EN 7001: Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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**BIOL\_EN 7070: Bioelectricity**

(cross-leveled with BIOL\_EN 4070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers. Prerequisites: PHYSCS 2760 and BIOL\_EN 3180 or instructor's consent

**Credit Hours:** 3

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**BIOL\_EN 7080: Engineering Computation**

(cross-leveled with BIOL\_EN 4080). An introduction to numerical methods relevant to biological engineering in the context of scientific computing.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 7150: Soil and Water Conservation Engineering**

(same as CV\_ENG 7710; cross-leveled with BIOL\_EN 4150, CV\_ENG 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200, or instructor's consent

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**BIOL\_EN 7160: Food Process Engineering**

(cross-level with BIOL\_EN 4160). Study of transport phenomena and unit operations in food processing systems. Emphasis on fluid flow and heat transfer in food processing, preservation processes, refrigeration, freezing, psychometrics, and dehydration.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180 or instructor's consent

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**BIOL\_EN 7170: Biomaterials Interfaces of Implantable Devices**

(cross-leveled with BIOL\_EN 4170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or instructor's consent

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**BIOL\_EN 7231: Transport Phenomena in Materials Processing**

(same as MAE 7231; cross-leveled with BIOL\_EN 4231, MAE 4231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200, MAE 3400, MAE 4300 or equivalent; and MATH 4100

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**BIOL\_EN 7250: Irrigation and Drainage Engineering**

(cross-leveled with BIOL\_EN 4250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 7260: Food Process Engineering II**

(cross-leveled with BIOL\_EN 4260). Continuing study of transport phenomena and unit operations in food processing systems. Emphasis on fluid food evaporation concentration food dehydration, contact equilibrium processes and mechanical separation processes.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 7160 or instructor's consent

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**BIOL\_EN 7270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as CH\_ENG 7270; cross-leveled with BIOL\_EN 4270, CH\_ENG 4270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Prerequisites:** experience with Excel or instructor's consent

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**BIOL\_EN 7310: Feedback Control Systems**

(same as ECE 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 7315: Introduction to Bioprocess Engineering**

(same as CH\_ENG 7315; cross-leveled with BIOL\_EN 4315, CH\_ENG 4315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analysis proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for biological engineering students) or CH\_ENG 2225 (for chemical engineering students) or instructor's consent

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**BIOL\_EN 7316: Biomass Refinery Operation**

(same as CH\_ENG 7316; cross-leveled with BIOL\_EN 4316, CH\_ENG 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

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**BIOL\_EN 7350: Watershed Modeling Using GIS**

(same as CV\_ENG 7720; cross-leveled with BIOL\_EN 4350, CV\_ENG 4720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 7370: Orthopaedic Biomechanics**

(same as V\_M\_S 7370; cross-leveled with BIOL\_EN 4370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200 and BIOL\_EN 3170, instructor's consent required

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**BIOL\_EN 7380: Applied Electronic Instrumentation**

(cross-leveled with BIOL\_EN 4380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems.

**Credit Hours:** 4

**Prerequisites:** BIOL\_EN 2080, PHYSCS 2760

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**BIOL\_EN 7420: Introduction to Biomedical Imaging**

(same as PHYSCS 7420; cross-leveled with BIOL\_EN 4420, PHYSCS 4420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 7470: Biomolecular Engineering and Nanobiotechnology**

(cross-leveled with BIOL\_EN 4470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 7480: Physics and Chemistry of Materials**

(same as PHYSCS 7190, NU\_ENG 7319, CHEM 7490; cross-leveled with BIOL\_EN 4480, PHYSCS 4190, NU\_ENG 4319, CHEM 7490). Physics and Chemistry of Materials is a 3 credit hours undergraduate/

graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 / CHEM 1320 or equivalent/prior approval by instructor

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**BIOL\_EN 7550: Design of Livestock Waste Management Systems**

(cross-leveled with BIOL\_EN 4550). Development and application of design criteria to the design of agricultural waste management facilities.

**Credit Hours:** 3

**Prerequisites:** CHEM 1310 and CV\_ENG 3700, MAE 3400 or instructor's consent

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**BIOL\_EN 7570: Fluorescent Imaging**

(cross-leveled with BIOL\_EN 4570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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**BIOL\_EN 7575: Computational Neuroscience**

(same as BIO\_SC 7580, ECE 7580; cross-leveled with BIOL\_EN 4575, BIO\_SC 4580, ECE 4580). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral science. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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**BIOL\_EN 7580: Mechanical Systems Engineering**

(cross-leveled with BIOL\_EN 4580). Fundamentals and applications of prime movers and power transmissions for the design of engineering systems.

**Credit Hours:** 3

**Prerequisites:** Thermodynamics course, Fluid Mechanics course

**Corequisites:** ENGINR 2100 or BIOL\_EN 7380 or instructor's consent

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**BIOL\_EN 7670: Photonics and Nanotechnologies in Optical Biosensors**

(cross-leveled with BIOL\_EN 4670). Latest applications of photonics and nanotechnologies in optical biochemical sensors will be reviewed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 7770: Biomedical Optics**

(cross-leveled with BIOL\_EN 4770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIOL\_EN 3180; or instructor's consent

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**BIOL\_EN 8000: Scientific Discovery Leading to Life Science Innovations**

(same as MPP 8000). The goal of this course is to provide participants with a conceptual and practical understanding of how life science research is conducted in a modern research institution in the US and the pathways involved in translating fundamental discoveries into products and services that affect healthcare. We will cover the transitions from initial discovery concepts to first-in-human studies, clinical trials, healthcare guidelines and policy to product development. We will provide an introduction to essential disciplines and interactions that enable scientific discoveries to move forward into novel device and drug therapies. Participants will come away with a very complete picture of how medical research happens, including: how it is funded; what is required to make discoveries and record and protect intellectual property that is created; how to advance innovations to clinical practice, how to navigate the regulatory and bioethical environment, and how discoveries reach practitioners and benefit patients. The Course is the first in a three course sequence leading to a Graduate Certificate in Life Science Innovation and Entrepreneurship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Must be Graduate Standing or receive certificate program director's approval

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**BIOL\_EN 8001: Advanced Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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**BIOL\_EN 8085: Problems in Biological Engineering**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**BIOL\_EN 8087: Seminar in Biological Engineering**

Recent investigations in biological engineering and related fields.

Discussion of current literature; preparation and presentation of papers.

**Credit Hour:** 1

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**BIOL\_EN 8088: Advanced Seminar in Biological Engineering**

Student presentation and discussion of topical research. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** BIOL\_EN 8087 and BIOL\_EN 8402 or instructor's consent

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**BIOL\_EN 8100: Design and Development of Biomedical Innovations**

(same as ENGINR 8100). This course takes students through the process of brainstorming and working out a solution to a medical need, and then producing a product. Outputs may include the development of a physical prototype through interactions with the College of Engineering rapid prototype facility. The course is one of a three-course set leading to a Graduate Certificate in Translational Science and Entrepreneurship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Student must be enrolled in a graduate degree program and enrolled in a sequenced cohort group beginning with MPP 8000/BIOL\_EN 8000 then MPP 8100/BIOL\_EN 8100 then MANGMT 8200

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**BIOL\_EN 8150: Natural Systems for Wastewater Treatment**

Emphasis is on the design, management and biological performance of lagoons, overland flow systems and constructed wetland.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 7230 and BIOL\_EN 7150 or instructor's consent

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**BIOL\_EN 8170: Sensors and Biosensors**

The course covers basic principles of chemical and biological sensors, such as immobilization techniques, transducers (optical, electrical, etc.) and performance factors.

**Credit Hours:** 3

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**BIOL\_EN 8180: Numerical Methods in Engineering Research**

Numerical techniques and case studies in Biological Engineering. Topics include basic numerical methods, mathematical representation of data, matrix algebra, ordinary and partial differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 8230: Advanced Ceramic Materials**

(same as CH\_ENG 8230, MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 8250: Water Management Theory**

Advanced studies in erosion control, irrigation, and drainage. Water resources engineering.

**Credit Hours:** 3

**Prerequisites:** MATH 1500, Computer Engineering and Computer Science course, SOIL 4307 or SOIL 7307 and Soil Conservation course

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**BIOL\_EN 8270: Principles and Applications of Fluorescence**

Physical foundations of fluorescence, fluorophores, steady-state and lifetime measurements, and instrumentation. Applications in the life science from tissues staining to DNA probes. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 8280: Advanced Biological Transport Processes**

Principles of fluid flow, heat transfer, and mass transfer applied to (a) understanding of how the human body functions (from the cellular up to the system level) and (b) designing biomedical devices. An independent project/case-study of a relevant research topic also required.

**Credit Hours:** 3

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**BIOL\_EN 8360: Food Extrusion**

Engineering principles and applications of single and twin screw food cooking extrusion systems. Modeling, control and optimization of extrusion systems. Dough rheology.

**Credit Hours:** 2

**Prerequisites:** BIOL\_EN 7260

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**BIOL\_EN 8370: Materials Characterization Techniques**

Concepts and techniques in characterizing materials, including bulk and surface analyses. Techniques are presented in terms of use, sample requirements, and the engineering principles. Topics include: contact angle measurement, XPS, SEM, TEM, STM, AFM, XRD, and thermal analyses.

**Credit Hours:** 3

**Prerequisites:** at least one undergraduate course in material science, engineer, or design

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**BIOL\_EN 8380: Modeling and Identification of Engineering Systems**

Generalized description of engineering systems, bond graph modeling, system identification techniques, and neural network approaches.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 8402: Research Methods**

(same as F\_S 8402). Review of literature; planning research projects; publication procedures.

**Credit Hours:** 2

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**BIOL\_EN 8470: Ultrasensitive Biodetection**

Multiplexing single-molecule, single-cell, nanobiotech analytical techniques to improve disease diagnosis, treatment, and understanding of biophenomena (membrane transport, gene expression, enzyme activities, cell communications). Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIOL\_EN 8570: Microscopic Imaging**

Advanced topics in microscopic imaging with focus on applications of molecular and cellular imaging using fluorescent microscopy.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 7570 or instructor's consent

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**BIOL\_EN 8670: Orthopaedic Failure Modes and Effect Analysis**

Engineering sciences will be leveraged provide a comprehensive study of failure modes and related effects for orthopaedic devices, orthopaedic tissue repair, and surgical interventions. Clinical case studies will be analyzed to introduce real world problems of orthopaedic failures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or ENGINR 1200, BIOL\_EN 4370 or BIOL\_EN 7370 or instructor consent

**Recommended:** For department majors

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**BIOL\_EN 8770: Photon Migration and Optical Imaging in Turbid Media**

The essential concepts and techniques in optical imaging in turbid media will be covered including both forward problems and inverse reconstruction theories. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BIOL\_EN 8870: Molecular and Cell Mechanics**

Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**BIOL\_EN 8990: Masters Thesis Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**BIOL\_EN 9990: Doctoral Dissertation Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Biological Sciences (BIO\_SC)

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**BIO\_SC 1001: Topics in Biological Science - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

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**BIO\_SC 1002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**BIO\_SC 1010: General Principles and Concepts of Biology**

Emphasizes connections and applications to society and the human condition, science literacy, and critical thinking skills. A discussion of general principles and fundamental concepts of living things. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 3

**Recommended:** MATH 1100

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**BIO\_SC 1020: General Biology Laboratory**

Laboratory exercises dealing with representative organisms and methods of modern biological sciences. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1400 or BIO\_SC 1010 concurrently

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**BIO\_SC 1030: General Principles and Concepts of Biology with Laboratory**

Survey of general principles and basic concepts of life science, emphasizing applications to society and the human condition. Lectures address science literacy and critical thinking and laboratory exercises use representative organisms to complement lecture topics. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 5

**Recommended:** MATH 1100 or concurrent enrollment

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**BIO\_SC 1060: Basic Environmental Studies**

Considers the ecosystem, energy and biogeochemical cycles and population dynamics; relation of the environment to agriculture and technology, pollution, power and food production; politico-economic considerations; moral and ethical issues. For non-science majors.

**Credit Hours:** 3

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**BIO\_SC 1100: Introductory Zoology with Laboratory**

(same as F\_W 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**Credit Hours:** 5

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**BIO\_SC 1200: General Botany with Laboratory**

Introduction to study of plants. Emphasis on structure, growth, physiology, genetics and reproduction of plants.

**Credit Hours:** 5

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**BIO\_SC 1400: Evolution for Everyone**

This course will explore the application of evolutionary theory to modern human affairs. We will study the processes involved in evolution and investigate evolutionary interpretations of human social behavior (e.g., psychology, mate choice, economics, religion, and morality). No credit if student has received credit for BIO\_SC 2060 or BIO\_SC 4600.

**Credit Hours:** 3

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**BIO\_SC 1500: Introduction to Biological Systems with Laboratory**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hours:** 5

**Recommended:** MATH 1100 or sufficient ALEKS score

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**BIO\_SC 1500H: Introduction to Biological Systems with Laboratory Honors**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

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**Credit Hour:** 3-5

**Prerequisites:** MATH 1100 and high school chemistry. Honors eligibility required

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**BIO\_SC 2001: Topics in Biological Sciences - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Recommended:** One course in Biology

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**BIO\_SC 2002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2002H: Topics in Biological Sciences- Biological/Physical/Mathematics - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2010: Undergraduate Seminar in Biological Sciences**

Discussion and critical evaluation of current topics in biological sciences for intermediate-level students. Some sections may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**BIO\_SC 2015: Biological Career Explorations**

Students will learn about career options and choices, construct career portfolios, and interact with current biological professionals. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent

**Recommended:** Sophomore standing

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**BIO\_SC 2020: How the Brain Works**

Basic structure and function of the brain; left and right brain studies; gender differences; learning and memory; brain disorders..

**Credit Hour:** 1

**Prerequisites:** C- or above in BIO\_SC 1010 or BIO\_SC 1500

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**BIO\_SC 2030: Life of the Cell**

This course will help students understand basic concepts of biomolecular structure, cell organization, cell membranes, energy and metabolism, cellular communication, and cell division. This course is intended for non-science majors and may not be used to satisfy requirements for either a major or a minor in biological sciences.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2060: Community Biology**

Principles of population biology, ecology, and evolution, including consideration of human impacts on biological communities and ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent. Not open to biology majors

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**BIO\_SC 2100: Infectious Diseases**

An introduction to the basic science of bacterial, viral, protozoan, fungal and helminth infections, including discussions of how illness has influenced or been affected by public policy and culture.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010. Not open to Biology Majors

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**BIO\_SC 2150: Genetic Diseases**

This course will discuss the biological basis for genetic diseases, including inherited diseases and non-inherited diseases such as cancer. The units will include an introduction providing necessary background information, as section studying the technology used to study genetic diseases and several units discussing specific diseases and their impact on history and society. This course is intended for non-science majors. Cannot be used to satisfy degree requirements for biology major or biology minor.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2200: General Genetics**

Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1500 and CHEM 1320 (or concurrent enrollment)

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**BIO\_SC 2300: Introduction to Cell Biology**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 2300H: Introduction to Cell Biology- Honors**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200. Honors eligibility required

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**BIO\_SC 2300HW: Introduction to Cell Biology - Honors/Writing Intensive**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

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**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200. Honors eligibility required

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**BIO\_SC 2600: Ornithology**

(same as F\_W 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab.

**Credit Hours:** 4

**Recommended:** 5 hours of Biological Sciences

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**BIO\_SC 2700: Ichthyology**

(same as F\_W 2700). A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours biology or equivalent

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**BIO\_SC 2940: Internship in Biological Science**

Work experience in a non-profit, for profit, or governmental organization relevant to the biological sciences. Intended for students doing internships in which independent research is less than 50% of the experience. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing, 12 hours of biological science and 2.70 GPA

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**BIO\_SC 2950: Directed Independent Research**

Participation in faculty research activities. May not be used to satisfy degree requirements for BA or BS in biological sciences or the minor in biological sciences.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**BIO\_SC 2960: Readings in Biological Science**

Supervised reading in biological literature. May be repeated up to six hours total credit. Selected sections of this course may be graded either on A-F or S/U basis only. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**BIO\_SC 2965H: Honors Readings in Biological Literature**

Selected readings in biological literature for Honors, in consultation with instructor. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** overall 3.3 GPA; instructor's consent. Honors eligibility required

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**BIO\_SC 3002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3002H: Topics in Biological Sciences- Biological/Physical/Mathematics - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3002W: Topics in Biological Sciences- Biological/Physical/Mathematics - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3010: Professional Skills**

This course will focus on application and interview skills for students interested in medical school. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

**Recommended:** junior standing; 3.4 GPA, and biological sciences majors

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**BIO\_SC 3050: Genetics and Society**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3050W: Genetics and Society - Writing Intensive**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3075: The Human Microbiome**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and "poop transplants" to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3075W: The Human Microbiome - Writing Intensive**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and "poop transplants" to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3210: Plant Systematics**

Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab.

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**Credit Hours:** 4

**Recommended:** 8 hours of Biological Sciences

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**BIO\_SC 3250: Parasitology**

(same as BIOMED 3250). Parasitism is considered as a fundamental type of interspecies interaction. Principles of parasitism as they apply to animals are presented with emphasis on parasite morphology, biology and host parasite relationships. Includes lab. Recommend: 8 hours of biology.

**Credit Hours:** 4

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**BIO\_SC 3260: Invertebrate Zoology**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3260W: Invertebrate Zoology - Writing Intensive**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3360: Herpetology**

The biology, ecology, taxonomy, and distribution of amphibians and reptiles. Some Saturday field trips.

**Credit Hours:** 4

**Recommended:** 8 hours Biological Sciences or equivalent

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**BIO\_SC 3400: Evolution and Ecology**

Introduction to principles of evolution and ecology. Topics include natural selection, adaptation, phylogenetic analysis, human evolution, population growth and regulation, population interactions, ecosystem ecology, and human impacts on ecological processes. No credit for this course if either BIO\_SC 3650 or BIO\_SC 4600 already completed; may not co-enroll in this course and BIO\_SC 4600.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3510: Biology of Fungi**

(same as PLNT\_S 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers. Includes lab.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**BIO\_SC 3650: General Ecology**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** 10 hours in Biology

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**BIO\_SC 3650W: General Ecology - Writing Intensive**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** 10 hours in Biology

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**BIO\_SC 3655: Tropical Ecology: Methods and Applications**

Field study of tropical community; additional fee for transportation and accommodations required.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4600 or BIO\_SC 4660

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**BIO\_SC 3660: Mammalogy**

(same as F\_W 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States. Includes lab.

**Credit Hours:** 4

**Recommended:** Junior Standing or instructor's consent

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**BIO\_SC 3700: Animal Physiology**

Introduces concepts of vertebrate organ function and homeostatic control emphasizing mammalian physiology. Some comparisons to function in other vertebrates and strategies for coping with environmental stresses introduced. Includes lab.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2300

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**BIO\_SC 3710: Introductory Entomology**

(same as PLNT\_S 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**BIO\_SC 3715: Insect Diversity**

(same as PLNT\_S 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2

**Prerequisites:** PLNT\_S 3710 (or BIO\_SC 3710) or concurrent registration

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**BIO\_SC 3750: General Microbiology**

Principles of microbiology. Includes lab.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

**Recommended:** grades in C range for prerequisites

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**BIO\_SC 3780: Genetics Laboratory**

Experimental genetic studies of *Drosophila*, corn and microorganisms.

**Credit Hours:** 2

**Prerequisites:** C range grade or better in BIO\_SC 2200 or instructor's consent

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**BIO\_SC 3790: Developmental Biology Laboratory**

Laboratory studies of development in sea urchin, chicken and roundworm.

**Credit Hours:** 2

**Prerequisites:** BIO\_SC 3800 or co-enrollment in BIO\_SC 3800

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**BIO\_SC 4002: Topics in Biological Science - Biological/Physical/Mathematics**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** senior standing

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**BIO\_SC 4085: Problems in Biological Sciences**

Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Junior Standing

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**BIO\_SC 4100: Limnology**

(same as F\_W 4100; cross-leveled with BIO\_SC 7100, F\_W 7100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Prerequisites:** senior standing

---

**BIO\_SC 4300: Analysis of Biological Macromolecules**

(cross-leveled with BIO\_SC 7300). Theory/application of techniques used for characterization of proteins, nucleic acids; topics: sedimentation velocity; equilibrium; sucrose density gradients; electrophoresis; spectrophotometry.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or BIOCHM 4270, and MATH 1500

**Recommended:** one year Physics

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**BIO\_SC 4310: Physics in Cell and Developmental Biology**

(same as PHYSCS 4310; cross-leveled with BIO\_SC 7310, PHYSCS 7310, MPP 7300). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 and BIO\_SC 2300, or instructor's consent

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**BIO\_SC 4320: Molecular Plant Physiology**

(same as PLNT\_S 4320; cross-leveled with BIO\_SC 7320, PLNT\_S 7320). Modern physiology of higher plants using common cultivated plants as examples.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and CHEM 1320

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**BIO\_SC 4328: Introductory Radiation Biology**

(same as NU\_ENG 4328, RADIOL 4328; cross-leveled with BIO\_SC 7328, NU\_ENG 7328, RADIOL 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 4400: Plant Anatomy**

(same as PLNT\_S 4400; cross-leveled with BIO\_SC 7400, PLNT\_S 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues, tissue systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500

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**BIO\_SC 4500: Neurobiology**

(cross-leveled with BIO\_SC 7500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neuroethology and developmental neurobiology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or instructor's consent

**Recommended:** BIO\_SC 3700

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**BIO\_SC 4560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 7560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500

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**BIO\_SC 4580: Computational Neuroscience**

(same as ECE 4580, BIOL\_EN 4575; cross-leveled with BIO\_SC 7580, ECE 7580, BIOL\_EN 7575). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral science and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500; MATH 1500

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**BIO\_SC 4600: Evolution**

Surveys various processes in organic evolution and underlying genetic mechanisms.

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**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 4640: Behavioral Biology**

(cross-level with BIO\_SC 7640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla. May be taken with Laboratory for 4 credits.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 1500

**Recommended:** one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 4642: Animal Communication**

Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 4600

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**BIO\_SC 4660: Plant Population Biology**

(cross-leveled with BIO\_SC 7660). Covers the ecological and evolutionary processes that influence the distribution and abundance of plant species. Topics include evolution of life history schedules, gender evolution, population growth and demography, competition, herbivory, plant-pollinator interactions, clonal growth, and plant community structure. Includes lab.

**Credit Hours:** 4

**Recommended:** 2 courses in Biological Sciences

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**BIO\_SC 4670: Avian Ecology**

(cross-level with BIO\_SC 7670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2600 or BIO\_SC 3650

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**BIO\_SC 4950: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Overall GPA 2.75; 20 hours of Biological Sciences and/or Chemistry

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**BIO\_SC 4950H: Honors Research in Biology**

Individually directed field or laboratory research for upper-level Honors students, in consultation with a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** overall GPA 3.3; instructor's consent; biology or microbiology major. Honors eligibility required

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**BIO\_SC 4952: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950; overall GPA 2.75; instructor's consent

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**BIO\_SC 4952H: Honors Research in Biology**

Continuation of research program. Successful completion requires public presentation and leads to degree with Honors in biological sciences. May be repeated for credit for maximum of 6 hours. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950H; overall GPA 3.3; instructor's consent. Honors eligibility required

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**BIO\_SC 4960: Special Readings in Biological Sciences**

Independent readings and discussions of topics in biology selected in consultation with supervising faculty member. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** senior standing in Biological Sciences and instructor's consent

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**BIO\_SC 4970: Neurobiology Laboratory**

Laboratory experience with experimental neurobiology, with emphasis on neural networks, motor systems, and developmental neurobiology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or BIO\_SC 4500 or instructor's consent

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**BIO\_SC 4972: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4972W: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4974: Molecular Biology Laboratory**

Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research. Prerequisites: BIO\_SC 2200 or BIOCHM 4272 or

**Credit Hours:** 3

**Corequisites:** BIO\_SC 4976

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**BIO\_SC 4976: Molecular Biology**

(cross-leveled with BIO\_SC 7976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4978: Cancer Biology**

(same as BIOCHM 4978; cross-leveled with BIO\_SC 7978, BIOCHM 7978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

**Recommended:** BIO\_SC 4976 or BIOCHM 4270 and BIOCHM 4272

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**BIO\_SC 4980: Cellular Interactions in Health and Disease**

(cross-leveled with BIO\_SC 7980). The cell as a functional unit.

**Credit Hours:** 3

**Prerequisites:** 10 hours Biological Sciences and 5 hours Physics and 5 hours Organic Chemistry

**Recommended:** some background in Biochemistry and/or Molecular Biology

---

**BIO\_SC 4982: Human Inherited Diseases**

(cross-leveled with BIO\_SC 7982). Analysis of the molecular and cellular mechanisms underlying inherited diseases in humans. Topics include genetics of sex determination, metabolic disorders, cancer, blood groups, transplantation, AIDS.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4982W: Human Inherited Diseases - Writing Intensive**

(cross-leveled with BIO\_SC 7982). Analysis of the molecular and cellular mechanisms underlying inherited diseases in humans. Topics include genetics of sex determination, metabolic disorders, cancer, blood groups, transplantation, AIDS.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4983: Molecular Ecology**

Application of molecular genetic techniques to topics in ecology and population biology such as sex ratios, dispersal, mating systems, biogeography and conservation genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 2200 and BIO\_SC 3650

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**BIO\_SC 4984: Mammalian Reproductive Biology**

Adult reproductive anatomy, physiology and behavior; gametogenesis and fertilization; placentation; sexual differentiation; parturition; maternal behavior and lactation; puberty; reproductive aging; reproductive ecology.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** 15 hours of Biological Sciences

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**BIO\_SC 4986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 7986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4988: Nerve Cells and Behavior**

The cellular basis of behavior. Molecular and cellular properties of nerve cells, as related to behavior, will be represented and discussed.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4990: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Includes lab.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** BIO\_SC 3700, or equivalent

---

**BIO\_SC 4994: Senior Seminar**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 4994H: Senior Seminar - Honors**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994HW: Senior Seminar - Honors/Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994W: Senior Seminar - Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hour:** 1-3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 7002: Topics in Biological Sciences**

Advanced topics not in regularly offered courses. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 7100: Limnology**

(same as F\_W 7100; cross-leveled with BIO\_SC 4100, F\_W 4100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Prerequisites:** graduate standing or BIO\_SC 3650

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**BIO\_SC 7300: Analysis of Biological Macromolecules**

(cross-leveled with BIO\_SC 4300) Theory/application of techniques used for characterization of proteins and nucleic acids. Topics include sedimentation velocity; equilibrium; sucrose density gradients; electrophoresis; spectrophotometry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300; BIOCHM 4270; MATH 1500; 1 year of physics

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**BIO\_SC 7310: Physics in Cell and Developmental Biology**

(same as PHYSICS 7310 and MPP 7300; cross-level with BIO\_SC 4310, PHYSICS 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent or PHYSICS 1220 or PHYSICS 2760 and BIO\_SC 2300

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**BIO\_SC 7320: Molecular Plant Physiology**

(same as PLNT\_S 7320; cross-leveled with BIO\_SC 4320, PLNT\_S 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and 5 hours Chemistry

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**BIO\_SC 7328: Introductory Radiation Biology**

(same as NU\_ENG 7328, RADIOL 7328, V\_M\_S 7328; cross-leveled with BIO\_SC 4328, NU\_ENG 4328, RADIOL 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 7350: Summer Institute in Biotechnology**

Development of experiments in molecular genetics for use in high school biology laboratories. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BIO\_SC 7374: Molecular Biology Laboratory**

Emphasizes recently developed genetic and biochemical techniques; illustrates how they apply to contemporary problems in biological research.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIOCHM 4272 or concurrent registration in BIO\_SC 4976

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**BIO\_SC 7400: Plant Anatomy**

(same as PLNT\_S 7400; cross-leveled with BIO\_SC 4400, PLNT\_S 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**BIO\_SC 7490: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2300 and BIO\_SC 3700, or equivalent

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**BIO\_SC 7500: Neurobiology**

(cross-leveled with BIO\_SC 4500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neuroethology and developmental biology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or BIO\_SC 3700

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**BIO\_SC 7560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 4560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500 or equivalent

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**BIO\_SC 7580: Computational Neuroscience**

(Same as BIOL\_EN 7575, ECE 7580; cross-leveled with BIO\_SC 4580, BIOL\_EN 4575, ECE 4580). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral sciences and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500, MATH 1500

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**BIO\_SC 7640: Behavioral Biology**

(cross-leveled with BIO\_SC 4640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 7660: Plant Population Biology**

(cross-leveled with BIO\_SC 4660). Covers the ecological and evolutionary processes that influence the distribution and abundance of plant species. Topics include evolution of life history schedules, gender evolution, population growth and demography, competition, herbivory, plant-pollinator interactions, clonal growth, and plant community structure.

**Credit Hours:** 4

**Prerequisites:** 2 courses in Biological Sciences

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**BIO\_SC 7670: Avian Ecology**

(cross-leveled with BIO\_SC 4670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2060 or BIO\_SC 3650; BIO\_SC 2600

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**BIO\_SC 7976: Molecular Biology**

(cross-leveled with BIO\_SC 4976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 7978: Cancer Biology**

(same as BIOCHM 7978; cross-leveled with BIO\_SC 4978, BIOCHM 4978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976 or equivalent

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**BIO\_SC 7980: Cellular Interactions in Health and Disease**

(cross-leveled with BIO\_SC 4980). Advanced discussion of topics in cell biology and genetics as they relate to health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**BIO\_SC 7982: Human Inherited Diseases**

Advanced analysis of the molecular basis for genetic disorders in humans. Topics will include both Mendelian and complex traits with readings from the primary literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and instructor's consent

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**BIO\_SC 7986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 4986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700

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**BIO\_SC 7990: Non-thesis Research**

Independent research not leading to a thesis. Some sections may be offered on either A-F or S/U grading basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Advanced topics not in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8050: Professional Survival Skills**

Introduction to resources, facilities, and communication skills for professional careers in biological sciences. Topics include computer resources, accessing scientific literature, making slides and figures, grantsmanship, resume preparation, manuscript review, and research presentation.

**Credit Hours:** 2

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**BIO\_SC 8060: Ethical Conduct of Research**

(same as BIOCHM 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8070: Professional Communication Development**

The purpose of this course is to develop professional communication skills in students that are planning to attend (or are in their first year of) graduate training. Some sections may be offered with A-F or S/U grading option.

**Credit Hour:** 1-2

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**BIO\_SC 8080: Workshop in Area of Specialization**

Intensive course in the theory and methodology of biological investigation. Conducted by visiting scientists. Offered in one or more specialized sections. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** graduate standing or instructor's consent

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**BIO\_SC 8085: Problems in Biological Sciences**

Research not expected to terminate in thesis, or individual advanced study in special subjects.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8087: Seminar**

Current topics in the biological sciences. Open to all graduate students. Graded S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8090: Research in Biological Sciences**

Research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8187: Seminar in Areas of Specialization**

Offered each semester in one or more specialized sections followed by the topic title of the seminar. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8300: Advanced Plant Genetics**

Genetic approaches to molecular and biochemical studies in maize, wheat, and Arabidopsis.

**Credit Hours:** 3

**Prerequisites:** General Genetics and course in Cell Biology or Plant Physiology

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**BIO\_SC 8310: Fungal Genetics and Biology**

Introduction to fungal research, with an emphasis on genetics, biochemistry, cell and molecular biology, and pathogenicity of fungi. Graded A-F only.

**Credit Hours:** 3

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**BIO\_SC 8320: Developmental Genetics**

An overview of various developing systems amenable to classical and molecular genetic analysis. Specific developmental phenomena will be introduced in particular model systems, with an emphasis on experimental approaches used to address the underlying mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIOCHM 7270, BIOCHM 7272, or equivalent

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**BIO\_SC 8330: Stem Cell Biology**

A comparative approach to stem cell biology, with emphasis on embryonic, neural and bone marrow-derived stem cells in rodents and humans. Ethical considerations associated with the use of stem cells to study development and repair mechanisms will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300

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**BIO\_SC 8340: Advanced Microscopy Techniques**

Electron microscopy and modern light microscopy techniques including epifluorescence, confocal fluorescence microscopy, low light video microscopy, differential interference optics, and computerized image analysis.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4990 or BIO\_SC 8350 and instructor's consent

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**BIO\_SC 8350: Advanced Cell Biology**

Structure and function of membranes; cell ultrastructure; organellar function; cellular movement; microtubules; microfilaments; mitosis and meiosis.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300; instructor's consent

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**BIO\_SC 8362: Introduction to Plant Metabolism**

(same as PLNT\_S 8362, BIOCHM 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8365: Introduction to Molecular Cell Biology**

(same as BIOCHM 8365, PLNT\_S 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8370: Plant Developmental Biology**

Critical discussions of recent publications in plant development, with particular focus on developmental genetics.

**Credit Hours:** 3

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**BIO\_SC 8440: Integrative Neuroscience I**

(same as NEUROSCI 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8442: Integrative Neuroscience II**

(same as NEUROSCI 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8450: Developmental Neurobiology**

Principles of neural development. Development of neuron and nerve patterns, axon growth, synapses, and development of behavior.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500 or equivalent

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**BIO\_SC 8460: Advanced Cancer Biology**

A study of the molecular basis of cancer, including topics in tumor cell biology, interactions between cancer cells and normal cells, mechanisms of metastasis, and novel approaches to development of new chemotherapies.

**Credit Hours:** 3

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**BIO\_SC 8505: Introduction to Plant Stress Biology**

(same as PLNT\_S 8505). This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8520: Sensory Ecology**

A study of information exchange and acquisition in organisms, with an emphasis on communication, orientation, and predator detection. The course will also examine the effects of biotic and abiotic factors on sensory systems.

**Credit Hours:** 3

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**BIO\_SC 8600: Design of Ecological Experiments**

Principles of experimental design in the context of ecological, behavioral, and evolutionary research.

**Credit Hours:** 2

**Prerequisites:** STAT 1400

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**BIO\_SC 8610: Current Concepts in Conservation Biology**

Survey of current concepts in conservation biology literature. Discussions will provide students with an appreciation of the historical development of concepts, the interdisciplinary nature of conservation problems, and the research required for effective solutions.

**Credit Hours:** 2

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**BIO\_SC 8620: Phylogenetic Methods and Applications**

A review of principles for constructing and testing phylogenies followed by a survey of methods for inferring ancestral characteristics and adaptive features in living species.

**Credit Hours:** 4

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**BIO\_SC 8633: Molecular and Network Evolution**

(same as AN\_SCI 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIO\_SC 8650: Ecological and Evolutionary Genomics**

(same as PLNT\_S 8650). This course is designed to give a background in evolution and then explore an exciting new field: Ecological and evolutionary genomics. We will study genes that affect fitness and how whole genomes evolve. Graded on A-F basis only.

**Credit Hours:** 2

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**BIO\_SC 8700: Ecological Genetics**

Population genetics and evolutionary theory, with emphasis on studies of natural populations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 3100 or BIO\_SC 3650, and STAT 1400 or equivalent

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**BIO\_SC 8720: Speciation**

Advanced discussion of species concepts and the processes of formation of species.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 4600

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**BIO\_SC 8724: College Science Teaching**

(same as LTC 8724, PHYSCS 8310, ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**BIO\_SC 8725: Science Outreach: Public Understanding of Science**

(same as AN\_SCI 8725, PHYSCS 8350, LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**BIO\_SC 8726: Integrating Science with Outreach**

(same as LTC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**BIO\_SC 8730: Advanced Community Ecology**

Detailed examination of new happenings in population and community ecology. Topics vary but will include species interactions, community structure, reproductive strategies.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or instructor's consent

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**BIO\_SC 8740: Plant/Animal Interactions**

Discussion and lectures on herbivory, pollination biology, and dynamics of fruit and seed dispersal from ecological and evolutionary perspectives.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4660 or equivalent

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**BIO\_SC 8982: Advances in Human Genetic Disorders**

Critical review of recent publications describing the molecular and cellular processes underlying genetic disorders in humans. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** BIO\_SC 4982 or concurrent enrollment in BIO\_SC 7982

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**BIO\_SC 9090: Research in Biological Sciences**

Research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 9432: Molecular Biology II**

(same as MICROB 9432, BIOCHM 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**BIO\_SC 9468: Molecular Biology of Plant Growth and Development**

(same as BIOCHM 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4976

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## **Biomedical Sciences (BIOMED)**

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**BIOMED 1010: Biomedical Career Explorations**

An introduction to the variety of career possibilities within the growing field of biomedical sciences. Graded on S/U basis only.

**Credit Hour:** 1

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**BIOMED 2001: Topics in Veterinary Biomedical Science**

May be repeated 2 times for credit. Graded on A-F basis only. Prerequisites: instructor's consent

**Credit Hour:** 1-99

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**BIOMED 2085: Problems in Biomedical Research**

Assignment of special Topics for Research training in biomedical research.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIOMED 2110: Biomedical Terminology**

Life science etymology (Greek for "true meaning", means the study of word derivation) taught by classroom presentation and discussion. The course organization is based primarily on common themes of Greek and Latin terms along with historical reasons for current usage. The application of these terms is for all biomedical sciences and life sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOMED 2111: Veterinary Medical Terminology**

Veterinary Medical Terminology is an extension of Biomedical Sciences 2110, Biomedical Terminology. The course organization is lecture, based primarily on domestic species and common themes of Greek and Latin terms. In addition, major veterinary medical eponyms, acronyms, and medical and surgical instruments are included. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110 or instructor's consent

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**BIOMED 2120: Essentials of Animal Handling and Physical Restraint**

Fundamentals of handling and physical restraint of domestic large and small animals, laboratory animals, and common non-domestic pets. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOMED 2140: Companion Animals**

(same as AN\_SCI 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs,

cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**BIOMED 2210: Microbiology for the Health Sciences**

Introductory course for students in the applied health curricula. Presents biomolecules of life, enzyme interaction, physiology and structure of representative organisms. Emphasizes bacteria, viruses, fungi and protozoa of health significance. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** CHEM 1100 or equivalent and instructor's consent

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**BIOMED 2230: Animal Sanitation and Disease Prevention**

Preventative measures for diseases and parasites of farm animals.

**Credit Hours:** 3

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**BIOMED 2235: Domestic Animal Behavior**

An examination of the effects of domestication on the behavior of companion and food animal species. Comparisons to similar animals in feral or wild conditions will be made. The causes, development and potential treatments of abnormal behavior will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOMED 2420: Biology of Healthy Living**

(same as PH\_THR 2420 and NEP 2420). Biology of inactivity as a casual factor in chronic disease.

**Credit Hours:** 2

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**BIOMED 2940: Internship in Biomedical Sciences**

Supervised work experience to develop technical skills and enhance student knowledge in an area of biomedical science. Not intended for more than 50% independent research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** sophomore standing and instructor's consent

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**BIOMED 3000: Specialty Careers for Veterinary Technicians**

Specialty careers for veterinary technicians are jobs which required knowledge and skills beyond those needed in primary care clinical veterinary practice. This course will explore veterinary technician specialties, the education required, and the advantages of advanced academic training. Course graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AAS degree in veterinary technology or instructors consent required

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**BIOMED 3001: Topics in Biomedical Sciences**

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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**BIOMED 3085: Problems in Biomedical Science**

Assignment of special topics for research training in biomedical research.

**Credit Hour:** 1-99

**Prerequisites:** DVM degree and instructor's consent

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**BIOMED 3100: Biomedical Pathophysiology**

Pathophysiology is the study of changes in the body resulting from disease. This course requires knowledge of normal anatomy and physiology. A comparative approach is used involving both domestic animal and human examples. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 3200: Comparative Hematology**

Hematology is the study of blood cells in health and disease. Emphasis in this course is placed on the changes associated with disease.

Transfusion medicine and coagulation disorders will also be included.

Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 3219: Elements of Comparative Anatomy**

This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos of dissected specimens are used to aid instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** five hours of biological science or zoology or equivalent or instructor's consent or an AAS degree in veterinary technology

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**BIOMED 3250: Parasitology**

(same as BIO\_SC 3250) Parasitism is considered as a fundamental type of interspecies interaction. Identifying characteristics, life cycle, and resulting disease caused by the common parasites of domestic animals, common laboratory animals, selected wildlife, and humans are described. Special emphasis is given to parasites that can be transmitted from animals to man.

**Credit Hours:** 3

**Prerequisites:** 8 hours of biology or instructor's consent

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**BIOMED 3300: Animal Welfare and Ethics**

An introductory examination of ethical issues related to animal welfare, including animal use for food, research, and companionship, plus contemporary issues affecting companion animals, farm animals, and horses. Topics related to animal pain and legal status will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**BIOMED 3310: Equine Health Topics**

An in-depth examination of equine disease and health topics that are pertinent to today's horse owner and veterinarian. The course will integrate horse management practices with disease recognition, control and prevention. Students will learn how to recognize problems and when to call a veterinarian. Emerging disease problems such as West Nile Virus will be examined as well as topics of continuing concern. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4977 or equivalent or instructor's consent

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**BIOMED 3320: Comparative Microscopic Anatomy**

The course will provide students with a background in the structure of body organs at the microscopic level. The material will emphasize structure-function relationship of cells and organs using material from diverse animal species, including human, that exemplify unique adaptations to environmental or physiological requirements.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or equivalent

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**BIOMED 3326: Comparative Pharmacology**

An introduction to terminology used in pharmacology. Mechanisms of drug administration, absorption, distribution, metabolism, and excretion are described. Treatment modalities in animals and humans are compared. Basics of drug actions and the medicolegal aspects of pharmacology are discussed.

**Credit Hours:** 3

**Prerequisites:** an AAS degree in veterinary technology or AN\_SCI 3254 or BIO\_SC 3700, or equivalent, or instructor's consent

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**BIOMED 4001: Topics in Biomedical Sciences**

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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**BIOMED 4010: Life Sciences Research: Models and Methods**

(cross-leveled with BIOMED 7010, V\_BSCI 7010). A review of basic laboratory animal and non-animal research models and procedures commonly used in the life sciences area in academia and drug/chemical industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Biology or Cell Biology; junior standing required

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**BIOMED 4100: Veterinary Clinical Chemistry**

(cross-leveled with V\_PBIO 7100). This course is designed to hone the skills of the practicing veterinary technician, veterinary student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.

**Credit Hours:** 3

**Prerequisites:** An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited programs; Undergraduate physiology on mammals (AN\_SCI 3254, BIO\_SC 3700, or equivalent

**Recommended:** BIOMED 2110 and BIOMED 3200 or instructor's consent

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**BIOMED 4110: Veterinary Cytology**

(cross-leveled with V\_PBIO 7110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease. Prerequisites: An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association-accredited program, or instructor's consent

**Credit Hours:** 2

**Recommended:** BIOMED 3200 and BIOMED 2110

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**BIOMED 4120: Principles of Toxicology**

(cross-leveled with V\_PBIO 7120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** one year of college chemistry and biology, each or instructor's consent

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**BIOMED 4200: Veterinary Public Health and Community Practice**

Veterinary Public Health is the field of veterinary medicine that deals with food production and safety, zoonosis (animal to human) disease control, prevent and control of environmental contamination, and the role of animals in society. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructors consent

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**BIOMED 4210: Animal Issues in Disasters**

(cross-leveled with V\_PBIO 7210). This course describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** an AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4300: Clinical Veterinary Neurology**

Clinical veterinary neurology will review the neurologic examination, common neurologic diseases and techniques to properly care for the neurologic patient. The course organization is based primarily on neuroanatomic localization of disease. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** AAS in Veterinary Technology or BIOMED 3219 and 3100 or instructor's consent; junior or senior standing

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**BIOMED 4320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with V\_BSCI 7320). This course will provide students with the knowledge and skills to assist in small animal medical emergency and critical care facilities.

**Credit Hours:** 3

**Prerequisites:** An AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4333: Veterinary Cell Biology**

(same as V\_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1500, or equivalent, 1 course in biochemistry or 4 credit hours in chemistry; or instructor's consent

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**BIOMED 4400: Veterinary Surgical Nursing**

Veterinary Surgical Nursing will enable the student to properly identify, care for, and maintain surgical equipment. The course will also prepare the student to learn surgical anatomy as well as the potential complications of common clinical setting surgeries. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOMED 2111, BIOMED 3219, and BIOMED 3100, or instructor's consent

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**BIOMED 4410: Small Animal Physical Rehabilitation**

This course will review the science of veterinary rehabilitation, assessment of rehabilitation patients, and the techniques used to treat these patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS degree in veterinary technology or BIOMED 2110 or HTH\_PR 2190 or equivalent, plus BIOMED 3219 or PTH\_AS 2201 or equivalent, or instructor's permission

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**BIOMED 4500: Equine Critical Care and Nursing**

This course provides advanced information for veterinary technicians, veterinary assistants, and pre-veterinary students wishing to enhance and focus their understanding of equine critical care and nursing concepts. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 2095 and AN\_SCI 3254 or BIO\_SC 3700 or equivalents, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 4510: Equine Clinical Anatomy: Forelimbs**

(cross-leveled with V\_BSCI 7510). Basic foundation in selected aspects of equine clinical anatomy from veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structures of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** five hours of biologic science or zoology, or equivalent, or instructor's consent, or an AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited program

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**BIOMED 4520: Equine Clinical Practice**

This course is an introduction to a common medical conditions of the horse. Emphasis will be placed on the presenting complaint and the veterinarians approach to diagnosis, treatment, and prognosis.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110, BIOMED 2111 and AN\_SCI 4977 or their equivalents, or an associate's degree in veterinary technology, or instructor's consent

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**BIOMED 4993: Internship in Veterinary Medical Technical Specialties**

Supervised work experience in the MU Veterinary Medical Teaching Hospital of affiliated veterinary medical specialty practices or in MU laboratory animal facilities to develop technical skills and knowledge relevant to becoming a specialist in veterinary medical technology. A written report and oral presentation are required. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** junior standing, an AAS degree from an AVMA accredited veterinary technical program or its equivalent, and instructor's consent

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**BIOMED 7010: Life Sciences Research: Models and Methods**

(same as V\_BSCI 7010; cross-leveled with BIOMED 4010). A review of basic laboratory animal and non-animal research models and procedures commonly used in the life sciences area in academia and drug/chemical industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Biology or Cell Biology

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**BIOMED 9090: Research - Biomedical Sciences**

Research hours for BMS doctoral students continuous enrollment. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIOMED 9434: Gonadal Function**

(same as AN\_SCI 9434). Survey of current and in-depth mechanisms involved in ovarian, testicular, and epididymal function. Emphasis will be given to comparative differences in gonadal functions among domestic animals.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314 or equivalent, a course in endocrinology, and biochemistry or cell biology

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## Black Studies (BL\_STU)

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**BL\_STU 1100: Introduction to Swahili and African Culture**

Introduction to Swahili and African Culture is a three credit hour course, which serves as a survey of an indigenous African language and the culture of East Africa. There are no prior requirements.

**Credit Hours:** 3

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**BL\_STU 1250: World Theatre Workshop**

(same as THEATR 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**BL\_STU 1335: Introduction to Soul and Country**

(same as MUSIC\_NM 1335). Examination of musical cultures signified by "soul" and "country". Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**BL\_STU 1410: African American History**

(same as HIST 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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**BL\_STU 1500: The Black Woman in America**

(same as WGST 1500). Review and critiques of a variety of materials about Black women from slavery to present. The course allows students to generate their own view about psychological, social and philosophical impact of the Black women's struggle on all women.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**BL\_STU 1705: Introduction to Black Studies in Culture**

Introduction to the concepts, terms, themes, and practices in the study of the African diaspora cultures, through readings in literature, music, and the arts that demonstrate concepts, terms, themes, and practices. Recommended for prospective Black Studies Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 1720: African-American Theatre History**

(same as THEATR 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**Credit Hours:** 3

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**BL\_STU 1790: History of Early Africa**

(same as HIST 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**BL\_STU 1800: History of Modern Africa**

(same as HIST 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**BL\_STU 1810: History of South Africa**

(same as HIST 1810). South African Society from the 16th century to the present with an emphasis on the last two centuries and the consolidation of the apartheid state. .

**Credit Hours:** 3

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**BL\_STU 2000: Black Studies**

An interdisciplinary introduction to the basic concepts and literature in the disciplines covered by African-American studies. The role of historical, political, social, and economic forces in shaping cultural expression will be stressed.

**Credit Hours:** 3

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**BL\_STU 2001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

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**BL\_STU 2003: Undergraduate Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2003W: Undergraduate Topics in Black Studies-Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 2005: Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history and culture. Specific content may vary from semester to semester and will be announced in advance.

**Credit Hours:** 3

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**BL\_STU 2150: African-American Cinema**

(same as THEATR 2150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

**Credit Hours:** 3

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**BL\_STU 2200: Social Inequalities**

(same as SOCIOL 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequality are structured.

**Credit Hours:** 3

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**BL\_STU 2210: The Black Americans**

(same as SOCIOL 2210.) Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, style of life, patterns of work and intergroup relations.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent or instructor's consent

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**BL\_STU 2303: Studies in Black Relationships**

This course examines constructions of Black American coupling and therefore, gender, race, sexuality, and class in the 20th and 21st centuries. Blackness has been and continues to be reconstructed via marriage, dating, and other forms of coupling. Emphasis will be placed on the role of socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 2310: Literature of the African Diaspora**

(Same as RM\_LAN 2310) A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas.

**Credit Hours:** 3

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**BL\_STU 2400: Introduction to African Diaspora Literature**

(same as ENGLISH 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**BL\_STU 2407: Introduction to African Diaspora Literature, 1603-17**  
(same as ENGLISH 2407). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2408: Introduction to African Diaspora Literature, 1789-1890**  
(same as ENGLISH 2408). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2409: Introduction to African Diaspora Literature, 1890-Present**

(same as ENGLSH 2409). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2410: African American Women in History**

(same as HIST 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**BL\_STU 2450: Themes in the Geography of Africa South of the Sahara**

(same as GEOG 2450). Major concepts of African geography in current and historical perspective. Case studies of major African countries.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or one introductory Geography course

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**BL\_STU 2500: Special Problems in Black Studies**

Research apprenticeship with faculty member, assisting a faculty member in the development and execution of a research project. May be repeated for a maximum of six hours.

**Credit Hour:** 1-99

**Recommended:** sophomore standing, instructor's consent

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**BL\_STU 2501: Undergraduate Topics in Black Studies**

Organized study of selected topics. Subjects and credit may vary from semester to semester. program consent for repetition.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**BL\_STU 2570: Black Religion**

A history of religion approach to the study of black religion which takes into consideration the unique past experiences of the African American community as it underwent the terror of forced migration, slavery, segregation, and discrimination.

**Credit Hours:** 3

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**BL\_STU 2601: Languages of Africa**

(same as ENGLSH 2601 and LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**BL\_STU 2610: Islam and Black America**

A historical survey of the origins, development and impact of the Black Islamic tradition.

**Credit Hours:** 3

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**BL\_STU 2715: Studies in Black Culture**

This course will survey selected forms of black cultural expression, from a range of U.S., Africa, and the African Diaspora cultures in various media including literature, music, film studies, as well as other related disciplines. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 2720: African-American Visual Culture**

(Same as AR\_H\_A 2720) This course introduces students to African-American art history, visual culture, and material culture in their cultural, political, and historical contexts. Specific focuses may include the Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**BL\_STU 2904: Black Studies in Slavery and Freedom**

(same as HIST 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours:** 3

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**BL\_STU 2940: African Religions**

(same as REL\_ST 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 2975: Theoretical Traditions in Blacks Studies - Culture**

This course provides a broad understanding of the diverse theoretical traditions within the field of Black Studies, through a comparative examination of concepts, developments, and debates in humanities, including literature, languages, and music. Course graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 3001: Undergraduate Topics in Black Studies - General**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 3003: Undergraduate Topics in Black Studies - Behavioral Sciences**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004: Undergraduate Topics in Black Studies - Social Science**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004W: Undergraduate Topics in Black Studies - Social Science - Writing Intensive**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3005: Undergraduate Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent.

**Credit Hours:** 3

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**BL\_STU 3005H: Undergraduate Topics in Black Studies - Humanities - Honors**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 3100: African American Psychology**

(same as ESC\_PS 3100 and PSYCH 3880). The research, theories, and paradigms developed to understand the attitudes, behaviors, and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Recommended:** PSYCH 1000

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**BL\_STU 3200: Black Freedom Movement, 1955-1973**

(same as HIST 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours:** 3

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**BL\_STU 3230: Studies in Black Sexual Politics**

Course explores Black transnational politics of sex/sexuality and examines the theoretical, historical, and socio-cultural context that race, gender, and sexuality are used as analytical concepts. Students learn a transdisciplinary approach and apply this newly acquired information to analyze shifts in the field of Black sexuality studies. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** sophomore standing required

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**BL\_STU 3303: Black Athletes**

This course examines Black Athletes in the 20th and 21st centuries. Emphasis will be placed on how Blacks entered competitive athletics and the role of racism and power, socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 3400: Survey of African American Literature, Beginnings to 1900**

(same as ENGLISH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as ENGLISH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3410: Survey of African American Literature, 1900-Present**

(same as ENGLISH 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3420: Periods and Genres in African Diaspora Literature**

(same as ENGLISH 3420). Topic (e.g. Harlem Renaissance, African Diaspora Poetry) Announced at time of registration. No more than 6 hours may be taken in the Periods and Genres in African Diaspora Literature series.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3427: Periods and Genres in African Diaspora Literature, 1603-1789**

(same as ENGLISH 3427). See BL\_STU 3420 for course description.

**Credit Hours:** 3

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**BL\_STU 3428: Periods and Genres in African Diaspora Literature, 1789-1890**

(same as ENGLISH 3428). See BL\_STU 3420 for course description.

**Credit Hours:** 3

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**BL\_STU 3429: Periods and Genres in African Diaspora Literature, 1890-Present**

(same as ENGLISH 3429). See BL\_STU 3420 for course description.

**Credit Hours:** 3

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**BL\_STU 3590: Religious Biography: Black Religion**

(same as HIST 3400). Studies black American religion through the biographies of representative and influential figures of the nineteenth and twentieth centuries, including Nat Turner, W.E.B Dubois, Marcus Garvey, M.L. King, and Malcolm X.

**Credit Hours:** 3

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**BL\_STU 3605: The History of Blacks in Germany**

(same as GERMAN 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, travelling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**BL\_STU 3624: Comparative Approaches to Black Studies in History**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3625: Comparative Approaches to Black Studies in Culture**

Comparative approach to the study of Black Diaspora cultures that focus on the theory, method, structure, and application of modes of cultural production within Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Course may be repeated for credit with consent of program.

**Credit Hours:** 3

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**BL\_STU 3670: History of Black Nationalism in the United States**

(same as HIST 3410). Examines the struggle of African Americans to construct autonomous institutions, to build all Black communities or to acquire an independent nation-state. We will study the ideology, structure, strategy and tactics.

**Credit Hours:** 3

**Prerequisites:** HIST 1410 or SOCIOL 2210

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**BL\_STU 3703: Themes in Black Society**

Examines various themes, issues, and perspectives in political science, psychology, sociology, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora.

Recommended for Black Studies or Behavioral Science Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3705: Themes in Black Culture**

Examines various themes, issues and perspective in literature, music, the arts, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora. Recommended for Black Studies Majors. Program consent required for repetition.

**Credit Hours:** 3

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**BL\_STU 3800: Women in African History**

(same as HIST 3800). Focuses on the varied and changing roles of women in sub-Saharan Africa from pre-colonial times to the present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**BL\_STU 3850: Gender, Hip Hop, and the Politics of Representation**

This class will examine gender in hip hop while exploring the intra- and interracial politics of representation among those of the hip hop generation.

**Credit Hours:** 3

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**BL\_STU 3977: Black Studies Methodologies**

Advanced research, writing, and application of knowledge and critical paradigms in Black Studies, through study of such topics as slavery, colonialism, urbanization and migration, environment, gender, race, identity, intellectual movements, cultural studies and popular culture. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 2975

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**BL\_STU 4000: Special Problems in Black Studies**

Independent investigation leading to a paper or a project.

**Credit Hour:** 1-99

**Prerequisites:** junior standing, instructor's consent

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**BL\_STU 4000W: Special Problems in Black Studies - Writing Intensive**

Independent investigation leading to a paper or a project.

**Credit Hour:** 1-99

**Prerequisites:** junior standing, instructor's consent

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**BL\_STU 4001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4001W: Undergraduate Topics in Black Studies-General - Writing Intensive**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

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**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4003: Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4005: Topics in Black Studies-Humanities**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4020: Studies in Black Feminist Thought**

(same as WGST 4020; cross-leveled with BL\_STU 7020, WGST 7020). Examines recent problems and critical debates within black feminist theory.

**Credit Hours:** 3

**Prerequisites:** WGST 2020

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**BL\_STU 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as HIST 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**BL\_STU 4130: African-American Politics**

(same as POL\_SC 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**BL\_STU 4181: Themes in Literature by Women**

(same as WGST 4181 and ENGLSH 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4210: African-American Religion**

(same as REL\_ST 4210). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4220: Religion in Afro-American Literature**

(same as REL\_ST 4220). Examination of Afro-American fiction, poetry and drama which present significant racial attitudes toward the Christian religion.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BL\_STU 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, WGST 4230, PEA\_ST 4230; cross-leveled with BL\_STU 7230, SOCIOL 7230, WGST 7230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332, BL\_STU 2200; SOCIOL 2200, WGST 1332 or WGST 2010

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**BL\_STU 4235: Social Perspectives on Gender and Emotion**

(same as SOCIOL 4235, WGST 4235; cross-leveled with BL\_STU 7235, SOCIOL 7235, WGST 7235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** WGST 1332 or WGST 1360; SOCIOL 1360 or SOCIOL 2300; BL\_STU 1332 or BL\_STU 2200; junior standing

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**BL\_STU 4270: African-Americans in the Twentieth Century**

(same as HIST 4270; cross-leveled with BL\_STU 7270, HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 4300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 4300; cross-leveled with BL\_STU 7300, H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4303: Race, Class, Gender and U.S. Social Policy**

Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing these inequalities.

**Credit Hours:** 3

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**BL\_STU 4335: The Wire: Race, Urban Inequality, and the "Crisis" of the American City**

(same as HIST 4235; cross-leveled with BL\_STU 7335, HIST 7235). The HBO series "The Wire", a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, "The Wire" complicates understandings of the "urban crisis" through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 4352: Historical Studies in African Music**

(same as MUS\_H\_LI 4352). Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** Open to upper-level undergraduate students with instructor's consent

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**BL\_STU 4360: Working with Minority Youth**

(same as SOC\_WK 4360). Develops awareness and understanding of social/psychological/ cognitive realities influencing the behavior of black youth. Content draws upon theories, research, and practice skills relevant to understanding black youth. Minority groups included.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**BL\_STU 4380: Social Work Practice With Minorities: African-American Emphasis**

(same as SOC\_WK 4380). Provides students with an appreciation of the black experience in the United States on a knowledge and feeling level.

**Credit Hours:** 3

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**BL\_STU 4400: Studies in African Diaspora Literature**

(same as ENGLISH 4400; cross-leveled with BL\_STU 7400, ENGLISH 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4407: Studies in African Diaspora Literature, 1603 to 1789** (same as ENGLISH 4407; cross-leveled with BL\_STU 7407, ENGLISH 7407). See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4408: Studies in African Diaspora Literature, 1789 to 1890** (same as ENGLISH 4408; cross-leveled BL\_STU 7408, ENGLISH 7408). See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as ENGLISH 4409; cross-leveled with BL\_STU 7409, ENGLISH 7409). See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4410: Major African Diaspora Writers**

(same as ENGLISH 4410; cross-leveled with BL\_STU 7410, ENGLISH 7410). An intensive study of selected writers of African Diaspora literature focusing on texts original in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**BL\_STU 4415: African Americans and American Justice**

(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4415W: African Americans and American Justice - Writing Intensive**

(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4417: Major African Diaspora Writers, 1603 to 1789**

(same as ENGLISH 4417, BL\_STU 7417, ENGLISH 7417). See BL\_STU 4410 for course description.

**Credit Hours:** 3

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**BL\_STU 4418: Major African Diaspora Writers, 1789 to 1890**

(same as ENGLISH 4418, BL\_STU 7418, ENGLISH 7418). See BL\_STU 4410 for course description.

**Credit Hours:** 3

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**BL\_STU 4419: Major African Diaspora Writers, 1890-Present**  
(same as ENGLISH 4419; cross-leveled with BL\_STU 7419, ENGLISH 7419). See BL\_STU 4410 for course description.

**Credit Hours:** 3

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**BL\_STU 4420: Africana Womanism**  
(same as ENGLISH 4420; cross-leveled with BL\_STU 7420, ENGLISH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4480: Major African Diaspora Women Writers**  
(same as WGST 4480, ENGLISH 4480; cross-leveled with BL\_STU 7480, WGST 7480, ENGLISH 7480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for Black Studies 4180 and 4480.

**Credit Hours:** 3

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**BL\_STU 4487: Major African Diaspora Women Writers, 1603 to 1789**  
(same as WGST 4487, ENGLISH 4487; cross-leveled with BL\_STU 7487, WGST 7487, ENGLISH 7487). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 4488, ENGLISH 4488; cross-leveled with BL\_STU 7488, WGST 7488, ENGLISH 7488). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4489: Major African Diaspora Women Writers, 1890 to Present**  
(same as WGST 4489, ENGLISH 4489; cross-leveled with BL\_STU 7489, WGST 7489, ENGLISH 7489). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4500: Special Problems in Black Studies**  
Independent project or paper, not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BL\_STU 4530: Caribbean Women Writers**  
Examines representative works by female authors from the Caribbean; primarily the English speaking islands. The depiction of Caribbean women will be a major consideration, as well as the unique qualities of Caribbean literature.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BL\_STU 4640: African Politics**

(same as POL\_SC 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**BL\_STU 4700: Race, Gender and Ethnicity in Higher Education**  
Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**Credit Hours:** 3

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**BL\_STU 4710: Themes in African Diaspora Folklore**  
(same as ANTHRO 4160 and ENGLISH 4710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4720: Third World Politics**  
(same as POL\_SC 4720). Comparative, interdisciplinary analysis of the politics of selected states in Southeast Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4804: Historical Studies of Black Women**  
This course offers a comprehensive examination of the origins, developments, and productions of the specified time period with emphases on black women as creative artists, activists, performers, musicians, and writers.

**Credit Hours:** 3

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**BL\_STU 4875: Black Studies: Study Abroad-Humanities**  
This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture, augment their "global competencies," and support their study and/or career development.

**Credit Hours:** 3

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**BL\_STU 4877: Black Studies Abroad**  
This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their "global competencies" and course of study across the three Black Studies tracks-History, Culture and Society- as well as support their study and/or career development. Graded A-F basis only.

**Credit Hours:** 3

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**BL\_STU 4904: Historical and Contemporary Slavery**

(same as HIST 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**BL\_STU 4972: Undergrad. Seminar in Black Studies: History of Race in the U.S.**

Readings on problems in American history with reports and discussion on selected topics. Departmental consent for repetition up to a maximum of 6 hours.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4977: Black Studies Capstone**

This course is designed to permit students to integrate general and specialized knowledge within the three Black Studies tracks (History, Society, Culture) using an interdisciplinary approach. Topics vary according to instructor and core discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**BL\_STU 7004: Topics in Black Studies**

Organized study of selected topics in Black Studies. Subjects and earnable credit may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BL\_STU 7020: Studies in Black Feminist Thought**

(same as WGST 7020; cross-leveled with BL\_STU 4020 and WGST 4020). Examines recent problems and critical debates within black feminist theory.

**Credit Hours:** 3

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**BL\_STU 7230: Women, Development, and Globalization**

(same as SOCIOL 7230; cross-leveled with BL\_STU 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**BL\_STU 7235: Social Perspectives on Gender and Emotion**

(same as SOCIOL 7235 and WGST 7235; cross-leveled with BL\_STU 4235, SOCIOL 4235, WGST 4235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 7270: African-Americans in the Twentieth Century**

(same as HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 7300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

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**BL\_STU 7335: The Wire: Race, Urban Inequality, and the "Crisis" of the American City**

(same as HIST 7235; cross-leveled with HIST 4235, BL\_STU 4335). The HBO series "The Wire", a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, "The Wire" complicates understandings of the "urban crisis" through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 7400: Studies in African Diaspora Literature**

(same as ENGLSH 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

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**BL\_STU 7407: Studies in African Diaspora Literature, 1603 to 1789**

(same as ENGLSH 7407). See BL\_STU 7400 for course description.

**Credit Hours:** 3

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**BL\_STU 7408: Studies in African Diaspora Literature, 1789 to 1890**

(same as ENGLSH 7408). See BL\_STU 7400 for course description.

**Credit Hours:** 3

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**BL\_STU 7409: Studies in African Diaspora Literature, 1890 to Present**

(same as ENGLSH 7409). See BL\_STU 7400 for course description.

**Credit Hours:** 3

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**BL\_STU 7410: Major Africana Diaspora Writers**

(same as ENGLSH 7410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major Anglophone African Diaspora Writers series.

**Credit Hours:** 3

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**Prerequisites:** instructor's consent

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**BL\_STU 7415: African Americans and American Justice**

(same as HIST 7415) This course provides opportunities to examine the judicial system and discuss selected court cases in which black men, women, or children were plaintiffs or defendants in local and national courts. Moreover, the readings will subject conventional wisdom about black Americans and the legal system to scrutiny while allowing students to "witness" the mechanics of the courts and to assess long and short range social, economic, and political implications for Americans, black and white.

**Credit Hours:** 3

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**BL\_STU 7417: Major African Diaspora Writers, 1603 to 1789**

(same as ENGLISH 7417). See BL\_STU 7410 for course description.

**Credit Hours:** 3

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**BL\_STU 7418: Major Anglophone African Diaspora, 1789 to 1890**

(same as ENGLISH 7418). See BL\_STU 7410 for course description.

**Credit Hours:** 3

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**BL\_STU 7419: Major African Diaspora Writers, 1890 to Present**

(same as ENGLISH 7419). See BL\_STU 7410 for course description.

**Credit Hours:** 3

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**BL\_STU 7420: Africana Womanism**

(same as ENGLISH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 7460: Economic Characteristics of the African American Experience**

(same as HIST 4460). Examines how economic considerations have influenced African American history from the transatlantic slave trade to the present.

**Credit Hour:** 1

**Prerequisites:** junior standing or instructor's consent

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**BL\_STU 7480: Major African Diaspora Women Writers**

(same as WGST 7480 and ENGLISH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for Black Studies 7180 and 7480.

**Credit Hours:** 3

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**BL\_STU 7487: Major African Diaspora Women Writers, 1603 to 1789**

(same as WGST 7487 and ENGLISH 7487). See BL\_STU 7480 for course description.

**Credit Hours:** 3

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**BL\_STU 7488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 7488 and ENGLISH 7488). See BL\_STU 7480 for course description.

**Credit Hours:** 3

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**BL\_STU 7489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 7488 and ENGLISH 7488). See BL\_STU 7480 for course description.

**Credit Hours:** 3

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**BL\_STU 7710: Themes in African Diaspora Folklore**

(same as ANTHRO 7160 and ENGLISH 7710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. ENGLISH 7700 and ENGLISH 7710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

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**BL\_STU 7810: African-American Religion**

(same as REL\_ST 7810). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

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**BL\_STU 7877: Black Studies Abroad**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their "global competencies" and course of study across the three Black Studies tracks - History, Culture, and Society - as well support their study and/or career development. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 8000: Independent Readings in Black Studies**

Readings on selected topics in Black Studies, with emphasis on the implications of the interdisciplinary and intersecting areas of History, Society, and Culture. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** Department Consent Required

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**BL\_STU 8277: Race, Ethnicity, and Transnational Inequalities**

(same as SOCIOL 8277). This graduate seminar examines the global contest of our radicalized modern world system. How do people develop and give meaning to race/ethnicity in different regions? Focus on the construction of bodies Creole identities, gender, sexualities, citizenships and immigration. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 8400: Seminar in African Diaspora Literature**

(same as ENGLISH 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.



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**Credit Hours:** 3

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**BL\_STU 8410: Seminar in African Diaspora Theory and Literature Criticism**

(same as ENGLSH 8410). Modern and contemporary African Diaspora criticism and theory including diverse approaches to literary and cultural studies. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 8415: Readings in African-American History**

(Same as HIST 8415). Readings on selected topics in African-American history from 1619 to the present, with emphasis on conflicting interpretations. May be repeated to a maximum of six hours.

**Credit Hours:** 3

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**BL\_STU 8416: Seminar in African-American History**

(same as HIST 8416). Directed research in selected topics in African-American history. May be repeated to a maximum of six hours.

**Credit Hours:** 3

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**BL\_STU 8510: Ecology, Conservation, and Environmental Justice**

(same as F\_W 8510). The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: One undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**BL\_STU 8901: Graduate Topics in Black Studies**

Graduate seminar arranged by topics or themes related to Black Studies. Graded on A-F basis only.

**Credit Hours:** 3

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## **Business Administration (BUS\_AD)**

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**BUS\_AD \_0585: Placeholder for TCoB S.America Intersession study abroad program**

Place holder Course for required per-departure on campus information sessions. Zero credit and billing hours. No Term Finalization.

**Credit Hours:** 0

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**BUS\_AD \_0591: Bergamo Study Abroad Pre-departure required on-Campus Information Session (GRAD)**

Place holder Course for Pre-departure required on-Campus Information Session Zero credit and billing hours No Term Finalization

**Credit Hours:** 0

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**BUS\_AD \_0592: Alicante Study Abroad Pre-departure required on-Campus Information Session (GRAD)**

Place holder Course for Pre-departure required on-Campus Information Session Zero credit and billing hours No Term Finalization

**Credit Hours:** 0

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**BUS\_AD \_0593: Prague Study Abroad Pre-departure required on-Campus Information Session (GRAD)**

Place holder Course for Pre-departure required on-Campus Information Session Zero credit and billing hours No Term Finalization

**Credit Hours:** 0

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**BUS\_AD 1500: Foundations of Business and Professional Development Principles**

This course will provide students the opportunity to learn how to be successful in the Trulaske College of Business (TCoB) as they prepare for a career in business. Students will be led through an exploration of opportunities in our college as well as their personal strengths and how those strengths match with various business academic and career paths. Further, students will learn competencies that are necessary for both academic and professional success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

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**BUS\_AD 2500: Intermediate Professional Development Principles**

Introduction to Professional Development in Business, will provide students the opportunity to learn about professional interpersonal dynamics - understanding and working with others. Students will learn skills imperative to forming and nurturing professional relationships and will have the opportunity to practice these skills via field experience. Throughout the course, students will continue to develop the professional competencies necessary for career success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** 27 credit hours

**Corequisites:** BUS\_AD 1500

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**BUS\_AD 3500: Advanced Professional Development Principles**

Provides an introduction to professional competencies important for success as a business professional. Includes the assessment, communication and development of competencies valued by employers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Must be a BSBA or ACCT\_BSACC major

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**BUS\_AD 4500: Professional Development Program - Internship**

This course is designed to help students practice professional core competencies in the workplace. Students will secure a professional-level work experience and apply classroom knowledge and interpersonal skills. This course is a graduation requirement for students seeking the BSBA degree. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** BUS\_AD 3500; Restricted to Upper Level Business Majors who have had their internship approved by the Professional Development Program

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**BUS\_AD 7050: MBA Communications Practice**

Special laboratory instruction in oral and written communication skills with an emphasis on business communications.

**Credit Hour:** 1-3

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**BUS\_AD 7330: Business Law/Regulation**

Legal aspects of employment, administrative regulation, corporate and noncorporate ownership structures, and legal issues involving business transactions.

**Credit Hour:** 2-3

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**BUS\_AD 7340: Business Ethics and Leadership**

Case studies, discussion, and readings used to integrate critical thinking about ethical issues into business decision. Development and application of ethical decision making frameworks.

**Credit Hour:** 1-3

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**BUS\_AD 8001: Topics in Business Administration**

Selected topics in administration offered on experimental basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BUS\_AD 8010: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8020: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8030: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. Some sections may be graded A-F or S/U only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8500: Business Problem Analysis: Field Project**

Application of functional areas of business to real-world cases in business planning. Students will prepare and present business plan for an organization as a team project in a supervised experience.

**Credit Hour:** 1-3

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**BUS\_AD 8600: Business Consulting**

Students work in a team consulting capacity, with medium to large organizations, identifying and defining relatively complex and often ambiguous business problems such as needs assessment, quality management, systems management, policy/strategy formulation and similar areas.

**Credit Hour:** 2-3

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**BUS\_AD 8730: International Study Abroad**

Study abroad opportunities in one or more countries. Focuses on selected international business issues, cultural differences, and visiting businesses on-site. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** consent required

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## Chemical Engineering (CH\_ENG)

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**CH\_ENG 1000: Introduction to Chemical Engineering**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320

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**CH\_ENG 1000H: Introduction to Chemical Engineering - Honors**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320. Honors eligibility required

---

**CH\_ENG 1320: Chemistry and Chemical Technology I**

Covers fundamental principals of chemistry, gases, engineering materials, electrochemistry, and applications with instruction including numerical modeling. Graded on A/F basis only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 1500

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**CH\_ENG 1330: Chemistry and Chemical Technology II**

Covers fundamentals principals of chemistry, gases, engineering materials, electrochemistry, and applications with instruction including numerical modeling. May be repeated for credit. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 1320 or CHEM 1320 and MATH 1500

**Corequisites:** MATH 1500

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**CH\_ENG 2001: Advanced Experimental Course**

Content and number of credit hours to be listed in Schedule of Courses.

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**Credit Hour:** 1-99

**Prerequisites:** sophomore standing

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**CH\_ENG 2118: Introduction to Energy Technology and Sustainability**

An introductory course on energy technology and those resources and practices that allow for sustainable commercialization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing in engineering

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**CH\_ENG 2225: Mass and Energy Balance**

Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750, CHEM 2100

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**CH\_ENG 2226: Engineering Process Computations and Laboratory**

Introduction to the effective use of computer software with emphasis on chemical engineering applications, which include solutions for systems of algebraic equations using matrix methods; solutions of ordinary differential equations and partial differential equations and visualization of those solutions; linear, multilinear, and nonlinear regression for data analysis; 2D and 3D plotting, symbolic calculations, process control simulations, and text processing.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 1700, CH\_ENG 2225

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**CH\_ENG 3234: Principles of Chemical Engineering I**

Fluid flow, heat and mass transfer. A comprehensive treatment of the transport processes related to chemical engineering operations, with focus on both theory and applications.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CH\_ENG 2225

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**CH\_ENG 3235: Principles of Chemical Engineering II**

Separation processes in chemical engineering, including: Evaporation, absorption, distillation, extraction, leaching, membrane separation, and drying.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234

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**CH\_ENG 3243: Chemical Engineering Laboratory I**

Laboratory study of some principal unit operations of chemical engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 2226 and CH\_ENG 3235

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**CH\_ENG 3243W: Chemical Engineering Laboratory I - Writing Intensive**

Laboratory study of some principal unit operations of chemical engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 2226 and CH\_ENG 3235

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**CH\_ENG 3261: Chemical Engineering Thermodynamics I**

Study of thermodynamics, with particular reference to chemical engineering applications.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in CH\_ENG 2225

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**CH\_ENG 3262: Chemical Engineering Thermodynamics II**

Chemical thermodynamics, with emphasis on mixtures. Multicomponent systems and phase diagrams; excess properties; chemical potential, fugacity, and activity; models of non-ideal mixtures; phase and surface equilibria; chemical reaction equilibria.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 2110

**Prerequisites:** CH\_ENG 3261, MATH 2300

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**CH\_ENG 3307: Chemical Process Safety and Professional Ethics**

A course focused on important technical fundamentals of chemical process safety and their application including professional ethics considerations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234, CH\_ENG 3261 or instructor's consent

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**CH\_ENG 4001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 4085: Problems in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4220: Hazardous Waste Management**

(same as CV\_ENG 4220; cross-leveled with CH\_ENG 7220, CV\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous waste, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CH\_ENG 4226: Engineering Research Calculations and Reporting**

(cross-leveled with CH\_ENG 7226). Application and analysis of engineering calculations in MS Excel, Matlab, and project-specific software including applications of calculus, experiential learning, and supervised research. Must have research advisor define at least one experiment and review at least one report. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 4270; cross-leveled with CH\_ENG 7270, BIOL\_EN 7270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**CH\_ENG 4285: Pollution Prevention**

Identify, analyze, and solve energy, water, and raw materials inefficiencies common to industrial processes and facilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320, ENGINR 2300 or CH\_ENG 3261, MATH 2300, and PHYSICS 2760

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**CH\_ENG 4306: Advanced Engineering Math**

(same as NU\_ENG 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 4311: Chemodynamics**

(cross-leveled with CH\_ENG 7311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4312: Air Pollution Control**

(cross-leveled with CH\_ENG 7312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4315: Introduction to Bioprocess Engineering**

(same as BIOL\_EN 4315; cross-leveled with CH\_ENG 7315, BIOL\_EN 7315). This general introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**CH\_ENG 4316: Biomass Refinery Operations**

(same as BIOL\_EN 4316; cross-leveled with CH\_ENG 7316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**CH\_ENG 4317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 7317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100

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**CH\_ENG 4318: Energy Technology and Sustainability**

An introductory course on energy technology, resources, practices, and common calculations used for energy analysis. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** at least one engineering thermodynamics course or a Physical Chemistry course or instructor's consent

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**CH\_ENG 4319: Introduction to Polymer Materials**

(cross-leveled with CH\_ENG 7319). An introduction to the structure and properties of polymers. Solution properties, molecular weight determination and rheological behavior are studied. Manufacturing and processing techniques are considered.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 and CHEM 2110

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**CH\_ENG 4321: Introduction to Ceramics**

(cross-leveled with CH\_ENG 7321). Introductory course in ceramics materials, crystal structure, processes and properties. The course content and level of presentation would allow an entry level engineering to be conversant with the terminology and concepts of ceramic science and engineering.

**Credit Hours:** 3

**Recommended:** Chemistry and Physics

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**CH\_ENG 4335: Transport Phenomena**

(cross-leveled with CH\_ENG 7335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235, and MATH 4100 or MATH 7100

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**CH\_ENG 4345: Special Reading in Chemical Engineering**

Individually supervised special reading leading to an engineering report.

**Credit Hour:** 2-5

**Prerequisites:** senior standing

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**CH\_ENG 4363: Chemical Reaction Engineering and Technology**

Reactor design and optimization; rate equations; thermal effects in reactor.

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**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3262, or instructor's consent

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**CH\_ENG 4370: Process Control Methods and Laboratory**

State-space modeling, simulation, and experimental validation; stability analysis; feedback design and experimental studies; methods for disturbance rejection.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226

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**CH\_ENG 4385: Chemical Engineering Design I**

The course presents optimum design methods, cost estimation, material selection and other relevant areas for the design of chemical plants. In addition, chemical safety and risk assessment will be covered.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3235, CH\_ENG 3262, PHYSICS 2760, CHEM 2110

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**CH\_ENG 4464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 7464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 3310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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**CH\_ENG 4980: Process Synthesis and Design**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363, CH\_ENG 4385

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**CH\_ENG 4980W: Process Synthesis and Design - Writing Intensive**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363, CH\_ENG 4385

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**CH\_ENG 4990: Undergraduate Research in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4995: Undergraduate Research in Chemical Engineering - Honors**

Individual research for a senior thesis; research is supervised by the chemical engineering faculty. The thesis is to be defended before the departmental Honors committee.

**Credit Hour:** 3-6

**Prerequisites:** senior standing

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**CH\_ENG 7001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 7220: Hazardous Waste Management**

(same as CV\_ENG 7220; cross-leveled with CH\_ENG 4220, CV\_ENG 4220). Engineering principles involved in handling, collection transportation, processing and disposal of hazardous waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

---

**CH\_ENG 7226: Engineering Research Calculations and Reporting**

(cross\_leveled with CH\_ENG 4226). Application and analysis of engineering calculations in MS Excel, Matlab, and project-specific software including applications of calculus, experiential learning, and supervised research. Must have research advisor define at least one experiment and review at least one report. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

---

**CH\_ENG 7270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 7270; cross-leveled with CH\_ENG 4270, BIOL\_EN 4270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Prerequisites:** experience with Excel or instructor's consent

---

**CH\_ENG 7311: Chemodynamics**

(cross-leveled with CH\_ENG 4311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

---

**CH\_ENG 7312: Air Pollution Control**

(cross-leveled with CH\_ENG 4312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

---

**CH\_ENG 7315: Introduction to Bioprocess Engineering**

(same as BIOL\_EN 7315; cross-leveled with CH\_ENG 4315, BIOL\_EN 4315). This General introduction to bioprocess engineering covers the fundamentals of microbiology and biochemistry in the context of a biomass refinery. Analysis proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for biological engineering students) or CH\_ENG 2225 (for chemical engineering students) or instructor's consent

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(same as BIOL\_EN 7316; cross-leveled with CH\_ENG 4316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

---

**CH\_ENG 7317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 4317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100

---

**CH\_ENG 7319: Introduction to Polymer Materials**

(cross-leveled with CH\_ENG 7319). An introduction to the structure and properties of polymers. Solution properties, molecular weight determination and rheological behavior are studied. Manufacturing and processing techniques are considered.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 and CHEM 2110

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**CH\_ENG 7321: Introduction to Ceramic Material**

(cross-leveled with CH\_ENG 4321). Introductory course in ceramics materials, crystal structure, processes and properties. The course content and level of presentation would allow an entry-level engineer to be conversant with the terminology and concepts of ceramics science and engineering.

**Credit Hours:** 3

**Recommended:** Chemistry and Physics

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**CH\_ENG 7335: Transport Phenomena**

(cross-leveled with CH\_ENG 4335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235, and MATH 4100 or MATH 7100

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**CH\_ENG 7464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 4464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 3310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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**CH\_ENG 7980: Synthesis and Design of Chemical Process**

(cross-leveled with CH\_ENG 4980). This is a heuristics-based design course intended to assist students in bringing together capabilities from previous course. An emphasis is placed on the creation process of design. Graded on A-F basis only. Prerequisites: CH\_ENG 4363, CH\_ENG 4385

**Credit Hours:** 3

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**CH\_ENG 8001: Advanced Topics in Chemical Engineering**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 8029: Advanced Plasma Processing**

Concepts and techniques in novel plasma processing: plasma characteristics, plasma sputtering, plasma enhanced chemical vapor deposition (PECVD), plasma etching, plasma treatment, plasma fabrication of nano-structured materials and diamondlike films, biomedical applications.

**Credit Hours:** 3

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**CH\_ENG 8085: Problems in Chemical Engineering**

Supervised investigation in chemical engineering to be presented in the form of a report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**CH\_ENG 8087: Seminar in Chemical Engineering**

Reviews investigations and projects of importance in chemical engineering.

**Credit Hour:** 1

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**CH\_ENG 8230: Advanced Ceramic Materials**

(same as BIOL\_EN 8230 and MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**CH\_ENG 8320: Plasma Polymerization**

Fundamental aspects of polymer formation in plasma state: gas ionization, reaction kinetics, plasma characteristics and operational parameters of plasma reactors. Properties of plasma - synthesized ultrathin films and their utilization also discussed.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4319 or instructor's consent

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**CH\_ENG 8336: Advanced Heat and Momentum Transfer**

Advanced study of these transport phenomena.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235 or instructor's consent

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**CH\_ENG 8337: Advanced Mass Transfer**

Advanced study of mass transfer.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4336 or instructor's consent

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**CH\_ENG 8338: Analysis of Equilibrium Stage Processes**

Advanced study of stage processes.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3235 and CH\_ENG 3262

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**CH\_ENG 8429: Membranes and Membrane Processes**

Thermodynamics and mass transfer of membrane separation processes; Concentration-Driven Processes; Pressure-Driven Processes; Electromembrane Processes; Biological Membrane Processes; Membrane Polymers; Preparation of Membranes; Membrane Separation Application (potable and ultrapure water, effluent treatment, gas separations, electrochemistry, dialysis therapeutic, and other applications).

**Credit Hours:** 3

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**CH\_ENG 8451: Advanced Chemical Engineering Thermodynamics I**

Advanced thermodynamics; particular reference to its application to chemical engineering.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 or instructor's consent

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**CH\_ENG 8452: Advanced Chemical Engineering Thermodynamics II**

Introduction to the methods of statistical thermodynamics and statistical mechanics. The method of ensembles, Maxwell-Boltzmann statistics, the kinetic theory of gases, and theories of liquids. Applications of statistical mechanics to the prediction of physical and chemical properties such as rate coefficients, diffusion coefficients, and conductivities. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 8451 or instructor's consent

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**CH\_ENG 8463: Chemical Reaction Engineering Science**

Phenomenological behavior of catalysts. Theoretical interpretations for heterogeneous and homogeneous catalysts.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363

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**CH\_ENG 8471: Process Optimization Methods in Chemical Engineering**

Steady-state and unsteady-state optimization techniques applied to chemical processes.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226

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**CH\_ENG 8990: Research-Masters Thesis in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Masters candidate

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**CH\_ENG 9990: Research-Doctoral Dissertation in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only. candidate

**Credit Hour:** 1-99

**Prerequisites:** Ph.D

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## Chemistry (CHEM)

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**CHEM 1000: Introductory Chemistry**

Introductory course for students with no high school background in chemistry. Covers fundamental principles of scientific measurement, stoichiometry, solutions, basic atomic structure, gases. No credit if taken after CHEM 1100.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1100 or MATH 1120

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**CHEM 1100: Atoms and Molecules with Lab**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1310.

**Credit Hours:** 3

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**CHEM 1100H: Atoms and Molecules with Laboratory - Honors**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1310.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CHEM 1320: College Chemistry I**

First of two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

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**CHEM 1320H: College Chemistry I - Honors**

First of a two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent. Honors eligibility required

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**CHEM 1330: College Chemistry II**

Continuation of CHEM 1320. Covers intermolecular forces, solutions, kinetics, acid-base chemistry, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

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**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H

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**CHEM 1330H: College Chemistry II- Honors**

Continuation of CHEM 1320H. Covers equilibria, kinetics, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H. Honors eligibility required

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**CHEM 1500H: Honors Intensive General Chemistry with Lab - Honors**

A one-semester, intensive introduction to chemistry for honors-eligible students that takes the place of CHEM 1320, CHEM 1330. Four lectures and one 3-hour lab period per week. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** honors eligibility, college algebra and one year of high school chemistry or instructor's consent

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**CHEM 2030: Survey of Organic Chemistry**

One-semester introduction to structure and bonding, functional group chemistry, principles of reactivity, reaction mechanisms, the molecules of life.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in CHEM 1320 or CHEM 1320H or equivalent. Recommended CHEM 1330, or CHEM 1330 concurrently

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**CHEM 2100: Organic Chemistry I**

First course of a two-semester sequence. Structure and bonding; chemistry of hydrocarbons, alkyl halides, alcohols and ethers; reaction mechanisms; principles of reactivity and synthesis; IR and NMR spectroscopy. Only 1 hour credit if taken after CHEM 2030 or equivalent. Prerequisites: grade of C or better in CHEM 1320 or equivalent or CHEM 1330 concurrently,

**Credit Hours:** 3

**Recommended:** CHEM 1330

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**CHEM 2110: Organic Chemistry II**

Continuation of CHEM 2100. Aromatic hydrocarbons, carbonyls, amines; chemistry of carbanions; reactions of polar double bonds; nucleic acids, proteins, carbohydrates and fats.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in CHEM 2100 or equivalent, or departmental consent

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**CHEM 2130: Organic Laboratory I**

Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week.

**Credit Hours:** 2

**Recommended:** Concurrent enrollment in CHEM 2110 or CHEM 2030. No credit for students who have previous organic laboratory credit

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**CHEM 2140: Organic Laboratory II**

Continuation of CHEM 2130. Preparation and identification of organic compounds; application of instrumental techniques. 2 lab sessions, 1 recitation session per week.

**Credit Hours:** 2

**Prerequisites:** grade of C or better in CHEM 2110 and CHEM 2130 or equivalent

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**CHEM 2160H: Honors Organic Chemistry I - Honors**

First course of a two-semester sequence. Similar to CHEM 2100 but with increased depth and breadth; emphasis on preparing science students for research and professional careers. 3 lectures, 1 discussion session per week.

**Credit Hours:** 4

**Prerequisites:** honors eligibility, grade of B or better in CHEM 1320 or equivalent

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**CHEM 2170H: Honors Organic Chemistry II with Lab - Honors**

Continuation of CHEM 2160H; includes laboratory. Content and structure similar to CHEM 2110, but with increased depth and breadth.

**Credit Hours:** 5

**Prerequisites:** honors eligibility, grade of B or better in CHEM 2160H or instructor's permission

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**CHEM 2190H: Honors Organic Chemistry Laboratory - Honors**

Preparation and identification of organic compounds; multistep syntheses; application of instrumental techniques, including NMR, FTIR, MS and HPLC. 2 lab sessions, 1 discussion session per week.

**Credit Hours:** 2

**Prerequisites:** honors eligibility, grade of C or better in CHEM 2170H or equivalent

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**CHEM 2400: Fundamentals of Inorganic Chemistry with Lab**

A systematic introduction with laboratory to inorganic and organometallic compounds, reactions, and periodic properties.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in CHEM 1330

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**CHEM 2950: Undergraduate Research in Chemistry**

A laboratory research project and/or preparation of compounds with a written final report. Cannot be substituted for other chemistry courses required for a B.S. or B.A. degree. No more than 6 hrs. total credit.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, 2.75 GPA and/or instructor's consent

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**CHEM 3200: Quantitative Methods of Analysis with Lab**

Principles and practice of quantitative analysis, including the basic principles of modern instrumental methods.

**Credit Hours:** 4

**Prerequisites:** CHEM 1330 or CHEM 1500H

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**CHEM 3300: Fundamentals of Physical Chemistry**

Survey of physical chemistry. Satisfies physical chemistry prerequisite for BIOCHM 8430.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, a course in organic chemistry; PHYSCS 1210 and PHYSCS 1220 or PHYSCS 2175, or PHYSCS 2176 concurrently

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**CHEM 3310: Physical Chemistry I**

Lecture only. Topics include the kinetic theory of gases, chemical kinetics, thermodynamics and chemical equilibrium.

**Credit Hours:** 3

**Prerequisites:** one semester organic chemistry and PHYSCS 2175, PHYSCS 2176 and MATH 2300, or MATH 2300 concurrently

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**CHEM 3330: Physical Chemistry II**

Continuation of CHEM 3310. Lecture only. Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**Credit Hours:** 3

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**CHEM 3340: Physical Chemistry Laboratory**

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in CHEM 3200; CHEM 3330 or CHEM 3330 concurrently

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**CHEM 3700: Undergraduate Seminar in Chemistry**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 or CHEM 1500H; CHEM 2100 or CHEM 2160H

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**CHEM 3700W: Undergraduate Seminar in Chemistry - Writing Intensive**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 or CHEM 1500H; CHEM 2100 or CHEM 2160H

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**CHEM 3800: Internship in Chemistry**

Cannot be substituted for other chemistry courses required for B.S. or B.A. degree.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**CHEM 3940: Service-Learning in Chemistry**

A service-learning community outreach program affording chemistry students with an opportunity to enhance their problem-solving skills. May be repeated once for credit. Satisfies no specific chemistry degree requirements, nor Arts and Science general education requirements. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** departmental consent

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**CHEM 4001: Topics in Chemistry - General**

Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CHEM 4003: Topics in Chemistry- Natural Science**

Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CHEM 4010: Advanced Chemistry Laboratory**

Advanced methods for the synthesis and characterization of organic, inorganic, and organometallic compounds.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400, CHEM 2140, or CHEM 2190H, CHEM 3200, CHEM 3330 (or CHEM 3330 corequisite)

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**CHEM 4050: Problems in Chemistry**

Individual study under the direction of a faculty member that supplements regular course work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 4160: Intermediate Organic Chemistry**

Stresses synthetic organic chemistry at an intermediate level.

**Credit Hours:** 3

**Prerequisites:** at least one year organic chemistry

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**CHEM 4170: Medicinal Chemistry**

Chemical mechanisms of drug action. Topics include drug metabolism and action, chemical toxicology and medicines, enzyme activity, and specific drug case studies.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110, or CHEM 2170H, CHEM 3300 or CHEM 3310 or instructor's consent

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**CHEM 4200: Instrumental Methods of Analysis with Lab**

(cross-leveled with CHEM 7200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 4280: Environmental Chemistry**

Surveys the chemistry of air and water environments; discusses the chemistry of waste treatment.

**Credit Hours:** 3

**Prerequisites:** 8 hours chemistry including organic and analytical

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**CHEM 4290: Environmental-Toxicological Chemistry**

In-depth study of the chemical aspects of current issues dealing with environmental pollutants and toxic chemical substances.

**Credit Hours:** 3

**Prerequisites:** CHEM 4280

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**CHEM 4400: Inorganic Chemistry**

(cross-leveled with CHEM 7400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** one semester Physical Chemistry, second semester concurrently

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**CHEM 4490: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, PHYSCS 4190 and BIOL\_EN 4480; cross-leveled with CHEM 7490, NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480). Undergraduate/graduate level course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320

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**CHEM 4600: Introduction to Radiochemistry with Lab**

(same as NU\_ENG 4391). Introduces application of radio-tracer techniques to chemical research.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 or CHEM 1500H; and one semester of physical chemistry, or instructor's consent

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**CHEM 4800: Chemistry Teaching Practicum**

Provides practical experience teaching introductory chemistry in discussion and laboratory settings. For students pursuing dual degrees in chemistry and secondary education. For students pursuing simultaneous dual degrees in chemistry and secondary education. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing; departmental consent required

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**CHEM 4950: Senior Research**

A laboratory research project with approved written goals and a final written report. It may be taken twice.

**Credit Hours:** 3

**Prerequisites:** a 2.75 GPA, departmental consent

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**CHEM 4990H: Senior Honors Research I**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, and approval of project outline. Honors eligibility required

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**CHEM 4991H: Senior Honors Research II**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, approval of project outline. Honors eligibility required

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**CHEM 7087: Seminar in Chemistry for Beginning Graduate Students**

Seminar in Chemistry for Beginning Graduate Students

**Credit Hour:** 1

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**CHEM 7200: Instrumental Methods of Analysis with Lab**

(cross-leveled with CHEM 4200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 7300: Intermediate Physical Chemistry**

Treatment of atomic and molecular, structure and spectroscopy based on quantum concepts. Designed to provide a broad base of knowledge in these fundamental areas to beginning graduate students in chemistry.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**CHEM 7400: Inorganic Chemistry**

(cross-leveled with CHEM 4400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** one semester Physical Chemistry, second semester concurrently

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**CHEM 7490: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480; cross-leveled with CHEM 4490, NU\_ENG 4319, PHYSCS 4190, BIOL\_EN 4480). Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

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**CHEM 8003: Topics in Chemistry - Natural Science**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8020: Introduction to X-ray Crystallography**

Designed for students in chemistry and related fields. Aimed at offering a practical understanding of single-crystal x-ray structural studies. Includes hands-on laboratory work (data collection and analysis).

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CHEM 8050: Non-Thesis Research in Chemistry**

Does not lead to dissertation.

**Credit Hour:** 1-99

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**CHEM 8085: Topics in Chemistry**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8087: Seminar in Chemistry**

Seminar in Chemistry

**Credit Hour:** 1

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**CHEM 8090: Thesis/Dissertation (pre-candidacy) Research in Chemistry**

Research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CHEM 8120: Physical Organic Chemistry I**

Bonding theory, physical methods, absorption spectroscopy, conformational analysis, mechanism of reactions.

**Credit Hours:** 3

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**CHEM 8130: Physical Organic Chemistry II**

Case studies and methods for determining organic reaction mechanisms.

**Credit Hours:** 3

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**CHEM 8150: Organic Reaction Mechanisms**

Organic reaction mechanisms are discussed within a framework of structure-reactivity relationships. Particular attention directed to the chemistry of reactive intermediates and the application of stereochemical and molecular orbital concepts.

**Credit Hours:** 3

**Prerequisites:** 1 year of Organic Chemistry and Physical Chemistry

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**CHEM 8160: Organic Spectroscopy**

Structural analysis of organic compounds involving problem solving using modern NMR, IR, UV-VIS, MS CD/ORD and other spectroscopic techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8170: Applications of the Reactions of Organic Chemistry**

**Credit Hours:** 3

**Prerequisites:** CHEM 8150

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**CHEM 8210: Analytical Measurement**

Fundamental and applied aspects of scientific measurements. Topics include: Statistics, signal-to-noise, frequency analysis, sources of noise, digital and analog filtering, time vs. frequency domain measurements, Fourier transformation, sampling, convolution/deconvolution, autocorrelation and cross-correlation. Directed toward entering graduate students.

**Credit Hours:** 3

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**CHEM 8230: Separations and Chromatography**

Classical and instrumental methods of separation: gas, paper, thin film, and column chromatography; ion exchange.

**Credit Hours:** 3

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**CHEM 8240: Mass Spectrometry**

This course will cover various aspects of modern mass spectrometry. Topics will include instrumentation, theory, uses and interfaces to mass spectrometry. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8250: Analytical Spectroscopy**

Selected topics dealing with recent advances in analytical chemistry.

**Credit Hours:** 3

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**CHEM 8260: Surface Analysis and Characterization**

Covers various aspects of modern methods of surface analysis and characterization. Topics include instrumentation, theory, and data reduction methods. Major sections include electron spectroscopy, microscopy, and vibrational spectroscopy as applied to surfaces. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8265: Fluorescence Spectroscopy**

Advanced analytical chemistry course that explores the fundamental principles and uses of modern fluorescence spectroscopy in biology, materials science, chemistry, physics and engineering. Special emphasis is placed on the methodologies used to obtain specific information about a particular chemical system. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8270: Advanced Analytical Chemistry**

Continuation of CHEM 8250.

**Credit Hours:** 3

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**CHEM 8280: Bioanalytical Chemistry**

This course is aimed at introducing students to the instrumental and theoretical principles by which biological molecules are measured in vivo and in vitro. The course explores how protein, DNA and metabolite structures and quantities are determined in the laboratory with an emphasis on understanding historical methods up through cutting edge approaches in each field. The theory of measurement techniques, separation techniques and related instrumentation are explored in the context of understanding the chemical equilibria that govern each

instance. Students will leave this course with a broad understanding for how many biological molecules are measured and what the limitations of various techniques may be. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8285: Nanochemistry**

Covers various aspects of nanochemistry. Topics include synthesis and characterization of nonmaterial, nanotoxicity, and catalysis. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8300: Advanced Physical Chemistry**

Advanced Physical Chemistry

**Credit Hours:** 3

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**CHEM 8310: Quantum Chemistry**

Introduction to formal quantum mechanical theory, quantum measurement, simple model problems having exact solutions, angular momenta, approximation methods (perturbation theory, variation principle, WKB), and the structure of many-electron atoms.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8320: Chemical Kinetics**

Factors affecting rates, orders and mechanisms of chemical reactions, with emphasis on current theories and experimental techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8330: Computational Chemistry**

Theory and application of modern computational techniques (molecular mechanics, ab initio and semiempirical molecular orbital methods) for predicting the structures, energies, and properties of molecules and molecular systems.

**Credit Hours:** 3

**Prerequisites:** CHEM 3300 or equivalent or instructor's consent

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**CHEM 8340: Statistical Mechanics**

Principles of statistical mechanics and their application to chemical systems; ensemble theory; condensed phases.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8350: Magnetic Resonance**

Basic principles of nuclear magnetic resonance (NMR) and electron spin resonance (ESR), nuclear spin relaxation, current experimental techniques and the application to studies of structures, dynamics and chemical analysis.

**Credit Hours:** 3

**Prerequisites:** One year of organic chemistry, CHEM 3300 or equivalent

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**CHEM 8400: Inorganic Mechanisms**

Experimental stoichiometry and rate law determination. Isotopic applications. Methods and results of fast reaction studies. Basic

known inorganic mechanisms. Experimental methods of establishing mechanisms of reaction.

**Credit Hours:** 3

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**CHEM 8410: Chemistry of the Main Group Elements**

Descriptive inorganic chemistry of the main group elements. Textbook material extensively supplemented with information from the current chemical literature.

**Credit Hours:** 3

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**CHEM 8420: Supramolecular Chemistry**

The basics of supramolecular chemistry will be covered, including host-guest complexes, reorganization, complementarity, thermodynamic interactions, self assembly and biochemical, molecular device and crystal engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BS in Chemistry, Biochemistry or Chemical Engineering

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**CHEM 8430: Coordination Chemistry and Reactivity**

The chemistry of the transition elements (d-block) and their reactivity will be discussed, including bonding, coordination numbers, oxidation states, and reactivity (kinetics). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 4400 or equivalent; graduate standing in chemistry or instructor's consent

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**CHEM 8440: Inorganic Structural Methods**

Chemical bonding, application of group theory, spectroscopy; diffraction as applied to structure determination; structural implications of dipole moment and magnetic susceptibility measurements.

**Credit Hours:** 3

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**CHEM 8450: Organometallics**

Condensations effected by organometallics; dissolving metal reductions; sandwich compounds and related organotransition metal derivatives.

**Credit Hours:** 3

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**CHEM 8460: Solid State Chemistry**

An introduction to the unique aspects of extended solids. Crystal symmetry, group theory and their applications to crystallography. Bonding and electronic structure theories of metals and semiconductors. Cooperative magnetism and superconductivity. Defects and ionic conductivity. Preparative methods in solid state chemistry.

**Credit Hours:** 3

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**CHEM 8470: Actinide Chemistry**

The course covers the inorganic and organometallic chemistry of the actinides. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8480: Chemistry of Nanomaterials**

This course will cover several aspects of nanomaterials including synthesis and processing of small particles, as well as their characterization by crystallography, scanning tunneling microscopy

magnetism, and other optical properties. Also studied will be the application of quantum confinement to the electronic and optical properties of nanomaterials and the development of photonic materials. The nanostructure of organic polymers, micelles, and the process of biomineralization to make organic-inorganic hybrid materials will also be discussed.

**Credit Hours:** 3

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**CHEM 8600: Radiochemistry and Detection with Lab**

An introductory course in the applications of radionuclides in chemistry. Topics include radioactive decay, interactions of radiation with matter, radioactive tracers, and nuclear methods of analysis. Directed towards entering graduate students.

**Credit Hours:** 3

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**CHEM 8610: Advanced Radiochemistry**

Reviews current advances in radiochemistry, hot atom chemistry, radiation chemistry, nuclear spectrometry.

**Credit Hours:** 3

**Prerequisites:** CHEM 8600 or equivalent

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**CHEM 8620: Nuclear Chemistry**

Designed for graduate students in chemistry and related fields. Studies nuclear reaction and nuclear properties.

**Credit Hours:** 3

**Prerequisites:** CHEM 3300, MATH 2300 or instructor's consent

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**CHEM 8630: Radiopharmaceutical Chemistry**

The radiotracer concept, history of nuclear medicine, radionuclide production, organic and inorganic chemistry of radiopharmaceutical chemistry, and applications will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** undergraduate organic and inorganic chemistry; graduate standing in chemistry or instructor's consent

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**CHEM 8640: Biological Radiochemistry**

Covers the interaction of radiation on biological material. The effects of radiation overdose is discussed along with the use of radiation in therapy. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 9090: Post-candidacy Dissertation Research in Chemistry**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Child Health (CH\_HTH)

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**CH\_HTH 6000: Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

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**CH\_HTH 6010: Rural Child Health Clerkship**

Rural Child Health Clerkship

**Credit Hours:** 8

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**CH\_HTH 6020: Springfield Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6037: SCC Pediatric Intensive Care**

Student will learn the initial approach and daily management of children requiring care in the Pediatric Intensive Care Unit. Students will learn the evaluation of and the management of critically ill or injured children focusing on airway and pulmonary physiology, cardiac physiology, neurological diseases, traumatic injuries, acute overdoses, endocrine emergencies, basic fluid management, and the medically complex child. Pharmacologic and nutritional management of the critically ill or injured child will also be reviewed.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Child Health clerkship. CH\_HTH 6000, 6010, 6020, or 6100

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**CH\_HTH 6100: Remediation Child Health Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** CH\_HTH 6000 Child Health Clerkship, received unsatisfactory grade

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**CH\_HTH 6221: Advanced Biomedical Science Medicine Problem Premature Infant**

Advanced Biomedical Science Medicine Problem Premature Infant

**Credit Hours:** 5

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**CH\_HTH 6223: ABS Child Health Research**

ABS Child Health Research

**Credit Hour:** 5-10

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**CH\_HTH 6225: ABS Child Health Research and Review**

ABS Child Health Research and Review

**Credit Hour:** 5-10

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**CH\_HTH 6425: Child Health Genetics**

Goals/Objectives: To develop an understanding of medical genetics, including genetic diagnosis, cytogenetics, metabolic genetic diseases, teratology, and the genetics literature, and computer databases. CURRICULUM: During the block, each student will see patients in

consultation and in the genetics clinics (general genetics, metabolic, PKU, autism, Down Syndrome, outreach) where they will work up the patients and prepare a report and discussion of the diagnosis or diagnostic differential. Each student will also prepare a literature review around a specific patient or problem. For interested students, cytogenetics or metabolic problems are available. Prerequisites: Child Health clerkship

**Credit Hours:** 5

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**CH\_HTH 6426: Child Health Infectious Disease**

Child Health Infectious Disease

**Credit Hours:** 5

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**CH\_HTH 6427: Pediatric Hematology/Oncology**

Pediatric Hematology/Oncology

**Credit Hours:** 5

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**CH\_HTH 6428: Pediatric Diabetes and Endocrinology**

Goals/Objectives: 1) To understand the pathophysiology of endocrine and metabolic diseases in childhood. 2) To understand the fundamentals of growth processes in infancy, childhood, and adolescence. CURRICULUM: The Department of Child Health has a large patient care and research program for children with diabetes mellitus. In addition, the Department has a busy general endocrinology program. Thus, students on the elective can participate in the care of patients with a wide spectrum of endocrine and metabolic diseases. Students can carry out specific clinical or laboratory projects relating to specific aspects of either diabetes or endocrine disease, deepen their understanding of pathophysiology of disease and gain a better understanding of the impact of a chronic disorder on the child and his/her family.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6429: Developmental Pediatrics**

Developmental Pediatrics

**Credit Hours:** 5

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**CH\_HTH 6430: Pediatric Cardiology**

Goals/Objectives: Clinical and laboratory material is available to achieve the following objectives: 1) Develop skills in auscultation, resuscitation, treatment of congestive heart failure, and recognition of congenital heart disease in infants. 2) Adequate exposure to pediatric electrocardiography, echocardiography, cineangiography, and interpretation of cardiac catheterization data. 3) Proficiency in the management of postoperative cardio-vascular patients.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6431: Pediatric Pulmonology**

Goals/Objectives: To gain experience in the treatment of asthma, bronchopulmonary dysplasia, cystic fibrosis, sleep disorders, and other respiratory diseases and to learn about pulmonary function testing in children.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6432: Pediatric Gastroenterology**

Goals/Objectives: 1) Gain experience in GI diseases of children noting the difference and similarities with adult diseases. 2) To introduce the student to some of the most commonly encountered diagnoses in pediatrics and to its management. 3) To learn to focus on physical diagnosis skills. CURRICULUM: Preceptorship with a pediatric subspecialist for four weeks will include inpatient and outpatient service activities.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6433: Child Health Sports Medicine**

Child Health Sports Medicine

**Credit Hours:** 5

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**CH\_HTH 6434: Child Adolescent Medicine**

Goals/Objectives: To teach 4th year students the intricacies of care of the adolescent patient. Specifically, the rotation will address the adolescent interview, important considerations in the adolescent "check-up", and managing the varied problems in adolescents, from attention deficit disorder to eating disorders and gynecological issues. The student will leave the rotation with a better understanding of the care of adolescents. CURRICULUM: These objectives will be met in the following manner: 1) Student will actively participate in adolescent medicine clinic with both clinical attendings. He/she will be responsible for the initial evaluation of the patients in the clinic, will actively participate in clinical decision-making, and will be responsible for helping with patient write-ups and referral letters (at the discretion of the attending). The student will be expected to function on an extern level, following up on laboratory evaluations and checking in with patients seen, when needed. 2) The student will participate in the adolescent interview practice sessions with the interact teen theatre with the residents on the rotation. This process will help to improve interviewing skills with adolescents. 3) The student will be responsible for helping with any inpatient care, including consultations and/or admissions. 4) The student will be asked to identify particular areas of interest to be used as topics for interactive discussion with one of the attendings or for a short paper.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6435: Ped Renal and Rheumatology**

4th year elective for renal/rheumatology rotation, four weeks.

**Credit Hours:** 5

**Prerequisites:** 3rd year Pediatrics/Child Health or Internal Medicine rotation

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**CH\_HTH 6706: Internal Medicine Hematology and Medical Oncology Rural Elective**

The student will work as part of a team providing hands-on clinical services in a rural outpatient setting. Students will participate in daily morning report and other didactic sessions provided by the rotation site. Students will learn using a variety of evidence-based resources, direct observations and demonstration.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6002; restricted to medical students only

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**CH\_HTH 6725: Developmental Pediatrics - Rural**

Rural developmental pediatrics general elective.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6000; Restricted to fourth year medical students

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**CH\_HTH 6726: Child Health Rural Elective**

Students will enhance their knowledge about patient-centered care of children through active participation in a primarily outpatient clinical experience. Limited inpatient experience may be offered as well.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6000; restricted to medical students only

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**CH\_HTH 6825: General Child Health - Inpatient**

Goals/Objectives: To provide additional experience in general pediatrics in inpatient care. CURRICULUM: The student will function as a member of the house staff team assuming many of the roles of the first year resident in patient care. This includes working up of patient's management plans, rounding, staffing, conferences, etc. Night coverage with supervision is included.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6826: General Child Health - Outpatient**

Goals/Objectives: To provide additional experience in general pediatrics in outpatient care. CURRICULUM: The student will function as a member of the healthcare team. This includes taking histories, performing physical exams, and working up patient management plans. This may require working evening clinic and Saturday clinic in addition to regular daytime clinics.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6827: Neonatology/Neonatal Intensive Care Unit**

Goals/Objectives: To gain experience: 1) in the evaluation, diagnosis, and management of sick newborns, and 2) in the performance of specialized procedures necessary for ICU care. CURRICULUM: The student will function as a first-year house officer, with his/her own neonatal ICU patients for initial work-up and management, under the supervision of the PL-2 or PL-3 and attending staff. (rotation at Columbia Regional Hospital)

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6828: Pediatric Intensive Care Unit**

Goals/Objectives: 1) To provide the student with the initial approach and management of children requiring care in the Pediatric Intensive Care Unit. 2) To provide the student with the basics of airway management in children. 3) To provide the student with an understanding of the preoperative assessment with preparation of pediatric patients. 4) To provide the student with an introduction to the perioperative management of common pediatric surgical problems. CURRICULUM: Students in this elective will spend time in both the Pediatric ICU and the operating rooms. They will be required to participate in daily rounds in the PICU and follow the medical/surgical patients admitted to the PICU.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6829: Pediatric Neurology**

Pediatric Neurology

**Credit Hours:** 5

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**CH\_HTH 6912: Introduction to Adolescent Medicine**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. In addition to learning and practicing primary care of adolescent patients the elective will present an in-depth experience of adolescent medicine as a subspecialty, including, but not limited to, conditions such as eating disorders, disorders of puberty and menstruation, obesity, ADHD, and substance abuse. Additional teaching methods used include a pre-post test, lectures, and readings relevant to adolescent medicine. Completion of the Child Health Clerkship: CH\_HTH 6000 and CH\_HTH 6010.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6913: Introduction to Pediatric Endocrinology**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. The elective will present an in-depth experience of diabetes/endocrinology as a subspecialty, including, but not limited to, exposure to disorders in growth and puberty, obesity, abnormalities in thyroid function and managing blood glucose levels in patients with type 1 diabetes. Additional teaching methods used may include lectures and readings relevant to this subspecialty.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

**Recommended:** Completion of the Child Health Clerkship (CH\_HTH 6000 or CH\_HTH 6010) is suggested but not required

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## Chinese (CHINSE)

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**CHINSE 1100: Elementary Chinese I**

For beginners with no prior knowledge of Chinese. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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**CHINSE 1200: Elementary Chinese II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in CHINSE 1100 or equivalent

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**CHINSE 2001: Undergraduate Topics in Chinese-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester.

**Credit Hour:** 1-3

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**CHINSE 2005: Undergraduate Topics in Chinese - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. No knowledge of Chinese required. No language credit.

**Credit Hour:** 1-3

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**CHINSE 2100: Everyday Spoken Chinese Level I**

Reinforces and extends ability to use Chinese language for spoken communication. Studies situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on MU campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200

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**CHINSE 2160: Intermediate Chinese I Conversation and Composition**

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200 or equivalent

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**CHINSE 2310: Chinese Civilization I**

Survey of Chinese culture and arts. No knowledge of Chinese is required. No foreign language credit.

**Credit Hours:** 3

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**CHINSE 2330: Chinese Language and Culture**

Presents information about the development of Chinese language over time, the variety of dialects spoken in China, and around the world. Explores relationship between Chinese language and culture. Considers different genres of Chinese literature. Visits to sites significant to development of Chinese language and literature. Introduction to calligraphy and basic daily Chinese.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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**CHINSE 3001: Topics in Chinese - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing and instructor consent

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**CHINSE 3005: Topics in Chinese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**CHINSE 3005H: Topics in Chinese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent, Honors eligibility required

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**CHINSE 3085: Problems in Chinese**

Supervised study in Chinese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CHINSE 3160: Intermediate Chinese II Conversation and Composition**

Continuation of CHINSE 2160. Introduces more complex grammatical constructions and extends ability to use those constructions for written and oral communication. Successful completion of course will enable students to communicate in Mandarin Chinese regarding everyday topics, with a vocabulary of just over 1900 words, and about 380 sentence patterns.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 2160

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**CHINSE 3170: Everyday Spoken Chinese Level II**

For students who have completed 18 credits college-level Chinese. Reinforces and extends ability to use Chinese language for Spoken communication. Class-time spent studying situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on UMC campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 3160 or consent of instructor

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**CHINSE 3180: Advanced Chinese I**

Improves vocabulary, listening, spoken and written Chinese Skills. Discusses basic cultural ideas. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 3160, or equivalent

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**CHINSE 3300: Chinese Traditions and Global Integration**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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**CHINSE 3300H: Chinese Traditions and Global Integration - Honors**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required. Honors eligibility required

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**CHINSE 3310: Chinese Poetry**

This is an introductory course to Chinese poetry, both classical and contemporary, in English. It will explore issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 3320: Modern and Contemporary Chinese Fiction (in translation)**

Studies Chinese fiction from 1920s to 1990s. Preceded by a brief historical survey of Chinese literature. Analyzes works by authors like Lu Xun, Ba Jin, Lao She, Wang Meng and many others of the younger generation. Readings and lectures in English.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**CHINSE 3400: Negotiating Chinese Culture**

As political, business, religious, and personal encounters between Chinese and Americans increase, so also does the need for competence in negotiating these cross-cultural interactions. Whether hosting Chinese guests, visiting China for business or as a scholar, or simply trying to understand current events, a clear understanding of cultural differences and similarities can be quite valuable. Students will be introduced to multiple perspectives on American and Chinese cultural differences along with narratives of cross-cultural experiences. Course address issues related to American and Chinese cross-cultural communication in five spheres of interaction: political, religious, business, interpersonal, education. Through related readings, discussions, and structured conversations with Chinese, students will explore how this information and a deeper understanding of Chinese and American culture can be applied to more fruitful and positive cross-cultural interactions in multiple contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 3880: Contemporary Chinese Film**

(same as FILM\_S 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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## **Civil Engineering (CV\_ENG)**

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**CV\_ENG 1000: Introduction to Civil Engineering**

Introduces various aspects of Civil Engineering practice. May be repeated one time for credit.

**Credit Hour:** 1

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**CV\_ENG 1001: Experimental Course**

For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**CV\_ENG 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**CV\_ENG 2080: Introduction to Dynamics**

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200

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**CV\_ENG 3001: Fundamental Topics in Civil Engineering**

Special engineering topics for undergraduate students.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 3010: Decision Methods for Civil Engineering Design**

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 1200

**Prerequisites:** grade of C- or better in ENGLSH 1000

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**CV\_ENG 3010W: Decision Methods for Civil Engineering Design - Writing Intensive**

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGLSH 1000

**Corequisites:** ENGINR 1200

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**CV\_ENG 3050: Introduction to Geographic Information Systems GIS**

(same as GEOG 3040) Introduces theory, concepts and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using GIS. Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CV\_ENG 3100: Fundamentals of Transportation Engineering**

Covers fundamentals of transportation engineering including geometric design, traffic engineering, pavements, and planning.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in ENGINR 1100

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**CV\_ENG 3200: Fundamentals of Environmental Engineering**

Fundamentals of water quality engineering and water resources, water and wastewater treatment, solid and hazardous and radioactive waste management, air pollution, environmental regulation, and environmental ethics.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in CHEM 1320 or equivalent

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**CV\_ENG 3250: Pollutant Fate and Transport**

(same as ENV\_SC 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and CHEM 1320; or instructor's permission

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**CV\_ENG 3300: Structural Analysis I**

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200

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**CV\_ENG 3300H: Structural Analysis I - Honors**

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200. Honors Eligibility required

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**CV\_ENG 3312: Reinforced Concrete Design**

Basic principles of reinforced concrete design. Design of beams for flexure and shear; design of short and slender columns. Prerequisites: CV\_ENG 3300;

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 3313: Structural Steel Design**

Basic principles of structural steel design. Design of beams, axially loaded members, columns, and bolted and welded connections.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3300 and CV\_ENG 3600

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**CV\_ENG 3400: Fundamentals of Geotechnical Engineering**

Detailed study of physical and mechanical properties of soil governing its behavior as an engineering material.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 2200 and GEOL 1150

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**CV\_ENG 3600: Civil Engineering Materials**

Introduces composition, structure, properties, behavior, and selection of civil engineering materials. Prerequisites: grade of C- or better in ENGINR 2200 or instructor's consent;

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

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**CV\_ENG 3700: Fluid Mechanics**

Statics and dynamics of fluids, principles of continuity, momentum and energy, pipe flow.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better PHYSICS 2750

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**CV\_ENG 3702: Hydrology**

Fundamental concepts of hydrology in engineering; quantitative estimation of stream-flow magnitude and frequency; and open channel flow considerations from stream-flow. Fluid Mechanics lab with lab reports.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better MATH 2300 and CV\_ENG 3200 and CV\_ENG 3700

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**CV\_ENG 4001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 4006: Digital Computer Applications in Engineering**

(cross-leveled with CV\_ENG 7006). Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation, and differential equations. Prerequisites: MATH 2300

**Credit Hours:** 3

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**CV\_ENG 4008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 7008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 4080: Advanced Surveying**

(cross-leveled with CV\_ENG 7080). Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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**CV\_ENG 4085: Problems in Civil and Environmental Engineering**

Directed investigation of civil engineering.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4100: Traffic Engineering**

(cross-leveled with CV\_ENG 7100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4102: Infrastructure Management**

(cross-leveled with CV\_ENG 7102). Civil infrastructure condition assessment, performance modeling, deterioration processes and models, maintenance and rehabilitation strategies, management techniques, data analysis, management systems, financing, case studies, emerging technologies.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4103: Planning and Geometric Design of Highways**

(cross-leveled with CV\_ENG 7103). Techniques of highway planning in rural and urban areas. Design of the visible elements of highways.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 7104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 4106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 7106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4108: Bicycle and Pedestrian Transportation**

(cross-leveled with CV\_ENG 7108). This course teaches how to integrate pedestrian and bicyclist accommodations into the planning and design of transportation facilities. Topics include bicyclist safety, accommodation at intersections, traffic calming techniques and facility design.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4120: Airport Engineering**

(cross-leveled with CV\_ENG 7120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010

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**CV\_ENG 4125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 7125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 4130: Transportation Safety**

(cross-leveled with CV\_ENG 7130) This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 4145: Civil and Environmental Engineering Legal Issues**

(cross-leveled with CV\_ENG 7145). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 4155: Transportation Geography**

(same as GEOG 4850; cross-leveled with CV\_ENG 7155; GEOG 7850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 4175: The Geospatial Science in National Security**

(Same as GEOG 4130; cross-leveled with CV\_ENG 4175, GEOG 7130). This course explores the critical contribution of the geospatial sciences in the collection processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**CV\_ENG 4185: Location Analysis/Site Selection**

(same as GEOG 4740; cross-leveled with CV\_ENG 7185; GEOG 7740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. Maybe be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 4190: Infrastructure Project Development**

(cross-leveled with CV\_ENG 7190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only. Prerequisites: junior standing

**Credit Hours:** 3

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**CV\_ENG 4200: Remote Sensing of the Environment**

(cross-leveled with CV\_ENG 7200). Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic, thermal multispectral and microwave systems, satellite remote sensing and digital image processing.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4210: Solid Waste Management**

(cross-leveled with CV\_ENG 7210). Engineering principles involved in generation, handling, collection, transport, processing, and disposal of solid wastes, resource recovery and reuse, legislation on solid wastes and groundwater contamination problems.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4220: Hazardous Waste Management**

(same as CH\_ENG 4220; cross-leveled with CV\_ENG 7220, CH\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 4230: Introduction to Water Quality**

(cross-leveled with CV\_ENG 7230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4232: Water and Wastewater Treatment Facilities**

(cross-leveled with CV\_ENG 7232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 4240: Water Quality Analysis**

(cross-leveled with CV\_ENG 7240). Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

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**Prerequisites:** grade of C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 4245: Environmental Chemistry for Engineers**

(cross-leveled with CV\_ENG 7245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 or CV\_ENG 3200

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**CV\_ENG 4250: Environmental Regulatory Compliance**

(cross-leveled with CV\_ENG 4250). Systems of water law; provisions of major federal environmental laws and regulations; development of regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 4260: Environmental Public Policy**

(cross-leveled with CV\_ENG 7260). Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law.

**Credit Hours:** 3

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**CV\_ENG 4270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 7270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**CV\_ENG 4290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 7290). Selection and use of wastewater and sludge treatment processes, disposal methods, sustainable wastewater treatment including anaerobic treatment of wastewater reuse.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3200. Instructor's consent required

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**CV\_ENG 4300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 7300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 4302: Prestressed/Advanced Reinforced Concrete**

Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3312

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**CV\_ENG 4310: Structural Design and Analysis**

(cross-leveled with CV\_ENG 4310). Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4300

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**CV\_ENG 4320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 7320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

**Prerequisites:** senior or graduate standing required

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**CV\_ENG 4330: Structural System Design**

(cross-leveled with CV\_ENG 7330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 7350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDEL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** senior standing; grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4360: Bridge Engineering**

(cross-leveled with CV\_ENG 7360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and Shear and Moment Envelopes. Design of Medium- and Short-Span Girder Bridges based on AASHTO LRFD specs.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 7404). This course provides an introduction to geotechnical aspects of earthquake engineering. Topics include: basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil liquefaction.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 4406: Geotechnics of Landfill Design**

(cross-leveled with CV\_ENG 7406). This course will focus on geotechnical and construction aspects in the analysis, design and

construction of waste containment facilities (landfills) including expansions of existing facilities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 4410: Foundation Engineering**

(cross-leveled with CV\_ENG 7410). Subsurface exploration. Design of basic foundation structures, shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 7412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 7500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4600: Advanced Mechanics of Materials**

(same as MAE 4600; cross-leveled with CV\_ENG 7600 and MAE 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 4610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 7610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200 and PHYSICS 2760

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**CV\_ENG 4660: Vibration Analysis**

(same as MAE 4660; cross-leveled with CV\_ENG 7660, MAE 7660). Vibration theory with application to mechanical systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 2080 and MATH 4100

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**CV\_ENG 4692: Introduction to Structural Dynamics**

Theory of structural response to dynamic loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 7700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700

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**CV\_ENG 4703: Applied Hydrology**

(cross-leveled with CV\_ENG 7703). Modern methods of applied hydrologic analysis and synthesis of hydrologic records.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700 and CV\_ENG 3702 or instructor's consent

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**CV\_ENG 4710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 4150; cross-leveled with CV\_ENG 7710, BIOL\_EN 7150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4720: Watershed Modeling Using GIS**

(same as BIOL\_EN 4350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4730: Hydraulic Design**

(cross-leveled with CV\_ENG 7730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 4792: Analysis of Water-Resource Systems**

(cross-leveled with CV\_ENG 7792). Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 4980: Civil Engineering Systems Design**

Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4980W: Civil Engineering Systems Design - Writing Intensive**

Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4990: Undergraduate Research in Civil and Environmental Engineering**

Independent investigation or project in Civil Engineering. May be repeated to 6 hours. Enrollment limited to seniors in Civil and Environmental Engineering.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4995: Research in Civil & Environmental Engineering- Undergraduate Honors**

Independent project, supervised by the honors advisor, to be presented as a formal written report.

**Credit Hour:** 1-3

**Prerequisites:** Civil Engineering students only

**Recommended:** participation in the Civil and Environmental Engineering Departmental Honors Program

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**CV\_ENG 7001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 7002: Analysis of Civil Engineering Decisions**

Formulates and analyzes probabilistic models of civil engineering systems and their environment. Elementary theory of decision making under uncertainty. Application to selected civil engineering problems.

**Credit Hours:** 3

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**CV\_ENG 7003: Optimization of Civil Engineering Systems**

Automated design techniques such as linear, nonlinear, and dynamic programming; gradient and random searching. Civil engineering applications emphasized throughout.

**Credit Hours:** 3

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**CV\_ENG 7004: Engineering Administration**

Cash flow analysis, financial analysis, managerial accounting and cost control, budgeting, organizational structure and behavior.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7006: Digital Computer Applications in Engineering**

(cross-leveled with CV\_ENG 4006). Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation, and differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**CV\_ENG 7007: Quality Management in Civil Engineering**

Quantitative and qualitative quality planning and analysis concepts, including statistical tools and total quality management techniques, control, measurement and assessment. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 4008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 7080: Advanced Surveying**

(cross-leveled with CV\_ENG 4080). Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 2090 and MATH 1500

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**CV\_ENG 7082: Property Boundary Location**

Principles of real property ownership, deeds, property boundary surveying, legal principles of original and retracement surveys Missouri statutes and regulations affecting surveying, GLO corner restoration and re-establishment.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1500 and CV\_ENG 2090

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**CV\_ENG 7100: Traffic Engineering**

(cross-leveled with CV\_ENG 4100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7102: Infrastructure Management**

(cross-leveled with CV\_ENG 4102). Civil infrastructure condition assessment, performance modeling, deterioration processes and models, maintenance and rehabilitation strategies, management techniques, data analysis, management systems, financing, case studies, emerging technologies.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7103: Planning and Geometric Design of Highways**

(cross-leveled with CV\_ENG 4103). Techniques of highway planning in rural and urban areas. Design of the visible elements of highways.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 4104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 7106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 4106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and its practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7108: Bicycle and Pedestrian Transportation**

(cross-leveled with CV\_ENG 4108). This course teaches how to integrate pedestrian and bicyclists accommodations into the planning and design of transportation facilities. Topics include, including pedestrian and bicyclist safety, accommodation at intersections, traffic calming techniques and facility design.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7109: Urban Development and Planning**

Introduction to planning processes; procedures and forces that shape urbanization.

**Credit Hours:** 3

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**CV\_ENG 7110: Transportation Simulation**

(cross-leveled with CV\_ENG 4110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 3100

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**CV\_ENG 7120: Airport Engineering**

(cross-leveled with CV\_ENG 4120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 3010

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**CV\_ENG 7125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 4125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 7130: Transportation Safety**

(cross-leveled with CV\_ENG 4130). This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 7145: Civil and Environmental Engineering Legal Issues**  
(cross-leveled with CV\_ENG 4125). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3010

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**CV\_ENG 7155: Transportation Geography**  
(same as GEOG 7850; cross-leveled with CV\_ENG 4155, GEOG 4850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 7165: Geographic Information Systems I**  
Introduces concepts of computer analysis of geographic data and emphasizes the techniques for handling geographic data. Application of computer-based GIS systems in coursework.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; GEOG 2840

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**CV\_ENG 7175: The Geospatial Sciences in National Security**  
(Same as GEOG 7130; cross-leveled with CV\_ENG 4175, GEOG 4130). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 7185: Location Analysis/Site Selection**  
(same as GEOG 7740; cross-leveled with CV\_ENG 4185, GEOG 4740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 7190: Infrastructure Project Development**  
(cross-leveled with CV\_ENG 4190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7200: Remote Sensing of the Environment**  
(cross-leveled with CV\_ENG 4200). Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic,

thermal multispectral and microwave systems, satellite remote sensing and digital image processing.

**Credit Hours:** 3

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**CV\_ENG 7210: Solid Waste Management**  
(cross-leveled with CV\_ENG 4210). Engineering principles involved in generation, handling, collection, transport, processing, and disposal of solid wastes, resource recovery and reuse, legislation on solid wastes and groundwater contamination problems.

**Credit Hours:** 3

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**CV\_ENG 7220: Hazardous Waste Management**  
(same as CH\_ENG 7220; cross-leveled with CV\_ENG 4220, CH\_ENG 4220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 7230: Introduction to Water Quality**  
(cross-leveled with CV\_ENG 4230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater..

**Credit Hours:** 3

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**CV\_ENG 7232: Water and Wastewater Treatment Facilities**  
(cross-leveled with CV\_ENG 4232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 7240: Water Quality Analysis**  
Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 7245: Environmental Chemistry for Engineers**  
(cross-leveled with CV\_ENG 4245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7250: Environmental Regulatory Compliance**  
(cross-leveled with CV\_ENG 4250). Systems of water law; provisions of major federal environmental laws and regulations; development or regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3



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**CV\_ENG 7260: Environmental Public Policy**

(cross-leveled with CV\_ENG 4260). Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law. Graded on A-F basis.

**Credit Hours:** 3

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**CV\_ENG 7270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 4270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

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**CV\_ENG 7290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 4290). Selection and use of wastewater and sludge treatment processes, disposal methods, leading to rational design of overall wastewater treatment systems. Sustainable wastewater treatment including advanced processes in nutrient removal, anaerobic treatment for wastewater reuse. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 4300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 7302: Prestressed/Advanced Reinforced Concrete**

(cross-leveled with CV\_ENG 4302). Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3312

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**CV\_ENG 7310: Structural Design and Analysis**

(cross-leveled with CV\_ENG 7310). Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4300

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**CV\_ENG 7320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 4320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

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**CV\_ENG 7330: Structural System Design**

(cross-leveled with CV\_ENG 4330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 4350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7360: Bridge Engineering**

(cross-leveled with CV\_ENG 4360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and shear and Moment Envelopes. Design of medium-and Sort-Span Girder Bridges based on AASHTO LRFD Specs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 4404). This course will provide an introduction to topics relating to geotechnical aspects of earthquake engineering. Topics to be covered include; basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil properties, site response analysis and soil liquefaction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 7406: Geotechnics of Landfill Design**

(cross-leveled with CV\_ENG 4406). This course will focus on geotechnical and construction aspects in the analysis, design and construction of waste containment facilities (landfills) including expansions of existing facilities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 7410: Foundation Engineering**

(cross-leveled with CV\_ENG 4410). Subsurface exploration. Design of basic foundation structures: shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400

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**CV\_ENG 7412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 4412). Study of concepts, theories, and design procedures for modern earthwork engineering including:

compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade or C- or better in CV\_ENG 3400

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**CV\_ENG 7500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 4500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

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**CV\_ENG 7510: Construction Methods and Equipment**

Selection and use of construction equipment, planning construction operations, equipment economics and operations analyses.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7600: Advanced Mechanics of Materials**

(same as MAE 7600; cross-leveled with CV\_ENG 4600 and MAE 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 7610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 4610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, digital signals and basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 2200 and PHYSICS 2760

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**CV\_ENG 7660: Vibration Analysis**

(same as MAE 7660; cross-leveled with CV\_ENG 4660, MAE 4660). Vibration theory with application to mechanical systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 2080 and MATH 4100

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**CV\_ENG 7692: Introduction to Structural Dynamics**

(cross-leveled with CV\_ENG 4692) Theory of structural response to dynamics loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 4700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** graduate standing and Grade of C- or better in CV\_ENG 3700

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**CV\_ENG 7702: Pipeline Engineering**

Theoretical and practical aspects of pipeline engineering including pipeline transport of natural gas and various solids such as coal, sand and solid wastes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 and MAE 3400

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**CV\_ENG 7703: Applied Hydrology**

(cross-leveled with CV\_ENG 4703). Modern methods of applied hydrologic analysis and synthesis of hydrologic records.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700 and CV\_ENG 3702, or instructor's consent

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**CV\_ENG 7710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 7150; cross-leveled with CV\_ENG 4710, BIOL\_EN 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3200 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7720: Watershed Modeling Using GIS**

(same as BIOL\_EN 7350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7730: Hydraulic Design**

(cross-leveled with CV\_ENG 4730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 7792: Analysis of Water-Resource Systems**

(cross-leveled with CV\_ENG 4792). Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 8001: Advanced Topics in Civil Engineering**

New and current technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** CV\_ENG 4006 or equivalent

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**CV\_ENG 8002: Directed Reading In Civil Engineering**

Faculty supervised readings course.

**Credit Hour:** 1-3

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**CV\_ENG 8085: Problems in Civil Engineering**

Supervised investigation in civil engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**CV\_ENG 8087: Seminar in Civil Engineering**

Review of research in progress. Research techniques.

**Credit Hour:** 1

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**CV\_ENG 8100: Transportation Planning and Models**

Regional and metropolitan transportation studies; land use, traffic generation, distribution and assignment models.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or CV\_ENG 4003

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**CV\_ENG 8106: Advanced Intelligent Transportation Systems**

This course is intended to be an introductory course in Intelligent Transportation Systems (ITS). This course includes the background of ITS, current implementations, sample deployments, and practical issues and implications.

**Credit Hours:** 3

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**CV\_ENG 8110: Theory of Traffic Flow**

Scientific approach to study of traffic phenomena with emphasis on applications. Deterministic and stochastic models of traffic flow; optimization of intersection controls; computer simulation of traffic problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or instructor's consent

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**CV\_ENG 8120: Traffic Control Engineering**

Information retrieval and analysis of human and vehicular characteristics; roadway element; system control and optimization of highways, intersections; planning and design of new traffic facilities including ways, terminals.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100 or equivalent

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**CV\_ENG 8130: Land Use Planning**

Case study of site planning using systems analysis; feasibility for development or redevelopment; restraints imposed by political, social and economic conditions on land use activity as related to urban and regional relationships.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4106

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**CV\_ENG 8140: Highway Transportation**

Economics of transportation on highways. Comparison of vehicle operation costs. Project studies of highway problems in general.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4103 or equivalent

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**CV\_ENG 8150: Transportation Networks**

This course presents techniques used in equilibrium analysis of transportation networks. The details of traffic assignment algorithms will be discussed along with theory and practical algorithms.

**Credit Hours:** 3

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**CV\_ENG 8160: Advanced Research Methods in Transportation Engineering**

This course will cover advanced research methods used in transportation. A special focus will be on the state-of-art approaches in traffic engineering. Mathematical and analytical models will be reviewed in detail. This is a reading intensive course where students are expected to review research articles on various topics. The methods used in the articles and a critical review of the article findings will be discussed in an interactive manner in the class. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8187: Seminar in Transportation Engineering**

Review of research in progress in the area of transportation engineering.

**Credit Hour:** 1

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**CV\_ENG 8200: Water Quality Modeling**

Derivation and application of models for describing oxygen budget, nutrient exchange, and biological productivity in streams, lakes and estuaries.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 7230

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**CV\_ENG 8208: Finite Element Methods**

(same as MAE 8280). The concepts and fundamentals of the finite element method with applications to problems in solid and fluid mechanics.

**Credit Hours:** 3

**Prerequisites:** MAE 4280

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**CV\_ENG 8210: Groundwater Pollution Evaluation and Modeling**

Fundamentals of groundwater hydraulics and groundwater contamination. Use and development of computer models to simulate flow and pollutant transport.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700, MATH 4100, or instructor's consent

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**CV\_ENG 8215: Environmental Transport Phenomena**

Fundamental processes that control the transport of constituents substances in fluids, and the implications of these processes for a variety of important applications in natural and engineered systems.

**Credit Hours:** 3

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**CV\_ENG 8220: Advanced Hazardous Waste Treatment Processes**

Course includes some introductory materials about hazardous waste regulations followed by advanced treatment methods such as air stripping, soil-vapor extraction, chemical oxidation, membrane processes, in-situ and ex-situ biotreatment methods, solidification and thermal processes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4220

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**CV\_ENG 8225: Aquatic Chemistry**

Principles of chemical thermodynamics and equilibrium applied to processes in natural water and water and wastewater treatment systems. Emphasis on quantitative analyses of acid/base, complexation/dissociation, precipitation/dissolution, and reduction/oxidation reactions. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8230: Unit Process Laboratory**

Studies chemical and physical relationships as applied to unit processes of water and wastewater.

**Credit Hours:** 3

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**CV\_ENG 8240: Physiochemical Treatment Processes**

Fundamental principles, analysis and modeling of physical and chemical processes for water and wastewater treatment.

**Credit Hours:** 3

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**CV\_ENG 8245: Particles in the Environment**

This course is an introduction to interfacial and colloid science, with an emphasis on aqueous systems of natural colloids and engineered nanomaterials. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8250: Biochemical Treatment Processes**

Biochemical principles, kinetic models and energy considerations in the design of biological wastewater treatment processes.

**Credit Hours:** 3

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**CV\_ENG 8260: Environmental Biotechnology**

Major biochemical reactions relevant to environmental engineering. Theory and application of fundamental principles of attached and suspended microbial growth and process engineering for sanitary engineering and biodegradation.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8250 or instructor's consent

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**CV\_ENG 8270: Design of Water and Wastewater Treatment Facilities**

Development of design criteria and their application to the design of water and wastewater treatment facilities.

**Credit Hours:** 3

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**CV\_ENG 8280: Engineering Aspects of Water Quality**

Theoretical aspects of biological, chemical, physical processes; applications in water, wastewater, industrial-waste treatment processes, natural water systems; chemical equilibria, flow models; reaction kinetics on process design, pollutants.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or instructor's consent

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**CV\_ENG 8287: Seminar in Environmental Engineering**

Review of research in progress in the area of environmental engineering.

**Credit Hour:** 1

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**CV\_ENG 8290: Environmental Practicum**

Application of advanced analysis and design techniques to practical problems in environmental engineering. Collaborative group investigations that may include experimental and computer-aided studies. No more than 6 practicum hours may be applied toward the MS degree. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** graduate standing in Civil Engineering

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**CV\_ENG 8295: Environmental Regulatory Policy**

Discussion of the various policy aspects of environmental regulation: economic and non-economic impacts of degradation; risk assessment and management; distribution of environmental risks; regulatory tools; federal vs. state; disclosure; enforcement. Relation to environmental laws. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4250 or CV\_ENG 7250 or equivalent

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**CV\_ENG 8303: Behavior of Reinforced Concrete Members**

The design philosophy, constitutive laws, creep rate sensitivity and aging, shrinkage. Nonlinear response of reinforced concrete members. Deflection computation and control. Bond and anchorage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3312

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**CV\_ENG 8311: Nondestructive Evaluation Engineering**

This course will present the interaction of nondestructive evaluation (NDE) technologies and engineering decision-making. Theory and application NDE technologies will be presented in the context of the engineering analysis required to effectively utilize the technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, ENGINR 1200, MATH 4100

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**CV\_ENG 8312: Advanced Structural Analysis**

Current trends in structural analysis. Elastic analysis of curved beams, arches and suspensions. Finite element and nonlinear methods of analysis.

**Credit Hours:** 3

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**CV\_ENG 8313: Random Vibration**

Analysis of random vibrations including topics in stationary, ergodic and nonstationary random processes, with application to single-degree of freedom, discrete and continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4606

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**CV\_ENG 8314: Numerical Methods in Engineering**

Classification and numerical solution of engineering problems--ordinary and partial differential equations, algebraic equations. Includes initial,

boundary, eigen- and characteristic-value problems. Prerequisites: MATH 4100

**Credit Hours:** 3

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**CV\_ENG 8320: Continuum Mechanics**

(same as MAE 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700, MATH 7100, ENGINR 2200

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**CV\_ENG 8322: Structural Analysis**

Classical and modern methods for elastic analysis. Influence line, Miller-Breslau principle. Introduction to force and displacement methods using matrix analysis. Application to continuous beams, grids, plane and space frames and trusses.

**Credit Hours:** 3

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**CV\_ENG 8330: Theory of Elasticity**

(same as MAE 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**CV\_ENG 8332: Design of Special Structures Systems**

Reviews current trends in design of structural systems and components. Critical evaluation of recent code modifications. Application to design of light gauge metal structures, lateral bracing systems, curved beams and panel systems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4310 or CV\_ENG 4330

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**CV\_ENG 8340: Theory of Plates and Shells**

(same as MAE 8340). Rectangular and circular plates. Variational methods in the analysis of plates and shells. Plates of unusual shape. Shear deformation effects. Large deformation analysis. Analysis of cylindrical shells.

**Credit Hours:** 3

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**CV\_ENG 8342: Space Mechanics**

Rigid body dynamics analysis of satellites, space vehicles. Trajectories, time of flight optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent, and MATH 4100

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**CV\_ENG 8350: Theory of Elastic Stability**

(Same as MAE 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**CV\_ENG 8360: Theory of Plasticity**

(same as MAE 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8330 or instructor's consent

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**CV\_ENG 8372: Reinforced Concrete Theory and Design**

Advanced design of reinforced concrete structures; review of standard codes and specifications and their influence.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350 or equivalent

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**CV\_ENG 8380: Nonlinear Mechanical Analysis**

Analysis of behavior of nonlinear mechanical systems. Nonlinear phenomena of importance in mechanical design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent and MATH 4100

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**CV\_ENG 8382: Dynamical Theory**

Engineering principles and application in mathematical expression of energy, force, inertia system.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent and MATH 4100

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**CV\_ENG 8387: Seminar in Structural Engineering**

Review of research in progress in the area of structural engineering.

**Credit Hour:** 1

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**CV\_ENG 8390: Advanced Topics Structural Analysis**

Computer implementation and application of finite element analysis. Material and geometric nonlinearities. Plastic analysis of structures. Code provisions for analysis of seismic and wind loadings.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350

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**CV\_ENG 8392: Dynamics of Structures**

(same as MAE 8392). Study of the dynamic behavior of structures. Analysis of equivalent lumped parameter systems for the design of structures in a dynamic environment.

**Credit Hours:** 3

**Prerequisites:** MAE 2600 and MATH 4100 or MATH 7100

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**CV\_ENG 8402: Advanced Shear Strength of Soils**

Theoretical soil mechanics as applied to solution of specific engineering problems.

**Credit Hours:** 3

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**CV\_ENG 8403: Consolidation and Settlement**

Settlement of soil, Theory of Consolidation, consolidation testing, settlements of earth fills and embankments, stress distribution in soils, elastic settlement, bearing capacity of shallow foundations, shallow foundations design.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400

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**CV\_ENG 8404: Seepage in Soils**

General principles that govern flow of water through soils and specific procedures for analysis and design of filtration and drainage media in geotechnical and geoenvironmental applications.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8406: Unsaturated Soil Mechanics**

Fundamental principles governing the strength, deformation, and fluid flow behavior of multiphase porous media. Includes specific procedures for analyzing, measuring and modeling strength, hydraulic conductivity, and suction characteristics of unsaturated soil.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8407: Soil Behavior**

Detailed study of composition, fabric, and geotechnical and hydrologic properties of soils that consist partly or wholly of clay. Emphasizes physico-chemical factors governing volume change and shear strength. Expansive clay behavior is examined in detail.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8408: Soil Dynamics**

Cover topics relating to the response of soils to dynamic loading. Topics to be covered include: lab and field methods, cyclic soil models, foundation vibrations, and wave propagation through soil. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 and instructor's consent

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**CV\_ENG 8410: Advanced Foundation Engineering**

Foundation design beyond simple spread footings, special footings and beams on an elastic foundations, mat foundations, pile foundations - static capacity, lateral loads, bucklin, dynamic analysis load tests, pile groups, drilled piers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4410

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**CV\_ENG 8412: Stability and Performance of Earth Slopes**

Principles, mechanics and procedures for analyzing the stability of earth slopes and landfills under short-term, long-term, rapid drawdown, and earthquake conditions.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8413: Design and Analysis of Earth Retaining Structures**

General principals and specific procedures for analysis and design of earth retention systems including consideration of soil-structure interaction.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8420: Advanced Geotechnics**

Advanced study of specific geotechnical engineering topics. Topics may include: Environmental Geotechnics, Landfill Design, Geosynthetics, Laboratory Testing, and Case History. May be repeated for credit when topics vary.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8487: Seminar in Geotechnical Engineering**

Review of research in progress in the area of geotechnical engineering.

**Credit Hour:** 1

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**CV\_ENG 8510: Construction Engineering**

Selection and layout of construction plant. Design and construction of formwork, falsework, cofferdams, conveyors and other temporary structures used by contractors.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4510 or equivalent

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**CV\_ENG 8520: Construction Productivity**

Work improvement techniques in the construction industry reviewed and applied to local construction site. Construction safety influenced by supervisors and managers studied in detail. Declining productivity in the construction industry evaluated and solutions considered.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4500

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**CV\_ENG 8530: Construction Project Management**

Cost analysis, estimating techniques. Time, cost, and quality control of construction projects. Recording/analyzing construction effort. Applications of crew balance, process charts, time-lapse motion pictures, operations research, and preplanning techniques to construction operations. Construction safety.

**Credit Hours:** 3

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**CV\_ENG 8540: Construction Administration**

Organization, management, engineering, business, and legal problems in the construction industry. Purchasing, bonding, insurance, financing, labor relations, and contract administration.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4500

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**CV\_ENG 8610: Materials and Measurement**

About 25% of the course is devoted to the physical measurement of strain, force, displacement and motion. Remainder of course is devoted to advanced study of the behavior of steel and concrete with emphasis on brittle fracture in steel.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3600 or equivalent

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**CV\_ENG 8620: Advanced Dynamics**

(same as MAE 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 2080 and MATH 4100

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**CV\_ENG 8630: Vibrations of Distributed Parameter Systems**

(same as MAE 8630). Vibration analysis of strings, cables, bars, rods, shafts, beams, membranes, plates, circular rings, frames; free and forced oscillation; miscellaneous loading; various boundary conditions; effect of damping; energy methods; method of difference equations.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4660

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**CV\_ENG 8710: Advanced Hydraulic Engineering**

Unsteady flow in pipes and open channels is studied using the method of characteristics and finite difference equations. Hydraulic transient in pipe networks due to valve adjustments, pump startup and pump power failure are analyzed. Control of transient using surge tanks and air chambers is included.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3720

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**CV\_ENG 8720: Hydrotechnical Practicum**

Application of advanced analysis and design techniques to practical problems in hydrotechnical engineering. Collaborative group investigations that may include experimental and computer aided studies. No more than 6 practicum hours may be applied toward the MS degree. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** graduate standing in Civil Engineering

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**CV\_ENG 8730: Fundamentals of Fluid Mechanics**

Treatment of fundamental concepts and theories in fluid mechanics at a level suitable for beginning graduate students.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 8740: Hydrodynamics**

Special topics in potential theory and conformal mapping.

**Credit Hours:** 3

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**CV\_ENG 8750: Wind Engineering**

Study of wind effects on the safety of engineering structures, air pollution and building energy consumption, and the use of wind.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700

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**CV\_ENG 8990: Research-Masters Thesis in Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CV\_ENG 9001: Advanced Topics in Civil Engineering - PhD**

New and current technical developments in civil engineering. For PhD students.

**Credit Hour:** 1-4

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**CV\_ENG 9990: Research-Doctoral Dissertation Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Classical Humanities (CL\_HUM)

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**CL\_HUM 1050: Greek and Latin in English**

A survey of the influence of Greek and Latin upon English literary, scientific, technical, legal and medical vocabulary. Emphasis is upon building competency with complex English words while studying the cultural influence of the classical languages on modern vocabulary.

**Credit Hours:** 3

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**CL\_HUM 1060: Classical Mythology**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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**CL\_HUM 1060H: Classical Mythology - Honors**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CL\_HUM 1060HW: Classical Mythology - Honors/Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CL\_HUM 1060W: Classical Mythology - Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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**CL\_HUM 2005: Topics in Classical Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

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**CL\_HUM 2100: Greek Culture**

Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**Credit Hours:** 3

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**CL\_HUM 2100H: Greek Culture - Honors**

Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CL\_HUM 2200: Roman Culture**

Survey of Roman life and thought. Principal developments in literature, the arts, politics, religion, philosophy, and private life, and their influence on Western Civilization.

**Credit Hours:** 3

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**CL\_HUM 2300: Greek Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Greek World.

**Credit Hours:** 3

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**CL\_HUM 2300H: Greek Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Greek world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CL\_HUM 2400: Roman Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Roman world.

**Credit Hours:** 3

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**CL\_HUM 2500: The Origins of Music in the Ancient World**

Explores the use of music in the earliest historical societies, from the earliest evidence up to the fall of the Roman empire. Topics will include the history of musical instruments, the earliest scores, the development of music theory, the origins of melody, rhythm, and harmony, and the relationship between music, politics, and religion. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060; CL\_HUM 2100; CL\_HUM 2200

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**CL\_HUM 2940: Service Learning in Classical Studies**

Students provide enrichment programming on the Ancient World at various Columbia Public School sites. Participants must be Classical Studies majors or minors. Graded on A/F basis only. Does not meet Arts and Science general education requirements.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**CL\_HUM 3000: Foreigners and Dangerous Women in Greek and Latin Literature**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3000H: Foreigners and Dangerous Women in Greek and Latin Literature - Honors**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3000W: Foreigners and Dangerous Women in Greek and Latin Literature - Writing Intensive**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3005: Topics in Classical Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3005H: Topics in Classical Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3005W: Topics in Classical Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3025: Ancient Western Philosophy**

(same as PHIL 3000). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3050: Philosophy Before Socrates**

A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3050H: Philosophy Before Socrates - Honors**

A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3100: The Age of Pericles**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3100H: The Age of Pericles - Honors**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3150: The Age of Augustus**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3150H: The Age of Augustus - Honors**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3200: Power and Oratory in Ancient Greece**

Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3200H: Power and Oratory in Ancient Greece - Honors**

Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3225: Roman Comedy, Wit and Humor**

Study of works illustrating the comedy, wit and humor of the Romans: readings in comedies of Plautus and Terence, Catullus, Ovid's *Metamorphoses*, Petronius' *Satyricon*, Martial, Juvenal and Macrobius.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3250: Greek and Roman Epic**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3250H: Greek and Roman Epic - Honors**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3300: Greek Drama**

Reading and interpretation of Greek tragedies and comedies in translation.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3300H: Greek Drama - Honors**

Reading and interpretation of Greek tragedies and comedies in translation.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3350: Advanced Mythology**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3350H: Advanced Mythology - Honors**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3400: Murder and Mayhem: Images of Justice in Classical Antiquity**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

Recommended: CL\_HUM 1060

---

**CL\_HUM 3400H: Murder & Mayhem: Images of Justice in Classical Antiquity - Honors**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3400W: Murder and Mayhem: Images of Justice in Classical Antiquity - Writing Intensive**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3450: Greek and Roman Characters and Ideals**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3450H: Greek and Roman Characters and Ideals - Honors**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3550: War and Democracy in Late 5th c. BCE Athens**

(same as PEA\_ST 3550). Explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of relentless warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3600: The Ancient Novel**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3600H: The Ancient Novel - Honors**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3650: Paganism and Christianity**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3650H: Paganism and Christianity - Honors**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3650W: Paganism and Christianity - Writing Intensive**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3700: Women in the Ancient World**

Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3700H: Women in the Ancient World - Honors**

Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3750: Classics in a Cross-Cultural Context**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3750H: Classics in a Cross-Cultural Context - Honors**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 3775: The Ancient World on Film**

(same as AR\_H\_A 3775 and FILM\_S 3775). This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient

narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3775W: The Ancient World on Film - Writing Intensive** (same as AR\_H\_A 3775 and FILM\_S 3775). This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

---

**CL\_HUM 3800: Sports and Spectacles in Greco-Roman Antiquity** Investigates athletic display in ancient Greek and Roman culture, from its earliest representations in Greek literature to the massive spectacles of the Roman empire, with an emphasis on the intersections between sport and spectacle and other areas of ancient cultural life.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**CL\_HUM 4005: Topics in Classical Humanities**  
Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4100: Greece: From the Bronze Age to the Byzantine Empire**  
Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Application required. Graded on A/F basis only.

**Credit Hours:** 6

**Recommended:** CL\_HUM 1060

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**CL\_HUM 4100H: Greece: From the Bronze Age to the Byzantine Empire - Honors**  
Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Participants chosen by instructor. Graded on A/F basis only. Application required.

**Credit Hours:** 6

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**CL\_HUM 4500: Greek and Roman Religion** (same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4500H: Greek and Roman Religion - Honors** (same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4550: Literature and Culture of the Hellenistic Age** (cross-leveled with CL\_HUM 7550). A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4550H: Literature and Culture of the Hellenistic Age - Honors**

A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4600: The Classical Tradition**  
Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4600H: The Classical Tradition - Honors**  
Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

---

**CL\_HUM 4600HW: The Classical Tradition - Honors/Writing Intensive**  
Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

---

**CL\_HUM 4600W: The Classical Tradition - Writing Intensive**  
Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4650: The World of Late Antiquity** (cross-leveled with CL\_HUM 7650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4650H: The World of Late Antiquity - Honors**

A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4770: Oral Tradition**

(same as ENGLSH 4770). Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4770H: Oral Tradition - Honors**

(same as ENGLSH 4770). Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4800: Political Thought in Classical and Christian Antiquity**

(same as POL\_SC 4800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060 and junior standing

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**CL\_HUM 4970: Capstone in Classical Humanities**

Culminating course in the study of Greek and Roman literature and Classical Culture. Required for Classical Humanities majors in first term of senior year.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CL\_HUM 4970H: Capstone in Classical Humanities- Honors**

Culminating course in the study of Greek and Roman literature and Classical Culture. Required for Classical Humanities majors in first term of senior year.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

**Recommended:** for Classical Humanities double-majors

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**CL\_HUM 7005: Topics in Classical Humanities**

Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** any Classical Humanities 3000 level course or instructor's consent

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**CL\_HUM 7550: Literature and Culture of the Hellenistic Age**

(cross-leveled with CL\_HUM 7550). A survey of the literature and culture of the Hellenistic Age. Graded on A-F basis only.

**Credit Hours:** 3

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**CL\_HUM 7650: The World of Late Antiquity**

(cross-leveled with CL\_HUM 4650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

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## Classics (CLASS)

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**CLASS 4100: History of the Greek and Latin Languages**

(same as LINGST 4130; cross-leveled with CLASS 7100, LINGST 7130). Evolution of classical languages and their relationship to each other.

**Credit Hours:** 3

**Recommended:** GREEK 4300 and LATIN 4300

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**CLASS 4205: Topics in Classical Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Recommended:** GREEK 2000 and LATIN 2000

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**CLASS 4300: Introduction to Text Criticism and Paleography**

(cross-leveled with CLASS 7300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Recommended:** GREEK 2000 and LATIN 2000

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**CLASS 4400: Ancient Pastoral**

(cross-leveled with CLASS 7400). Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus.

**Credit Hours:** 3

**Recommended:** GREEK 4300 and LATIN 4300

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**CLASS 4700: Advanced Study in the Teaching of the Classics**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CLASS 4960: Special Readings in Classical Studies**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

---

**CLASS 4970: Capstone in Classical Languages**

Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

**Recommended:** for double-majors

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**CLASS 4970H: Capstone in Classical Languages**

Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year. Recommended for double-majors.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Honors eligibility required

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**CLASS 4995H: Honors Proseminar in Classical Studies**

Limited to Honors undergraduates. To be taken in senior year. Integrated exploration of classical civilization. May repeat to 6 hours maximum.

**Credit Hour:** 3-6

**Prerequisites:** onors eligibility required

**Recommended:** Senior standing

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**CLASS 7000: Introduction to Graduate Study in Classics**

Required of all first-year graduate students.

**Credit Hour:** 1

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**CLASS 7100: History of the Greek and Latin Languages**

(same as LINGST 7130; cross-levelled with CLASS 4100, LINGST 4130). Evolution of classical languages and their relationship to each other.

**Credit Hours:** 3

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**CLASS 7205: Topics in Classical Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**CLASS 7300: Introduction to Text Criticism and Paleography**

(cross-leveled with CLASS 4300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Prerequisites:** 2 years of Classical Languages or equivalent

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**CLASS 7400: Ancient Pastoral**

(cross-leveled with CLASS 4400). Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus.

**Credit Hours:** 3

**Prerequisites:** 2 years each of Greek and Latin

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**CLASS 7700: Advanced Study in the Teaching of the Classics**

**Credit Hours:** 3

**Prerequisites:** classroom teaching experience or chairman's consent

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**CLASS 7960: Special Readings in Classical Studies**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

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**Prerequisites:** graduate standing and classics/classical humanities; departmental consent; Greek--two years classical Greek or equivalent; Latin--two years Classical Latin or equivalent

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**CLASS 8085: Directed Readings in Classics**

For graduate students to undertake special projects for graduate credit under the supervision of faculty.

**Credit Hours:** 3

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**CLASS 8090: Masters Research and Thesis in Classics**

For graduate students studying for the MA and working on a thesis to receive credit for work directly related to the thesis. Graded S/U only.

**Credit Hours:** 3

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**CLASS 8440: Ancient/Medieval Topography**

(same as AR\_H\_A 8440). Descriptive and historical analysis of selected city or site. Subject varies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CLASS 9090: PhD Research and Thesis**

Individual research in preparation for writing thesis and/or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-8

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**CLASS 9187: Seminar in Classical Mythology**

Intensive study of classical mythology in origin, development, meaning and influence.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CLASS 9287: Seminar in the Hellenistic Age**

Seminar in the Hellenistic Age

**Credit Hour:** 3-6

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**CLASS 9387: Seminar in Ancient Rhetoric and Oratory**

Seminar in Ancient Rhetoric and Oratory

**Credit Hours:** 3

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**CLASS 9487: Seminar in Ancient Literary Criticism**

Principles and theories of ancient Greek and Latin literary criticism, as developed in significant works on the subject.

**Credit Hours:** 3

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**CLASS 9587: Greco-Roman Didactic**

Critical and comparative study of Greek and Latin didactic poetry with emphasis on major authors from Hesiod through the Augustan Age.

**Credit Hour:** 3-6

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**CLASS 9687: Seminar in Greco-Roman Religion**

Seminar in Greco-Roman Religion

**Credit Hours:** 3

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**CLASS 9787: Seminar in Greco-Roman Satire and Social Criticism**

Seminar in Greco-Roman Satire and Social Criticism

**Credit Hours:** 3

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**CLASS 9887: Seminar in the Age of the Antonines**

Seminar in the Age of the Antonines

**Credit Hour:** 3-6

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## Clinical Laboratory Sciences (CL\_L\_S)

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**CL\_L\_S 1000: Orientation to Clinical Laboratory Science**

The class is designed to give prospective Clinical Laboratory Science students clinical experience in the field of Clinical Laboratory Science. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** HLTH\_SCI 1000

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**CL\_L\_S 4407: Clinical Laboratory Operations**

This course provides a basic introduction to the theory, practical application, technical performance and evaluation of laboratory skills specific to the practice of clinical laboratory science. Laboratory safety; microscopy; pipetting; general laboratory equipment; quality control; mathematics; phlebotomy; pre-analytic, analytic and post-analytic processes, including specimen collection, processing and transport to maintain test result integrity, will be addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4408: Introduction to Clinical Hematology**

This course introduces the theory, practical application, technical performance and evaluation of hematological and hemostasis procedures. Correlation of laboratory data with the diagnosis of erythrocyte, leukocyte and bleeding/clotting disorders will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4409: Introduction to Clinical Microbiology**

This course introduces the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. The course primarily focuses on bacteriology, but will include introductory coverage of parasitology, mycology and virology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4410: Introduction to Clinical Chemistry and Urinalysis**

This course introduces the theory, practical application, technical performance and evaluation of basic laboratory skills and methods in clinical chemistry and urinalysis. The course focuses on the correlation

of laboratory data with the diagnosis of renal conditions, but will include introductory coverage of carbohydrate, liver and protein conditions, as well as enzymes. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4411: Introduction to Clinical Immunohematology**

This course introduces the theory, practical application, technical performance and evaluation of immunohematology procedures required to provide compatible blood components for transfusion. Methods for collection, processing, storage and transfusion of blood and blood components will be presented. Immunohematology procedures that assist in the diagnosis and management of hemolytic conditions will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4412: Clinical Laboratory Science Theory, Application and Correlation**

Application, evaluation and correlation of laboratory procedures used in the diagnosis and treatment of common disease states. Opportunities for building critical thinking, problem solving, and leadership skills are provided in small group clinical case discussions. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** departmental consent, accepted in into the Medical Technology Program

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**CL\_L\_S 4413: Clinical Endocrinology and Toxicology**

This course introduces the theory, practical application, and evaluation of clinical chemistry laboratory procedures. Correlation of clinical laboratory data with the diagnosis and treatment of endocrine disorders, toxicology disturbances and therapeutic drug monitoring is emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4414: Chemistry I**

Introduction to theory, practical application, technical performance and evaluation of clinical chemistry laboratory procedures.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent, accepted into the Medical Technology Program. May be repeated for credit. Graded on A-F basis only

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**CL\_L\_S 4415: Chemistry II**

Advanced theory, practical application, technical performance and evaluation of clinical chemistry laboratory procedures. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4416: Clinical Hematology I**

Introduction to the theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on correlations of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4417: Clinical Hematology II**

Advanced theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on the correlation of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4418: Clinical Microbiology I**

Introduction to the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4419: Clinical Microbiology II**

Advanced theory, practical application, technical performance and evaluation procedures for isolation, identification and susceptibility testing of infectious disease in humans; bacteriology, mycology, parasitology, virology and serology and correlation of data with diagnosis and treatment. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4420: Clinical Immunology**

Theory, practical application, and evaluation of immunological components; principles and methods used to assess immunologically-related disorders, including hypersensitivity reactions, autoimmune, immunoproliferative and immunodeficiency disorders, tumors and transplantations. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4422: Immunoematology I**

Introduction to the theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. May be repeated for credit. Graded on A/F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental approval, accepted into the Medical Terminology Program

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**CL\_L\_S 4423: Immunoematology II**

Advanced theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4424: Phlebotomy**

Theory, practical application, technical performance and evaluation of procedures used in collecting, handling and processing blood specimens. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4426: Body Fluid Analysis**

Theory, practical application, technical performance and evaluation of procedures used in the analysis of urine and other body fluids, including cerebrospinal, synovial, serous, seminal, amniotic and feces. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4442: Clinical Immunoematology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunoematology procedures and preparation of blood components. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4411 Introduction to Clinical Immunoematology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4443: Clinical Immunoematology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunoematology procedures and preparation of blood components. Course content will include new skills procedures, in addition to the skills and procedures presented in CL\_L\_S 4442 Clinical Immunoematology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4444: Clinical Core Laboratory Practicum**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures and the application of automation and automatic verification techniques, building on the skills and procedures

presented in CL\_L\_S 4407 Clinical Laboratory Operations, CL\_L\_S 4408 Introduction to Clinical Hematology and CL\_L\_S 4410 Introduction to Clinical Chemistry and Urinalysis. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4445: Clinical Core Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4444 Clinical Core Laboratory Practicum. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4448: Clinical Microbiology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4409 Introduction to Clinical Microbiology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4449: Clinical Microbiology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4448 Clinical Microbiology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4970: Clinical Laboratory Management I**

Theory, practical application and evaluation of laboratory management principles and associated models in communication, educational methodology, healthcare systems and financial resources. Opportunities for building critical thinking, problem-solving, and management/professional leadership skills are provided. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4980: Clinical Lab Management II**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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**CL\_L\_S 4980W: Clinical Lab Management II - Writing Intensive**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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## Communication (COMMUN)

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**COMMUN 1200: Public Speaking**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

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**COMMUN 1200H: Public Speaking - Honors**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**COMMUN 2100: Media Communication in Society**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

**Prerequisites:** freshman, sophomore or junior standing only

---

**COMMUN 2100H: Media Communication in Society - Honors**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

**Prerequisites:** freshman, sophomore or junior standing only. Honors eligibility required

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**COMMUN 2200: Video Workshop: Mizzou Network**

A hands-on workshop; students will participate in all phases of video production (camera operations, directing, graphics, video replay, and live audio production and digital editing) in a variety of live sports Projects. There is no requirement of previous production experience or course work. Course may be repeated an additional two times for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** restricted to Communication majors

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**COMMUN 2315: Basic Audio Production and Performance**

Radio speaking in varied types of programs; console operations, tape editing, microphone techniques.



**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2701: Topics in Communication - General**

Topics in Communication - General.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2703: Topics in Communication - Behavioral Science**

Topics in Communication - Behavioral Science.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2705: Topics in Communication - Humanities/Fine Arts**

Topics in Communication - Humanities/Fine Arts.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 3050: Survey of Communication Studies**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3050W: Survey of Communication Studies - Writing Intensive**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3310: Message Design and Writing for the Media**

This course introduces students to writing for the media in various contexts including television, film and new media (e.g., websites and social media).

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100. May be restricted to Communication majors only during early registration

---

**COMMUN 3315: Advanced Audio Production**

The study and application of techniques applicable to radio, television, and multimedia production with an emphasis on digital audio workstation systems.

**Credit Hours:** 3

**Prerequisites:** COMMUN 2315. May be restricted to Communication majors only during early registration

---

**COMMUN 3390: Digital Production I**

Focus on building familiarity with video cameras, microphones, lighting, editing as well as the fundamentals of visual composition, (framing, camera angles, story boards, and ways to visualize information) and processes and procedures for producing and directing.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3395: Digital Production II**

Focus on advanced production work; more elaborate projects including digital shorts, music videos, and short documentaries; advanced editing, storyboards, and emphasis on developing narrative structure.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 or instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 3422: Communication Research Methods**

Focuses on writing and administering surveys, conducting field research, and designing experimental studies.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3441: Nonverbal Communication**

Analysis of form and content of nonverbal communication. Emphasis on role of nonverbal cues in interpersonal communication.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3460: Organizational Advocacy**

Theory and analysis of communication to promote organizational culture and image.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors during early registration

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**COMMUN 3470: Culture as Communication**

(same as ANTHRO 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3490: Mass Media Theory**

Survey of the theories of mass communication.

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100 or senior standing. May be restricted to Communication majors only during early registration

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**COMMUN 3525: Conflict and Communication**

Theory and analysis of communication in conflict situations across a variety of contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. May be restricted to Communication majors only during early registration

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**COMMUN 3561: Relational Communication**

Analysis of communication influences on relational identities and development.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3570: Performance of Literature**

(same as ENGLSH 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**COMMUN 3571: Group Decision Making Processes**

(same as PEA\_ST 3521). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3572: Argument and Advocacy**

Critical analysis and production of argument emphasizing evidence, reasoning, and refutation.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3575: Business and Professional Communication**

Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

---

**COMMUN 3580: Crisis Communication**

The theory and practice of corporate and political communication responses to crisis situations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3636: Contemporary Issues in Mass Communication**

Introduction to current issues and trends and relationship among the new technologies, policies, and potential impact on society.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200 and COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3703: Topics in Communication-Behavioral Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 3705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communications majors only during early registration

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**COMMUN 3705H: Topics in Communication-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent, departmental consent for repetition. May be restricted to Communications majors only during early registration. Honors eligibility required

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**COMMUN 4395: Professional Seminar in Television Production**

Application of principles to advanced television production, direction.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4412: Gender, Language, and Communication**

(same as LINGST 4412, ANTHRO 4412; cross-leveled with COMMUN 7412, LINGST 7412, ANTHRO 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4415: Language and Discourse**

(same as LINGST 4415; cross-leveled with COMMUN 7415, LINGST 7415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent. May be restricted to Communication majors only during early registration

---

**COMMUN 4440: Ethical Issues in Communication**

(same as PEA\_ST 4440; cross-leveled with COMMUN 7440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4473: Political Communication**

(cross-leveled with COMMUN 7473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4474: Theory and Research in Persuasion**

(cross-leveled with COMMUN 7474). Studies the persuasive process, attitude formation, modification.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4476: Organizational Communication**

(cross-leveled with COMMUN 7476). Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4481: Principles of Rhetoric**

(cross-leveled with COMMUN 7481). Development of rhetoric from time of Corax with emphasis on Aristotle; derivation, application of standards for judging effectiveness in communication.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200, junior standing and departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4520: Family Communication**

(same as H\_D\_FS 4680; cross-leveled with COMMUN 7520, H\_D\_FS 7680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4530: Health Communication**

A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 4618: Television Program Analysis and Criticism**

Development of critical viewing skills including analysis of program conventions, genres, and television aesthetics.

**Credit Hours:** 3

**Prerequisites:** junior standing. May be restricted to Communication Majors only during early registration

---

**COMMUN 4628: Children, Adolescents and the Media**

Focus on social scientific research concerning the mass media in the lives of children and adolescents. The course centers on media effects literature and controversies relevant to child and adolescent media users. Course involves readings, lectures, discussions of theories, concepts, methods, and finding. We will also consider social implication and personal choices in media use. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**COMMUN 4638: New Technologies and Communication**

Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. May be restricted to Communication Majors only during early registration

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**COMMUN 4701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4703: Topics in Communication-Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4940: Internship**

Directed professional experience within and outside the University in communication-related fields or organizations. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Admission to department, junior standing, instructor's consent, 2.5 GPA

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**COMMUN 4950: Research Project**

Student contributes to a research project with approved goals and a final written report. As part of the project, student will read articles in the communication research literature. Project can be independent or in conjunction with a faculty research project. Course may be repeated once for credit. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** COMMUN 3050; junior standing and instructor's consent. Approval by a faculty member who will serve as project supervisor

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**COMMUN 4960: Directed Reading**

Independent reading, reports.

**Credit Hour:** 1-99

**Prerequisites:** junior standing or instructor's consent

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**COMMUN 4974: Senior Project**

Integration and adaptation of communication theories to an applied communication problem. Required for all majors.

**Credit Hours:** 3

**Prerequisites:** admission to department, senior standing, and departmental consent

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**COMMUN 4975: Visual Literacy**

Integration of theory and practice. The theoretical component of the class is grounded in the study of visual literacy and the practice component will focus on documentary filmmaking. May not be taken by graduate students. It is a capstone course for undergraduate students only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390, senior standing; Admission to the department

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**COMMUN 4996H: Honors in Communication**

Special work for Honors candidates in communication.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent. Honors eligibility required

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**COMMUN 4997: Honors in Communication**

Special work for Honors candidates in communication.

**Credit Hours:** 2

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**COMMUN 4997H: Honors in Communication**

Special work for Honors candidates in communication.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent. Honors eligibility required

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**COMMUN 7412: Gender, Language, and Communication**

(same as LINGST 7412, ANTHRO 7412; cross-leveled with COMMUN 4412, LINGST 4412, ANTHRO 4412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**COMMUN 7415: Language and Discourse**

(same as LINGST 7415; cross-leveled with COMMUN 4415, LINGST 4415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**COMMUN 7440: Ethical Issues in Communication**

(cross-leveled with COMMUN 4400, PEA\_ST 4440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** graduate standing or departmental consent

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**COMMUN 7473: Political Communication**

(cross-leveled with COMMUN 4473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** graduate standing or departmental consent

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**COMMUN 7474: Theory and Research in Persuasion**

(cross-leveled with COMMUN 4474). Studies the persuasive process, attitude formation, modification.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3576 and departmental consent

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**COMMUN 7476: Organizational Communication**

(cross-leveled with COMMUN 4476). Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3571 or departmental consent

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**COMMUN 7481: Principles of Rhetoric**

(cross-leveled with COMMUN 4481). Development of rhetoric from time of Corax with emphasis on Aristotle; derivation, application of standards for judging effectiveness in communication.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200, and departmental consent

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**COMMUN 7520: Family Communication**

(same as H\_D\_FS 7680; cross-leveled with COMMUN 4520, H\_D\_FS 4680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

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**COMMUN 7530: Health Communication**

A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 7618: Television Program Analysis and Criticism**

Development of critical viewing skills including analysis of program conventions, genres, and television aesthetics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 7638: New Technologies and Communication**

Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3

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**COMMUN 8001: Topics in Communication-General**

Study of selected topics in Communication. Topic and credit may vary semester to semester. Repeatable upon consent of department.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 8085: Problems**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8090: Master's Thesis Research in Communication**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8110: Introduction to Graduate Study in Communication**

Orientation to the field. Introduction to research methods. Production of research proposal. Emphasizes scholarly style of writing.

**Credit Hours:** 3

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**COMMUN 8120: Seminar in Quantitative Methods in Communication**

Quantitative methods of speech research.

**Credit Hours:** 3

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**COMMUN 8130: Topics in Qualitative Research Methods**

Examination of assumptions and techniques of qualitative methods adopting an interpretive framework for analyzing communication phenomena. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 8140: Content Analysis**

Methods of Content Analysis; including consideration of reliability, validity Computer content analysis, codebooks.

**Credit Hours:** 3

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**COMMUN 8150: Seminar in Media Criticism**

Examination and application of various critical methodologies to media texts.

**Credit Hours:** 3

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**COMMUN 8160: Rhetorical Criticism**

Principles, practice criticism (description, analysis, evaluation) of rhetorical artifacts.

**Credit Hours:** 3

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**COMMUN 8170: Seminar in Quantitative Methods in Communication II**

The focus of this course will be the study and practice of various multivariate statistical methods commonly used in communication research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 8120; instructor's consent required

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**COMMUN 8310: Seminar in Interpersonal Communication**

Examines theory and research concerning face-to-face dyadic interactions. Emphasis on context of interpersonal communication events and processes of interactional management.

**Credit Hours:** 3

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**COMMUN 8410: Seminar in Organizational Communication Theory**

Exploration of the theoretical foundations of interpersonal communication in the organization, groups and team development, leadership, organizational decision making, motivation and power, bureaucracy, new information technologies, organizational effectiveness and the change process.

**Credit Hours:** 3

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**COMMUN 8420: Seminar in Small Group Communication**

Identifies and analyzes theories and variables which explain, predict, and/or influence small group communication.

**Credit Hours:** 3

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**COMMUN 8510: Seminar in Mass Communication Theory**

This course will offer graduate students a broad overview of extant theories employed in the study of mass communication and mass media effects. The class will focus on theories of society, theories of media, and the relationships between mass communication and culture. It will also focus on theories of media structures, media organizations, media content, audiences, and media effects.

**Credit Hours:** 3

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**COMMUN 8610: Survey of Political Communication**

Survey of theory and research on political communication; emphasis on messages and audience responses to messages.

**Credit Hours:** 3

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**COMMUN 9050: Research**

Completes comprehensive exams and writes a literature review.

**Credit Hour:** 1-9

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**COMMUN 9090: Doctoral Dissertation Research in Communication**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 9170: Research Practicum**

Student conducts research under close supervision of faculty mentor. Goal: produce research report suitable for submission as convention paper, article, or book chapter. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** consent of mentor required; for advanced graduate students

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**COMMUN 9280: Seminar in Communication Theory**

Examines the nature of theory, the assumptions underlying theoretical approaches to communication, and surveys themes in contemporary communication theories.

**Credit Hours:** 3

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**COMMUN 9310: Seminar in Family Communication**

Examines research and theory of family communication; focus on family communication patterns and processes, emphasis on key conceptual, methodological and theoretical aspects of family communication scholarship and research on family forms, processes and outcomes. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 9330: Topics in Interpersonal Communication**

The course will review theory and research on topics related to the study of communication and interpersonal relationships. Subjects will rotate and include areas such as relational conflict, gender communication, nonverbal communication, intercultural communication, or interpersonal violence and communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 9430: Topics in Organizational Communication**

Examination of theory and research in selected areas of organizational communication. Topics vary by semester. Topics may include socialization, power, gender, emotions, and others. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 9460: Topics in Political Communication**

Examination of theory and research in selected areas of political communication. Topics vary by semester. Topics may include political polarization, political socialization, politics and the media, political advertising, politics and new media.

**Credit Hours:** 3

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**COMMUN 9520: Seminar in Mass Media Effects**

Explores current research in the processes and effects of mass communication. Readings pertain to the current social and psychological effects of media on viewers.

**Credit Hours:** 3

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**COMMUN 9530: Topics in Mass Communication**

Examination of theory and research in selected areas of media communication. Topics vary by semester. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 9610: Seminar in Disaster, Crisis, and Risk**

This course examines several lines of research from multiple disciplines that influence communication during disasters, crises, and emergencies. The course takes a phased approach to disasters, covers Federal government paradigms for disaster communication; crisis communication from an organizational and public relations perspective, risk perception, role of social media and emerging technologies in disasters, media coverage of disasters, and communication and recovery, resilience, and growth.

**Credit Hours:** 3

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**COMMUN 9620: Political Campaign Debates**

Theory and research on political campaign debates applied to analyses of candidate debates. Focus on primary and general presidential debates.

**Credit Hours:** 3

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**COMMUN 9630: Political Advertising**

Theory and research on political advertising applied to analyses of candidate advertisements. Focus on primary and general presidential television spots and web pages.

**Credit Hours:** 3

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**COMMUN 9720: Seminar in Theories of Rhetoric and Criticism**

Directed research on selected topics in rhetorical theory and criticism.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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## Communication Science And Disorders (C\_S\_D)

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**C\_S\_D 1000: Introduction to Communication Science and Disorders**

Nature of communication and its development; types of speech, language and hearing disorders; professional preparation, settings, and work of speech-language pathologists and audiologists. Course graded on S/U basis only.

**Credit Hour:** 1

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**C\_S\_D 1050: Signed English**

Introduction to the English-based sign system, Signed English, a system that has been developed to bridge the gap between English and American Sign Language. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication, Science and Disorder majors only during Early Registration

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**C\_S\_D 1060: Human Language**

(same as ANTHRO 1060, LINGST 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**C\_S\_D 1100: American Sign Language I**

Introduction to American Sign Language (ASL). Development of basic expressive and receptive skills in ASL, the manual alphabet, numbers, and signed vocabulary. Includes an overview of ASL syntax and grammar. Course graded on A-F basis only.

**Credit Hours:** 5

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**C\_S\_D 1200: American Sign Language II**

This course is designed to increase students' understanding of American Sign Language. Students will increase their sign vocabulary, expressive and receptive skills, an understanding of ASL syntax and grammar. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** C\_S\_D 1100 or equivalent

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**C\_S\_D 2120: Survey of Communication Disorders**

Systematic survey of the disorders of speech, language and hearing.

**Credit Hours:** 3

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**C\_S\_D 2150: American Sign Language III**

This course expands on vocabulary and signing skills developed in ASL II. Includes review of ASL grammar and extensive discussions of ASL linguistic structure and Deaf culture. Class is conducted entirely in ASL. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C\_S\_D 1200 with minimum grade of C or instructor's consent

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**C\_S\_D 3010: American Phonetics**

(same as LINGST 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication Science and Disorders majors only

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**C\_S\_D 3020: Normal Language Development**

Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes; language sample analysis; relationship between spoken and written language.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 3020W: Normal Language Development - Writing Intensive**

Language development in children and changes in language processing during normal aging. Cognition and language; language learning

processes; language sample analysis; relationship between spoken and written language.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 3210: Anatomy and Physiology of the Speech Mechanism**

(same as LINGST 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 3220: Speech Acoustics**

(same as LINGST 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only or instructor's consent

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**C\_S\_D 3230: Hearing Science**

Introduction to the nature of sound and its measurement; anatomy and physiology of the auditory and vestibular systems; psychoacoustic methods and phenomena.

**Credit Hours:** 3

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**C\_S\_D 4001: Topics in Communication Science and Disorders**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with program consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**C\_S\_D 4020: Language Disorders in Children**

Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4020W: Language Disorders in Children - Writing Intensive**

Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorder majors only

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**C\_S\_D 4030: Language Disorders of Adults**

Introduction to acquired adult language disorders. Review of neuroanatomy/physiology, etiology and symptomatology, with introduction to assessment and treatment procedures.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4050: Clinical Applications of Sign Language**

(cross-leveled with C\_S\_D 7050). This course covers research, theory, and methods of using sign language to assist the communication of the Deaf, individuals with disabilities, and hearing learners. Use of sign language to improve literacy and classroom management will also be targeted. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

**Recommended:** C\_S\_D 1050 or C\_S\_D 1100 or equivalent

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**C\_S\_D 4210: Fluency Disorders**

Introduction to the nature, assessment, and treatment of fluency disorders. Emphasis on developmental stuttering.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4220: Voice Disorders**

Introduction to voice disorders in children and adults. Includes overview of perceptual and instrumental assessment procedures and selected treatment approaches.

**Credit Hour:** 1

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4320: Disorders of Phonology and Articulation**

Overview of disorders of use and production of speech sounds with an emphasis on developmental disorders. Introduction to assessment and treatment.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 4330: Introduction to Audiology**

Principles and techniques of audiological testing; etiologies of hearing impairment; current technologies in rehabilitation.

**Credit Hours:** 3

**Prerequisites:** C\_S\_D 3230; Communication Science and Disorders majors only or instructor's consent

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**C\_S\_D 4340: Aural Rehabilitation**

(cross-leveled with C\_S\_D 7340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4430: Neurophysiology for Speech, Language, and Hearing**

(cross-leveled with C\_S\_D 7430). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

**Prerequisites:** Communications Science and Disorders majors only

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**C\_S\_D 4810: Psycholinguistics**

(same as LINGST 4810; cross-leveled with C\_S\_D 7810, LINGST 7810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**C\_S\_D 4820: Speech Perception**

(same as LINGST 4820; cross-leveled with C\_S\_D 7820, LINGST 7820). Selected topics in the perceptual processing of speech sounds and spoken language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**C\_S\_D 4830: Individual Differences in Language Processing**

(cross-leveled with C\_S\_D 7830). Examination of the normal variations exhibited across individuals in the acquisition, use, and representation of language. Also considered are individual differences seen in second language learning, the aging process, and language disorders.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**C\_S\_D 4840: Language and Development in Infancy**

(cross-leveled with C\_S\_D 7840). Overview of theory and research on the foundations and development of language in infancy (0 to 2 years), with an emphasis on relevant, interrelated areas of development, individual differences, early recognition of delay, and assessment.

**Credit Hours:** 3

**Prerequisites:** senior standing required. Instructor's consent required

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**C\_S\_D 4900: Clinical Observation in Communication Disorders**

Directed clinical observations designed to prepare the student for clinical practicum. Required for professional certification. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**C\_S\_D 4945: Clinical Apprenticeship in Communication Disorders**

Supervised observation and clinical experience in speech-language pathology for undergraduates.

**Credit Hour:** 1-3

**Prerequisites:** senior standing and departmental consent. Communication Science and Disorders majors only

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**C\_S\_D 4950: Research Apprenticeship**

Research apprenticeship with a faculty member, assisting in the development and execution of research in communication processes and disorders. May be repeated to 6 hrs. maximum.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 4960: Directed Reading in Communication Science and Disorders**

Independent reading; reports.



**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 4990: Honors Thesis**

Individual honors thesis on a topic selected with a faculty advisor. Requires planning, conducting, and writing up a research project under the guidance of a faculty member. Successful completion of thesis and maintenance of 3.3 GPA, leads to degree with departmental honors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing; 3.3 GPA; 3.5 GPA in Communication Science and Disorders courses; instructor's consent. Restricted to Communication Science and Disorders students only

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**C\_S\_D 7001: Topics in Communication Science and Disorders**

Study of selected topics in speech pathology/audiology. Topic and credit may vary from semester to semester. May be repeated for credit with instructor and departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 7050: Clinical Applications of Sign Language**

(cross-leveled with C\_S\_D 4050). This course covers research, theory, and methods of using sign language to assist the communication of the Deaf, individuals with disabilities, and hearing learners. Use of sign language to improve literacy and classroom management will also be targeted. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

**Recommended:** C\_S\_D 1050 or C\_S\_D 1100 or equivalent

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**C\_S\_D 7085: Problems in Communication Science and Disorders**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 7340: Aural Rehabilitation**

(cross-leveled with C\_S\_D 4340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**C\_S\_D 7430: Neurophysiology for Speech, Language, and Hearing**

(cross-leveled with C\_S\_D) 4430). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors or instructor's consent

---

**C\_S\_D 7810: Psycholinguistics**

(same as LINGST 7810: cross-leveled with C\_S\_D 4810, LINGST 4810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**C\_S\_D 7820: Speech Perception**

(same as LINGST 7820; cross-leveled with C\_S\_D 4820, LINGST 4820). Selected topics in the perceptual processing of speech sounds and spoken language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**C\_S\_D 7830: Individual Differences in Language Processing**

(cross-leveled with C\_S\_D 7830). Examination of the normal variations exhibited across individuals in the acquisition, use, and representation of language. Also considered are individual differences seen in second language learning, the aging process, and language disorders.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**C\_S\_D 7840: Language and Development in Infancy**

(cross-leveled with C\_S\_D 4840). Overview of theory and research on the foundations and development of language in infancy (0 to 2 years), with an emphasis on relevant, interrelated areas of development, individual differences, early recognition of delay, and assessment.

**Credit Hours:** 3

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**C\_S\_D 8001: Topics in Communication Science and Disorders**

Study of selected topics in speech pathology/audiology. Topic and credit may vary from semester to semester. May be repeated for credit with instructor and departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, instructor's

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**C\_S\_D 8020: Developmental Language Disorders**

Nature, etiology, assessment and management of childhood language disorders.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8030: Acquired Language Disorders**

Etiology, symptomatology, assessment and rehabilitation of acquired neurogenic communication disorders in aphasia, traumatic brain injury, and dementia.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8050: Research in Communication Science and Disorders**

Independent research leading to a report but not to a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 8085: Problems in Communication Science and Disorders**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 8087: Seminar: Contemporary Topics in Speech-Language Pathology**

Advanced study involving critical literature review and research on selected topics in speech and language. May be repeated for up to 6 credits.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 8090: Research in Communication Science and Disorders**

Research leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. Graded on a S/U basis only

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**C\_S\_D 8200: Motor Speech Disorders**

Etiology, symptomatology, epidemiology, and prognosis of motor speech disorders resulting from acquired neurological damage. Emphasis on clinical assessment and rehabilitation procedures. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8210: Disorders of Fluency**

Identification and remediation of fluency disorders in children and adults.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8225: Voice Science and Voice Disorders**

Diagnosis and management of communicative disorders resulting from pathologies or misuse of the phonatory system. Includes experience with pertinent laboratory instrumentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to MHS CSD students; or with instructor's consent

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**C\_S\_D 8230: Dysphagia**

Etiology, symptomatology, and epidemiology of acquired and developmental swallowing disorders (dysphagia). Emphasis on instrumental and non-instrumental methods for assessing and treating dysphagia.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8240: Orofacial Anomalies**

Nature, causes, diagnosis, and treatment of disorders of communication associated with congenital orofacial anomalies. Emphasis on cleft palate.

**Credit Hour:** 1

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8250: Clinical Methods in Speech-Language Pathology**

An introduction to clinical procedures and evidence-based intervention methods relating to speech and language disorders. Topics include

session design, data collection, measurement of progress, reporting of clinical results, and various treatment options. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8260: Diagnosis in Speech-Language Pathology**

General principles of diagnosis; specific diagnostic tools and procedures for various speech and language disorders.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8300: Neurological Bases of Speech and Language**

Structure and function of the human brain and nervous system including general organization, cranial nerves, basal ganglia, cerebellum, and descending motor pathways as related to the field of speech language pathology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8320: Speech Sound Disorders**

Principles of clinical assessment and treatment for speech sound disorders in children. Includes foundations in research on early speech sound acquisition, organic and developmental disorders, and treatment efficacy. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8420: Reading and Language Disabilities in School-Age Children**

Theories, research, and practice in reading development and disorders. Assessment and remediation of reading disabilities related to language disorders of various etiologies including developmental language disorders and head injury.

**Credit Hours:** 2

**Prerequisites:** C\_S\_D 4020 or C\_S\_D 8020

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**C\_S\_D 8430: Augmentative and Alternative Communication**

Students will learn the principles of AAC assessment, methods of intervention, and types of technology available for individuals unable to communicate fully through speech. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

---

**C\_S\_D 8500: Issues in Professional Practice**

Organizational, inter-professional, economic, legal, and ethical aspects of delivering speech, language, and hearing services. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8600: Clinical Language Analysis**

This course provides a theoretical framework for understanding the morphology, semantics, syntax, and pragmatics of English as well as

practice in the analysis of typical and atypical language samples. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8935: Clinical Practice in Audiology**

Supervised practice in hearing screening, hearing conservation, and aural re/habilitation. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

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**C\_S\_D 8945: Clinical Practice in Speech-Language Pathology**

Supervised clinical practice in speech pathology for graduate students. May be repeated for credit.

**Credit Hour:** 1-10

**Prerequisites:** Communication Science and Disorders students only

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**C\_S\_D 8960: Directed Reading in Communication Science and Disorders**

Independent reading; reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 9050: Research in Communication Science and Disorders**

Independent research leading to a report but not to a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**C\_S\_D 9087: Seminar: Contemporary Topics in Speech-Language Pathology**

Advanced study involving critical literature review and research on selected topics in speech and language. May be repeated for up to 6 credits.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**C\_S\_D 9090: Research in Communication Science and Disorders**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Computer Science (CMP\_SC)

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**CMP\_SC 1000: Introduction to Computer Science**

This course introduces the Computer Science field, including the history of computers, career opportunities, and ethical/social issues. There will be lectures given by MU Computer Science faculty to discuss exciting fields as well as career advisement given by Computer Science industry representatives. Prerequisites: Restricted to freshman/sophomore students who are BS Computer Science, BS Information Technology and Undeclared Engineering or Pre-Engineering may enroll in the class without permission

**Credit Hour:** 1

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**CMP\_SC 1001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 1050: Algorithm Design and Programming I**

This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1100 or MATH 1160 or MATH 1500. May be restricted to Engineering majors only

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**CMP\_SC 2001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 2050: Algorithm Design and Programming II**

A study of fundamental techniques and algorithms for representing and manipulating data structures. Topics include data abstraction, recursion, stacks, queues, linked lists, trees, efficient methods of sorting and searching, and Big-O analysis.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 1050. May be restricted to Engineering majors only

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**CMP\_SC 2111: Production Languages**

The study of the syntax, semantics, and applications of one programming language suitable for large scale scientific or commercial projects, such as FORTRAN, COBOL, PL/1, C, or ADA. May be taken more than once for credit.

**Credit Hour:** 1-3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 2270: Introduction to Digital Logic**

Basic tools, methods and procedures to design combinational and sequential digital circuits and systems, including number systems, boolean algebra, logic minimization, adder design, memory elements, and finite state machine design.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 1050

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**CMP\_SC 2830: Introduction to the Internet, WWW and Multimedia Systems**

This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 3001: Topics in Computer Science**

Current and new technical developments in computer science. May be repeated for 6 hours credit.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent. For juniors and seniors

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**CMP\_SC 3050: Advanced Algorithm Design**

This class surveys fundamental algorithms and data structures that have wide practical applicability, including search trees and graph algorithms. Emphasis is placed on techniques for efficient implementation and good software development methodologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 with a C or higher

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**CMP\_SC 3280: Computer Organization and Assembly Language**

Introduces computer architectures, programming concepts including parameter passing, I/O, interrupt handling, DMA, memory systems, cache, and virtual memory. Graded of A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2270 or ECE 1210

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**CMP\_SC 3330: Object Oriented Programming**

This course focuses on object-oriented programming concepts: abstraction, polymorphism, encapsulation, inheritance, interfaces, abstract classes, files, streams, and object serialization. Topics such as GUI and event-driven programming are also tackled.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 with a C or higher grade

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**CMP\_SC 3380: Database Applications and Information Systems**

Covers fundamental topics of database management systems (DBMS) and database-enabled applications. Topics include a brief history of secondary storage and databases, data modeling, introductory SQL, an overview of current database trends, and current popular database systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 3530: UNIX Operating System**

Introduction to the UNIX operating system and its interfaces including the file system, shell, editors, pipes and filters, input/output system, shell programming, program development including C, and document preparation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 3940: Internship in Computer Science**

Computer-related experience in business or industry jointly supervised by faculty and computer professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 4001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 4050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 7050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 2320

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**CMP\_SC 4060: String Algorithms**

(cross-leveled with CMP\_SC 7060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4050

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**CMP\_SC 4070: Numerical Methods for Science and Engineering**

(cross-leveled with CMP\_SC 7070). Introduces basic numerical methods widely used by computer scientists/engineers. Students will use the MATLAB platform to computationally solve problems, such as finding roots of nonlinear equations, solving systems of equations, fitting curves, solving ODEs, finding eigenvalues, etc. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and junior standing or instructor's consent

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**CMP\_SC 4080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 7080) This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210 and C- or higher in CMP\_SC 3050 or ECE 3220

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**CMP\_SC 4085: Problems in Computer Science**

Independent investigation or project in Computer Science. May be repeated to up 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** senior standing in Computer Science

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**CMP\_SC 4270: Computer Architecture I**

(cross-leveled with CMP\_SC 7270). Architectural features of high-performance computer systems including hierarchical and virtual memory, pipelining, vector processing and an introduction to multiple-processor systems.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2270 and CMP\_SC 2050

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**CMP\_SC 4280: Network Systems Architecture**

(same as ECE 4280; cross-leveled with CMP\_SC 7280, ECE 7280). The course covers network systems (interconnects and switch fabrics, network considerations) and relevant networking applications at the network, transport and application layer.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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**CMP\_SC 4320: Software Engineering I**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3380

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**CMP\_SC 4320W: Software Engineering I - Writing Intensive**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3380

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**CMP\_SC 4330: Object Oriented Design I**

(cross-leveled with CMP\_SC 7330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330

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**CMP\_SC 4350: Big Data Analytics**

(cross-leveled with CMP\_SC 7350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course

will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 and CMP\_SC 3380

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**CMP\_SC 4380: Database Management Systems I**

(cross-leveled with CMP\_SC 7380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3380

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**CMP\_SC 4410: Theory of Computation I**

(cross-leveled with CMP\_SC 7410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320

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**CMP\_SC 4430: Compilers I**

(cross-leveled with CMP\_SC 7430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for block structured languages, and run-time storage organization. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320, CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 4440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 7440). Malicious software or "malware" is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and teaches ethical issues surrounding computer security violations.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210

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**CMP\_SC 4450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 7450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

---

**CMP\_SC 4460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 7460). Cryptography is an important technique used to achieve security goals in an untrusted and possibly adversarial environment. The goals of this course are: (1) to provide students with a solid background with basic cryptographic techniques and their applications, (2) to impart knowledge of standard cryptographic algorithms and (3) to foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 2320

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**CMP\_SC 4520: Operating Systems I**

(cross-leveled with CMP\_SC 7520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 1700

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**CMP\_SC 4530: Cloud Computing**

(cross-leveled with CMP\_SC 7530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 or instructor's consent

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**CMP\_SC 4610: Computer Graphics I**

(cross-leveled with CMP\_SC 7610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 1500 or C- or higher in CMP\_SC 3050 and MATH 1300 and MATH 1400

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**CMP\_SC 4620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 7620). This course introduces students to physically based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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**CMP\_SC 4650: Digital Image Processing**

(same as ECE 4655; cross-leveled with CMP\_SC 7650, ECE 7655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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**CMP\_SC 4670: Digital Image Compression**

(same as ECE 4675; cross-leveled with ECE 7675, CMP\_SC 7670). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 4720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 4720; cross-leveled with ECE 7720, CMP\_SC 7720) This course provides foundations and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

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**CMP\_SC 4730: Building Intelligent Robots**

(same as ECE 4340; cross-leveled with CMP\_SC 7340, ECE 7340). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Prerequisites:** junior standing

**Recommended:** programming experience in one of the following programming languages - Basic, C, C++, or Java

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**CMP\_SC 4740: Interdisciplinary Introduction to NLP**

(same as LINGST 4740; cross-leveled with CMP\_SC 7740; LINGST 7740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**CMP\_SC 4750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 7750). Introduction to the concepts and theories of intelligent systems. Various approaches to creating intelligent

systems, including symbolic and computational approaches, insight into the philosophical debates important to understanding AI.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and junior standing

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**CMP\_SC 4770: Introduction to Computational Intelligence**

(same as ECE 4870; cross-leveled with CMP\_SC 7770, ECE 7870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 4830: Science and Engineering of the World Wide Web**

(cross-leveled with CMP\_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2830

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**CMP\_SC 4850: Computer Networks I**

(cross-leveled with CMP\_SC 7850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2270 or ECE 1210 and C- or higher in MATH 2320

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**CMP\_SC 4860: Network Security**

(cross-leveled with CMP\_SC 7860). Principles and practice of cryptography, network security, and computer system security. It includes symmetric and asymmetric cryptography, authentication, security applications such as secure email, IP security, Web security, and system security issues such as intruders, viruses, worms, Trojan horses, and firewalls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4850

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**CMP\_SC 4870: Wireless and Mobile Networks**

(cross-leveled with CMP\_SC 7870). Concepts and techniques in wireless and mobile networks: cellular concepts, wireless physical layer, wireless MAC protocol, mobility management, power management, wireless network security, wireless telecommunication system, wireless LAN, wireless ad hoc networking, wireless personal area network. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4850

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**CMP\_SC 4970: Senior Capstone Design I**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4970W: Senior Capstone Design I - Writing Intensive**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4980: Senior Capstone Design II**

Course entails completion of CMP\_SC 4970 design project. Design prototyping, testing, evaluation, presentation, and preparation of documentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4970

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**CMP\_SC 4990: Undergraduate Research in Computer Science**

Independent investigation or project in Computer Science. May be repeated to 6 hours.

**Credit Hour:** 0-6

**Prerequisites:** senior standing in Computer Science

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**CMP\_SC 4995: Undergraduate Research in Computer Science - Honors**

Independent investigation to be presented as an undergraduate honors thesis.

**Credit Hour:** 1-6

**Prerequisites:** honors student in Computer Science

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**CMP\_SC 7001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 7010: Computational Methods in Bioinformatics**

(same as INFOINST 7010) Introduces the fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis will be placed on the computational aspect of bioinformatics, including formulation of a biological problem in a computable problem, design of scoring functions and algorithms, confidence assessment of prediction results and software development.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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**CMP\_SC 7050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 4050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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**CMP\_SC 7060: String Algorithms**

(cross-leveled with CMP\_SC 4060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 7070: Numerical Methods for Science and Engineering**

(cross-leveled with CMP\_SC 4070). Introduces basic numerical methods widely used by computer scientists/engineers. Students will use the MATLAB platform to computationally solve problems, such as finding roots of nonlinear equations, solving systems of equations, fitting curves, solving ODEs, finding eigenvalues, etc. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 or instructor's consent

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**CMP\_SC 7080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 4080). This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280 or ECE 3210 and CMP\_SC 3050 or ECE 3220

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**CMP\_SC 7087: Seminar in Computer Science**

Reviews of recent investigations, projects of major importance.

**Credit Hour:** 1

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**CMP\_SC 7270: Computer Architecture I**

(cross-leveled with CMP\_SC 4270). Architectural features of high-performance computer systems including hierarchical and virtual memory, pipelining, vector processing and an introduction to multiple-processor systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2270 and CMP\_SC 2050

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**CMP\_SC 7280: Network Systems Architecture**

(same as ECE 7280; Cross-leveled with CMP\_SC 4280). The course covers network systems (interconnects and switch fabrics, network considerations) and relevant networking applications at the network, transport and application layer.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 or ECE 3200 and CMP\_SC 3280 or ECE 3210

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**CMP\_SC 7320: Software Engineering I**

(cross-leveled with CMP\_SC 4320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3380

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**CMP\_SC 7330: Object Oriented Design I**

(cross-leveled with CMP\_SC 4330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330

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**CMP\_SC 7350: Big Data Analytics**

(cross-leveled with CMP\_SC 4350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 3380

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**CMP\_SC 7380: Database Management Systems I**

(cross-leveled with CMP\_SC 4380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7410: Theory of Computation I**

(cross-leveled with CMP\_SC 4410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320



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**CMP\_SC 7430: Compilers I**

(cross-leveled with CMP\_SC 4430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for blockstructured languages, and run-time storage organization. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320 and CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 7440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 4440). Malicious software or "malware" is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and ethical issues surround computer security violations.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280, ECE 3210 or equivalent

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**CMP\_SC 7450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 4450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 4460). Cryptography is an important technique used to achieve security goals in an untrusted and (possibly) adversarial environment. The goals of this course are: (1) to provide students with a solid background with basic cryptographic techniques and their applications, (2) impart knowledge of standard cryptographic algorithms and (3) foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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**CMP\_SC 7520: Operating Systems I**

(cross-leveled with CMP\_SC 4520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 1700

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**CMP\_SC 7530: Cloud Computing**

(cross-leveled with CMP\_SC 4530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters,

networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 or instructor's consent

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**CMP\_SC 7610: Computer Graphics I**

(cross-leveled with CMP\_SC 4610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and either MATH 1500 or MATH 1300 and MATH 1400

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**CMP\_SC 7620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 4620). Introduces fundamental algorithms and techniques including interpolation, quaternions, rigid body dynamics, kinematics, particle systems, free form and dynamic deformations, spring and damper systems and computational natural phenomena simulation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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**CMP\_SC 7650: Digital Image Processing**

(same as ECE 7655; cross-leveled with CMP\_SC 4650, ECE 4655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, STAT 7710 or instructor's consent

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**CMP\_SC 7670: Digital Image Compression**

(same as ECE 7675; cross-leveled with CMP\_SC 4670, ECE 4675). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 7720; cross-level CMP 4720, ECE 4720). This course provides foundation knowledge and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

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**CMP\_SC 7730: Building Intelligent Robots**

(same as ECE 7340; cross-leveled with CMP\_SC 4730, ECE 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Prerequisites: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

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**CMP\_SC 7740: Interdisciplinary Introduction to Natural Language Processing**

(same as LINGST 7740; cross-leveled with CMP\_SC 4740; LINGST 4740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of text.

**Credit Hours:** 3

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**CMP\_SC 7750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 4750). Introduction to the concepts and theories of intelligent systems. Various approaches to creating intelligent systems, including symbolic and computational approaches, insight into the philosophical debates important to understanding AI.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050

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**CMP\_SC 7770: Introduction to Computational Intelligence**

(same as ECE 7870; cross-leveled with CMP\_SC 4770, ECE 4870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 7830: Science and Engineering of the World Wide Web**

(cross-leveled with CMP\_SC 4830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 2830

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**CMP\_SC 7850: Computer Networks I**

(cross-leveled with CMP\_SC 4850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2270 or ECE 1210 and MATH 2320

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**CMP\_SC 7860: Network Security**

Principles and practice of cryptography, network security, and computer system security. It includes symmetric and asymmetric cryptography, authentication, security applications such as secure email, IP security,

Web security, and system security issues such as intruders, viruses, worms, Trojan horses, and firewalls.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7850 or CMP\_SC 4850

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**CMP\_SC 7870: Wireless and Mobile Networks**

(cross-leveled with CMP\_SC 4870). Concepts and techniques in wireless and mobile networks: cellular concepts, wireless physical layer, wireless MAC protocol, mobility management, power management, wireless network security, wireless telecommunication system, wireless LAN, wireless ad hoc networking, wireless personal area network. Prerequisites: CMP\_SC 7850 or CMP\_SC 4850

**Credit Hours:** 3

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**CMP\_SC 8001: Advanced Topics in Computer Science**

Topic may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

**Prerequisites:** varies by topic

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**CMP\_SC 8050: Design and Analysis of Algorithms II**

Techniques for the design and analysis of correct, efficient algorithms. Topics include graph, geometric, and algebraic/ numeric algorithms, NP-completeness, and parallel algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8060: Survey of Advanced Algorithm Techniques**

This class provides a survey of important algorithmic techniques, some of which are emerging right now, and show that they are much easier to understand than they first appear. The class will create a renewed appreciation for what makes Computer Science such a fun/interesting discipline.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8070: Computational Optimization Methods**

The course covers typical computational optimization methods widely used in many computing domains, such as data mining, machine learning and bioinformatics. The theoretical foundation of each optimization method is rigorously studied, followed by typical real-world applications. An active, problem-solving based teaching/learning format will be applied to help students develop various skills including research, teaching, reading, communication, algorithms, programming, team work, collaboration, leadership, planning, project management, and presentation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 or instructor's approval

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**CMP\_SC 8085: Problems in Computer Science**

Independent study project work with a professor in computer science.

**Credit Hour:** 1-4

**Prerequisites:** instructor consent

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**CMP\_SC 8090: Computational Geometry**

Studies fundamental geometric problems within the framework of analysis of algorithms: convex hull algorithms in the plane and in general dimension, Voronoi diagram construction and applications to the solution of proximity problems, intersection problems, and geometric searching problems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and MATH 2300, or instructor's consent

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**CMP\_SC 8110: Problem Solving in Bioinformatics**

(same as INFOINST 8010). The course covers a variety of bioinformatics research topics such as biological sequence comparison, protein structure prediction, protein and gene function prediction, and inference and modeling of biological networks. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8120: Structural Bioinformatics of Proteins, Complexes, System**

(same as INFOINST 8210). Main course objective is to provide an introduction to the state-of-the-art methods in structural bioinformatics. The course will cover the methods that are applied to a wide range of biomolecular objects from protein domains and small proteins to large biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

**Recommended:** CMP\_SC 4050 or CMP\_SC 7050

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**CMP\_SC 8130: Computational Genomics**

(same as INFOINST 8310). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8150: Integrative Methods in Bioinformatics**

(same as INFOINST 8150). Introduces the most popular experimental methods from the point of view of the information sources that can be used. Students will use data obtained directly from biological experiments and learn how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8160: Content Management in Biomedical Informatics**

(same as INFOINST 8860). This course introduces theory and techniques for content extraction, indexing, and retrieval of biomedical media databases. Topics include biomedical media databases, feature extraction methods, advanced database indexing structures, query methods, and result visualization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380, INFOINST 7010

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**CMP\_SC 8170: Computational Modeling of Molecular Structures**

This course uses a problem solving paradigm to investigate common principles, data structures, algorithms, challenges, and solutions in computationally modeling (constructing) 3D structures of proteins, RNAs, chromosomes, and genomes.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7010

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**CMP\_SC 8180: Machine Learning Methods for Biomedical Informatics**

(same as INFOINST 8880). Teaches statistical machine learning methods and applications in biomedical informatics. Covers theories of advanced statistical machine learning methods and how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or CMP\_SC 7005

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**CMP\_SC 8190: Computational Systems Biology**

(same as INFOINST 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**CMP\_SC 8270: Computer Architecture II**

Study of array processors, multiprocessors, multicomputers, and networked computing systems. Topics include architectures, interconnection networks, communication mechanisms, distributed memories and security. Introduction to parallel algorithm design.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4210 or ECE 4270

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**CMP\_SC 8320: Software Engineering II**

Further discussion of software development methodology.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4320

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**CMP\_SC 8330: Object Oriented Design II**

Software system design using classes and their properties of abstraction, inheritance, dynamic binding, and polymorphism. Focus on object-oriented design of systems such as windows, graphics systems, and operating system.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4330

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**CMP\_SC 8370: Data Mining and Knowledge Discovery**

Course topics include an introduction to fundamental concepts, data mining techniques from machine learning and pattern recognition areas, association rules, web mining, spatial mining, temporal mining, multimedia/multimodal database mining, and database mining, and geospatial information mining.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380

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**CMP\_SC 8380: Database Management Systems II**

Further study in the theory, design, organization and implementation of databases and database management systems. Topics include: high-dimensional database indexing, content-based retrieval from image and video databases, object-relational databases, object-oriented databases, and data mining.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380

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**CMP\_SC 8390: Information Indexing and Retrieval**

Theory and techniques for the modeling, indexing, and retrieval of text-based and multimedia databases. Topics include introduction to different information retrieval models, retrieval evaluation, query languages, query operations, and indexing/searching methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and CMP\_SC 2110

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**CMP\_SC 8410: Theory of Computation II**

An advanced study of computational and formal languages by means of automata and related grammars. Turing machines, decidability, computability, computational complexity, language translation, and recent trends in automata theory.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7410

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**CMP\_SC 8430: Compilers II**

Further study of the compilation process. Compiler generation tools, parsing methods, code generation, data-flow analysis, code optimization, error handling, discussion of programming language features and their relationship to the compilation process.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7430

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**CMP\_SC 8440: Information Security: A Language-Based Approach**

This course focuses on language-based techniques for information flow security. Students will gain a solid background in information security, be encouraged to do further research and be exposed to important/promising trends in state-of-the-art computer security. Prerequisites: CMP\_SC 4450 or CMP\_SC 7450

**Credit Hours:** 3

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**CMP\_SC 8450: Formal Engineering Methods for Software and Security**

Designing scalable exhaustive methods to ensure reliability of computer systems is an important challenge in computer science as even simple errors can have serious socio-economic-political consequences. This challenge is the focus of the field of automated verification techniques which draws techniques from complexity theory, automata theory, programming languages and logic, and provides tools to ensure that the computer systems are reliable. Computer-assisted techniques for verifying hardware implementations are regularly employed in the industry, and are also being increasingly adopted in the software industry as the costs of software bugs and security flaws escalate. The goals

of this course are: (1) to provide students with a solid background in the fundamental techniques used in this field, (2) to encourage further research in software and security verification, and (3) to introduce students to important upcoming trends in verifying security protocols. The students will get theoretical background as well as learn to use some standard tools in this field. Students will also explore topics of particular interest to them through the performance of a significant semester project.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4450 or CMP\_SC 7450 or CMP\_SC 4430 or CMP\_SC 7430 or instructor's consent. A reasonable level of mathematical maturity and significant programming experience is expected

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**CMP\_SC 8520: Operating Systems II**

Discusses concurrent processes, distributed/network operating systems; models of processor scheduling, memory management and resource allocation, performance measurement, evaluation and simulation methodology; queuing models; security and reliability.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4520

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**CMP\_SC 8610: Computer Graphics II**

Further study of computer graphics, focused on 3-D graphics, transformations, geometric and surface modeling, color models, visible surface determination, lighting and shading, standard graphics software (Phigs/OpenGL). Selected current topics in graphics such as visualization, animation and realism.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7610

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**CMP\_SC 8620: Physically Based Modeling and Animation II**

This course introduces students to physical based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

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**CMP\_SC 8630: Data Visualization**

Data visualization broadly covers transforming multidimensional and timevarying datasets to dynamic visual representations and encodings that facilitate exploratory data mining, knowledge discovery, improved understanding, summarization, structural modeling, collaboration and decision making using interactive methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610 or instructor's consent

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**CMP\_SC 8650: Advanced Image Processing**

(same as ECE 8855). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

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**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**CMP\_SC 8660: Multimedia Security**

This course offers a comprehensive coverage of the theoretical foundation of multimedia security technologies, including encryption, authentication, digital watermarking, key management, copy control, fingerprinting/tracing, digital media forensics, and biometrics, provides an in-depth study of the state-of-the-art digital rights management systems and the underlying security technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4670 or CMP\_SC 4650; instructor's consent

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**CMP\_SC 8670: Multimedia Communication**

Topics covered may include multimedia networking and network technologies as pertaining to multimedia communications; multimedia applications such as video conferencing, video-on-demand broadcasting, and web-based distance learning; wireless video and future generation wireless video communication systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4670 and CMP\_SC 4850 or instructor's consent

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**CMP\_SC 8680: 3-D Computer Vision**

This course introduces students to a central problem in computer vision - how to recover 3-D structure and motion from a collection of 2-D images, using techniques drawn mainly from linear algebra and matrix theory. The main focus is on developing a unified framework for studying the geometry of multiple images of a 3-D scene and reconstructing geometric models from those images. The course also covers relevant aspects of image formation, basic image processing, and feature extraction.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650

**Recommended:** Good knowledge of C or C++ programming, linear algebra and data structures

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**CMP\_SC 8690: Computer Vision**

(same as ECE 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**CMP\_SC 8725: Supervised Learning**

(same as ECE 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**CMP\_SC 8735: Unsupervised Learning**

(same as ECE 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**CMP\_SC 8740: Advanced Natural Language Processing**

What do Google, the New York Times, Facebook, Cerner, and other big companies know that you don't? Natural language processing. This course considers open and compelling problems in contemporary research in the processing and analysis of text, focusing on both the underlying theory and its practical application. The goal is to help students understand the nature of these problems, the current approaches to them, the strengths and weaknesses of those approaches, and other possible ways forward.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4740 or CMP\_SC 7740

**Recommended:** CMP\_SC 2050; students should be facile in programming at least one high-level language. Good knowledge of univariate, parametric statistics

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**CMP\_SC 8750: Artificial Intelligence II**

Further discussion of theories and techniques of artificial intelligence. Investigating state-of-the-art systems with capabilities to perceive, reason, learn and react intelligently to their environment.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4750 or CMP\_SC 7750 or instructor's consent

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**CMP\_SC 8760: Pattern Recognition**

(same as ECE 8820). Decision functions, crisp and fuzzy clustering methods, statistical pattern recognition methods, Bayesian classifiers, error probabilities, estimation of density functions, perceptrons, least-mean-square algorithms, feature selection, dimensionality reduction and syntactic pattern recognition.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050, STAT 4710

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**CMP\_SC 8770: Neural Networks**

(same as ECE 8890). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4870 or CMP\_SC 7870 or instructor's consent

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**CMP\_SC 8780: Advanced Topics in Computational Intelligence**

(same as ECE 8875). This course is a continuation of ECE 7870/ CMP\_SC 7770 Introduction to Computational Intelligence in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770

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**CMP\_SC 8790: Filtering, Tracking and Data Fusion**

This course will cover theory and applications of rigorous and efficient techniques for determining the state of an observed system from a series of imperfect observations or measurements. Specific topics to be covered include semidefinite matrix theory, the Kalman filter, the Unscented Transform, Covariance Intersection and related techniques. Applications of these techniques include head and hand tracking in virtual reality systems, robotics, and distributed information fusion.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, MATH 2300 or Linear Algebra or Matrix Theory

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**CMP\_SC 8850: Computer Networks II**

In-depth analysis and evaluation of computer networking architectures, protocols and algorithms, network security, distributed database and computational networks, routing and congestion control, domains and internetworking.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7850

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**CMP\_SC 8860: Parallel and Distributed Processing**

This course covers basic issues of parallel and distributed processing, including parallel and distributed architectures and models, parallel programming, and parallel algorithms and applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8870: Modeling and Management of Uncertainty**

(same as ECE 8870). Theoretical and practical issues in the modeling and management of uncertainty. Topics include probabilistic uncertainty, belief theory and fuzzy set theory. Applications to computer vision, pattern recognition and expert systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770 or instructor's consent

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**CMP\_SC 8880: Wireless Embedded Systems**

This course introduces wireless embedded systems and focuses on the nature of computation and communication needed to design large-scale, distributed, and wirelessly connected embedded systems. We will study emerging technology and standards by reading papers and doing projects on real systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and CMP\_SC 4850 or instructor's consent

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**CMP\_SC 8980: Research Masters Project in Computer Science**

Investigation and research of a topic, not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 8990: Research-Masters Thesis Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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**CMP\_SC 9001: Advanced Topics in Computer Science - PhD**

New and current technical developments in computer science. For PhD students.

**Credit Hour:** 1-4

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**CMP\_SC 9990: Research-Doctoral Dissertation Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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## Dermatology (DERM)

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**DERM 6233: ABS Dermatology Research**

ABS Dermatology Research

**Credit Hours:** 5

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**DERM 6235: ABS Dermatology Research and Review**

ABS Dermatology Research and Review

**Credit Hour:** 5-10

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**DERM 6450: Dermatology I**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology; Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist; Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health; Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases; Learn appropriate use of both systemic and topical dermatologic medications; Learn basic punch, shave, and excisional biopsy techniques; Become proficient in skin surveillance, especially early detection of skin cancer. Students are evaluated using a standard evaluation. The student's knowledge of subject matter is evaluated in the following settings: informal discussion during clinics, ward rounds, inpatient consultation rounds and scheduled conferences.

**Credit Hours:** 5

**Prerequisites:** Internal Medicine Clerkship

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**DERM 6750: Dermatology I - Rural**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians

because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer.

**Credit Hours:** 5

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#### **DERM 6856: Dermatology II**

This elective rotation is an expansion of the objective goals outlined for Dermatology I. The student is expected to expand the depth and breadth of his/her dermatology experiences and knowledge. Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer. As Dermatology II is an extension of the Dermatology I curriculum, Dermatology II students are expected to master the above objectives. In addition, they are expected to expand their clinical skills related to the diagnosis and treatment of dermatologic diseases and they will have increased responsibilities for patient education. It is expected that they will further their surgical skills including biopsies, simple excisions, and basic cryotherapy. They will also become proficient in basic laboratory procedures including KOH and scabies prep.

**Credit Hours:** 5

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#### **DERM 6910: Clinical Dermatology Elective**

The 2 week elective in Dermatology will allow students to participate in a wide breadth of general, pediatric, and surgical dermatology. Students will participate in clinics and in weekly didactic sessions. Students will also complete the American Academy of Dermatology online student modules and the self-evaluation that is provided.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school. Must have completed at least 1 core clinical rotation

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## **Diagnostic Medical Ultrasound (DMU)**

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#### **DMU 1000: Introduction to Diagnostic Medical Ultrasound**

Introduction to the profession of diagnostic medical ultrasound. Imaging characteristics, educational requirements, professional trends. Observation opportunities. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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#### **DMU 4001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students; program director's consent

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#### **DMU 4001W: Topics in Diagnostic Medical Ultrasound - Writing Intensive**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students; program director's consent

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#### **DMU 4085: Problems in Diagnostic Medical Ultrasound**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only; program director's consent

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#### **DMU 4085W: Problems in Diagnostic Medical Ultrasound - Writing Intensive**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only; program director's consent

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#### **DMU 4200: Principles of Diagnostic Medical Ultrasound**

Principles and history of ultrasound, ultrasound equipment, sonographic techniques, aspects of patient care.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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#### **DMU 4234: Clinical Pathophysiology**

(cross-leveled with DMU 7234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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#### **DMU 4234W: Clinical Pathophysiology - Writing Intensive**

Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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#### **DMU 4309: Normal Ultrasound Clinical**

(cross-leveled with DMU 7309). Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** DMU 4312 and instructor's consent

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**DMU 4311: Pathological Images of Ultrasound**

(cross-leveled with DMU 7311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** DMU 4200, DMU 4312 and instructor's consent

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**DMU 4312: Sectional Anatomy**

(same as RA\_SCI 4110; cross-leveled with DMU 7312, RA\_SCI 7110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4313: Ultrasound Physics**

(cross-leveled with DMU 7313), Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 or CHEM 1320, PHYSCS 1210, and departmental consent

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**DMU 4314: Abdominal Ultrasound**

(cross-leveled with DMU 7314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311; instructor's consent

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**DMU 4315: Ultrasound Instrumentation**

(cross-leveled with DMU 7315). Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** DMU 4200; instructor's consent

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**DMU 4318: Gynecology Ultrasound**

(cross-leveled with DMU 7318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311

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**DMU 4320: Obstetrics Ultrasound**

(cross-leveled with DMU 7320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311; instructor's consent

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**DMU 4322: Superficial Organs Ultrasound**

(cross-leveled with DMU 7322). Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311; instructor's consent

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**DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 7325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in Diagnostic Medical Ultrasound and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound

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**DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 7326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** DMU 4313 and DMU 4315; instructor's consent

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**DMU 4330: Vascular Ultrasound Lab**

(cross-leveled with DMU 7330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** DMU 4312, and DMU 4326; instructor's consent

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**DMU 4332: Vascular Ultrasound**

(cross-leveled with DMU 7332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** DMU 4312, DMU 4311, DMU 4322, and DMU 4326

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**DMU 4338: Cardiac Ultrasound, Principles and Hemodynamics**

(cross-leveled with DMU 7338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DMU 4313 and DMU 4315; instructor's consent

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**DMU 4342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 7342). Provides principles of diagnostic adult cardiac ultrasound in relation to pathology, further presenting the practical aspects of scanning techniques, exam critique, patient care in relation to cardiac US exams. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** DMU 4313, DMU 4315 and DMU 4338; instructor's consent

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**DMU 4941: Ultrasound Clinical I**

(cross-leveled with DMU 7941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** DMU 4312, DMU 4309 and DMU 4311

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**DMU 4943: Ultrasound Clinical III**

(cross-leveled with DMU 7943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** DMU 4993 and instructor's consent

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**DMU 4944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 7944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** DMU 4326 and instructor's consent

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**DMU 4945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 7945). Application of ultrasonography in real clinical settings for learning, practicing and decision making regarding, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 4313, DMU 4315, and DMU 4944. Instructor and Departmental permission required

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**DMU 4946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 7946). Further application of ultrasonography for continuation of learning, practicing and decision making, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 4313, DMU 4315, DMU 4338 and DMU 4945. Instructor and Departmental permission required

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**DMU 4993: Ultrasound Clinical II**

(cross-leveled with DMU 7993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** DMU 4941; instructor's consent

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**DMU 7200: Diagnostic Medical Ultrasound Principles and Patient Care**

Introduction diagnostic medical ultrasound principles including history, development, ultrasound physics - equipment fundamentals. Provides introduction to concepts of sonographic techniques, positioning, image critique, aspects of patient care and professional organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DMU 1000. Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7234: Clinical Pathophysiology**

(cross-leveled with DMU 4234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 7309: Normal Ultrasound Clinical**

(cross-leveled with DMU 4309). Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** DMU 7312, DMU 7313 and DMU 7315

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**DMU 7311: Pathological Images Ultrasound**

(cross-leveled with DMU 4311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** DMU 4200, DMU 7312 and DMU 7315; instructor's consent

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**DMU 7312: Sectional Anatomy**

(same as RA\_SCI 7110; cross-leveled with DMU 4312, RA\_SCI 4110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7313: Ultrasound Physics**

(cross-leveled with DMU 4313). Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 or CHEM 1320, PHYSICS 1210, and departmental consent

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**DMU 7314: Abdominal Ultrasound**

(cross-leveled with DMU 4314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311; instructor's consent

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**DMU 7315: Ultrasound Instrumentation**

(cross-leveled with DMU 4315). Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** DMU 4200; instructor's consent

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**DMU 7318: Gynecology Ultrasound**

(cross-leveled with DMU 4318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311

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**DMU 7320: Obstetrics Ultrasound**

(cross-leveled with DMU 4320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311; instructor's consent

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**DMU 7322: Superficial Organs Ultrasound**

(cross-leveled with DMU 4322). Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311

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**DMU 7325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 4325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in DMU and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound majors

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**DMU 7326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 4326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** DMU 7313 and DMU 7315; instructor's consent

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**DMU 7330: Vascular Ultrasound Lab**

(cross-leveled with DMU 4330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** DMU 7312, and DMU 7326; instructor's consent

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**DMU 7332: Vascular Ultrasound**

(cross-leveled with DMU 4332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** DMU 7312, DMU 7311, DMU 7322, and DMU 7326 or instructor's consent

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**DMU 7338: Cardiac Ultrasound, Principles and Hemodynamics**

(cross-leveled with DMU 4338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DMU 7313, DMU 7315

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**DMU 7342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 4342). Study of adult cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 5

**Prerequisites:** DMU 7312, DMU 7313 and DMU 7315 and instructor's consent

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**DMU 7941: Ultrasound Clinical I**

(cross-leveled with DMU 4941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** DMU 7312, DMU 7309 and DMU 7311

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**DMU 7943: Ultrasound Clinical III**

(cross-leveled with DMU 4943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** DMU 7993 and instructor's consent; Restricted to DMU students only

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**DMU 7944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 4944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** DMU 7326 and instructor's consent

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**DMU 7945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 4945). Application of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** DMU 7313 and DMU 7315

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**DMU 7946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 4946). Further enhancement of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** DMU 7945

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**DMU 7993: Ultrasound Clinical II**

(cross-leveled with DMU 4993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** DMU 7941. Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 8001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics. Topic may vary.

**Credit Hour:** 1-3

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8050: Research in Diagnostic Medical Ultrasound**

Research not leading to a thesis or dissertation. Graded on an A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8085: Problems in Diagnostic Medical Ultrasound**

Independent study of a special project involving clinical applications or research. Topic may vary.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8090: Research in Diagnostic Medical Ultrasound**

Research leading to a thesis or dissertation. Graded on an S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8346: Pediatric Cardiac Ultrasound**

Study of pediatric cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 4

**Prerequisites:** DMU 7342 and instructor's consent

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**DMU 8947: Applied Clinical Research & Practicum**

Clinical research application of cardiovascular & general ultrasound in clinical environment: clinical research, practicum, decision making, patient handling, and image processing. Graded on A-F basis only.

**Credit Hour:** 5-8

**Prerequisites:** DMU 7944, DMU 7946, instructor's consent

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## Economics (ECONOM)

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**ECONOM 1000: General Economics**

One semester course covering similar material as covered in ECONOM 1014 and ECONOM 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Includes applications for Journalism students. Not open to students who have completed ECONOM 1014 or ECONOM 1024 and, ECONOM 1015 or AG\_EC 1041 and AG\_EC 1042. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Open only to pre-Journalism and Journalism majors; departmental consent required

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**ECONOM 1014: Principles of Microeconomics**

A basic examination of the economy at the individual consumer, firm and market level. Simple economic models used to analyze the workings of the economy. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, the importance of free trade, the markets response to economic shocks and the effect of government intervention. Not open to students who have completed ECONOM 1024, ECONOM 1051, or AG\_EC 1041.

**Credit Hours:** 3

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**ECONOM 1015: Principles of Macroeconomics**

Macroeconomics generally refers to a collection of questions about how scarcity affects a collection of people interacting with one another. In this course, our focus is on understanding how scarcity affects welfare of a nation. Topics include Gross Domestic Product, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, and exchange rates. Not open to students who have completed ECONOM 1051 or AG\_EC 1042.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024

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**ECONOM 1024: Fundamentals of Microeconomics**

This course uses mathematical reasoning to provide an elementary quantitative introduction to fundamental concepts in microeconomics. It uses college algebra and simple geometric concepts to describe the behavior of economic units, such as consumers, firms and resource owners, and to depict their interaction through production and exchange in perfect and imperfect markets. Not open to students who have completed ECONOM 1014, ECONOM 1051, or AG\_EC 1041. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent with grade of C or better

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**ECONOM 1051H: General Economics - Honors**

One semester course covering similar material as covered in ECONOM 1014 and ECONOM 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Not open to

students who have completed ECONOM 1014 or ECONOM 1024 and ECONOM 1015. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**ECONOM 2004: Undergraduate Topics in Economics - Social Science**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 3004: Topics in Economics - Social Science**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 3224: Introduction to International Economics**

A topical course which emphasizes the application of basic economic analysis to real and current international economic issues. Topics include free trade, protectionism, free trade areas, multilateral trade negotiations, trade and development, exchange rates, the International Monetary System, and economic integration.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 or ECONOM 1051

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**ECONOM 3229: Money, Banking and Financial Markets**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051, or AG ECON 1041 with a minimum grade of C-

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**ECONOM 3229H: Money, Banking and Financial Markets - Honors**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051. Honors eligibility required

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**ECONOM 3251: Theory of the Firm**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Topics include the economics of the firm in the context of partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition as well as game theory. No credit for students who have completed ECONOM 4351.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051) and MATH 1400, or equivalent. Not open to economics majors

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**ECONOM 3271: Introduction to Applied Econometric Practice**

Introduction to the use of regression analysis of economic data, including simple and multiple regression, dummy variables. Econometric problems considered include heteroscedasticity, autocorrelation, multicollinearity and simultaneous equation issues.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051H and STAT 2500

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**ECONOM 3323: Capitalism, Democracy and Society**

This is a one-credit seminar course for students interested in careers involving social science research and analysis; topics covered will be a selection of classic and contemporary debates in the social sciences.

**Credit Hour:** 1

**Prerequisites:** ECONOM 1014 and ECONOM 1015, or ECONOM 1051

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**ECONOM 3940: Internship**

Internship experience for students interested in economics. Supervised internship work with approval of Director of Undergraduate Studies and academic adviser. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 1014 or ECONOM 1051

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**ECONOM 3950: Practicum in Economics**

Practical experience in consulting, teaching or research guided by faculty advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** consent of Director of Undergraduate Studies and faculty advisor

**Recommended:** Grade of B or higher in ECONOM 4351 and ECONOM 4371

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**ECONOM 4004: Topics in Economics- Social Science**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4004W: Topics in Economics- Social Science - Writing Intensive**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4311: Labor Economics**

(cross-leveled with ECONOM 7311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4311W: Labor Economics - Writing Intensive**

Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315W: Public Economics - Writing Intensive**

Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4320: History of Economic Thought**

(cross-leveled with ECONOM 7320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051

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**ECONOM 4320W: History of Economic Thought**

Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051

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**ECONOM 4322: Economics of Regulation and Antitrust**

(cross-leveled with ECONOM 7322) Economic issues concerning the role of government regulation. The course examines the rationale for and effects of regulatory policies in public utilities, transportation, and communications industries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4325: The International Monetary System**

(cross-leveled with ECONOM 7325). Study of macroeconomic and monetary relationships between the U.S. and the world. Topics include balance of payments, foreign exchange rates, history of the international monetary system.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229

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**ECONOM 4326: Economics of International Trade**

(cross-leveled with ECONOM 7326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4329: The Banking System and the Money Market**

(cross-leveled with ECONOM 7329). Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051

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**ECONOM 4329W: The Banking System and the Money Market - Writing Intensive**

Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051

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**ECONOM 4340: Introduction to Game Theory**

(cross-leveled with ECONOM 7340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4345: Economics of Education**

(cross-leveled with ECONOM 7345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051), and STAT 2500 or equivalent

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**ECONOM 4345W: Economics of Education - Writing Intensive**

Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051), and STAT 2500 or equivalent

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**ECONOM 4351: Intermediate Microeconomics**

(cross-leveled with ECONOM 7351). Theory of rational behavior in consumption, production, and pricing decisions of households and

firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051) and MATH 1400 or equivalent

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**ECONOM 4351H: Intermediate Microeconomics - Honors**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 or ECONOM 1051, and MATH 1400, or equivalent. Honors eligibility required

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**ECONOM 4353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 7353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051, and MATH 1400 or equivalent

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**ECONOM 4355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 7355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4355W: Industrial Organization and Competitive Strategy - Writing Intensive**

Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4357: Health Economics**

(cross-leveled with ECONOM 4357, PUB\_AF 4357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and

finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and STAT 2500, or equivalent

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**ECONOM 4357W: Health Economics - Writing Intensive**

Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and STAT 2500, or equivalent

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**ECONOM 4360: Economic Development**

(same as PEA\_ST 4360; cross-leveled with ECONOM 7360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229, and ECONOM 3251 or ECONOM 4351

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**ECONOM 4361: Comparative Economic Systems**

(cross-leveled with ECONOM 4361). Study of capitalism, market socialism, and central planning.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229, and ECONOM 3251 or ECONOM 4351

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**ECONOM 4367: Law and Economics**

(cross-leveled with ECONOM 7367I PUB\_AF 7367). This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351, and STAT 2500, or equivalent

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**ECONOM 4367W: Law and Economics - Writing Intensive**

This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351, and STAT 2500, or equivalent

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**ECONOM 4370: Quantitative Economics**

(cross-leveled with ECONOM 7370). The aim of this course is to provide an introduction to the mathematical language of economic theory.

Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or equivalent

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**ECONOM 4371: Introductory Econometrics**

(cross-leveled with ECONOM 7371). Study methods for quantitative analysis of economic data. Estimation techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351, and STAT 2500, or equivalent

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**ECONOM 4384: Structural Change in Economic History**

(cross-leveled with ECONOM 7384). Explores changes in the structure of the American economy from its earliest colonial beginnings. Structural change, an integral part of growth, is related to technical change, population growth and to the content and form of economic theory.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051

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**ECONOM 4385: Problems in Economics**

Development of a carefully considered research project under close supervision of a faculty member. Credit arranged by instructor.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4351, ECONOM 4371, and instructor's consent. Not open to non-majors

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**ECONOM 4775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 7775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4370 or instructor's consent

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**ECONOM 4940: Internship in Economics**

Internship experience for Economics majors. 40 hours of supervised internship work with approval of Director of Undergraduate Studies and academic advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** C or higher in ECONOM 4351 and ECONOM 4371; Declared economics majors who have a minimum overall CUM GPA of 2.75 and have junior or senior standing

**Recommended:** Students must have completed at least 15 credit hours at MU

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**ECONOM 4965: Independent Study in Economics**

Individual work, with conferences adjusted to needs of student.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4970: Senior Seminar in Economics**

Seminar for graduating seniors who are majoring in economics. Multiple writing assignments will emphasize synthesis of theoretical, empirical, and institutional economics. Not open to non-majors.

**Credit Hours:** 3

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**ECONOM 4971: Supplemental Senior Seminar in Economics**

Content description is the same as ECONOM 4970. Required for Economics honors students and double majors in Economics who take a capstone course in another major. No credit for students who have completed ECONOM 4970. Not open to non-majors. Graded on A-F basis only.

**Credit Hour:** 1

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**ECONOM 4995: Honors Thesis**

Not open to non-majors. Capstone course required for Economics honors students.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351

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**ECONOM 7001: Topics in Economics - General**

Study in applied or theoretical economics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ECONOM 7085: Problems in Economics**

Individual study in Economics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ECONOM 7311: Labor Economics**

(cross-leveled with ECONOM 4311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 7320: History of Economic Thought**

(cross-leveled with ECONOM 4320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015 or ECONOM 1051H

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**ECONOM 7322: Economics of Regulation and Antitrust**

(cross-leveled with ECONOM 4322). Economic issues concerning the role of government regulation. The course examines the rationale for and effects of regulatory policies in public utilities, transportation, and communications industries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7325: The International Monetary System**

(cross-leveled with ECONOM 4325). Study of macroeconomic and monetary relationships between the US and the world. Topics include balance of payments, foreign exchange rates, history of the international monetary system.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229

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**ECONOM 7326: Economics of International Trade**

(cross-leveled with ECONOM 4326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with LDC's and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructor's consent

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**ECONOM 7329: The Banking System and the Money Market**

(cross-leveled with ECONOM 4329) Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051

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**ECONOM 7332: Microeconomics for Managers**

(cross-leveled with ECONOM 4332). Microeconomic concepts presented at the intermediate level, graphic treatment with limited calculus, managerial issues presented at the MBA level. (Not open to economics majors).

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024, MATH 1300; permission required for MBA program

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**ECONOM 7340: Introduction to Game Theory**

(cross-leveled with ECONOM 4340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351 or instructor's consent

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**ECONOM 7345: Economics of Education**

(cross-leveled with ECONOM 4345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and

private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024, or ECONOM 1051H and ECONOM 4371 or equivalent

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**ECONOM 7351: Intermediate Microeconomics**

(cross-leveled with ECONOM 4351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ECONOM 1051) and MATH 1400 or equivalent

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**ECONOM 7353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 4353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ECONOM 1051 and MATH 1400 or equivalent

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**ECONOM 7355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 4355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7357: Health Economics**

(same as PUB\_AF 7357; cross-leveled with ECONOM 4357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine: and examination of recent proposals and initiatives for health care reform.

**Credit Hours:** 3

**Prerequisites:** STAT 2500 and ECONOM 4351

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**ECONOM 7360: Economic Development**

(cross-leveled with ECONOM 4360, PEA\_ST 4360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed.

**Credit Hours:** 3



**Prerequisites:** ECONOM 3229 and ECONOM 3251 or ECONOM 4351.; graduate standing required

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**ECONOM 7361: Comparative Economic Systems**

(cross-leveled with Econom 4361). Study of capitalism, market socialism, and central planning.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229 and ECONOM 3251 or ECONOM 4351

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**ECONOM 7367: Law and Economics**

(same as PUB\_AF 7367; cross-leveled with ECONOM 4367). This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomic, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime and the judiciary.

**Credit Hours:** 3

**Prerequisites:** [ECONOM 4351 or ECONOM 3251, and STAT 2500, or equivalent

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**ECONOM 7370: Quantitative Economics**

(cross-leveled with ECONOM 4370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or equivalent

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**ECONOM 7371: Introductory Econometrics**

(cross-leveled with ECONOM 4371). Study methods for quantitative analysis of economic data. Estimating techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and STAT 2500 and MATH 1320 or instructor's consent

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**ECONOM 7384: Structural Change in Economic History**

(cross-leveled with ECONOM 4384). Explores changes in the structure of the American economy from its earliest colonial beginnings. Structural change, an integral part of growth, is related to technical change, population growth and to the content and form of economic theory.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051H or instructor's consent

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**ECONOM 7775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 4775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 7370 or instructor's consent

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**ECONOM 8001: Topics in Economics- General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ECONOM 8085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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**ECONOM 8090: Research in Economics**

Thesis research for M.A. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECONOM 8340: Game Theory**

Game theory is the study of strategic behavior by agents who perceive themselves as "large" relative to the market and who therefore consider the effect of their behavior on others. This course examines the rigorous theory of strategic interaction of rational agents. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. . Graded on A-F basis only

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**ECONOM 8370: Mathematics for Economics**

The aim of this course is to cover essential mathematics used in economics. Topics include introductory linear algebra, multivariate calculus, comparative statics analysis, unconstrained optimization, and equality constrained optimization. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. Graded on A-F basis only

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**ECONOM 8413: Research Workshop I**

Required course for economics MA students. Combines instruction, student presentations, and seminar participation to introduce research methods and practice. A major research paper are required.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8453, and ECONOM 8472 or instructor's consent

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**ECONOM 8451: Microeconomic Theory**

MA-level course in microeconomic theory. The course relies extensively on calculus to survey theories of: rational behavior in consumption, production, and pricing decisions of households and firms; partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition; and general equilibrium and welfare.

**Credit Hours:** 3

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**ECONOM 8453: Macroeconomic Theory**

Basic models in macroeconomics will be covered with emphasis on assumptions and on how hypotheses can be tested. Course is an

introductory survey for students intending to develop ability for research in macroeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4353 or equivalent; at least concurrent enrollment in ECONOM 8451. Instructor's consent required for non graduate level students

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**ECONOM 8470: Dynamic Optimization**

Topics to be covered include calculus of variations, optimal control theory, dynamic programming in discrete time variables, and economic modeling. The Eulless Equation, the Transversally Condition and the Bellman Equation will also be covered.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7370

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**ECONOM 8472: Econometric Methods I**

Familiarizes students with fundamental techniques found and used in applied economic research. Topics include: ordinary least squares, generalized least square, instrumental variables, maximum likelihood estimation, and generalized methods of moments.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or instructor's consent

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**ECONOM 8473: Applied Econometrics**

Topics include: nonlinear least squares, numerical optimization, maximum likelihood and basic panel data and time series methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7371 and MATH 7140 or equivalent, or instructor's consent

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**ECONOM 9001: Topics in Economics**

Selected current topics in economics.

**Credit Hours:** 3

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**ECONOM 9085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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**ECONOM 9090: Research in Economics**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECONOM 9411: Advanced Labor Economics I**

Analysis of the determination of wages and employment and the relation of trade unionism to the economy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9412: Advanced Labor Economics II**

Applications of contemporary analytical techniques to labor market topics chosen by the instructor.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9411 and ECONOM 9452 or instructor's consent

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**ECONOM 9413: Research Workshop II**

Introduces doctoral students to practices of preparing scholarly economic research by moving through the process of selecting a topic, identifying relevant literature, and communicating results. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 9452, ECONOM 9454 and ECONOM 9474; PhD standing

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**ECONOM 9415: Advanced Public Economics I**

Tax incidence and optimal taxation in static economies and issues of taxation in dynamic economies.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9416: Advanced Public Economics II**

Macroeconomic issues of government finance. Theoretical and empirical analysis of Ricardian equivalence.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9426: International Trade**

Pure theory of international trade and commercial policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9427: Topics in International Trade**

The course will cover recent research in International Trade and important issues related to the impact of trade on economic growth and development. Topics include the relationship between trade and growth, the impact of international trade on firms, households and economic growth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9430: Advanced Money and Banking**

The working and structure of institutional arrangements, welfare aspects of structural policies, operation of money and credit markets, and behavior of returns on assets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9431: Central Banking Policies**

Examines central banking procedures, policies and the role they play in maintaining economic stability. Special attention to connection of Federal Reserve System with money and capital markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9446: Advanced Empirical Methods**

Empirical and modeling techniques for evaluation of microeconomic policy questions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8472

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9447: Topics in Microeconomic Policy Analysis**

(same as PUB\_AF 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8472, ECONOM 9446

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9451: Advanced Microeconomic Theory I**

The theory of rational behavior and partial equilibrium in markets. Topics include consumer behavior, theory of the firm, decisions making under uncertainty, perfect competition, monopoly and monopsony, and imperfect competition. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent; PhD standing

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**ECONOM 9452: Advanced Microeconomic Theory II**

Survey of equilibrium theory and market failures in economics. Topics include the structure and modeling of games, and cooperative and non-cooperative equilibrium concepts.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent

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**ECONOM 9453: Advanced Macroeconomic Theory I**

Aggregate models of life-cycle microfoundations, of macroeconomics fluctuations and growth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent; PhD standing

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**ECONOM 9454: Advanced Macroeconomic Theory II**

Analyzes topics in income analysis, including capital theory and economic dynamics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9453 or instructor's consent

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**ECONOM 9455: Monopoly and Competition**

A survey of the theoretical and empirical literature on the organization of industries. Includes study of monopolized markets, competitive markets, and strategic interaction among firms in imperfectly competitive markets. Both the rationale and practice of anti-trust policy are studied.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 and ECONOM 9471 or instructor's consent

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**ECONOM 9457: Computational Economics**

Covers numerical and computational methods to solve economic models at the research frontier. Emphasis is on practical applications to prepare students for independent research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 and ECONOM 8453 and ECONOM 8472

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**ECONOM 9460: Development Economics**

Theories of economic development critically examined. Sources and consequences of growth processes analyzed in context of economic theory and historical occurrence.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 and ECONOM 8472

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**ECONOM 9471: Advanced Game Theory**

Presents core concepts in game theory and illustrates their uses with a range of applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9472: Econometric Theory I**

Analysis of linear regression models from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**ECONOM 9473: Econometric Theory II**

Analysis of nonlinear regression models and other essential econometric tools not covered in ECONOM 9472 from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9472 or instructor's consent

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**ECONOM 9474: Advanced Topics in Econometrics I**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically time series analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9476: Advanced Topics in Econometrics II**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically microeconometrics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9477: Advanced Topics in Econometrics III**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically the second semester of a two-semester time series sequence beginning with ECONOM 9474 or a two-semester microeconometrics sequence beginning with ECONOM 9476.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9480: Independent Readings for Ph.D. Comprehensive Examinations**

Independent Readings for Ph.D. Comprehensive Exam. Graded on S/U basis only.

**Credit Hour:** 1-6

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**ECONOM 9484: Economic History**

Techniques of the new economic history are explored in the context of European economic development.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451

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## Education Honors (EDUC\_H)

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**EDUC\_H 3050H: Special Readings in Education Honors**

Directed study of literature and research reports in education.

**Credit Hour:** 1-4

**Prerequisites:** Honors eligibility required

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**EDUC\_H 3060H: Honors Seminar in Education Honors**

**Credit Hour:** 1-2

**Prerequisites:** Honors eligibility required

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**EDUC\_H 3070H: Special Practicum in Education Honors**

Directed practicum experience with students in educational settings.

**Credit Hour:** 1-4

**Prerequisites:** Honors eligibility required

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**EDUC\_H 3080H: Honors Research in Education Honors**

Joint research in education with a member of the education faculty.

**Credit Hour:** 1-4

**Prerequisites:** Honors eligibility required

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**EDUC\_H 4996H: Undergraduate Reading Honors**

This course is designed to introduce students to a variety of readings from a broad array of research, historical, contemporary and philosophical documents and writings. Selection of topics and additional readings are determined by the faculty instructor for the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4997H: Honors Undergraduate Seminar I**

This class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The cumulating assignment for the class is a proposal for a research poster or presentation to be presented at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

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**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4998H: Honors Undergraduate Seminar II**

The class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The cumulating assignment for the class is the production of a research poster or presentation at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; GPA of 3.5 or higher. Honors eligibility required

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**EDUC\_H 4999H: Honors Undergraduate Research Seminar**

This class will be offered over 2 academic semesters and will consist of a 1-2 credit hour lab each semester with a College of Education faculty member working on an undergraduate research project. This course is designed as part of the Honors sequence. Graded on A-F only. Corequisites: EDUC\_H 4997H and EDUC\_H 4998H

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent; Honors eligibility required

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## Educational Leadership and Policy Analysis (ED\_LPA)

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**ED\_LPA 3100: Foundations of Education**

Focus on developing a theoretical and conceptual knowledge of leadership. In addition, skill building-exercises will take place through group case studies and role playing exercises allowing each student to identify and achieve methods for personal development.

**Credit Hour:** 1-3

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**ED\_LPA 4060: Inquiring into Schools, Community and Society II**

(same as ED\_LPA 7060). Required 3 hour course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts.

**Credit Hours:** 3

**Prerequisites:** LTC 2040

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**ED\_LPA 7060: Inquiring into Schools, Community and Society II**

(same as ED\_LPA 4060). Required 3 hours course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts. Prerequisites: LTC 2040 and LTC 7040

**Credit Hours:** 3

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**ED\_LPA 7085: Problems in Educational Leadership and Policy Analysis**

Problems in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 7301: Topics in Educational Leadership and Policy Analysis**

Group study of topics in educational leadership, policy analysis, and higher and continuing education.

**Credit Hour:** 1-99

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**ED\_LPA 7458: Sociology of Education**

(same as SOCIOL 7410; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**ED\_LPA 7822: College Teaching with Technology I**

Examines the use of educational technologies, both class room based (e.g., student response systems) and online (e.g., course management's systems), to assist in the dissemination of course resources and the facilitation of student interaction.

**Credit Hour:** 1

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**ED\_LPA 7823: College Teaching with Technology II**

Integrates learning technologies into the traditional framework of a face-to-face course by creating a course website and developing technical proficiency with relevant educational technologies.

**Credit Hour:** 1

**Prerequisites:** College Teaching I or instructor's consent

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**ED\_LPA 8409: Learning, Curriculum and Assessment for School Leaders**

Addresses assessment, learning and curriculum and the integration of the instructional and assessment processes. Topics include authentic assessment, curriculum alignment, cognition and learning, instructional approaches, and application of student learning theory to the curriculum.

**Credit Hours:** 3

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**ED\_LPA 8410: Learning Cultures**

Integrates the themes of building a common purpose to enhance school culture, empowering teachers and students, and diversity. Topics include importance of shared mission and vision, the use of group processes and collaboration, the intricacies of school culture, and ethical and moral leadership.

**Credit Hours:** 3

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**ED\_LPA 8411: Professional Development for Learning**

Focuses on the professional development and reflection on practice. Topics include organizational actions and personal responsibility, life-long learning, and public education in a democratic society.

**Credit Hours:** 3

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**ED\_LPA 8412: School Improvement**

This course addresses the topics of organizational management and personal inquiry. It covers issues such as organizational effectiveness, organizing for an effective school environment, legal and fiscal decision-

making and responsibilities of school leaders, creating an environment where stakeholders acquire and utilized data to inform decisions and practice, and where action research methods are utilized to evaluate and inform practice.

**Credit Hours:** 3

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**ED\_LPA 8413: Internship**

The internship experience provides the opportunity for the student to assume a leadership role associated with instructional improvement. Graded on S/U basis only.

**Credit Hour:** 1-11

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**ED\_LPA 8414: Current Issues in Site-Level Leadership**

This course is designed to introduce students to the rigors of the principalship. Topics will include issues affecting beginning principals, school cultures, and the use of technology for communication and research.

**Credit Hours:** 3

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**ED\_LPA 8415: Leadership for Collaborative Cultures**

This course will instill an understanding of major components of purposeful, systemic change, interpersonal relationships, communication and organizational management. The development of an appreciation of diversity, equity, and democracy for all students will be an ongoing theme of the course.

**Credit Hours:** 3

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**ED\_LPA 8416: Foundations of School Leadership**

School leader knowledge of student learning theory and related instructional practices is the focus of this course. The problem-based learning format will include topics on school culture, leadership communication, technology, and conflict resolution. Issues concerning professional relationships are also addressed.

**Credit Hours:** 3

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**ED\_LPA 8417: Site-Level Organization and Leadership**

Student will study state and national regulations that affect Missouri school policies. The student will develop a database on various legal issues. A study of middle level education will conclude with on-site evaluation of a local middle school.

**Credit Hours:** 3

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**ED\_LPA 8418: Supervision for Learning Environments**

Students are prepared to articulate, recognize, and support classroom practices that reflect the most current principles of learning. Effective instructional strategies that link this knowledge to practice will be entered into a computer database.

**Credit Hours:** 3

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**ED\_LPA 8419: Structures and Processes for Effective Schools**

Emphasis is placed on the Missouri Comprehensive Guidance Program and positive strategies for working with challenging students. A continuation of the study of state and national legal and policy issues will focus on special programs and services.

**Credit Hours:** 3

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**ED\_LPA 8420: Curriculum for Site-Level Leadership**

Student and program assessment are the primary topics for this course on curricular leadership. Class participants are engaged in the development of authentic experiences using technology to develop and apply the testing and assessment knowledge appropriate to school leaders.

**Credit Hours:** 3

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**ED\_LPA 8421: Action Research in School Leadership**

Databases on legal and policy issues are completed and merged into a single database and placed on the specialist program web site. Site and classroom level action research is investigated, concluding with an assessment of local action research efforts in area schools.

**Credit Hours:** 3

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**ED\_LPA 8422: Advanced Problems of Leadership Practice**

This pre-internship course is a study of team building, program assessment, and site-based management. Addressing problems through a comprehensive school improvement approach with practicing principal will serve to prepare the students for internship experiences.

**Credit Hours:** 3

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**ED\_LPA 8423: Advanced Leadership for Learning Environments**

Students will demonstrate their understanding of instructional improvement for all teachers and students by designing and defending a comprehensive strategy for instructional changes in a simulated school. The ongoing study of learning principles and effective instructional practices will be concluded.

**Credit Hours:** 3

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**ED\_LPA 8424: Education Politics and Policymaking**

This course examines the politics and policymaking process of education in the United States, paying particular attention to the influence of various institutions and actors at local, state, and federal levels. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8428: Curriculum Leadership**

A study of research, theory, and skills necessary for curriculum leadership in educational organizations. Course includes generic curriculum management processes, design trends, controversial issues multi-media, innovative instructional techniques, and program evaluation.

**Credit Hours:** 3

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**ED\_LPA 8430: School Law and Finance for Principal Leadership**

Designed to engage learners in examination of the legal (judicial and legislative) system, school law, and finance policies that govern public schools and their fiscal resources in the United States and the State of Missouri. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8431: Leadership for Data-Driven Change**

This course instructs school leaders on how to use data for school improvement. Students will: identify reliable sources of data; develop, implement, and monitor strategic School Improvement Plans using data; analyze data using technology; and describe evidence-based strategies that respond to data analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8432: Introduction to Improvement Systems in Education**

This course explores tools and techniques of comprehensive school improvement systems, including theoretical, historical, and empirical frameworks in the field. Intended for school administrators, board members, and teacher-leaders involved in school improvement.

**Credit Hours:** 3

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**ED\_LPA 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as LTC 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**ED\_LPA 8955: Discourse Analysis in Education**

(same as LTC 8955). This course introduces the theories and methods of discourse analysis, including conversation, critical discourse, and multimodal. Students will analyze the role of context and ethics, as they transcribe and analyze discourse, especially from analytical settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**ED\_LPA 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ESC\_PS 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9090: Research in Educational Leadership and Policy Analysis**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9095: Problems in Educational Leadership and Policy Analysis**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ED\_LPA 9400: Social Theory in Education**

Students will examine the relationship of society and education through a variety of theoretical perspectives and empirical studies. These theories

deal with the relation of education to society as a whole, and the relation between education and the state. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9401: Educational Leadership**

Critical examination of key leadership theories and their application to various educational contexts. Includes consideration of research methods and designs appropriate for the study of leadership and the spectrum of lenses through which educational leadership is studied.

**Credit Hours:** 3

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**ED\_LPA 9402: Educational Policy Analysis**

Course centers on developing multiple understandings of the education policy making process. Theoretical constructs used to advance those understandings are eclectic in nature, drawing from the fields of political science, history, sociology and economics.

**Credit Hours:** 3

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**ED\_LPA 9403: Organizational Analysis**

Analysis of organizational characteristics and principles in educational organizations. Topics include: Organizational theories and models, organizational culture, communication, innovation, planning, leadership, power and influence, and external environment influences.

**Credit Hours:** 3

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**ED\_LPA 9404: Inquiry into Educational Leadership and Policy Analysis**

A critical overview of theory development, research paradigms, and research ethics in the department of Educational Leadership and Policy Analysis. Required for all ELPA Ph.D. students.

**Credit Hours:** 3

**Recommended:** for students who have completed at least 2 semesters of coursework

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**ED\_LPA 9405: Seminar in Educational Leadership and Policy Analysis**

Seminar in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 9406: Seminar in Educational Administration**

Seminar in Educational Administration

**Credit Hour:** 1-99

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**ED\_LPA 9407: Seminar in Educational Policy**

Seminar in Educational Policy

**Credit Hour:** 1-99

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**ED\_LPA 9408: Seminar in Higher Education**

Seminar in Higher Education

**Credit Hour:** 1-99

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**ED\_LPA 9409: Introduction to Research Design**

This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on the epistemological and ontological issues that inform our choice of research methods. This course is intended for first year doctoral students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9424: Superintendent: Instructional Leadership**

Effective superintendents understand educational core knowledge of curriculum, instructional and assessment. They establish an exception for the use of best instructional practices for all students among both the educational and public communities. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9427: School Budget Development and Fiscal Management**

This course includes an overview of school finance programs of the 50 states, including special funds for exceptional children and compensatory education. Various aspects of planning, accounting, auditing, and reporting related to budget development and fiscal management are covered.

**Credit Hours:** 3

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**ED\_LPA 9429: Superintendent: Communication, Team Leadership**

Effective superintendents negotiate political and cultural challenges to lead diverse, socially-just school systems. Reflective practices that enhance competence in public board member, and district personnel relationships are essential skills. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9430: Superintendent: Fiscal, Legal Leadership**

Effective superintendents efficiently manage finances and ensure that rules, regulations, and policies adhere to statutory/case law. Fiscal and legal practices ensure equity of educational experiences for all students. Open to all graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9437: Topics in Educational Leadership and Policy Analysis**

Topics in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 9439: Applying Higher Education Research to Practice**

This course introduces quantitative, qualitative, and mixed within a student affairs context. Students will become familiar with, and able to critique research. Course graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9440: Race, Gender, and Ethnicity in Higher Education**

(same as WGST 9440). Historical and current issues of race, gender, and ethnicity in colleges and universities in the U.S. Issues include: students, faculty, and staff experiences of diversity, access and equity, and salience of diversity in a higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9441: The Adult Learner**

The identification of learning, motivation and participation patterns among adults will be examined. Learning theories and adult development life-cycle and stage research data will be explored as well as their implications for practice.

**Credit Hours:** 3

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**ED\_LPA 9442: Curriculum Philosophy and Development in Higher Education**

A study of the philosophical foundations of postsecondary curricula, current trends and issues, and approaches to curriculum reforms and revisions.

**Credit Hours:** 3

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**ED\_LPA 9444: Program Planning in Higher Education**

Analysis of program planning and evaluation in higher education. Topics include: conceptualizations of program planning, situational analysis, needs assessment, priority setting, marketing and promotion, and program evaluation.

**Credit Hours:** 3

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**ED\_LPA 9445: College Student Development**

Emphasis on college student development theory and its application in student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9446: Student Affairs Administration**

History, philosophy, theory, and issues pertinent to student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9447: College Student Culture and Environment**

This course examines the characteristics and outcomes of American undergraduates, and the aspects of the college environment the differentially influence students. Topics include: theoretical models of students change, campus climate and cultures, learning communities, institutional differences, and conditions for success.

**Credit Hours:** 3

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**ED\_LPA 9448: College Teaching**

Designed to introduce students to theories and practices central to teaching in a higher education setting. Teaching related to institutional contexts and disciplines will be considered. Teaching and learning theories will be introduced.

**Credit Hours:** 3

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**ED\_LPA 9449: History of Higher Education in the United States**

A study of the transformation of the English college tradition to what higher education is currently in the United States. The emphasis is on how institutions of higher learning changed to meet the needs of the nation or failed to do so.

**Credit Hours:** 3

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**ED\_LPA 9450: Administration and Governance of Higher Education**

Principles of administration, academic culture and environment, and structures of governance of higher education will be explored.

**Credit Hours:** 3

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**ED\_LPA 9451: Higher Education Finance**

How students pay for college and how institutions finance their operations is explored through the lens of economics. Topics include: Theories of student access, tuition and financial aid policy, institutional costs and revenue patterns, and resource allocation models.

**Credit Hours:** 3

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**ED\_LPA 9452: Overview of Higher Education**

This course provides an overview of American Higher education. Emphasis is placed on how these institutions currently operate and what issues dominate current discussions of academe.

**Credit Hours:** 3

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**ED\_LPA 9453: Continuing Education for the Professions**

Comparative study of education for the professions. Examination of professions as occupations, approaches and goals of preparatory and continuing education, professionals as adult learners and influence of intra-profession issues and societal exchange on education.

**Credit Hours:** 3

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**ED\_LPA 9454: Introduction to Post-Secondary Law**

Examination of the legal structure within which higher education operates. Includes consideration of legal analysis of case law, institutional responsibilities under the law, and analysis of legal issues within postsecondary education.

**Credit Hours:** 3

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**ED\_LPA 9455: The Community College**

An overview of the community college. Topics include historical roots and development of the community college, organization and governance, finance, students, faculty, administrators, curriculum, social role, and recurring and emerging issues.

**Credit Hours:** 3

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**ED\_LPA 9456: The Professoriate**

Overview of faculty roles and work in U.S. colleges and universities. Explores institutional and disciplinary differences and seeks to prepare future faculty for academic life.

**Credit Hours:** 3

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**ED\_LPA 9457: Higher Education Policy**

An overview of current higher education policy issues facing governmental bodies and institutions. An emphasis is placed on investigating both the policy-making and policy-evaluation processes through multiple theoretical lenses. Specific topics explored include access, equity, and accountability within the higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9459: Comparative and International Education**

Theories, methods and issues in the field of comparative and international education. Topics cover PK-16 education and include globalization, centralization and decentralization, equity and equity, teaching and student learning, and social context of education.

**Credit Hours:** 3

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**ED\_LPA 9460: Philosophic Theory in Education**

Examines major ideological movements in modern education; their social antecedents and philosophic underpinnings.

**Credit Hours:** 3

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**ED\_LPA 9461: Ethics in Education**

Explores the ethical dimensions of work within and related to educational settings focusing on dilemmas that occur in professional practice, theories that inform thinking about ethical issues, and frameworks that guide ethical decision making.

**Credit Hours:** 3

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**ED\_LPA 9462: History of U.S. Education Policy**

Provides overview of major US education issues (primary K-12), explores analytic tools for studying history of education and introduces multiple ways of constructing the history of a particular movement reform or era in education.

**Credit Hours:** 3

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**ED\_LPA 9463: Politics of Education**

Focuses on politics of education in the United States, attending to the influence of various institutions and actors at local, state, and federal levels. Students will examine current reforms in PK-12 education and their impact on the future of education.

**Credit Hours:** 3

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**ED\_LPA 9464: Theory and Practice in Multicultural Education**

Designed to give educational professionals a better understanding of the theoretical foundations of multicultural education as well as current practices in this field.

**Credit Hours:** 3

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**ED\_LPA 9465: Policy Analysis Using Large Data Bases**

Intends to develop students' capacity to process national level large databases and to conduct policy-related research.

**Credit Hours:** 3

**Prerequisites:** an understanding of inferential statistics and experience with SPSS and SAS program

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**ED\_LPA 9469: Education Leadership Inquiry IV**

Developing and writing research proposals and conducting pilot studies. Knowledge and skills in writing the research report and sharing research with others.

**Credit Hour:** 1

**Prerequisites:** ED\_LPA 9471, ED\_LPA 9472 and ED\_LPA 9473. Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9470: Organizational Analysis for Educational Leadership**

Schools of organizational theory, six frames to analyze organizations and their underlying concepts, organizational change and leadership for change, and rationale for reframing organizations.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9471: Educational Leadership Inquiry I**

Introductory seminar on evaluating research using, APA Publication guidelines, writing scholarly publications, and using computer technology for literature searches.

**Credit Hours:** 2

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9472: Educational Leadership Inquiry II**

MU Graduate School policies related to doctoral research, use of multiple search sources, human subjects review process, and research ethics.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9473: Educational Leadership Inquiry III**

Knowledge and skills in applying planning procedures for development and implementation of future dissertation research.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9474: Professional Seminar I**

Focuses on diversity and ethics in educational leadership and educational organizations. Students learn about professional development, professional practice, and professional service. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9475: Professional Seminar II**

Problem-based learning via the Internet to make decisions involving professional practice and problem solving. The UCEA Internet program, Information Environment for School Leader Preparation, is used. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9476: Leadership Theory and Practice**

An advanced study of leadership theories, concepts, and inquiry as applied to educational organizations. Explores power and authority in organizations, leader effectiveness, and organizational reform.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9477: Leadership Theory and Practice Application**

Focuses on building understanding of the conduct of leadership in organizations through application and extension of leadership theories in practice.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9478: Policy Analysis for Educational Leadership**

Analysis and investigation of educational policy utilizing various knowledge bases; organizational politics and culture's impact on policy processes; interpretation and application of policy-making activities.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. Program in Ed. Leadership

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**ED\_LPA 9479: Content and Context of Learning**

Students develop the knowledge and skills for examining designing, and implementing organizational, classroom, and training conditions that support quality learning experiences for learners.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9480: Team Building and Group Dynamics**

Stages of group development, team building and maintenance, team/group structures, team performance, problem-based learning as team process, and empowerment through development of self-managed teams.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9481: Internship in Educational Leadership and Policy Analysis**

Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9482: Quantitative Tools for Applied Research in Educational Leadership**

General introduction to quantitative methods of data analysis. Develop concepts of measurement, design, and analysis. The focus is on data driven decision making and using various quantitative methods to investigate problems of educational leadership practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. program in Educational Leadership can enroll

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**ED\_LPA 9483: Qualitative Tools for Applied Research in Educational Leadership**

Students will learn about a number of qualitative research designs that leaders can use to critically examine research questions in their practice.

They will also learn to analyze educational issues and execute processes to effectively explore those issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the Statewide Cooperative Ed.D. Program in Educational Leadership

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**ED\_LPA 9484: Program Evaluation and Planning for Educational Leaders**

Participants develop thorough knowledge of theoretical underpinnings of selected approaches to program planning and evaluation and their necessary integration. Affords participants the opportunity to plan, conduct and deliver the results of a program evaluation to actual client. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. Program in Educational Leadership can enroll

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**ED\_LPA 9620: Qualitative Methods in Educational Research II**

(same as ESC\_PS 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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## Educational, School and Counseling Psychology (ESC\_PS)

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**ESC\_PS 1901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 2000: Experiencing Cultural Diversity in the United States**

The purpose of this course is to examine cultural diversity in U.S. Society, to increase self-awareness related to worldviews and beliefs about diversity issues, and to increase understanding of the intersections of multiple group identities. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 2010: Inquiry Into Learning I**

This course is designed to focus students on the central themes of learning and teaching. Emphasis will be placed on the interaction of theory, philosophy and practice as related to the field of education. Required for Phase II of the certification program.

**Credit Hours:** 3

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**ESC\_PS 2014: Inquiry into Learning I - Field Experience**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** departmental consent

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**ESC\_PS 2014H: Inquiry into Learning I - Field Experience - Honors**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

**Recommended:** Departmental consent

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**ESC\_PS 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center. Some sections may be graded on either A-F basis or S/U basis only.

**Credit Hour:** 1-3

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**ESC\_PS 2350: Transforming Stress: Heart Rate Variability**

**Biofeedback**

This course will offer an in-depth opportunity to learn the philosophy and management of stress through a computer -based biofeedback system. Students will develop a personal practice, track their progress and learn skills in using this technology for a range of concerns.

**Credit Hour:** 1

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**ESC\_PS 2400: Learning and Instruction**

The nature of human learning processes with implications for instruction. Emphasis on bases of and readiness for learning, types of learning, memory forgetting and transfer, and related topics.

**Credit Hours:** 2

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**ESC\_PS 2500: Child Development**

The psychological, intellectual, social, and physical development of children.

**Credit Hours:** 3

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**ESC\_PS 2700: Psychological Perspectives in Sport**

Survey of sport psychology literature with focus upon such topics as personality, positive and negative affect, cognitive and behavioral intervention, motivation, aggression, audience effects, team cohesion, team building, leadership, exercise, and multicultural issues.

**Credit Hours:** 3

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**ESC\_PS 2901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 3085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 3100: African-American Psychology**

(same as BL\_STU 3100 and PSYCH 3880). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 3200: Black Feminism**

This course outlines the basic principles and practices of Black feminism in the United States. Examination of the multiple systems of oppression on Black women's lives and Black women's collective actions against social structures will occur.

**Credit Hours:** 3

**Recommended:** PSYCH 1000 or instructor's consent

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**ESC\_PS 3901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 4087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 4115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning.

**Credit Hours:** 3

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**ESC\_PS 4120: Foundations of Counseling Psychology**

Survey of contemporary theories underlying individual feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology.

**Credit Hours:** 3

**Recommended:** departmental consent

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**ESC\_PS 4160: Developmental Aspects of Human Learning**

Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play, aggression, culture, and media.

**Credit Hours:** 3

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**ESC\_PS 4170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Recommended:** College Algebra or equivalent

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**ESC\_PS 4185: Health Behavior: Drug and Sexuality Education**

Psychological, social, and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**ESC\_PS 4200: Positive Psychology**

Using self-actualization and self-determination theory, the course builds on identifying personal strengths in people. An emphasis is placed on developing interventions that promote positive thinking. Some sections graded on either A-F or S/U basis only.

**Credit Hours:** 3

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**ESC\_PS 4460: Exploring Mental Health Issues in Schools**

This course is an introduction to the mental health challenges found in schools. It provides education professionals with the knowledge and basic skills to promote positive mental health practices in the schools.

**Credit Hours:** 3

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**ESC\_PS 4575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 7575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to upper level (junior/senior standing) students

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**ESC\_PS 4901: Topics in Educational School, and Counseling Psychology - General**

Topics place holder for lower division courses.

**Credit Hour:** 1-3

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**ESC\_PS 4960: Readings in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 7000: Foundation of Teacher Prep I**

Designed for graduate students seeking teacher certification, this course addresses content and application in comprehensive classroom management, development, behavior management, and diversity. Field work is required and integrated with course content.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 7100: Theories and Applications of Educational Psychology**

An introduction into the ideas and purpose of Educational Psychology in human development, learning, assessment/measurement and education.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 7120: Foundations of Counseling Psychology**

Survey of contemporary theories underlying individual, feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ESC\_PS 7130: Parent Counseling and Consultation**

For personnel working with parents in professional settings. Examines current family needs and child-rearing practices. Basic skills in diagnosis, counseling, consultation, parent education are developed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120

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**ESC\_PS 7150: Interviewing and Counseling**

Study of beginning interviewing and counseling skills applied to helping relationships in human services professions. Emphasis placed on learning helping skills in small group format. Lab required.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 or PSYCH 1010

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**ESC\_PS 7160: Developmental Aspects of Human Learning**

Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play aggression, culture, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 7170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Algebra or equivalent

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**ESC\_PS 7180: Foundations of Rehabilitation**

The vocational and independent living rehabilitation system for disabled persons. Concept of disability, its social psychological implications, and techniques of preparing disabled persons for adult adjustment.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7185: Health Behaviors: Drug and Sexuality Education**

Psychological, social and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent or instructor's consent

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**ESC\_PS 7190: Alcohol Abuse and Rehabilitation I**

Covers historical perspective, definition and measurement of the problem, classifications and theories about the etiology of alcoholism.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120 or ESC\_PS 4180 or ESC\_PS 7180 or instructor's consent

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**ESC\_PS 7195: Sport and Applied Coaching Psychology**

Sport and Applied Coaching Psychology is a fusion of positive psychology and sport psychology. Positive psychology teaches coaches a healthy approach based in positive motivation and behavior modeling. Sport psychology helps coaches identify with the mental training of athletes and its role in delivering maximum performance. Course focus is on helping coaches maximize the potential of their athletes and teams, while also building upon their emotional and psychological wellbeing.

**Credit Hours:** 3

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**ESC\_PS 7200: Positive Psychology**

Positive psychology explores what is positive, creative, and fulfilling in human behavior. It is the scientific study of well-being and flourishing: what people do right. This course will examine cornerstones and key concepts such as emotions, engagement, relationships, strengths, virtues, meaning, and purpose. Proven as a very effective application in the realms of organizations, governments, businesses, education, counseling, etc., it is best originally understood by applying it to oneself.

**Credit Hours:** 3

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**ESC\_PS 7220: Measurement of Cognitive Abilities**

Analysis of the function of psychological testing and a critical examination of various achievement, aptitude, and intelligence assessment instruments.

**Credit Hours:** 3

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**ESC\_PS 7260: Development of Character and Talent Strengths**

This course will explore the development and application of psychological strengths through the lens of positive psychology theory, research, and intervention. Lessons feature strengths topics including identification, leadership, flow and engagement, regulation, goal-setting and motivation. At the end of the course, students will be proficient in the languages of the StrengthsFinder and VIA Character Strengths assessments, exploration and development oriented activities, and basic facilitator techniques. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7270: Motivation and Positive Psychology**

This course is designed to give you a better understanding of your own motivation and the motivations of others. We will explore the whether, the what, the why, and the how of motivation through the study of Self-Determination, Self-Concordance and Goal Systems, as well as Attribution and Achievement goal theories. In addition to conceptual knowledge, it is our hope that you broaden your personal knowledge, such as gain new insights on how to set and select self-appropriate goals. Additionally, we will explore techniques and recommendations for motivating others towards better performance, learning, and development. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7280: Mindfulness, Meditation and Wellbeing**

This class explores both the historical roots and contemporary research related to mindfulness, meditation, and their impacts on wellbeing. Through readings, video presentations and applied practices students will expand their knowledge of meditation and Eastern influences on psychology. Students will also be encouraged to increase their personal awareness of the relationships between stress reduction, present moment and mind/ body awareness, and mindfulness practices. Students will be challenged to integrate a regular meditation practice into their daily routine and, through diverse readings, be introduced to cross-cultural perspectives on human health, psychology, and wellbeing. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7460: Foundations of School Mental Health**

Explores the history, foundations, and implementation of an expanded framework of school mental health focusing on collaborative and interdisciplinary approaches to supporting the wellness and school success of youth. Introduces professional working in or with schools to the school mental health framework emphasizing a behavioral health continuum of care, links between mental health and academic performance, a comprehensive system of learning supports, and data-based decision-making.

**Credit Hours:** 3

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**ESC\_PS 7575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 4575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate students (Master's and PhD)

**Recommended:** Prior course work in education, human development, family studies, sociology, social work, or other child and youth-related programs is highly preferred

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**ESC\_PS 8000: Advanced Child Development**

Psychological development from birth to adolescence. Examines the influence of maturation and learning upon the acquisition of normal development tasks. Emphasizes the application of current research and theory with the school-age child.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 8010: Advanced Adolescent Development**

Analysis of normal adolescent psychological development, including the cognitive, affective, academic, physiological, moral and social parameters. Applications with typical adolescent problems are emphasized.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 8015: Child and Adolescent Development**

A comprehensive analysis of normal development across the lifespan with a primary focus on children and adolescents. Will investigate the cognitive, affective, academic, physical, moral and social/cultural/racial domains. Examples of atypical development will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent

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**ESC\_PS 8020: Overview of Research Methods**

Survey of research design and methods of data collection for masters, educational specialists, and doctoral students.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8030: Role and Function of the School Psychologist**

Introduction to major helping relationship approached in School Psychology, applied to various professional settings. History, current issues, trends, professional organizations, legal/ethical standards, discussed.

**Credit Hours:** 3

**Prerequisites:** enrollment in Educational School, and Counseling Psychology Program

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**ESC\_PS 8040: Counseling Methods and Practices**

Introduction to counseling microskills and techniques, with attention to case conceptualization, therapeutic alliance, and counseling process. Laboratory experience in demonstrating skills and the ability to form an effective counseling relationship is required.

**Credit Hours:** 3

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**ESC\_PS 8050: Marriage and Family Counseling**

Appropriate for students who work with couples and families in a professional setting. Examines major family and marriage theories and research, counseling, skill development communication, and marital/family enrichment.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040

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**ESC\_PS 8060: Lifespan Development**

A comprehensive analysis of normal development across the lifespan with a primary focus on children and adolescents. Will investigate the cognitive, affective, academic, physical, moral, social/cultural/racial, religious/spiritual and sexual domains. Examples of atypical development will be discussed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent. Consent of instructor required

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**ESC\_PS 8070: Ethical and Legal Issues in Psychological Practice**

Legal and ethical concepts and issues relevant to the practice of psychology and student personnel services.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120 or instructor's consent

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**ESC\_PS 8082: Foundations of Educational and Psychological Measurement**

Basic principles of educational and psychological measurement including test construction, validity, reliability, item analysis, and derived scores.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8087: Seminar in Educational, School, and Counseling Psychology**

Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8090: Master's Thesis in Educational, School, and Counseling Psychology**

Independent research leading to Master's Thesis. Graded on S/U basis only. Prerequisites: advisor's consent

**Credit Hour:** 3-6

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**ESC\_PS 8095: Research in Educational, School, and Counseling Psychology**

Supervised research that is independent of master's thesis or doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** advisor's consent

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**ESC\_PS 8100: Psychological Assessment of Children and Adolescents: Cognitive Assessment**

Basic principles in intelligence theory and intermediate measurement concepts. Practice in administering, scoring, and interpretation of data

from individually administered intelligence tests with school aged children and adolescents. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ESC\_PS 8110: Methods in Group Counseling**

Study of group counseling methods and techniques. Participation in a group is required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040, demonstrated knowledge of ethical principles and departmental consent

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**ESC\_PS 8120: Psychological Assessment of Children and Adolescents: Psychoeducational Assessment**

Practice in administering, scoring, and interpretation of data from academic achievement, nonverbal intelligence, memory, adaptive behavior, and perceptual/motor assessments with school-age youth and adolescents.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100 and instructor's consent

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**ESC\_PS 8125: Professional Iss. in Sch. Psych. I: Hist., Trends & Ethical Pract.**

For first-year doctoral students in school psychology. History, current issues, trends, professional organizations, legal-ethical standards of doctoral level school psychology are discussed. The scientist-practitioner model and scientific reasoning process as they apply to both science and practice are reviewed.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology program

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**ESC\_PS 8130: Psychological Assessment of Adults**

Students develop and practice skills in writing psychological reports with special emphasis on assessing psychological social-vocational functioning.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100

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**ESC\_PS 8135: Foundations of Career Psychology**

Theoretical orientations to counseling for career development; nature and structure of work, education, and leisure; work and family issues; career concerns of special populations; use of career information in counseling.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8140: Psychological Assessment in Childrent and Adolescents: Behavior and Social Emotional Assessment**

This course introduces behavior theory, behavioral and social-emotional assessment techniques (including observations, interviewing, rating scales, and projective techniques) and their link to relevant interventions, with a primary focus on school-age youth and adolescents.

**Credit Hours:** 3

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**ESC\_PS 8145: Psychological Interventions with Children and Adolescents: Behavioral Intervention**

This course will emphasize behavioral theory, assessment, and intervention, including functional behavior assessment, positive behavior supports, and the conceptualization from an individual, systems, and public health perspective. Graded on A-F basis only

**Credit Hours:** 3

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**ESC\_PS 8160: Psychological Interventions with Children and Adolescents: Educational Instruction**

This course investigates models of school instruction in both general and special education, and how instruction can be adapted for learners who exhibit a range of academic and psychological problems and disabling conditions.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100, ESC\_PS 8120 and instructor's consent

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**ESC\_PS 8165: Psychological Interventions with Children and Adolescents: Evidence- Based Therapies**

An introduction to evidence-based child and adolescent psychotherapies, including individual and group interventions. Various aspects will be considered including assessment, diagnosis, and treatment planning. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8170: Career Resources in Business and Industry**

Personnel practices, occupational requirements, and career opportunities and resources in business and industry. Applications are emphasized through on-site visits and use of business-industry-labor personnel. Graded on S/U basis only.

**Credit Hour:** 2-4

**Prerequisites:** ESC\_PS 8135 or instructor's consent

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**ESC\_PS 8180: Theory and Practice in Career Psychology**

Methods and programs for facilitating the career development of individuals over the life span. Organization and development of activities and programs for all ages emphasized.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8135

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**ESC\_PS 8185: Health Promotion**

An overview of the important concepts of health promotion. Emphasis on specific health-related problems and issues, health behavior change, and the design, development implementation, and evaluation of comprehensive health promotion programs.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent or instructor's consent

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**ESC\_PS 8195: Applied Positive Coaching**

Explores concepts of sport, coaching and positive psychology, particularly the interventions and applications designed to further develop a coach's philosophy, communication skills, understanding of motivation, leadership skills, and the coach's and athlete's well-being. Prerequisites: ESC\_PS 7195

**Credit Hours:** 3

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**ESC\_PS 8200: Applied Positive Psychology**

This course will require students to implement positive psychology concepts from the introductory course into their personal, professional, and/or social lives. We will also study specific ways in which these concepts and theories are being applied throughout various realms of well-being. Among the topics in this course are therapeutic lifestyles, goal-setting and attainment, self-care, meaning making, transformational leadership, influence and sustainable happiness theory. Prerequisites: ESC\_PS 7200

**Credit Hours:** 3

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**ESC\_PS 8210: Projective Assessment of Adults**

Assessment of personality functioning using projective and inferential testing procedures. Rudimentary skills in using the Rorschach method.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8000 or ESC\_PS 8100

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**ESC\_PS 8220: Vocational Assessment of Individuals with Disabilities**

This course is an overview of the philosophy of vocational assessment of individuals with disabilities. The course also emphasizes to positive integration of vocational assessment into the rehabilitation counseling process. Assessment practice included.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7180 and ESC\_PS 8082

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**ESC\_PS 8232: Foundations of Sport Performance**

Focuses on principles and methods to become an effective sport performance coach. Examines the development of athletes and education of basic sports nutrition, strength, and conditioning.

**Credit Hours:** 3

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**ESC\_PS 8240: Sport in America**

Sociological perspectives of sport in America. Attention given to the influence of society on sport as in institution, and the role of sport as an agent of social change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or PSYCH 1000

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**ESC\_PS 8250: School Psychology Practicum: Introduction to School Services**

This course is an intro practicum that exposes students to the organization and functions of schools. Students work with psychologists and other school personnel on academic and behavioral interventions to learn how schools serve children and their families. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 8255: Legal Aspects of Sport and Coaching**

Emphasis is to provide insight about how the law is applied in sport settings, the types of litigation involved, and the standard of care required. Fundamental terminology and concepts, and contemporary issues in sport law will be addressed.

**Credit Hours:** 3

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**ESC\_PS 8260: School Psychology Practicum: School-Based**

Level II School Psychology Practicum provides students with experience in school-based psychological service delivery. Students gain experience with psychoeducational assessment and diagnosis, intervention planning and delivery, consultation, and serving on multidisciplinary teams. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 8265: Administration of Athletic Programs**

Examines methods, principles, and roles of athletic administrators. Also, examines the job responsibilities and competencies required of sport leaders in athletic administration.

**Credit Hours:** 3

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**ESC\_PS 8270: Student-Athlete Wellbeing**

As a positive coach and career educator, your knowledge of student wellbeing is critical to support your students' physical, mental, and social health alongside their academic success and development beyond sport. Although our semester will focus largely on the most critical components of student welfare, we will also frame our study of student wellbeing using the tenets of Positive Psychology, a discipline that champions a strengths-based approach to guide positive behaviors associated with health and wellbeing. Health promotion theory will also guide our course of study as we examine: (a) individual student-athlete wellbeing with a focus on physical, mental, and social health (b) wellbeing in the context of student services provided by the school or organization, and (c) program evaluation methodology to identify strengths and opportunities for program improvement to enhance wellbeing and welfare for all student-athletes. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 7200 Positive Psychology

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**ESC\_PS 8280: Gender Issues in Sport**

Through a study of theory and applied practice, students will explore personal biases, understand intersecting identities and explore privilege and oppression at the individual, interpersonal, structural, and cultural level when considering gender awareness in sport.

**Credit Hours:** 3

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**ESC\_PS 8290: Multicultural Issues in Sport**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of athletic coaches working with diverse student populations. Activities and assignments are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings.

**Credit Hours:** 3

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**ESC\_PS 8300: Positive Leadership in Sport**

A Positive Leadership philosophy requires Positive Leadership delivery. Course is designed to prepare leaders to bridge content knowledge



to practical application. Students will use core competencies learned throughout their program to develop their leadership approach.

**Credit Hours:** 3

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**ESC\_PS 8310: Colloquium in Educational Psychology**

A course that covers current topics in learning, development, and schooling. Topics include cognitive, affective, academic, physical, moral ethnic/cultural domains. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent required

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**ESC\_PS 8320: Advanced Human Learning**

A study of behavioral and cognitive theories of learning with an emphasis on those greatest utility for educators. Experimental evidence forming the theoretical base for educational practice is examined.

**Credit Hours:** 3

**Recommended:** ESC\_PS 2400 or ESC\_PS 7100

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**ESC\_PS 8330: Motivating At-Risk and Diverse Students**

This course examines motivational concepts that apply to students of all ages. The course is designed to help teachers design classrooms and assignments that would improve the motivation of students, especially at-risk students. The course pays special attention to issues of diversity relevant to motivation. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8340: Cultural Backgrounds and Learning**

The course explores the influence of culture on the process of learning. Topics and discussions will center on learning within the K-12 classroom. Readings and assignments are tailored to engage students in practical classroom applications of the information and discussions within the course. At the conclusion of the course students will have a deep understanding of how culture shapes thinking, learning, behavior, and the classroom environment. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8350: Cognition, Learning and Instruction**

Examines the topics of memory and cognition as they apply to the process of learning and instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or instructor's consent

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**ESC\_PS 8355: Cognition and Emotion**

This course looks at human cognition and emotions and their influence on learning, self-control, motivation, executive processes, and behavior change. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8360: Advanced Counseling Theories and Interventions**

Contemporary theories and interventions of counseling. Advanced study of efficacious techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040 or ESC\_PS 8342

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**ESC\_PS 8380: Data-Driven Instructional Decisions**

This course explores the uses of assessments and evaluation techniques for practical applications within the classroom. Focus is on use of data gathering techniques to increase student academic performance and inform classroom instruction. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8400: Analysis of Research in Career Psychology**

Examination of career development theories, the research supporting the theories, and the practical application of these ideas in career counseling and career programs.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8135

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**ESC\_PS 8410: School Guidance Programs**

Provides knowledge and skills in the development and management of school guidance programs including program planning, structuring, implementing, and evaluating.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8415: Program Evaluation for School Counselors**

Program Evaluation is a graduate seminar intended to provide students with the skills needed to evaluate comprehensive guidance and counseling programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8425: Effects of Maltreatment on Child and Adolescent Development**

Course topics to be covered include 1) definitions of child maltreatment, 2) incidence and prevalence rates, 3) possible causes and consequences associated with child maltreatment, 4) treatment of survivors and perpetrators, and 5) prevention efforts. Important legal and ethical issues will be discussed, such as children's competence and eyewitness abilities, false allegations of abuse, mandated reporting, and investigative interviewing of children. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8430: Mental, Emotional, and Behavioral Disorders in Youth**

The course will include an overview of normal development and an investigation into specific deviations in intensity, frequency, and/or duration of normal development which impact the individual in his or her home, school, and community.

**Credit Hours:** 3

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**ESC\_PS 8435: Wellness Management for School Personnel**

The current climate in schools places considerable demands on teachers and other school personnel. Often, those working in schools find themselves under enormous stress and pressure. In this course, school personnel will examine a variety of topics related to both identifying and effectively dealing with these pressures. Topics include communication skills, dealing with challenging individuals in the school system, recognizing and effectively managing stress, and recognizing burnout and re-energizing. The course will provide an overview of the research on

these topics, as well as numerous effective strategies to deal with these pressures. Students in the course will have opportunities to apply learned strategies to real-life situations in the schools. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8440: School Mental Health: Policy, Law and Ethics**

This course is designed to familiarize school-based professionals with policies, laws and ethics associated with children and youth and schools.

**Credit Hours:** 3

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**ESC\_PS 8445: Building Resiliency and Optimism in Youth**

Examines risk and resiliency processes during childhood and adolescence. Focuses on defining resilience; sources of risks and protective factors within families, schools, and communities; prevention programs targeting early, middle childhood and adolescence. Promotion of one's own resilience and well-being discussed. Special topics include strengths-based models of resiliency, resilience and family difficulties, violence and maltreatment, poverty, dropout, and school/community-based prevention and intervention.

**Credit Hours:** 3

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**ESC\_PS 8450: Diversity Issues in School Mental Health**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of school personnel working with diverse student populations.

**Credit Hours:** 3

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**ESC\_PS 8455: Bully and Youth Violence: Prevention and Reduction**

This course is a survey of current issues in bullying and youth violence with an emphasis on applications in the school environment. The course will present effective strategies for bullying and violence prevention within the school and in collaboration with the community at large. Students are encouraged to apply the course concepts to their work environment and develop tools for future practice in schools and other youth-serving settings. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8460: Communication and Collaboration with Children and Families**

This course will provide education professionals with the knowledge and basic skills to address common mental health issues through positive and solution focused communication and collaboration.

**Credit Hours:** 3

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**ESC\_PS 8465: Vital Issues in School Mental Health**

The course is highly individualized in that students, as a group, will choose the specific topics to be covered. Readings and assignments have three foci: 1) improve understanding of each issue within a broader context of public mental health policy, prevention, intervention, and maintenance; 2) deepen student knowledge of the topic from practice and research-based sources; and 3) enable students to deal more effectively with those issues within relevant settings. Topics may include, but are not limited to: school dropout, substance use, self-injury/cutting, relational aggression, management of extreme behaviors, homelessness, divorce/

death, eating disorders, pregnancy, ADHD, and many others. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8470: Preventions and Interventions in School Mental Health**

This course explores the role that educators and school mental health professionals play in promoting, prevention and early intervention practices for mental, emotional, and behavioral disorders in youth and considers the basic steps for designing, implementing and evaluating evidence based interventions.

**Credit Hours:** 3

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**ESC\_PS 8475: Proactive Behavior Management**

This course provides a framework to a prevention-focused model of classroom support and behavior management. Prevention is less time-consuming in the long run and leads to more opportunities for learning and social engagement because discipline problems are not interfering with teaching. This course will include evidence based strategies to structure proactive learning environments that promote students' academic skills and competencies as well as their social and emotional development. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8490: Mental Health in Schools Capstone Paper**

Course focuses on writing a capstone integration paper that is intended to be a culminating experience. Allows students to reflect on the content of their course work, evaluate the knowledge and skills acquired, and apply what they have learned into their professional practice. Prerequisites: instructor's consent

**Credit Hour:** 1

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**ESC\_PS 8500: Rehabilitation Counseling**

A study of the history and current status of rehabilitation counseling, and the role, theory, and practice of counseling in rehabilitation settings with persons with disabilities.

**Credit Hours:** 3

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**ESC\_PS 8510: Medical and Psychological Aspects of Disability**

Presentation of medical aspects of major disabilities and their effects upon social, vocational, personal, and economic adjustment. Study of basic restoration and accommodating services.

**Credit Hours:** 3

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**ESC\_PS 8515: Sport Psychology**

Current topics of research in sport psychology are examined. Topics include: sport personality, attention, activation and anxiety intervention, motivation, sport aggression, audience effects, team cohesion, leadership, and health psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8520: Job Acquisition for Individuals with Disabilities**

Techniques of job development, placement, job analyses of the individual's skill and abilities and the employer's needs, and how to build professional relationships with employers.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7180

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**ESC\_PS 8530: Developmental Psychopathology and Exceptionality**

An investigation into the presentation, diagnosis, and treatment of psychopathologies in individuals, emphasizing causal pathways, risks/resiliency, prevalence, incidence, and continuity/discontinuity of the disorders from research in the field of developmental psychopathology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8540: Theory and Practice in Feminist Therapy**

Theory, research, practice standards and current debates within feminist therapy. Includes both examination of topical areas in a seminar format and live observation of feminist therapy.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8940 or instructor's consent

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**ESC\_PS 8550: Diversity and Multiculturalism II - Practical Application**

This course is part two in the Multicultural Education Certificate series of online courses designed for students working in a broad range of professions, such as health care, social work, education, school counseling, administration, etc. Students will examine various topics on diversity and multiculturalism to enhance their personal and professional development. To this end, the milieu of this course will be a safe online environment that is conducive to open dialogue, self-reflection, critical thinking, and questioning, and one in which students can actively engage in the learning process through affective and cognitive approaches. Postings, along with relevant readings and assignments, will be used as the primary tools and resources for this collective learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8555: African American Education - Historic and Current Issues**

Critical examination of the deculturalization of American educational system. Concepts of race, culture, and "post racial society" are juxtaposed with social and systemic trends impacting African American students both in and out of the classroom. Pedagogical strategies are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8560: Immigrant Issues in Education**

The purpose of this course is to increase the level of cross-cultural awareness, knowledge, and skills of school personnel working with students who are immigrants. It is designed to be practically and experientially oriented. Activities and assignments in the class are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to

improve intercultural interactions with others in professional settings as well as other settings. The anticipated outcome includes improved skills in conceptualizing the unique needs of and responding with appropriate approaches to effectively assist students who are immigrants. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8565: Gay, Lesbian and Bisexual Issues in the Schools**

This online course seeks to expand your perspective, worldview, and knowledge of GLB individuals and in your work environments as well as an invitation to promote social justice to make positive changes for the benefit of GLB individuals. Individuals who identify as GLB face many unique experiences, challenges, and opportunities during their developmental life span including issues related to coming out, psychological well-being and mental health development, heterosexism and homophobia, stereotypes and myths, and sexual identity. These issues and more are discussed in the course. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8580: Social and Cultural Identity Development**

Graduate-level course designed to introduce students to: (a) the dominant social and cultural identity theories and paradigms; (b) how these theories have been operationalized and measured.

**Credit Hours:** 3

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**ESC\_PS 8585: Gender Issues in Counseling and Education**

Topics include conceptions of gender roles, measurement of gender-related constructs, gender role socialization process, high incidence gender-related problems, and psychoeducational and counseling interventions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ESC\_PS 8590: Multicultural Counseling Competencies: Theory and Research**

This course will introduce students to the current status of multicultural counseling theories and research issues and help students to increase their knowledge of cultural differences in counseling and psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8640: Interviewing, Diagnosis, and Assessment**

Introduction to clinical, psychometric assessment, and diagnosis. Data-gathering methods include interviews and tests/inventories of intellectual functioning, abilities, personality, and interests. Students utilize psychological reports to inform assessment, diagnosis and treatment.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ESC\_PS 8082

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**ESC\_PS 8655: Item Response Theory**

Introduces modern scaling with Item Response Theory, and includes how it can be used to statistically specify information about latent variables and the stimuli (e.g., tests) used to represent them.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9640 and ESC\_PS 9650

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**ESC\_PS 8690: Educational Planning and Evaluation**

This course addresses major issues and models used in educational program planning and evaluation, including the appropriate use of various evaluation models and different types of data.

**Credit Hours:** 3

**Prerequisites:** departmental inquiry course, ESC\_PS 8830 and/or ESC\_PS 8957

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**ESC\_PS 8700: Life/Career Coaching and Development**

Designed to teach life and career coaching strategies with roots in career psychology and positive psychology. It provides the tools and knowledge on how to coach people to achieve their personal and professional goals.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8710: Meaning In Work**

Covers a broad look at meaning and vocation using theoretical and empirical frameworks. Also explores the influence of culture, environment, relationships and personal values on meaning development while providing a framework for working from a coaching/counseling standpoint to help others identify or develop meaningful vocations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8720: Community and Stewardship**

Examines the concepts of community and stewardship, explores the literal roots of the word (common-unity) and our ability to respond (responsibility) to and build our communities. Also explores the connections between altruism, personal well-being, and social stewardship.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8730: Positive Organizational Psychology**

Surveys the impact of positive organizational psychology research throughout professional organizations. Students will learn empirically defined elements of positive work environments and learn the building blocks associated with this field including: Appreciative Inquiry, the Abundance Approach, Strengths-Based Organizations, Positive Work Environments, and Employee Engagement and Satisfaction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8830: Quantitative Analysis in Educational Research I**

This is the first course in the sequence of statistical analysis methods. Topics covered in this course include statistical inference, simple regression, multiple regression, regression assumptions, regression with

categorical predictors, model selection methods polynomial regression, and model validation.

**Credit Hours:** 3

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**ESC\_PS 8840: Quantitative Analysis in Educational Research II**

This is the second course in the sequence of statistical analysis methods. Topics extend those covered in Quantitative Analysis I and include hypothesis testing, ANOVA, ANCOVA, repeated measures design, random-effects ANOVA, introduction to logistic regression, polytomous and ordinal regression and linear mixed models (if time permits).

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 and ESC\_PS 8830

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**ESC\_PS 8850: Quantitative Foundations in Educational Research**

This course is designed to provide students the fundamental and necessary quantitative methods skills in educational research. Topics include one-way and factorial analysis of variance (ANOVA), analysis of covariance (ANCOVA), repeated measures ANOVA, random-effects ANOVA, simple linear regression, multiple regression, regression diagnostics, introduction to logistic regression, and statistical power analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170

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**ESC\_PS 8870: Public Health Psychology**

Study of applications of psychology to behavior, environment, and policy to promote health and prevent disease. The course gives particular attention to behavioral epidemiology and risk/resiliency factors associated with negative outcomes of childhood and adolescents.

**Credit Hours:** 3

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**ESC\_PS 8900: Topics in Education, School and Counseling Psychology**

Topics placeholder for upper division courses.

**Credit Hour:** 1-3

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**ESC\_PS 8940: Counseling Psychology Practicum**

Supervised practice of counseling in an approved counseling setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8135, and ESC\_PS 8640 and consent of counseling area faculty

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**ESC\_PS 8941: Practicum and Theory in Group Counseling I**

Supervised practice of group facilitation in an approved setting. Formal study of contemporary theories and advanced techniques is integrated with the practice of group facilitation. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** ESC\_PS 8110 and instructor's consent

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**ESC\_PS 8942: Practicum and Theory in Group Counseling II**

A continuation of Educational School, and Counseling Psychology 8200. Graded on S/U basis only.

**Credit Hours:** 4

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**Prerequisites:** ESC\_PS 8200 and instructor's consent

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**ESC\_PS 8943: Practicum in Multicultural Counseling Interventions**

Supervised practice of applied multicultural counseling interventions in a wide variety of approved community and university settings. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and either ESC\_PS 8570 or ESC\_PS 8590

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**ESC\_PS 8944: School Psychology Practicum**

Supervised practice of psychological assessment, intervention and remediation strategies. May be repeated. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 8945: Practicum in Marriage and Family Counseling**

Supervised practice in marriage and family counseling conducted in appropriate laboratories and agencies. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8342, ESC\_PS 8160 or ESC\_PS 8050 and departmental consent

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**ESC\_PS 8946: Rehabilitation Counseling Internship**

Field-based counseling internship in a community setting serving individuals with disabilities. 600 hour supervised experience designed to combine theoretical and applied program training aspects. Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8520, and ESC\_PS 8220

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**ESC\_PS 8947: Practicum in Student Development Programs**

Supervised practice in student personnel services in an approved agency. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8080

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**ESC\_PS 8948: Field Placement in Counseling/Supervision**

Students will conduct counseling and/or supervision in approved community agencies under the supervision of licensed practitioners. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** completion of 9 credit hours of ESC\_PS 8040, and consent of the Counseling Area Faculty

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**ESC\_PS 8950: Prevention Science Practicum: School and Family Centered Interventions**

Prevention Science Practicum is an advanced graduate level practicum intended to provide students with the theoretical and practice skills needed to provide effective prevention services to children and families across multiple contexts. An emphasis is placed on school and family centered supports that prevent emotional and behavior problems in children. Graded on S/U basis only.

**Credit Hour:** 3-6

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**Prerequisites:** instructor's consent required

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**ESC\_PS 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8960: Interdisciplinary Child and Family Practicum**

This class includes a focus on child/family services with a systems/interdisciplinary approach. Students provide services via a mentorship model (strong supervision initially moving toward autonomy). Services include evaluations, therapy, consultation, psychiatric cross-training, and others. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and instructor's consent

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**ESC\_PS 8980: Field Experience in Counseling**

Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** instructor's consent

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**ESC\_PS 8990: Career Development Theory for Women**

Consideration of the relevance of theories of career development for women, and their application to the counseling of women. Supervised clinical experience in the application of theories to counseling high school age women.

**Credit Hours:** 3

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**ESC\_PS 9000: Multicultural Issues in Counseling**

This course covers the research and theories of counseling racial/ethnic minorities and gays, lesbians, and bisexuals in the U.S. Examination of personal values and education about the interrelationship between race, class, gender, and sexuality are accomplished via structured activities.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8340

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**ESC\_PS 9010: Building Cross-Cultural Competencies: Taiwan Up Close**

The primary purpose of the course is to promote the development of cross-cultural knowledge, awareness, and skills for applied psychologists. The first part of the course occurs at MU in preparation for part two, a 10-day professional cultural immersion in Taiwan.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9000 preferred; instructor's consent

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**ESC\_PS 9020: Psychology of Crossing Cultural Borders**

The primary purpose of the course is to promote the development of cross-cultural knowledge, awareness, and skills for applied psychologists. Students acquire knowledge of psychological processes associated with crossing cultural borders, and translate that knowledge into practical applications. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9040: Cross-Cultural Issues in Counseling: International Focus**

This course focuses on developing students' awareness, knowledge, and skills in cross-national counseling and research in equipping the next generation of counseling psychologists' competencies related to the globalization trend of counseling psychology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9000

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**ESC\_PS 9050: Biofeedback in Psychological Practice**

Use of biofeedback in achieving voluntary self-regulation and control of stress related behaviors.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040 or ESC\_PS 8342 and instructor's consent

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**ESC\_PS 9087: Advisor's Seminar**

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**ESC\_PS 9090: Doctoral Dissertation Educational School & Counseling Psychology**

Independent research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**ESC\_PS 9091: Internship in Counseling Psychology**

Supervised experience in counseling psychology on half- or full-time basis in approved internship station. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9092: Internship in School Psychology**

Supervised practice in school psychology in an educational setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9093: Doctoral Internship in School Psychology**

Supervised practice in doctoral-level school psychology in an institutional or applied setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9100: Advanced Psychological Measurement and Assessment**

Introduction to the scientific and psychometric foundations of clinical assessment, including measurement theory, reliability, validity, and scale/test construction. Primary focus on the development and validation of evidence-based, psychometrically-sound assessment tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**ESC\_PS 9125: Professional Iss. in Sch. Psych. II: Rsrch. Design & Application**

For first-year doctoral students in school psychology. Includes study of research design and methodological issues in the field of school psychology.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology doctoral program

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**ESC\_PS 9126: Prevention Science Research Design and Analysis**

Prevention Science Research is a graduate seminar intended to provide students with the theoretical and empirical foundations of prevention science. In particular, students will learn how to conceptualize problems from a prevention science perspective and design and evaluate preventive interventions using advanced methodologies. Opportunities for community based participatory research including research design and analysis, papers and briefs, grantwriting, and community collaborations regarding prevention programming particularly pertaining to children's mental health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9250: School Psychology Practicum: Community-Based**

This course is an advanced practicum for students providing school psychology services in non-school settings. Students develop higher-level skills in the areas of case coordination, diagnostic decision-making, intervention, and systems change. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 9260: Policy Practicum in Professional Psychology**

Policy Practicum is an advanced practicum focused on macro level skills for shaping policy and systems-level intervention. Students work within agencies that establish policy for special education, mental health, and other education/psychology-related issues. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9300: Psychoanalytic Counseling**

A study of the contribution of classical and contemporary psychoanalysis to counseling theory, research and practice. Examination of theoretical and clinical material in a seminar format.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8342 and instructor's consent

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**ESC\_PS 9400: Theories and Practices in Supervision**

Instruction and practice in the supervision of psychological services conducted in appropriate laboratories and agencies. Sections titled Counseling Psychology are graded on S/U basis only. Sections titled School Psychology are on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8940 or ESC\_PS 8944 and instructor's consent

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**ESC\_PS 9445: College Student Development**

Emphasis on college student development theory and its application in student affairs work.

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**Credit Hours:** 3

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**ESC\_PS 9446: Student Affairs Administration**

History, philosophy, theory, and issues pertinent to student affairs work.

**Credit Hours:** 3

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**ESC\_PS 9450: Motivation**

Investigates human motivation applied to performance in schools, athletics, and personal life. Topics include goals, attributions, self-efficacy, interest, cultural differences, and rewards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or equivalent

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**ESC\_PS 9460: Health Behavior Change Research**

(Same as NURSE 9460). Doctoral seminar focusing on theories, measurement, and methods for conducting health behavior change research. Prerequisites: NURSE 9120,

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410, or faculty consent

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**ESC\_PS 9530: Scientific Fdns of Counseling Psych I: Prof Iss &**

For first-year doctoral students in counseling psychology. This course focuses on the history of counseling psychology, in and scientific reasoning processes as they apply to both science and practice.

**Credit Hours:** 3

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**ESC\_PS 9540: Scientific Foundations of Counseling Psych II: Rsrch, Dsgn & Appl**

For first-year doctoral students in applied psychology. Includes study of research design and methodological issues in the field of counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530

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**ESC\_PS 9550: Scientific Writing in Counseling Psychology**

This course focuses on the technical skills needed for developing a scientific research proposal in counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530 and ESC\_PS 9540 and instructor's consent

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**ESC\_PS 9560: Psychological Consultation: Schools**

The individual psychological consultation process between the mental health professional and school personnel. Techniques, models, research roles, and responsibilities are discussed. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9570: Psychological Consultation: Organizations**

This course provides an introduction to the theory and practical skills required to effectively consult at the organizational level in a variety of settings and contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9610: Applied Sport Psychology**

Building upon the knowledge base of sport psychology, this course integrates and synthesizes student's understandings of the wide array of concepts and theories of the field into meaningful applications and strategies aimed at enhancing the sport experience of others. A case study approach will be employed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8515

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**ESC\_PS 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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**ESC\_PS 9640: Introduction to Theory of Educational Measurement**

Classical and modern test theory, including IRT, generalizability theory and test bias. Also covered are advanced strategies for investigating reliability and validity.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 and ESC\_PS 8082

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**ESC\_PS 9650: Application of Multivariate Analysis in Educational Research**

The focus of this course will be on applications of multivariate analysis in educational research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8830 and ESC\_PS 8840 or equivalent and instructor's consent

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**ESC\_PS 9710: Structural Equation Modeling**

Simultaneous analysis of relationships among variables. Topics included are path analysis, confirmatory factor analysis, hybrid models, and special types of structural models involving longitudinal data, multiple groups and analysis of means. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650

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**ESC\_PS 9720: Hierarchical Linear Modeling**

Hierarchical Linear Modeling (HLM), including multilevel and longitudinal approaches, in applied research settings for the social, educational psychological, and health-related sciences. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650; consent required

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**ESC\_PS 9900: Topics in Educational Leadership and Policy Analysis**

Topics placeholder for upper division courses.

Credit Hour: 1-3

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## Electrical And Computer Engineering (ECE)

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### ECE 1000: Introduction to Electrical and Computer Engineering

Introduction to the basic principles of electrical and computer engineering through hands-on activity. Course includes fundamentals of programming using Matlab, applied to electrical and computer engineering problems.

Credit Hours: 2

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### ECE 1001: Experimental Course

For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

Credit Hour: 1-99

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### ECE 1210: Introduction to Logic Systems

Introduces basic tools, methods and procedures to design combinational and sequential digital circuits and systems. Topics include number systems, Boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design. Graded on A-F basis only.

Credit Hours: 3

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### ECE 2001: Experimental Course

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

Credit Hour: 1-99

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### ECE 2100: Circuit Theory I

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power. Graded on A-F basis only.

Credit Hours: 4

Prerequisites: A grade of C- or better in MATH 1700

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### ECE 3110: Electrical and Computer Engineering Projects

Open-ended design projects which encourage innovative solutions to design and measurement problems. Students teams complete several projects from different areas. Both oral and written presentations emphasized. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: A grade of C or better in ECE 3210 and ECE 3410 and a grade of C- or better in Stat 4710. Restricted to Electrical and Computer Engineering students only or instructor's consent

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### ECE 3210: Microprocessor Engineering

Introduction to microprocessor architectures and programming; memory, memory management and cache organizations, bus configurations and timing implications; parallel I/O and serial communication interfaces.

Credit Hours: 4

Prerequisites: A grade of C or better in ECE 1210 and CMP\_SC 1050

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### ECE 3220: Software Design in C and C++

Software/Hardware development for embedded systems, including memory, I/O and interrupts; an overview of C and C++, class structures in object oriented programming; software development with UML and testing and debugging strategies. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: ECE 3210

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### ECE 3410: Electronic Circuits and Signals I

Electron Devices, modeling and applications to basic electronic circuits, including RC amplifiers and power supplies.

Credit Hours: 4

Corequisites: ECE 3810

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### ECE 3510: Electromagnetic Fields

Elements of vector analysis, transmission line theory, electrostatics, magnetostatics, time varying fields and plane waves. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: A grade of C- or better in PHYSCS 2760

Corequisites: MATH 4100

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### ECE 3610: Semiconductors and Devices

Crystal structure; quantum aspects of energy, radiation and matter; quantum mechanics and energy bands in solids; electronic and optical properties of semiconductors; p-n junctions and diodes; bipolar and field-effect transistors.

Credit Hours: 3

Prerequisites: A grade of C or better in ECE 3510

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### ECE 3810: Circuit Theory II

Impulse and step responses, RLC circuits, classical differential equations solutions, complex plane stability, frequency and Bode Analysis, Resonance, Laplace transforms, two-port networks, mutual inductance and transformers. Graded on A-F basis only.

Credit Hours: 4

Prerequisites: A grade of C or better in ECE 2100

Corequisites: MATH 4100

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### ECE 3830: Signals and Linear Systems

Transform Analysis of Signals and Linear Systems. Laplace transforms, z-transforms, Fourier series and transforms.

Credit Hours: 3

Prerequisites: A grade of C or better in ECE 3810

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### ECE 4001: Topics in Electrical and Computer Engineering

Current and new technical developments in electrical engineering.

Credit Hour: 3-4

Prerequisites: senior standing

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### ECE 4020: Energy Systems and Resources

(same as NU\_ENG 4315; cross-leveled with ECE 7020, NU\_ENG 7315). Analysis of present energy usage in Missouri, USA and the world,



evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 4030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 4346; cross-leveled with ECE 7030, NU\_ENG 7346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300

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**ECE 4040: Introduction to Nuclear Physics**

(cross-leveled with ECE 7040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 4085: Problems in Electrical and Computer Engineering**

Analytical or experimental problems pertaining to electric circuits, machines, fields or electronics.

**Credit Hour:** 1-3

**Recommended:** 12 hours Electrical and Computer Engineering credit or instructor's consent

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**ECE 4220: Real Time Embedded Computing**

(cross-leveled with ECE 7220). Embedded systems development with real time constraints including RTOS, task management and synchronization, real time scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 4250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 7250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210

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**ECE 4270: Computer Organization**

(cross-leveled with ECE 7270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 and ECE 4220

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**ECE 4280: Network Systems Architecture**

(same as CMP\_SC 4280; cross-leveled with ECE 7280, CMP\_SC 7280). The course covers network systems interconnects and switch fabrics, network considerations: and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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**ECE 4310: Feedback Control Systems**

(same as BIOL\_EN 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 4320: Architectural Robotics**

(cross-leveled with ECE 7320). Architectural robotics has been defined as "intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act". This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** junior or senior standing

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**ECE 4330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 7330). Covers 1) mechatronic systems; 2) the mathematical tools used to model industrial and mobile robots; and 3) vision sensors, their underlying models and algorithms that allow us to control and interact with robots.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

**Recommended:** a C/C++ languages

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**ECE 4340: Building Intelligent Robots**

(same as CMP\_SC 4730; cross-leveled with ECE 7340, CMP\_SC 7740). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Recommended: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4350: Programmable Logic Controllers**

(cross-leveled with ECE 7350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4370: Automatic Control System Design**

(cross-leveled with ECE 7370). Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 4410: Power Electronics I**

(cross-leveled with ECE 7410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 4430: Electronic Circuits and Signals II**

(cross-leveled with ECE 7430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 4440: Power Systems Analysis**

(cross-leveled with ECE 7440). Selected topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 4460: Energy and Machines**

(cross-leveled with ECE 7460). Theory and applications of electric machines. Performance analysis of AC Synchronous, Induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4465: Energy and Machines Lab**

Electrical safety, magnetic and poly-phase circuits, synchronous and induction machines laboratory.

**Credit Hour:** 1

**Prerequisites or Corequisites:** ECE 4460

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**ECE 4470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 7470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 4480: Test and Evaluation of Electrochemical Devices**

(cross-leveled with ECE 7480). This combined undergraduate/graduate introductory course will introduce the student to the testing and evaluation of electrochemical cells and batteries. Included with an introduction to battery technology is material emphasizing test safety and operational hazards. Graded on A-F basis only. Recommended: at least 3 college credit hours of chemistry,

**Credit Hours:** 3

**Prerequisites:** senior standing in Electrical Engineering or major with equivalent mathematical preparation

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**ECE 4510: Pulsed Power Engineering**

(cross-leveled with ECE 7510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4550: Introduction to Plasmas**

(same as NU\_ENG 4375; cross-leveled with ECE 7550, NU\_ENG 7375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4570: Lasers and Their Applications**

(same as NU\_ENG 4382; cross-leveled with ECE 7570, NU\_ENG 7382). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 classroom hours of laboratory work with lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and MATH 4110

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**ECE 4580: Computational Neuroscience**

(same as BIO\_SC 4580, BIOL\_EN 4575; cross-leveled with ECE 7580, BIO\_SC 7580, BIOL\_EN 7575). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 4610: Physical Electronics**

(cross-leveled with ECE 7610). Introduction to physical principles of semiconductors and semiconductor devices; gas, solid state, and semiconductors lasers; electro-optics; plasma physics and gaseous electronics; materials interaction with electric and magnetic fields.

**Credit Hours:** 3

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**Prerequisites:** ECE 3510

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**ECE 4620: Introduction to BioMEMS**

(cross-leveled with ECE 7620). Study of BioMEMS devices and applications. Topics cover BioMEMS including overview of microfabrication techniques, common bioMEMS material, microfluidic principles, microfluidic devices, drug delivery, biomedical microdevices for neural implants, patch-clamping and single cell based analysis systems, microelectroporation, DNA microarrays, Polymerase Chain Reaction and biopolymers, chemical and gas sensors and biosensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 4630: Introduction to Optical Electronics**

(cross-leveled with ECE 7640). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4640: MEMS Laboratory**

(cross-leveled with ECE 7640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical Systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320, or ECE 2100

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**ECE 4650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4655: Digital image Processing**

(same as CMP\_SC 4650; cross-leveled with ECE 7655, CMP\_SC 7650). This course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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**ECE 4670: Microelectronic Fabrication**

(cross-leveled with ECE 7670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 4675: Digital Image Compression**

(same as CMP\_SC 4670; cross-leveled with ECE 7675, CMP\_SC 7670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**ECE 4690: Design and Simulation of VLSI Circuits**

(cross-leveled with ECE 7690). Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 4670

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**ECE 4710: Communications Systems**

(cross-leveled with ECE 7710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 4720: Introduction to Machine Learning and Pattern Recognition**

(Same as CMP\_SC 4720; cross-leveled with ECE 7720, CMP\_SC 7720) This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problems of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

---

**ECE 4730: Introduction to Wireless Communication System**

(cross-leveled with ECE 7730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 4830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 7830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 1210, ECE 3830

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**ECE 4870: Introduction to Computational Intelligence**

(same as CMP\_SC 4770; cross-leveled with ECE 7870, CMP\_SC 7770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 4880: Micro/Nano Systems**

(cross-leveled with ECE 7880). Micro/nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's consent

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**ECE 4930: Intermediate Electromagnetics**

(cross-leveled with ECE 7930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 7940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, various antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4950: Microwave Principles**

(cross-leveled with ECE 7950). Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3510 and ECE 3410

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**ECE 4970: Senior Capstone Design**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 4970W: Senior Capstone Design - WI**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 4980: Senior Capstone Design II**

(same as CMP\_SC 4980). Completion of ECE 4970 design project. Design prototyping, testing, evaluation and preparation of documentation. Lectures on ethics, professionalism, safety, economic consideration. Oral and written reports. Not for graduate credit.

**Credit Hours:** 2

**Prerequisites:** senior standing and ECE 4970

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**ECE 4990: Undergraduate Research in Electrical Computer Engineering**

Supervised independent study or project in electrical or computer engineering, culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** Undergraduate Program Director's consent

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**ECE 4995: Undergraduate Honors Research in Electrical Computer Engineering**

Independent investigation or project in electrical or computer engineering to be presented as an undergraduate honors thesis. Enrollment is limited to students participation in the Electrical and Computer Engineering Honors Program.

**Credit Hour:** 1-3

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**ECE 7001: Advanced Topics in Electrical and Computer Engineering**

Current and new technical developments in electrical engineering.

**Credit Hour:** 3-4

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**ECE 7010: Digital Computer Applications in Engineering**

Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation and differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**ECE 7020: Energy Systems and Resources**

(same as NU\_ENG 7315; cross-leveled with ECE 4020, NU\_ENG 4315). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 7030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 7346; cross-leveled with ECE 4030, NU\_ENG 4346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** graduate ENGINR 1200, ENGINR 2300

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**ECE 7040: Introduction to Nuclear Physics**

(cross-leveled with ECE 4040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 7220: Real Time Embedded Computing**

(cross-level with ECE 4220). Embedded systems development with real time constraints including RTOS, task management and synchronization, realtime scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 7250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 4250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210

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**ECE 7270: Computer Organization**

(cross-leveled with ECE 4270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** ECE 3210

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**ECE 7280: Network Systems Architecture**

(same as CMP\_SC 7280; cross-leveled with ECE 4280, CMP\_SC 4280). The course covers network systems interconnects and switch fabrics, network considerations and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 or ECE 3200 and CMP\_SC 3280 or ECE 3210

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**ECE 7310: Feedback Control Systems**

(same as BIOL\_EN 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 7320: Architectural Robotics**

(cross-leveled with ECE 4320). Architectural robotics has been defined as "intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act". This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** ECE 4970 or equivalent

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**ECE 7330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 4330). Introduces robotics; robot system characteristics; robot motive power systems; geometric structure of robots; sensors and feedback; control applications and algorithms; data acquisition and output actuation function; robots and AI; microprocessor applications. Lecture and Laboratory. Recommended: a C/C++ Language course.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

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**ECE 7335: Nuclear Safeguards Science and Technology**

(same as NU\_ENG 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**ECE 7340: Building Intelligent Robots**

(same as CMP\_SC 7730; cross-leveled with ECE 4340, CMP\_SC 4730) Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Recommended:** some programming experience

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**ECE 7350: Programmable Logic Controllers**

(cross-leveled with ECE 4350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

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**ECE 7370: Automatic Control System Design**

(cross-leveled with ECE 4370). Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 7410: Power Electronics I**

(cross-leveled with ECE 4410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 7430: Electronic Circuits and Signals II**

(cross-leveled with ECE 4430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 7440: Power Systems Analysis**

(cross-leveled with ECE 4440). Selected Topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 7460: Energy and Machines**

(cross-leveled with ECE 4460). Theory and applications of electric machines. Performance analysis of AC synchronous induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 4470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 7480: Test and Evaluation of Electrochemical Devices**

(cross-leveled with ECE 4480). This combined undergraduate/graduate introductory course will introduce the student to the testing and evaluation of electrochemical cells and batteries. Included with an introduction to battery technology is material emphasizing test safety and operational hazards. Graded on A-F basis only. Recommended: at least 3 college credit hours of chemistry,

**Credit Hours:** 3

**Prerequisites:** graduate standing in Electrical Engineering or major with equivalent mathematical preparation

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**ECE 7510: Pulsed Power Engineering**

(cross-leveled with ECE 4510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7550: Introduction to Plasmas**

(same as NU\_ENG 7375; cross-leveled with ECE 4550, NU\_ENG 4375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930

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**ECE 7570: Lasers and Their Applications**

(same as NU\_ENG 7382; cross-leveled with ECE 4570, NU\_ENG 4382). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 classroom hours of laboratory work with lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and MATH 4110

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**ECE 7580: Computational Neuroscience**

(same as BIO\_SC 7580, BIOL\_EN 7575; cross-leveled with ECE 4580, BIO\_SC 4580, BIOL\_EN 4575). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 7610: Physical Electronics**

(cross-leveled with ECE 4610). Introduction to physical principles of semiconductors and semiconductor devices; gas, solid state, and semiconductor lasers; electro-optics; plasma physics and gaseous electronics; materials interaction with electric and magnetic fields.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7620: Introduction to BioMEMS**

(cross-leveled ECE 4620). BioMEMS materials, fabrication techniques, micro-fluidic principles and devices, drug delivery, biomedical micro-devices for neural implants, patch clamping and single cell based systems, micro-electroporation, DNA microarrays, Polymerase Chain Reaction, chemical/gas/bio-sensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 7630: Introduction to Optical Electronics**

(cross-leveled with ECE 4630). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes

and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7640: MEMS Laboratory**

(cross-leveled with ECE 4640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320 or ECE 2100; instructor's consent

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**ECE 7650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7655: Digital Image Processing**

(same as CMP\_SC 7650; cross-leveled with ECE 4655, CMP\_SC 4650). The course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 and CMP\_SC 2050 or instructor's consent

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**ECE 7670: Microelectronic Fabrication**

(cross-leveled with ECE 4670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 7675: Digital Image Compression**

(same as CMP\_SC 7670; cross-leveled with ECE 4675, CMP\_SC 4670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**ECE 7690: Design and Simulation of VLSI Circuits**

(cross-leveled with ECE 4690). Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 4670

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**ECE 7710: Communications Systems**

(cross-leveled with ECE 4710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 7720: Introduction to Machine Learning and Pattern Recognition**

(same as CMP\_SC 7720; cross-leveled with ECE 4720, CMP\_SC 4720). This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problem of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

---

**ECE 7730: Introduction to Wireless Communication System**

(cross-leveled with ECE 4730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 7810: Multimedia Engineering and Technology**

(same as CMP\_SC 7810). Survey of multimedia applications. Capture, coding, storage, transmission, and software tools for developing productions involving text, graphics, images, animation, sound and video. Term projects. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 and ECE 3830

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**ECE 7830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 4830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 1210, ECE 3830

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**ECE 7870: Introduction to Computational Intelligence**

(same as CMP\_SC 7770; cross-leveled with ECE 4870, CMP\_SC 4770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the

development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 7880: Micro/Nano Systems**

(cross-leveled with ECE 4880). Micro/Nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's approval

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**ECE 7930: Intermediate Electromagnetics**

(cross-leveled with ECE 4930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 4940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, and various wire antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7950: Microwave Principles**

(cross-leveled with ECE 4950). Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3510 and ECE 3410

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**ECE 8001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering

**Credit Hours:** 3

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**ECE 8010: Supervised Study in Electrical Engineering**

Supervised individual study at the graduate level to be completed within the course of one semester in the form of a brief report. Graded on S/U basis only

**Credit Hour:** 1-3

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**ECE 8020: Superconductivity and its Applications**

(same as NU\_ENG 8450). Phenomenology and theory of superconductivity, cryogenic practice, metallurgy of superconducting elements, alloys and compounds. Present and prospective applications.

**Credit Hours:** 3

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**ECE 8085: Problems in Electrical and Computer Engineering**

Supervised investigation of an electrical engineering problem for an MS project. Study culminates in a project report. Graded on a S/U basis only.

**Credit Hour:** 2-5

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**ECE 8110: Preparing Advanced Professionals - I**

Discussions on a variety of topics: Pedagogy - latest from cognitive science and learning theory, effective teaching, how a university functions, engineering teaching and research; how leading industries perform research and the importance of soft skills, etc. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** restricted to graduate Engineering majors only

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**ECE 8120: Preparing Advanced Professionals - II**

Continues format of ECE 8110 with group discussions and seminars by experts on how to write an effective proposal, including a review of model proposals, model proposal reviews, and a 'hands-on' proposal writing followed by globalization and its effects on professionals. Graded on A-F only.

**Credit Hour:** 1

**Prerequisites:** graduate engineering majors only

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**ECE 8250: Digital Hardware Systems Design**

Characteristics and parameters of various hardware subsystems including main memory, auxiliary memory, arithmetic units, card equipment, etc., and principles of organization into efficient system.

**Credit Hours:** 3

**Prerequisites:** ECE 4250

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**ECE 8260: Computer Networks**

Concepts and goals of computer networking, structure of computer networks, OSI model and layers, network control, analysis, design, and management, data communication techniques including fiber optics, WAN, MAN and LAN architectures and protocols, inter-networking, case studies, and hands-on studying the performance by analytic modeling and computer simulation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4270

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**ECE 8270: Parallel Computer Architecture**

The course covers parallel computer architecture (general purpose multi-core and many-core processors, shared and distributed memory systems, clusters). Emphasis will be given to both architectural and programmability aspects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4270 or ECE 7270, ECE 4220 or ECE 7220 or CMP\_SC 4250 or CMP\_SC 7250

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**ECE 8320: Nonlinear Systems**

Nonlinear systems including topics such as limit cycles, phase plane analysis, bifurcation, Lyapunov stability, input-output stability, passivity. Topics from control such as feedback linearization, sliding control, and Lyapunov redesign. Graded on A-F basis only.

**Credit Hours:** 3



**Prerequisites:** ECE 4310

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**ECE 8330: Neural Networks for Learning Control**

Neurocomputing techniques and structures for modeling, learning control, control stabilization, and optimization of performance over time.

**Credit Hours:** 3

**Prerequisites:** at least on 4000, 7000 or 8000- level control course

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**ECE 8340: Multivariable Control System Design**

This course will cover techniques in multivariable control system design and analysis, including LOG H-2 design, H-∞ design, LTR, robust performance, and selected adaptive and learning control techniques for nonlinear control.

**Credit Hours:** 3

**Prerequisites:** ECE 8310 or acceptable equivalent

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**ECE 8350: Optimal Control Theory**

Analysis and design of dynamic systems using optimal control theory: parameter optimization, dynamic optimization, computational methods, differential games.

**Credit Hours:** 3

**Prerequisites:** ECE 8310

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**ECE 8360: Stochastic Optimal Estimation and Control**

Surveys random process theory; stochastic control and optimization; estimation and filtering based on Kalman-Bucy techniques; stochastic stability; adaptive and learning control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 8310

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**ECE 8370: Digital and Sample-Data Systems**

Introduces sampling and quantization, design of digital and sample-data systems, digital filters, adaptive sampling and quantization.

**Credit Hours:** 3

**Prerequisites:** ECE 8310 and STAT 4710

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**ECE 8410: Power Electronics II**

Circuit concepts and analysis techniques for transistor switching regulators, thyristor choppers, transistor inverters, self-commutated thyristor inverters and cycloconverters.

**Credit Hours:** 3

**Prerequisites:** ECE 4410

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**ECE 8420: Power Electronic Drives**

Advanced study of DC and AC motor drives controlled by power electronic methods, including phase controlled rectifier, DC chopper, cycloconverter, variable frequency inverters.

**Credit Hours:** 3

**Prerequisites:** ECE 8410, ECE 8310

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**ECE 8430: Digital Electronics**

Electronic hardware aspects of digital systems. Includes state-of-the-art information on integrated-circuit logic devices and their applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4690

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**ECE 8510: Advanced Electromagnetics**

Advanced theoretical electromagnetic theory. Investigation of summation problems with general boundary conditions, time varying fields, and time harmonic currents. Basic applications and relationships in classical and relativistic physics.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 8520: Direct Energy Conversion Technologies**

Study of direct energy conversion technology and research trends in this area. Topics include energy storage techniques (mechanical, chemical, thermal, inductive, capacitive), thermoelectric generators, photovoltaic generators, thermionic generators, magnetohydrodynamic generators, piezoelectric generators, wind generators, fuel cells. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8530: Advanced Photonics**

Concentrated study of optical system design, including integrated optics, semiconductor lasers, quantum wells, optical materials, and electro-optical effects used in modern optical systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4530

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**ECE 8540: Advanced Network Theory and Applications**

Advanced study of network theorems including compensation, reciprocity, duality, and maximum power. Theory and application of N-port parameters. Linear and non-linear network synthesis techniques. Analysis of ordinary and partial differential equations to develop electrical analogs for mechanical, pneumatic, thermal, hydraulic systems. Study of non-linear circuit analysis and modeling techniques. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8570: Theoretical Neuroscience I**

Properties of nerve cells including membrane potential, action potential, ion channel dynamics, GHK equation, dynamical properties of excitable membranes. Equilibria, stability, eigenvalues and phase portraits. Conductance based models, bifurcations, excitability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 8580: Theoretical Neuroscience II**

Neural encoding and decoding including firing rate and spike statistics, reverse correlation and visual receptive fields. Cellular and synaptic biophysics. Adaptation and learning including plasticity, classical conditioning, reinforcement learning and representational learning. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** ECE 8570

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**ECE 8610: Power Semiconductor Devices**

A study of the semiconductor devices used in switch-mode power converter circuits. Course surveys the field and discusses selected devices in depth.

**Credit Hours:** 3

**Prerequisites:** ECE 3610, ECE 4630 and ECE 4650

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**ECE 8620: Advanced Microelectromechanical Systems**

MEMS development cycle, overview of microfabrication, microsystem modeling, mechanical analysis, thermal analysis, transduction mechanism, case studies; Micromirror, accelerometers, pressure sensors, force sensors, RF MEMS switches, Infrared sensors, and Microsystem packaging.

**Credit Hours:** 3

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**ECE 8630: Numerical Analysis of Semiconductor Devices**

Basic equations of semiconductor device analysis, associated boundary conditions, and physical models; discretization schemes and numerical solution methods; application to one and two dimensional bipolar and field effect device structures in thermal equilibrium and under DC steady State and transient operating conditions.

**Credit Hours:** 3

**Prerequisites:** ECE 4630 and ECE 4650

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**ECE 8640: Advanced Integrated Circuits**

Fundamentals of advanced integrated circuit design; diffusion, ion implantation and epitaxy; MOS and bipolar techniques; survey of current LSI design, fabrication and testing.

**Credit Hours:** 3

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**ECE 8650: Solid State Theory I**

Principles of quantum and wave mechanics as applied to solid state; Boltzman and Fermi statistics; energy band theory of crystals; electrons, holes in semiconductors. Current flow in P-N junctions, semiconductor devices.

**Credit Hours:** 3

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**ECE 8660: Solid State Theory II**

Fundamentals of crystallography; application of X-ray analysis to the study of crystallinity. Quantum mechanical solution for the wave function of an electron in a solid; concepts of reciprocal space.

**Credit Hours:** 3

**Prerequisites:** ECE 8650 or PHYSCS 8150

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**ECE 8680: Quantum Electronics**

Optical pumping of metastable quantum states, magnetic state inversion. Semiconductor junction electron injection. Optical cavities, induced emission and optical regeneration. Parametric amplification.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**ECE 8690: Computer Vision**

(same as CMP\_SC 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8695: Cognitive Computer Vision**

One of the more recent trends in computer vision research in the pursuit of human-like capability is the coupling of cognition and vision into cognitive computer vision. This course will emphasize the advanced topics in applying machine learning techniques in computer vision.

**Credit Hours:** 3

**Prerequisites:** ECE 4850 or ECE 7850 or CMP\_SC 4650 or CMP\_SC 7650 or consent of instructor

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**ECE 8720: Microwave and RF Design of Wireless Systems**

Introduces fundamentals of Microwave/RF design and analysis of modern wireless systems. Topics include the following: wireless system components, receiver design, performance issues, noise, distortion, measurement techniques and computer-aided design techniques.

**Credit Hours:** 3

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**ECE 8725: Supervised Learning**

(same as CMP\_SC 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8730: Fundamentals of Radar Signal Processing**

Study of radar signal processing fundamentals. Topics include radar systems, signal models, sampling and quantization of radar signals, radar waveforms, Doppler processing, detection fundamentals, radar imaging.

**Credit Hours:** 3

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**ECE 8735: Unsupervised Learning**

(same as CMP\_SC 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8740: Digital Signal Processing in Remote Sensing**

Study of digital signal processing in remote sensing applications. Investigation of digital signal processing methods for visible, near infrared, thermal infrared, and microwave wavelength sensors.

**Credit Hours:** 3

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**ECE 8750: Digital Signal Processing in Telecommunications**

Applications of digital signal processing in telecommunication systems; oversampling and quantizations, Delta-Sigma modulation, linear predictive speech coding, adaptive filtering, echo canceller, adaptive receivers and equalizers for wireless communication, digital cellular, CDMA.

**Credit Hours:** 3

**Prerequisites:** ECE 4830 and ECE 4710

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**ECE 8770: Advanced Mobile Communication Systems**

Channel estimation and equalization, multi-user detection, diversity combining, multi-carrier and OFDM, Standards of 3G Wireless Communication Systems such as EDGE, CDMA 2000 and UMTS.

**Credit Hours:** 3

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**ECE 8780: State Variable Methods in Automatic Control**

(same as CH\_ENG 8780, MAE 8780, NU\_ENG 8408). State variables for continuous and discrete-time dynamic control systems; controllability and observability; optimal control of linear systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4370, ECE 4310, MAE 4703 or instructor's consent

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**ECE 8790: Digital Processing of SAR Data**

Study of digital processing of synthetic aperture radar (SAR) data. Topics cover SAR data fundamentals including concepts, signal processing, pulse compression, signal properties, processing algorithms, and image processing.

**Credit Hours:** 3

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**ECE 8800: Sensor Array and Statistical Signal Processing**

Introduce the basics on sensor array processing, signal detection and parameter estimation, with their applications in communications and signal processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 7830 and ECE 8860 or with instructor consent

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**ECE 8810: Advanced Digital Signal Processing**

Topics in digital signal analysis and filtering. Including hardware implementation, speech synthesis and recognition, multi-dimensional transforms, random-signal concepts, design methods and computer aids to analysis and design.

**Credit Hours:** 3

**Prerequisites:** ECE 4830

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**ECE 8820: Pattern Recognition**

(same as CMP\_SC 8760). Decision functions, crisp and fuzzy clustering methods, statistical pattern recognition methods, Bayesian classifiers,

error probabilities, estimation of density functions, perceptrons, least-mean-square algorithms, feature selection, dimensionality reduction and syntactic pattern recognition.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050, STAT 4710

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**ECE 8830: Visual Signal Processing and Communications**

Threats visual digital signal processing and network communications covering both theory and application of coding, compression and communications via the web. Covers such standards as JPEG, MPEG-2 and MPEG-4 as well as motion detection. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 8840: Artificial Intelligence**

Concepts, theories, and models pertaining to neural nets, pattern recognition, learning systems, and programmed problem solving.

**Credit Hours:** 3

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**ECE 8850: Digital Image Processing**

Image processing methods for segmentation, object representation, scene description and scene interpretation.

**Credit Hours:** 3

**Prerequisites:** ECE 4850

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**ECE 8855: Advanced Image Processing**

(same as CMP\_SC 8650). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8860: Probability and Stochastic Processes for Engineers**

Introduction to probability, multidimensional complex (phasor) random variables and stochastic processes in electrical engineering.

**Credit Hours:** 3

**Prerequisites:** ECE 4830, ECE 4710, or ECE 8620

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**ECE 8870: Modeling and Management of Uncertainty**

(same as CMP\_SC 8870). Theoretical and practical issues in the modeling and management of uncertainty. Topics include probabilistic uncertainty, belief theory and fuzzy set theory. Applications to computer vision, pattern recognition and expert systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or instructor's consent

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**ECE 8875: Advanced Topics in Computational Intelligence**

(same as CMP\_SC 8780). This course is a continuation of ECE 7870 in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870

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**ECE 8880: System Modeling**

System performance requires the assessment of its delay and throughput. Markov theory provides the theoretical basis for such assessment. More general methods describe queues including open and closed queuing networks. Includes performance assessment of computer processors.

**Credit Hours:** 3

**Prerequisites:** STAT 4710

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**ECE 8890: Neural Networks**

(same as CMP\_SC 8770). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or instructor's consent

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**ECE 8910: High Frequency Transmission and Radiation**

Skin effect; theory of transmission lines, wave guides, resonators.

**Credit Hours:** 3

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**ECE 8920: Antennas**

Point and aperture sources; simple antennas; antenna array; data-processing antennas; and other broadband and directive antennas.

**Credit Hours:** 3

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**ECE 8990: Research-Master Thesis in Electrical and Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECE 9001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering

**Credit Hours:** 3

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**ECE 9990: Research-Doctoral Dissertation Electrical & Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Emergency Medicine (EMR\_ME)

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**EMR\_ME 6034: SCC Emergency Medicine Selective**

This selective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care. The student will work 15-16 (~140 hours) rotating shifts in the Emergency Department. During that time, the student will have free access to all patient care activities. The student will assist with patient evaluations and procedures under the close supervision of the Emergency attending physicians, residents, or physician assistants. Specific time will be devoted to learning basic skills needed in emergency

medicine. An orientation skills lab will be provided early in the rotation to cover suturing, splinting, etc. Teaching will be primarily a one-on-one exchange with the residents and PA's/Attendings. There are night shifts in this rotation.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of 5 of the 7 core clerkships. Three of the 5 must be the Surgery Clerkship, Internal Medicine Clerkship, and either the Pediatrics or Family Medicine Clerkship

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**EMR\_ME 6243: ABS Emergency Medicine Research**

ABS Emergency Medicine Research

**Credit Hour:** 5-10

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**EMR\_ME 6245: ABS Emergency Medicine Research and Review**

ABS Emergency Medicine Research and Review

**Credit Hour:** 5-10

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**EMR\_ME 6460: Emergency Medicine**

Emergency Medicine

**Credit Hours:** 5

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**EMR\_ME 6760: Emergency Medicine - Rural**

Emergency Medicine - Rural

**Credit Hours:** 5

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**EMR\_ME 6860: EMERGENCY MEDICINE**

Emergency Medicine

**Credit Hours:** 5

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**EMR\_ME 6919: Introduction to Emergency Medicine**

This elective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**EMR\_ME 6920: Introduction to Pediatric Emergency Medicine**

This elective is designed to offer an introductory experience in Pediatric Emergency Medicine (PEM) including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Engineering (ENGINR)

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**ENGINR 1000: Introduction to Engineering**

This course will help students identify a field of engineering that they will pursue during the remainder of their studies at MU. This objective will be achieved by exposing students to the history of our engineering disciplines, and by giving an overview of the individual departments

within the college of engineering. Guest lecturers from industry will make presentations on what it's like to be an engineer. Other lectures will be given to help acclimate students to university life. Graded on A-F basis only.

**Credit Hour:** 1

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**ENGINR 1001: Experimental Course**

For freshman-level students. Content and number of credit of hours to be listed in Schedule of Courses.

**Credit Hour:** 3-99

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**ENGINR 1100: Engineering Graphics Fundamentals**

Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent

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**ENGINR 1110: Solid Modeling for Engineering Design**

Introduction to 3D (three dimensional) modeling techniques using computer aided design software. Topics include model creation techniques and advanced graphical presentation practices. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ENGINR 1100 or instructor's consent. Restricted to Engineering Students Only or by departmental consent

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**ENGINR 1200: Statics and Elementary Strength of Materials**

Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750. Restricted to Engineering Students only or with departmental consent

**Prerequisites:** MATH 1500

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**ENGINR 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ENGINR 2001W: Experimental Course - Writing Intensive**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ENGINR 2010: Women in Engineering Leadership**

This is a course focused on women in leadership, leadership development and leadership in engineering. Through experiential learning, empowering examples, group discussion, written reflections, attendance at three conferences, one retreat and completion of two short papers and one major project, you will develop the self-knowledge and skills to practice leadership for a changing world, explore your own

potential for leadership, explore the context for the practice of leadership and learn to make a difference through leadership. Beginning in August and working through May, you will work individually and in teams to produce a final project that shows how your own skills and knowledge about leadership can you help you use your passion and engineering degree to impact the world around you.

**Credit Hours:** 3

**Recommended:** First Year Students (transfers, first time college, etc)

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**ENGINR 2100: Circuit Theory for Engineers**

DC circuit analysis, inductors and capacitors, first-order response, AC circuit analysis, single-phase AC power and three-phase, transformers.

**Credit Hours:** 3

**Prerequisites:** MATH 1700. For Non-Electrical and Computer Engineering Majors. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2100H: Circuit Theory for Engineers - Honors**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power.

**Credit Hours:** 3

**Prerequisites:** MATH 1700. Honors eligibility required

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**ENGINR 2200: Intermediate Strength of Materials**

Elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2300: Engineering Thermodynamics**

(same as MAE 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750. Restricted to Engineering Students Only or departmental consent

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**ENGINR 2500: A History of Modern Engineering**

This course will introduce the student to significant engineering events that have shaped the late modern-area from the French Revolution to the end of World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGINR 2500H: A History of Modern Engineering - Honors**

This course will introduce the student to significant engineering events that have shaped the late modern-area from the French Revolution to the end of the World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGINR 2600H: History of Human Spaceflight - Honors**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**ENGINR 2600HW: History of Human Spaceflight - Honors/ Writing Intensive**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**ENGINR 3000: Short Term Education Abroad**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 3000H: Short Term Education Abroad - Honors**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 4000: Study Abroad Technical Elective**

This course is designed to provide students with an international experience while also potentially fulfilling a required engineering technical elective course. Engineering technical electives are courses that are relevant or related to engineering from a broad range of fields including math and science as well as the various engineering departments. This course will be used as the umbrella course for all Engineering Technical Elective Study Abroad Opportunities and each course will provide a separate section number.

**Credit Hour:** 3-6

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**ENGINR 4085: Problems in Engineering**

Special design, experimental or analytical problems in engineering. May be repeated to 6 hours.

**Credit Hour:** 0-6

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**ENGINR 4890: Multi-disciplinary Senior Engineering Capstone Design**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 4890W: Multi-disciplinary Senior Engineering Capstone Design - Writing Intensive**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 8100: Design and Development of Biomedical Innovations**

(same as BIOL\_EN 8100). This course takes students through the process of brainstorming and working out a solution to a medical need, and then producing a product. Outputs may include the development of a physical prototype through interactions with the College of Engineering rapid prototype facility. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in a graduate degree program

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## English (ENGLISH)

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**ENGLISH 1000: Exposition and Argumentation**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

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**ENGLISH 1000H: Honors Exposition English**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1060: Human Language**

(same as ANTHRO 1060, C\_S\_D 1060 and LINGST 1060). General introduction of various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**ENGLISH 1100: Reading Literature**

Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**Credit Hours:** 3

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**ENGLISH 1106: Reading Literature, Beginnings to 1603**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1107: Reading Literature, 1603 to 1789**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1108: Reading Literature, 1789-1890**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1109: Reading Literature, 1890 to Present**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1160: Themes in Literature**

Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**Credit Hours:** 3

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**ENGLISH 1166: Themes in Literature, Beginnings to 1603**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1167: Themes in Literature, 1603 to 1789**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1168: Themes in Literature, 1789 to 1890**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1169: Themes in Literature, 1890 to Present**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1200: Readings in British Literature**

Focuses on reading and interpreting selected texts in British literature. No more than six hours may be taken in Readings in British Literature Series.

**Credit Hours:** 3

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**ENGLISH 1206: Readings in British Literature, Beginning to 1603**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1207: Readings in British Literature, 1603 to 1789**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1208: Readings in British Literature, 1789 to 1890**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1209: Readings in British Literature, 1890 to Present**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1210: Introduction to British Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 1210H: Introduction to British Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. This course is recommended for prospective majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

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**ENGLISH 1300: Readings in American Literature**

Focuses on reading and interpreting selected texts in American literature. No more than six hours may be taken in the Readings in American Literature series.

**Credit Hours:** 3

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**ENGLISH 1307: Readings in American Literature, 1603 to 1789**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1308: Readings in American Literature, 1789 to 1890**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1309: Readings in American Literature, 1890 to Present**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1310: Introduction to American Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrate such concepts, terms, and practices. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1310H: Introduction to American Literature - Honors**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrates such concepts, terms, and practices. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1510: Creative Writing: Introduction to Fiction**

Introduces basic narrative techniques, including writing original stories.

**Credit Hours:** 3

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**ENGLISH 1520: Creative Writing: Introduction to Nonfiction Prose**

Introduces the range and basic techniques of creative nonfiction, including composing original work in the genre.

**Credit Hours:** 3

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**ENGLISH 1530: Creative Writing: Introduction to Poetry**

Introduces basic poetic techniques, including writing original poems.

**Credit Hours:** 3

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**ENGLISH 1700: Introduction to Folklore Genres**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1700W: Introduction to Folklore Genres - Writing Intensive**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1800: Introduction to Film Studies**

(same as FILM\_S 1800, DST 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only or instructor's consent

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**ENGLISH 1880: Introduction to Digital Media Production**

(same as DST 1880; FILM\_S 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2000: Studies in English**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hour:** 1-3

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**ENGLISH 2000H: Studies in English - Honors**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**ENGLISH 2000W: Studies in English - Writing Intensive**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hour:** 1-3

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**ENGLISH 2005: Topics in English - Humanities**

Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ENGLISH 2006: Studies in English, Beginning to 1603**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2006W: Studies in English, Beginning to 1603 - Writing Intensive**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2007: Studies in English, 1603 to 1789**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2008: Studies in English, 1789 to 1890**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2009: Studies in English, 1890 to Present**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2010: Intermediate Composition**

Provides intensive guided practice in expository and persuasive writing.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2015H: Theory and Practice of Tutoring Writing Seminar - Honors**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2030: Professional Writing**

Introduction to the communication required in any professional field, including basic letters and resumes, reviews, reports, and electronic networking, culminating in an extensive report and a related oral presentation.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100: Writing About Literature**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100H: Writing About Literature - Honors**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**ENGLISH 2140: Twentieth-Century Literature**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2140W: Twentieth-Century Literature - Writing Intensive**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150: Popular Literature**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150W: Popular Literature - Writing Intensive**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2155: Introduction to World Literatures**

Presents and puts into context works by writers from different nations or ethnic backgrounds; includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2156: Introduction to World Literatures, Beginnings to 1603**

See ENGLISH 2155 for course description.

**Credit Hours:** 3

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**ENGLISH 2157: Introduction to World Literatures, 1603 to 1789**

See ENGLISH 2155 for course description.

**Credit Hours:** 3

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**ENGLISH 2158: Introduction to World Literatures, 1789 to 1890**

See ENGLISH 2155 for course description.

**Credit Hours:** 3

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**ENGLISH 2159: Introduction to World Literatures, 1890 to Present**

Presents and puts into context works by writers from different nations or ethnic backgrounds, includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2160: Major Authors**

Focuses on the works of a single writer (e.g., Shakespeare) or set of writers (e.g., William Faulkner and Flannery O'Connor). Topic announced at time of registration. No more than six hours may be taken in the Major Authors series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2166: Major Authors, Beginning to 1603**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2167: Major Authors, 1603 TO 1789**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2168: Major Authors, 1789 to 1890**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2169: Major Authors, 1890 to Present**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2180: Introduction to Women's Literature**

(same as WGST 2180). A study of traditional and nontraditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2186: Introduction to Women's Literature, Beginning to 1603**

(same as WGST 2186). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2187: Introduction to Women's Literature, 1603 to 1789**

(same as WGST 2187). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2188: Introduction to Women's Literature, 1789 to 1890**

(same as WGST 2188). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2189: Introduction to Women's Literature, 1890 to Present**

(same as WGST 2189). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2189W: Introduction to Women's Literature, 1890 to Present - Writing Intensive**

(same as WGST 2189). See ENGLISH 2180 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2200: Studies in British Literature**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

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**Recommended:** ENGLISH 1000

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**ENGLISH 2200H: Studies in British Literature - Honors**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** ENGLISH 1000

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**ENGLISH 2200W: Studies in British Literature - Writing Intensive**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2206: Studies in British Literature, Beginning to 1603**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2207: Studies in British Literature, 1603 to 1789**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2208: Studies in British Literature, 1789 to 1890**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2209: Studies in British Literature, 1890 to Present**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2209W: Studies in British Literature, 1890 to Present - Writing Intensive**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2300: Studies in American Literature**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2300W: Studies in American Literature - Writing Intensive**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2306: Studies in American Literature, Beginning to 1603**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2307: Studies in American Literature, 1603 to 1789**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2308: Studies in American Literature, 1789-1890**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309: Studies in American Literature, 1890 to Present**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309W: Studies in American Literature, 1890 to Present - Writing Intensive**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2400: Introduction to African Diaspora Literature**

(same as BL\_STU 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2407: Introduction to African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 2407). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2408: Introduction to African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 2408). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2409: Introduction to African Diaspora Literature, 1890 to Present**

(same as BL\_STU 2409). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2490: Introduction to Native Studies**

(same as PEA\_ST 2490). Introduction to the field of Native Studies. Topics include indigenous knowledge, culture change and continuity, history and misrepresentation, politics and political history, and global indigenous relationships. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2510: Creative Writing: Intermediate Fiction**

Provides intensive guided practice in the writing of short fiction.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1510 or equivalent

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**ENGLISH 2520: Creative Writing: Intermediate Nonfiction Prose**

Provides guided practice in the writing of creative nonfiction.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1520 or equivalent

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**ENGLISH 2530: Creative Writing: Intermediate Poetry**

Provides intensive guided practice in the writing of poetry.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1530 or equivalent

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**ENGLISH 2560: Beginning Playwriting**

(same as THEATR 2920). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours:** 3

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**ENGLISH 2601: Languages of Africa**

(same as BL\_STU 2601, LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**ENGLISH 2700: Introduction to Folklore Field Research**

(same as ANTHRO 2150). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2770: Introduction to Oral Literature**

An introduction to works of verbal art from living oral tradition (e.g. Native American and African-American) and to some of our most important literary works with roots in oral tradition (e.g., the Bible, the Iliad, and the Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2830: American Film History I, 1895-1950**

(same as FILM\_S 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH 1810 or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILM\_S 1800

**Recommended:** ENGLISH 1000

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**ENGLISH 2840: American Film History II, 1950-Present**

(same as FILM\_S 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH 1820 or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILM\_S 1800

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**ENGLISH 2860: Film Themes and Genres**

(same as FILM\_S 2860, DST 2860). Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in ENGLISH 2860.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2870: Film and Literature**

(same as FILM\_S 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2880: Digital Storytelling Production I**

(same as DST 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1880/DST 1880

**Recommended:** ENGLISH 1000

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**ENGLISH 2885: Digital Storytelling Animation Production I**

(same as DST 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2945: Service Learning in English**

Students perform volunteer service and complete course requirements, which may include class meetings and written and oral assignments. May be repeated with departmental consent. Graded on a S/U basis only. Does not meet A&S general education requirements.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENGLISH 3010: Advanced Composition**

An intensive writing workshop in which student essays and related texts receive close reading and analysis. Focus (e.g. The Essay, The Research Paper) announced at time of registration.

**Credit Hours:** 3

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**ENGLISH 3080: Sexuality and Gender Theory**

(same as [WGST] 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with department consent.

**Credit Hours:** 3

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**ENGLISH 3100: Introduction to Literary Theory**

Introduction to the range of theoretical approaches to the study of literature; intended as a broad survey of literary theory, whether from the Classical era onward or 20th century literary theory and beyond.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110: Special Themes in Literature**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110H: Special Themes in Literature - Honors**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000, Honors eligibility required

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**ENGLISH 3110W: Special Themes in Literature - Writing Intensive**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3116: Special Themes in Literature, Beginning to 1603**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3116W: Special Themes in Literature, Beginning to 1603 - Writing Intensive**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3117: Special Themes in Literature, 1603 to 1789**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3118: Special Themes in Literature, 1789 to 1890**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3118H: Special Themes in Literature, 1789 to 1890 - Honors**

See ENGLISH 3110H for course descriptions.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 3119: Special Themes in Literature, 1890 to Present**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3170: World Dramatic Literature**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3170W: World Dramatic Literature - Writing Intensive**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3180: Survey of Women Writers**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLISH 3180H: Survey of Women Writers - Honors**

A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 3180W: Survey of Women Writers - Writing Intensive**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLISH 3200: Survey of British Literature: Beginnings to 1784**

Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3210: Survey of British Literature: Romanticism to the Present**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3210W: Survey of British Literature: Romanticism to the Present - Writing Intensive**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3300: Survey of American Literature: Beginnings to 1865**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3300W: Survey of American Literature: Beginnings to 1865 - Writing Intensive**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3310: Survey of American Literature: 1865-Present**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3310W: Survey of American Literature: 1865-Present - Writing Intensive**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400: Survey of African American Literature, Beginnings to 1900**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3410: Survey of African American Literature, 1900-Present**

(same as BL\_STU 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3420: Periods and Genres in African Diaspora Literature**

(same as BL\_STU 3420). Topic (e.g. Harlem Renaissance African Diaspora Poetry) Announced at time of registration. No more than six hours may be taken in the Periods and Genres in African Diaspora Literature series.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3427: Periods and Genres in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 3427). See ENGLISH 3420 for course description.

**Credit Hours:** 3

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**ENGLISH 3428: Periods and Genres in African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 3428). See ENGLISH 3420 for course description.

**Credit Hours:** 3

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**ENGLISH 3429: Periods and Genres in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 3429). See ENGLISH 3420 for course description.

**Credit Hours:** 3

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**ENGLISH 3430: Introduction to African Diaspora Literary Theory**

(same as BL\_STU 3705). Introduction to the range of theoretical approaches to the study of African Diaspora literature, with particular attention to the diverse socio-political contexts that undergird range of literary, historical, and cultural theories; intended as a broad survey of African Diaspora literary theory, whether from the Slavery era onward or 20th century literary theory and beyond. May be repeated for credit with consent.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3490: Native Writing and Representation**

(same as PEA\_ST 3490). Survey of native writing and representation from the late eighteenth century to the present, encompassing a diverse range of tribes and forms. Material will be drawn from tribes inhabiting the North American continent, but global indigenous relationships will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 3560: Intermediate Playwriting**

(same as THEATR 3920). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2560

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**ENGLISH 3570: Performance of Literature**

(same as COMMUN 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3700: American Folklore**

(same as ANTHRO 3150). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research.

**Credit Hours:** 3

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**ENGLISH 3820: Major Directors**

(same as FILM\_S 3820, RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3850: Studies in Film History**

(same as FILM\_S 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3855: Documentary Film**

(same as FILM\_S 3855, DST 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3880: Writing and Theory for Digital Media**

(same as DST 3880). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3880W: Writing and Theory for Digital Media - Writing Intensive**

methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read,

discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 4000: Advanced Studies in English**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4000W: Advanced Studies in English - Writing Intensive**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4004: Topics in English-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-99

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**ENGLISH 4040: Studies in Writing**

(cross-leveled with ENGLISH 7040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4040W: Studies in Writing - Writing Intensive**

A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4045: Rhetorical Studies**

Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4050: Historical Survey of Rhetoric**

A survey of major works of rhetoric from Plato to the present day, with special attention to those works influencing English language rhetorics and theories of rhetoric.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ENGLISH 4060: Studies in Critical Theory**

Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4070: History of Criticism**

Surveys modern and contemporary theories of literary criticism: historical, archetypal, generic, formalist, phenomenological and interdisciplinary. Emphasizes key writers in each field.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100: Genres**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100H: Genres - Honors**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4100HW: Genres - Honors/Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4100W: Genres - Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4106: Genres, Beginning to 1603**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4107: Genres, 1603 to 1789**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4108: Genres, 1789 to 1890**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109: Genres, 1890 to Present**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109W: Genres, 1890 to Present - Writing Intensive**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4120: Ethnic Literature**

Explores in depth the literary traditions of one of America's minority ethnic cultures: Native American, African-American, Hispanic American, Asian American. No more than six hours may be taken in the Ethnic Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4127: Ethnic Literature, 1603 to 1789**

See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4128: Ethnic Literature, 1789 to 1890**

See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4129: Ethnic Literature, 1890 to Present**

See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4140: Modern Literature**

A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours:** 3

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**ENGLISH 4150: World Literatures**

Study of important works and writers from Asia, Africa, Europe, Latin America or the mid-East. Topics (e.g., Survey of World Literature, The Bible) announced at time of registration. No more than six hours may be taken in the World Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4156: World Literatures, Beginning to 1603**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4157: World Literatures, 1603 to 1789**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4158: World Literatures, 1789 to 1890**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4159: World Literatures, 1890 to Present**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4159W: World Literatures, 1890 to Present - Writing Intensive**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4160: Major Authors**

Intensive study of the work of a single writer (e.g., Milton) or set of writers (e.g., Whitman and Dickinson). Topic announced at time of registration. No more than six hours may be taken in the Major Author series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4166: Major Authors, Beginning to 1603**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4166W: Major Authors, Beginning to 1603 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167: Major Authors, 1603-1789**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167W: Major Authors, 1603-1789 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4168: Major Authors, 1789-1890**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169: Major Authors, 1890-Present**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169W: Major Authors, 1890-Present - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4170: Comparative Approaches to Literature**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4170W: Comparative Approaches to Literature - Writing Intensive**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4176: Comparative Approaches to Literature, Beginning to 1603**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4177: Comparative Approaches to Literature, 1609-1789**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4178: Comparative Approaches to Literature, 1789-1890**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4179: Comparative Approaches to Literature, 1890-Present**

See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4180: Major Women Writers**

(same as WGST 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours:** 3

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**ENGLISH 4181: Themes in Literature by Women**

(same as WGST 4181 and BL\_STU 4181). Examines works by a number of women writers with particular attention to their socio-political context. May be repeated to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4186: Major Women Writers, Beginning to 1603**

(same as WGST 4186). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4187: Major Women Writers, 1603-1789**

(same as WGST 4187). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188: Major Women Writers, 1789-1890**

(same as WGST 4188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as WGST 4188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4189: Major Women Writers, 1890-Present**

(same as WGST 4189). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4200: Introduction to Old English**

(same as LINGST 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 7206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**ENGLISH 4210: Medieval Literature**

(cross-leveled with ENGLISH 7210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** Junior standing

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**ENGLISH 4220: Renaissance and Seventeenth Century Literature**

Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4226: Renaissance and Seventeenth Century Literature, Beginning to 1603**

See ENGLISH 4220 for course description.

**Credit Hours:** 3

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**ENGLISH 4227: Renaissance and Seventeenth Century Literature, 1603 to 1789**

See ENGLISH 4220 for course description.

**Credit Hours:** 3

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**ENGLISH 4240: Restoration and 18th-Century English Literature**

Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250: 19th-Century English Literature**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250W: 19th-Century English Literature - Writing Intensive**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260: 20th-Century British Literature**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260H: 20th-Century British Literature - Honors**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260HW: 20th-Century British Literature - Honors/Writing Intensive**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260W: 20th-Century British Literature - Writing Intensive**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4300: Early American Literature**

Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310: 19th-Century American Literature**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310W: 19th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320: 20th-Century American Literature**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320W: 20th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4400: Studies in African Diaspora Literature**

(same as BL\_STU 4400). Topics (e.g., African American Poetry, Africana Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in Africana Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4407: Studies in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 4407). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4408: Studies in African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 4408). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 4407). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4410: Major Africana Diaspora Writers**

(same as BL\_STU 4410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4417: Major African Diaspora Writers, 1603 to 1789**

(same as BL\_STU 4417). See ENGLISH 4410 for course description.

**Credit Hours:** 3

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**ENGLISH 4418: Major African Diaspora Writers, 1789-1890**

(same as BL\_STU 4418). See ENGLISH 4410 for course description.

**Credit Hours:** 3

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**ENGLISH 4419: Major African Diaspora Writers, 1890 to Present**

(same as BL\_STU 4419). See ENGLISH 4410 for course description.

**Credit Hours:** 3

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**ENGLISH 4420: Africana Womanism**

(same as BL\_STU 4420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4480: Major African Diaspora Women Writers**

(same as WGST 4480 and BL\_STU 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4480W: Major African Diaspora Women Writers - Writing Intensive**

(same as WGST 4480 and BL\_STU 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4487: Major African Diaspora Women Writers, 1603 to 1789**

(same as WGST 4487 and BL\_STU 4487). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 4488 and BL\_STU 4488). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 4489 and BL\_STU 4489). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4490: Studies in Native American and Indigenous Studies**

In-depth study of topics in Native American and Indigenous Studies, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**Credit Hours:** 3

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**ENGLISH 4510: Creative Writing: Advanced Fiction**

An intensive writing workshop in which student stories and related literary texts receive close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2510 or equivalent

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**ENGLISH 4510W: Creative Writing: Advanced Fiction - Writing Intensive**

An intensive writing workshop in which student stories and related literary texts receive close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2510 or equivalent

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**ENGLISH 4520: Creative Writing: Advanced Nonfiction Prose**

An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2520 or equivalent

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**ENGLISH 4520W: Creative Writing: Advanced Nonfiction Prose - Writing Intensive**

An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2520 or equivalent

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**ENGLISH 4530: Creative Writing: Advanced Poetry**

Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2530 or equivalent

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**ENGLISH 4530W: Creative Writing: Advanced Poetry - Writing Intensive**

Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques.

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**Credit Hours:** 3

**Prerequisites:** ENGLISH 2530 or equivalent

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**ENGLISH 4560: Advanced Playwriting: Problems**

(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 4560W: Advanced Playwriting: Problems - Writing Intensive**

(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 4570: Adaptation of Literature for the Stage**

(same as THEATR 4930; cross-leveled with ENGLISH 7570 and THEATR 7930). Explores adaptation principles and practices with literature not originally written for the stage. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 4600: Structure of American English**

(same as LINGST 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**ENGLISH 4610: History of the English Language**

(same as LINGST 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**ENGLISH 4620: Regional and Social Dialects of American English**

(same as LINGST 4620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Recommended:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 4630: Phonology**

(same as LINGST 4630). Survey of the sound patterns of English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600

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**ENGLISH 4640: Syntax**

(same as LINGST 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 or another comparable linguistics course

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**ENGLISH 4670: Field Methods in Linguistics**

(same as LINGST 4870 and ANTHRO 4870). Provides training in the methods of constructing a detailed linguistic description and analysis of wholly unfamiliar language, based on interviews with a native speaker. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

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**ENGLISH 4670W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870 and ANTHRO 4870). Provides training in the methods of constructing a detailed linguistic description and analysis of wholly unfamiliar language, based on interviews with a native speaker. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

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**ENGLISH 4700: Special Themes in Folklore**

(same as ANTHRO 4150). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and BL\_STU 4710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 4700 and ENGLISH 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4770: Oral Tradition**

(same as CL\_HUM 4770). Study of verbal art from living oral traditions (e.g., Native American and African American) and important literary works with roots in oral tradition (e.g., the Bible, the Iliad, the Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4780: Women's Folklore and Feminist Theory**

(same as WGST 4780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/ song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4810: Film Theory**

(same as FILM\_S 4810, DST 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism,

Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4820: Studies in Film Genre**

(same as FILM\_S 4820). Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4840: Culture and Media**

(same as FILM\_S 4840, DST 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4880: Digital Storytelling Production II**

(same as DST 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro, and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000, ENGLISH 1880/DST 1880, and sophomore standing, or consent of instructor

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**ENGLISH 4935: Adaptation of Literature for Film**

(same as FILM\_S 4935 and THEATR 4935; cross-leveled with ENGLISH 7580, FILM\_S 7935 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 4938: Advanced Screenwriting: Styles**

(same as THEATR 4938; cross-leveled with ENGLISH 7938, THEATR 7938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**ENGLISH 4940: Internship in English**

Students work in an agency or institution using their English-related skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Department consent

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**ENGLISH 4950: Internship in Publishing**

Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English must take the course two semesters in order to count three hours toward the completion of their program.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 4955: Independent Research in English**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and departmental consent

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**ENGLISH 4960: Special Readings in English**

Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-99

**Prerequisites:** Consent of instructor

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**ENGLISH 4970: Capstone Experience**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4970W: Capstone Experience - Writing Intensive**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4995: Senior Honors Thesis**

Independent research under direction of faculty. Second course of two part Honors Sequence.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4996

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**ENGLISH 4996: Honors Seminar in English**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 4996W: Honors Seminar in English - Writing Intensive**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

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**Credit Hours: 3**

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**ENGLISH 7004: Topics in English-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat to six hours.

**Credit Hour: 1-99**

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**ENGLISH 7040: Studies in Writing**

(cross-leveled with ENGLISH 4040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for students who may or may not have taken previous creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours: 3**

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**ENGLISH 7045: Rhetorical Studies**

Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours: 3**

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**ENGLISH 7050: Historical Survey of Rhetoric**

A survey of major works of rhetoric from Plato to the present day, with special attention to those works influencing English language rhetoric's and theories of rhetoric.

**Credit Hours: 3**

**Prerequisites:** ENGLISH 1000

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**ENGLISH 7060: Studies in Critical Theory**

Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with departmental consent.

**Credit Hours: 3**

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**ENGLISH 7070: History of Criticism**

Surveys modern and contemporary theories of literary criticism: historical, archetypal, generic, formalist, phenomenological and interdisciplinary. Emphasizes key writers in each field.

**Credit Hours: 3**

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**ENGLISH 7100: Genres**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours: 3**

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**ENGLISH 7106: Genres, Beginning to 1603**

See ENGLISH 7100 for course description.

**Credit Hours: 3**

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**ENGLISH 7107: Genres, 1603 to 1789**

See ENGLISH 7100 for course description.

**Credit Hours: 3**

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**ENGLISH 7108: Genres, 1789 to 1890**

See ENGLISH 7100 for course description.

**Credit Hours: 3**

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**ENGLISH 7109: Genres, 1890 to Present**

See ENGLISH 7100 for course description.

**Credit Hours: 3**

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**ENGLISH 7120: Ethnic Literature**

Explores in depth the literary traditions of one of America's minority ethnic cultures: Native American, African-American, Hispanic American, Asian American. No more than six hours may be taken in the Ethnic Literature series.

**Credit Hours: 3**

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**ENGLISH 7127: Ethnic Literature, 1603 to 1789**

See ENGLISH 7120 for course description.

**Credit Hours: 3**

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**ENGLISH 7128: Ethnic Literature, 1789 to 1890**

See ENGLISH 7120 for course description.

**Credit Hours: 3**

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**ENGLISH 7129: Ethnic Literature, 1890 to Present**

See ENGLISH 7120 for course description.

**Credit Hours: 3**

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**ENGLISH 7140: Modern Literature**

A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours: 3**

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**ENGLISH 7150: World Literatures**

Study of important works and writers from Asia, Africa, Europe, Latin America or the mid-East. Topics (e.g., Survey of World Literature, The Bible) announced at time of registration. No more than six hours may be taken in the World Literatures series.

**Credit Hours: 3**

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**ENGLISH 7156: World Literatures, Beginning to 1603**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7157: World Literatures, 1603 to 1789**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7158: World Literatures, 1789 to 1890**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7159: World Literatures, 1890 to Present**

See ENGLISH 7150 for course description.

**Credit Hours: 3**

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**ENGLISH 7160: Major Authors**

Intensive study of the work of a single writer (e.g., Milton) or set of writers (e.g., Whitman and Dickinson). Topic announced at time of registration. No more than six hours may be taken in the Major Authors series.

**Credit Hours: 3**

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**ENGLISH 7166: Major Authors, Beginning to 1603**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7167: Major Authors, 1603-1789**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7168: Major Authors, 1789-1890**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7169: Major Authors, 1890-Present**

See ENGLISH 7160 for course description.

**Credit Hours: 3**

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**ENGLISH 7170: Comparative Approaches to Literature**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature Series.

**Credit Hours: 3**

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**ENGLISH 7176: Comparative Approaches to Literature, Beginning to 1603**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7177: Comparative Approaches to Literature, 1609-1789**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7178: Comparative Approaches to Literature, 1789-1890**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

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**ENGLISH 7179: Comparative Approaches to Literature, 1890-Present**

See ENGLISH 7170 for course description.

**Credit Hours: 3**

---

**ENGLISH 7180: Major Women Writers**

(same as WGST 7180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours: 3**

---

**ENGLISH 7181: Themes in Literature by Women**

(same as WGST 7181). Examines works by a number of women writers with particular attention to their socio-political context. May repeat to six hours with department's consent.

**Credit Hours: 3**

---

**ENGLISH 7186: Major Women Writers, Beginning to 1603**

(same as WGST 7186). See ENGLISH 7180 for course description.

**Credit Hours: 3**

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**ENGLISH 7187: Major Women Writers, 1603-1789**

(same as WGST 7187). See ENGLISH 7180 for course description.

**Credit Hours: 3**

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**ENGLISH 7188: Major Women Writers, 1789-1890**

(same as WGST 7188). See ENGLISH 7180 for course description.

**Credit Hours: 3**

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**ENGLISH 7189: Major Women Writers, 1890-Present**

(same as WGST 7189). See ENGLISH 7180 for course description.

**Credit Hours: 3**

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**ENGLISH 7200: Introduction to Old English**

(same as LINGST 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours: 3**

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**ENGLISH 7206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 4206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours: 3**

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**ENGLISH 7210: Medieval Literature**

(cross-leveled with ENGLISH 4210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours: 3**

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**ENGLISH 7220: Renaissance and 17th-Century English Literature**

Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature series.

**Credit Hours:** 3

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**ENGLISH 7226: Renaissance and Seventeenth Century Literature, Beginning to 1603**

See ENGLISH 7220 for course description.

**Credit Hours:** 3

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**ENGLISH 7227: Renaissance and Seventeenth Century Literature, 1603-1789**

See ENGLISH 7220 for course description.

**Credit Hours:** 3

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**ENGLISH 7240: Restoration and 18th-Century English Literature**

Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7250: 19th-Century English Literature**

(cross-leveled with ENGLISH 4250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7260: 20th-Century British Literature**

(cross-leveled with ENGLISH 4260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7300: Early American Literature**

Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7310: 19th-Century American Literature**

(cross-leveled with ENGLISH 4310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7320: 20th-Century American Literature**

(cross-leveled with ENGLISH 4320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7400: Studies in African Diaspora Literature**

(same as BL\_STU 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

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**ENGLISH 7407: Studies in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 7407). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7408: Studies in African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 7408). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7409: Studies in African Diaspora Literature, 1890-to Present**

(same as BL\_STU 7407). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7410: Major African Diaspora Writers**

(same as BL\_STU 7410). An intensive study of selected writers of African Diaspora literature, focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

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**ENGLISH 7417: Major African Diaspora Writers, 1603 to 1789**

(same as BL\_STU 7417). See ENGLISH 7410 for course description.

**Credit Hours:** 3

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**ENGLISH 7418: Major African Diaspora Writers, 1789 to 1890**

(same as BL\_STU 7418). See ENGLISH 7410 for course description.

**Credit Hours:** 3

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**ENGLISH 7419: Major African Diaspora Writers, 1890 to Present**

(same as BL\_STU 7419). See ENGLISH 7410 for course description.

**Credit Hours:** 3

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**ENGLISH 7420: Africana Womanism**

(same as BL\_STU 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent. May be repeated to six hours with departmental consent

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**ENGLISH 7480: Major African Diaspora Women Writers**

(same as WGST 7480 and BL\_STU 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 7180 and ENGLISH 7480

**Credit Hours:** 3

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**ENGLISH 7487: Major African Diaspora Women Writers, 1603 to 1789**  
(same as WGST 7487 and BL\_STU 7487). See ENGLISH 7480 for course description.

**Credit Hours:** 3

**ENGLISH 7488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 7488 and BL\_STU 7488). See ENGLISH 7480 for course description.

**Credit Hours:** 3

**ENGLISH 7489: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 7489 and BL\_STU 7489). See ENGLISH 7480 for course description.

**Credit Hours:** 3

**ENGLISH 7490: Native Studies**

In-depth study of topics in Native writing and representation, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**Credit Hours:** 3

**ENGLISH 7510: Creative Writing: Advanced Fiction**

An intensive writing workshop in which student stories and related literary texts receive close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2510 or equivalent

**ENGLISH 7520: Creative Writing: Advanced Nonfiction Prose**

An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2520 or equivalent

**ENGLISH 7530: Creative Writing: Advanced Poetry**

Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2530 or equivalent

**ENGLISH 7560: Advanced Playwriting: Problems**

(same as THEATR 7920; cross-leveled with ENGLISH 4650 and THEATR 4920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

**ENGLISH 7570: Adaptation of Literature for the Stage**

(same as THEATR 7930; cross-leveled with ENGLISH 4570). Explores adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**ENGLISH 7580: Adaptation of Literature for Film**

(same as FILM\_S 7935 and THEATR 7935; cross-leveled with ENGLISH 4935, FILM\_S 4935 and THEATR 4935). This upper division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

**ENGLISH 7600: Structure of American English**

(same as LINGST 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**ENGLISH 7610: History of the English Language**

(same as LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

**ENGLISH 7620: Regional and Social Dialects of American English**

(same as LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 and ENGLISH 4610 or equivalent

**ENGLISH 7630: Phonology**

(same as LINGST 7630). Survey of the sound patterns of English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 or another introductory course in linguistics or phonetics

**ENGLISH 7640: Syntax**

(same as LINGST 7640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 or another comparable linguistics course

**ENGLISH 7670: Field Methods in Linguistics**

(same as LINGST 7870 and ANTHRO 7870). Provides training in the methods of constructing a detailed linguistic description and analysis of a wholly unfamiliar language, based on interviews with a native speaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LINGST 1060, LINGST 7600, LINGST 7630 and LINGST 7640

**Corequisites:** LINGST 7630 or LINGST 7640

**ENGLISH 7700: Special Themes in Folklore**

(same as ANTHRO 7150). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7710: Themes in African Diaspora Folklore**

(same as ANTHRO 7160 and [BL\_STU 7710]). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 7700 and ENGLISH 7710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

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**ENGLISH 7770: Oral Tradition**

(same as CL\_HUM 4770). Study of verbal art from living oral traditions (e.g., Native American and African American) and important literary works with roots in oral tradition (e.g., the Bible, the Iliad the Odyssey, and Beowulf).

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 7780: Women's Folklore and Feminist Theory**

(same as WGST 7780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/ song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**ENGLISH 7810: Film Theory**

(same as FILM\_S 7810). This course explore contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 7840: Culture and Media**

(same as FILM\_S 7840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

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**ENGLISH 7938: Advanced Screenwriting: Styles**

(same as THEATR 7938; cross-leveled with ENGLISH 4938, THEATR 4938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

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**ENGLISH 7950: Internship in Publishing**

Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English

must take the course two semesters in order to count three hours toward the completion of their program.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 8001: Topics in English-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

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**ENGLISH 8005: Introduction to Graduate Study**

Introduces entering MA and PhD students to the profession of English and the intellectual resources needed to complete their degrees successfully.

**Credit Hour:** 1

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**ENGLISH 8006: Professional Issues in English Studies**

Introduces advanced graduate students to issues relevant to their professional training, including entering the job market and preparing work for publication. May be repeated for credit.

**Credit Hour:** 1-3

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**ENGLISH 8010: Theory and Practice of Composition**

Current and historical theories of rhetoric and composition as applied to the teaching of college composition.

**Credit Hours:** 3

**Prerequisites:** department's consent

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**ENGLISH 8040: Seminar in Rhetoric and Composition**

Topics (e.g., The Institutionalization of Rhetoric, Writing Across the Curriculum) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8050: Contemporary Critical Approaches**

A survey of contemporary professional critical methods, such as formalism, poststructuralism, feminism, Marxism, new historicism, psychoanalysis, identity studies, and cultural studies.

**Credit Hours:** 3

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**ENGLISH 8060: Seminar in Criticism and Theory**

Principles and practices of selected critics. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8070: History of Criticism and Theory**

A survey of the history of literary criticism and theory. While comprehensive in scope, the course might focus on specific topics in the history of criticism, such as the dialectic between rhetoric and poetics, the rise of aesthetics, or the relation of art and culture to society. Figures studied will extend from early philosophers such as Plato and Aristotle, through eighteenth-century thinkers such as Kant and Johnson, up to present theorists such as Derrida and Butler.

**Credit Hours:** 3

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**ENGLISH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENGLISH 8095: Problems in English**

Individual work not leading to preparation of dissertation.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ENGLISH 8110: Forms**

Topics (e.g., The Epic, The Epistolary Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8200: Seminar in Old English Literature**

Topics in Old English or Anglo-Saxon literature, such as Beowulf, the Exeter Book poems, or the genres of elegy, Biblical narrative, or wisdom poetry. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4200 or equivalent

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**ENGLISH 8210: Seminar in Middle English Literature**

Topics (e.g., Medieval Drama, Chaucer) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8220: Seminar in Renaissance British Literature**

Topics (e.g., Tudor and Stuart Drama, Shakespearean Tragedy) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8230: Seminar in 17th-Century British Literature**

Topics (e.g., The Metaphysical Poets, Restoration Drama) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8240: Seminar in 18th-Century British Literature**

Topics (e.g., The 18th-Century Novel, Historical and Biographical Prose) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8250: Seminar in 19th-Century British Literature**

Topics (e.g., The Later Romantics, Victorian Poetry) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8260: Seminar in 20th-Century British Literature**

Topics (e.g., Chief Contemporary Poets, Modernism and the Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8300: Seminar in Early American Literature**

Topics (e.g., Religious and Philosophical Writings, The Revolutionary Period) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8310: Seminar in 19th Century American Literature**

Topics (e.g., The Transcendentalists, American Realism) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8320: Seminar in 20th-Century American Literature**

Topics (e.g., The African-American Novel, Chief Contemporary Poets) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8400: Seminar in African Diaspora Literature**

(same as BL\_STU 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 8410: Seminar in African Diaspora Theory and Literature Criticism**

(same as BL\_STU 8410). Modern and contemporary African Diaspora criticism and theory including the diverse approaches to literary and cultural studies. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 8510: Advanced Writing of Fiction**

Advanced fiction writing designed primarily for graduate students, with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and ENGLISH 4510

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**ENGLISH 8520: Advanced Writing of Nonfiction Prose**

Advanced workshop in nonfiction prose primarily for graduate students intending to produce professional quality work.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ENGLISH 8530: Advanced Writing of Poetry**

Advanced poetry writing designed primarily for graduate students with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

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**Credit Hours:** 3**Prerequisites:** instructor's consent and ENGLSH 4530

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**ENGLSH 8560: Graduate Seminar in Playwriting**

(same as THEATR 8920). Seminar in theory, practice, and pedagogy of playwriting, students a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**ENGLSH 8600: Seminar in the English Language**

(same as LINGST 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLSH 8700: Seminar in Folklore**

(same as ANTHRO 8157 and REL\_ST 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLSH 8770: Seminar in Oral Tradition**

Theoretical and interpretive perspectives on works of verbal art that have roots in oral tradition. Emphasis on the variety of approaches employed (performance theory oral theory, ethnopoetics, ethnography of speaking, comparative structural studies, etc.) May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLSH 9090: Doctoral Dissertation Research**

Leads to preparation of dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

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## English Language Support Program (ELSP)

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**ELSP\_0100: Grammar and Composition I**

Grammar and Composition I. Graded S/U only.

**Credit Hours:** 3

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**ELSP\_0200: Reading and Vocabulary**

Reading and Vocabulary. Graded on S/U basis only.

**Credit Hours:** 3

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**ELSP\_0300: Grammar and Composition II**

Grammar and Composition II. Graded S/U Only.

**Credit Hours:** 3

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**ELSP\_0400: Oral Communication**

Oral Communication. Graded S/U Only.

**Credit Hours:** 3

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## Environmental Science (ENV\_SC)

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**ENV\_SC 1001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 1100: Introduction to Environmental Science**

This class provides an opportunity to develop an understanding of environment, physical and social causes of environmental problems, their impacts, and strategies to manage these issues.

**Credit Hours:** 3

**Prerequisites:** Enrollment restricted to College of Agriculture, Food and Natural Resources undergraduates and students minoring in Environmental Science

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**ENV\_SC 2001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 2002: Topics in Environmental Science- Biological/ Physical/Mathematical**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**ENV\_SC 3001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 3085: Problems in Environmental Science**

Special individualized projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 3250: Pollutant Fate and Transport**

(same as CV\_ENG 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and CHEM 1320

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**ENV\_SC 3290: Soils and the Environment**

(same as SOIL 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport

in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLISH 1000. Recommended 3 hours of CHEM courses

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**ENV\_SC 3290W: Soils and the Environment - Writing Intensive**

(same as SOIL 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLISH 1000. Recommended 3 hours of CHEM courses

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**ENV\_SC 3330: Environmental Land Use Management**

An introduction to environmentally sustainable use and management of land.

**Credit Hours:** 3

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**ENV\_SC 3500: Pollutant Fate and Transport**

This course introduces students to concepts governing pollutant fate and transport in the environment, and it provides students with the quantitative tools necessary to estimate the fate and transport of pollutants in the environment.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100, and CHEM 1320

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**ENV\_SC 4001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4024: Foundations of Environmental Education**

(same as NAT\_R 4024; cross-leveled with NAT\_R 7024) This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**ENV\_SC 4085: Problems in Environmental Science**

Special individualized research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4305: Environmental Soil Physics**

(same as SOIL 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** PHYSCS 1210 or equivalent

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**ENV\_SC 4306: Environmental Soil Physics Laboratory**

(same as SOIL 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** ENV\_SC 4305

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**ENV\_SC 4312: Environmental Soil Microbiology**

(same as SOIL 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**ENV\_SC 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and GEOL 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**ENV\_SC 4320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100

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**ENV\_SC 4396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385

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**ENV\_SC 4940: Environmental Science Internship**

Supervised professional experience with an approved public or private organization. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENV\_SC 4950: Undergraduate Research in Environmental Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

Prerequisites: ENV\_SC 1100, STAT 2530

**Credit Hour:** 1-4

**Recommended:** 9 hours of Environmental Science with at least 3 hours above the 3000-level

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**ENV\_SC 7001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 7085: Problems in Environmental Science**

Special individualized non-thesis research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 7305: Environmental Soil Physics**

(same as SOIL 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSICS 1210 or equivalent

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**ENV\_SC 7306: Environmental Soil Physics Laboratory**

(same as SOIL 7306). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes.

Prerequisites or Corerequisites: SOIL 4305.

**Credit Hours:** 2

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**ENV\_SC 7312: Environmental Soil Microbiology**

(same as SOIL 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic degradation and bioremediation, soil quality and pathogen regulation in the environment. Nitrogen fixation, mycorrhizal processes are discussed.

**Credit Hours:** 3

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**ENV\_SC 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and GEOL 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330

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**ENV\_SC 7320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 7320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or equivalent

---

**ENV\_SC 7396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**ENV\_SC 8001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 8085: Problems in Environmental Science**

Special individualized non-thesis research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 8090: Masters Research in Environmental Science**

Original investigations in environmental science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**ENV\_SC 8400: Solute Transport in the Vadose Zone**

(same as SOIL 8400). Transport of water and solutes in geomeidia with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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**ENV\_SC 8500: Chemistry of the Vadose Zone**

(same as SOIL 8500). Chemical reactions occurring in geomeidia with emphasis on understanding molecular scale processes occurring at the solid-water interface, aqueous geochemistry, and soil organic matter.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300 or instructor's consent

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**ENV\_SC 9001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 9085: Problems in Environmental Science**

Special individualized non-thesis research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 9087: Seminar in Environmental Science**

In-depth development of advanced aspects of environmental science through reviews of results of research in progress and current scientific publications.

**Credit Hour:** 1

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**ENV\_SC 9090: Doctoral Research in Environmental Science**

Original investigations in environmental science for presentation in a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-10

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**ENV\_SC 9407: Advanced Environmental Soil Physics**

(same as SOIL 9407). Transport of mass and energy through soil with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to differential equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** SOIL 7305, MATH 4100 or MATH 7100, or equivalent

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**ENV\_SC 9418: Advanced Environmental Soil Chemistry**

(same as SOIL 9418). Linking molecular-scale solution-phase and surface reactions with macroscopic chemical processes. Fundamentals of aqueous surface and colloid chemistry will be discussed.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300, and CHEM 3300

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## Environmental Studies (ENV\_ST)

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**ENV\_ST 2070: Introduction to Ecological Economics**

(same as AG\_EC 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ENV\_ST 2101: Topics in Environmental Sciences**

Selected topics not in regularly offered courses.

**Credit Hour:** 1-3

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**ENV\_ST 2110: Environmental Sustainability**

Students will assess availability of key resources, estimate sustainable rates of use and develop plans for aligning current and sustainable rates of use using personal, business and government strategies. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and one introductory environmental course

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**ENV\_ST 2150: Directed Independent Study**

Working with Environmental Studies you will find and develop a research project or an internship with the university, a government agency, a

business or a non-profit agency. The project will be directed towards solving an environmental problem.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENV\_ST 3000: Natural History of Missouri**

This class deals with the characteristics of natural ecological communities of Missouri and with the skills needed to observe, record and interpret those characteristics. Graded on A-F basis only. Prerequisites: MATH 1100 and ENGLISH 1000

**Credit Hours:** 2

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**ENV\_ST 4310: Topics in Environmental Studies**

This course covers topics not covered in regularly offered courses. Students are expected to combine skills, knowledge and perspectives from the natural and social science to analyze selected environmental problems.

**Credit Hour:** 1-3

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**ENV\_ST 4350: Modeling Environmental Problems**

This course covers modeling environmental problems as systems. Modeling incorporates rates of changes, feedback loops, short/long term signals, inertia, upstream causes, interventions, implementing interventions and unintended consequences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 9 hours natural science courses and junior standing

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**ENV\_ST 7350: Modeling Environmental Problems**

Course covers modeling environmental problems as systems. Modeling incorporates rates of change, feedback loops, short/long term signals, inertia, upstream causes, interventions, implementing interventions, unintended consequences and predicting outcomes of major shocks (oil prices, pandemics, climate change). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 9 hours natural science

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## Family And Community Medicine (F\_C\_MD)

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**F\_C\_MD 6001: Family Medicine Clerkship**

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

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**F\_C\_MD 6011: Rural Family Medicine Clerkship**

Rural Family Medicine Clerkship

**Credit Hours:** 8

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**F\_C\_MD 6021: Springfield Family Medicine Clerkship**

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 6036: SCC Palliative Care Elective**

Students will learn a multidisciplinary approach to the care of the palliative care patient while working in a variety of clinical settings. This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each week students will work with palliative care physicians at either Cox or Mercy Palliative Care Service and/or a Hospice agency. Students will have the opportunity to see patients undergoing palliative care assessment and observe nursing staff and professional therapy staff in their work with patients and families. Students will participate in various palliative care- related conferences. Students will participate in inpatient palliative care services as well as outpatient palliative care clinics. The student will work with faculty in the Departments of Family and Community Medicine as well as Internal Medicine.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of 7 core clerkships, one of which must be either Family Medicine or Internal Medicine. IN\_MED 6002, 6012, 6022, or 6102. F\_C\_MD 6001, 6011, 6021, or 6101

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**F\_C\_MD 6101: Remediation Family Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Family Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** F\_C\_MD 6001 Family Medicine Clerkship, received unsatisfactory grade

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**F\_C\_MD 6251: ABS Evidence Based Medicine**

ABS Evidence Based Medicine

**Credit Hours:** 5

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**F\_C\_MD 6253: ABS Family and Community Medicine Research**

ABS Family and Community Medicine Research

**Credit Hour:** 5-10

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**F\_C\_MD 6255: ABS Family and Community Medicine Research and Review**

ABS Family and Community Medicine Research and Review

**Credit Hours:** 5

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**F\_C\_MD 6475: Family Medicine Elective (FP Orientation)**

This elective is for Integrated Residents in the Department of Family and Community Medicine only. Two core clinical rotations are required, including Family Medicine Clerkship. During this one year longitudinal experience, Integrated Residents will work closely with senior residents and faculty members to enhance the knowledge and skills needed to care for patients in a comprehensive family medicine continuity clinic. Integrated Residents are required to attend orientation activities during 15A. Regular attendance to Wednesday departmental Grand Rounds and Tuesday afternoon Resident Seminars is also expected.

**Credit Hours:** 5

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**F\_C\_MD 6477: Family Medicine Elective Preceptorship**

May be available as a rural offsite elective: contact the MU-AHEC Coordinator. Goals/Objectives: During this elective the student works closely with a family physician in private practice. Students both observe the preceptor's patient encounters and take primary responsibility for several patients each day, discussing diagnosis and formulating management plans with supervision by the preceptor. The Preceptorship also provides opportunities not available elsewhere in the medical school curriculum, including seeing the patient's illness in its context, assessing a community's health care system, and learning about practice management. Evaluations: Evaluation of the student is based on the preceptor's evaluation and comments. Notes: Site must be pre-approved by the Course Director.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6479: Family and Community Medicine Research**

Family and Community Medicine Research

**Credit Hours:** 5

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**F\_C\_MD 6481: Clinical Nutrition**

Clinical Nutrition

**Credit Hours:** 5

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**F\_C\_MD 6483: Preventive/Community Medicine**

Preventive/Community Medicine

**Credit Hours:** 5

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**F\_C\_MD 6485: Geriatrics-Family and Community Medicine Elective**

Goals/Objectives: This is an outpatient experience in a variety of settings. Each week students will: 1. Work with Dr. David Cravens and other health care providers at Lenoir Village, Lenoir Manor, Lenoir Health Care and Maplewood Apartments. These all represent different levels and types of care available to elders. a. Students will develop an understanding of the available care and residential options that elders utilize. 2. Work with several geriatricians in the SAGE Clinic and/or Geriatrics Clinic at Green Meadows. a. Students will improve their understanding of care of elders in the outpatient setting. b. Students will also see patients undergoing geriatric assessment and thus develop a better understanding of the multidisciplinary approach to geriatric assessment. 3. Additional experiences may be arranged depending on the student's interests. 4. Participate in the various conferences related



to geriatrics. Evaluations: Final evaluation will be determined by the attending physicians supervising the student during the block.

**Credit Hours:** 5

**Prerequisites:** Must have completed all core clerkships

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**F\_C\_MD 6486: Evidence Based Medical Writing in Family Medicine**

Student will co-author a draft of an evidence-based article under the supervision of FCM faculty with evidence-based writing experience. Before writing begins, students complete an evidence-based medicine curriculum using online modules. FCM integrated residents will also participate in a departmental editorial review session.

**Credit Hours:** 5

**Prerequisites:** restricted to 4th year medical students

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**F\_C\_MD 6487: Family and Community Medicine Palliative Care Elective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with terminal condition.

**Credit Hours:** 5

**Prerequisites:** F\_C\_MD 6001; restricted to 4th year medical students

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**F\_C\_MD 6775: Family Medicine Preceptorship - Rural**

Family Medicine Preceptorship - Rural

**Credit Hours:** 5

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**F\_C\_MD 6776: RURAL FAMILY MED ELECT**

Rural Family Medicine Elective

**Credit Hours:** 5

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**F\_C\_MD 6777: Rural Health Policy and Legislative Advocacy**

Elective content will focus on the intersection of rural medicine, health policy, and legislative advocacy. Course Goals: 1) To inform and educate students about rural health policy issues at the local, state, and national levels. 2) To train medical students to be informed advocates of rural health policy issues at the local, state, and national levels. To apply, medical students must complete the Rural Track Elective Application posted on the MU AHEC website <http://medicine.missouri.edu/ahec/rural-track-elective.html>. In the notes section of the application, the student must document a rationale for applying for this course. (Maximum length - 1 paragraph).

**Credit Hours:** 5

**Prerequisites:** M4 status. Applicants must complete either the Rural Track Summer Community Program or the Rural Track Clerkship Program prior to enrollment. Students will share first-hand experiences from rural track placement(s) with legislators to advocate for the MU Rural Track Pipeline Program and to influence rural health policy in Missouri

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**F\_C\_MD 6875: Family Medicine Onsite Externship**

Goals/Objectives: The student who is on the onsite track of the externship will be a member of the Family Practice Inpatient Team that is responsible for providing care to Family Practice patients in the hospital. The team consists of an attending, physician, two third-year residents, and two or three first-year residents. The student will be

expected to function as a member of the team, attending rounds on a daily basis and assuming responsibility, under supervision, for the care of some of the patients. Each student will have 4-5 nights of call including weekend days. Students will be responsible for providing care, with supervision, to those patients admitted while they are on call. Students will also be expected to follow their patients after discharge, making home visits or nursing home visits and seeing them in follow-up at the clinic as indicated. Students will also have exposure to ambulatory family medicine. Each student will work closely in the clinic with one of the third-year residents assigned to the inpatient team. The student will attend each of the resident's clinics whether they are at Green Meadows, Fulton, or Fayette.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6876: Family Medicine Offsite Externship**

Several different types of experiences are available for the offsite track of the externship. Students have the opportunity to work at selected Indian Health Service sites that provide the appropriate mix of inpatient and outpatient experiences. A list of these IHS sites and the students' evaluations are available in the course office. These offer high volume and high levels of responsibility. Planning needs to begin early in the third year. Offsite externship experiences are also available in certain community-based family practices and in certain family practice residency programs. A list of pre-approved sites is available in the course office. All of the sites available for the offsite experience have been carefully selected by the faculty based on previous experiences of fourth-year students. These sites offer an appropriate level of patient care responsibility with supervision. Offsite practices need to be approved in advance by the course director and often require planning 6 to 12 months in advance. Students considering offsite rotations will be expected to have a clear idea of how these experiences will offer unique advantages to their personal and professional development, and how they will meet the course criteria. Many offsite locations used in the past for the Family Medicine Clerkship will not satisfy the externship requirement. They still offer excellent experiences and could be taken as electives. Students on the offsite track will be evaluated with respect to their ability to collect, process, and analyze information, engage in clinical reasoning, and formulate appropriate diagnoses and treatment plans. Sites must be pre-approved by the Course director.

**Credit Hours:** 5

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**F\_C\_MD 6877: Rural Family Medicine Elective**

Rural Family Medicine Elective

**Credit Hours:** 5

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**F\_C\_MD 6878: Family Medicine Maternity Care-Advanced Selective**

Family Medicine Maternity Care-Advanced Selective

**Credit Hours:** 5

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**F\_C\_MD 6879: Palliative Care Selective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each day the student will work directly with palliative care physicians, as well as the rest of the multidisciplinary team, as part of the University Hospital Supportive and Palliative Care Service. They

will also have the opportunity to work with a medical director of a local Hospice agency, who is a faculty member of the University of Missouri. Students will be expected to function as a member of the Palliative Care Team. Students will have the opportunity to actively participate in the assessment and care of patients under the direction of the Palliative Care Interdisciplinary team. Students will work alongside palliative care attending physicians, nursing staff, social workers, and pastoral care team members in their work with patients and families. Students will participate in various palliative care-related conferences including Interdisciplinary Team Meetings, didactics, patient remembrance and memorial services, self-care rounds, monthly team business meetings and the monthly Palliative Care hospital committee meeting. Additional experiences will include outpatient palliative care clinics at Ellis Fischel, bi-weekly community Hospice Interdisciplinary team meetings, patient home assessments and nursing visits with hospice staff, and completion of an oral presentation to the Palliative Care Team as part of their assessment and evidence of mastery of course objectives.

**Credit Hours:** 5

**Prerequisites:** Fourth year medical student. Must have completed 6 of the 7 core clerkships

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**F\_C\_MD 6928: Primary Care Sports Medicine Elective**

Students will work with a multi-disciplinary sports medicine team, providing hands on clinical services in an outpatient setting. Participants will gain experience working with primary care sports medicine physicians, orthopedic surgeons, physical therapists and cast technicians.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 6929: Rural Family Medicine Elective Two-Week**

The student will work with Callaway Physicians attending and resident physicians primarily in the clinic setting to experience primary care delivered in the rural setting. During this time the students will have opportunities to participate in patient care in the clinic, procedures including minor dermatologic procedures, colposcopy, splinting, OB non stress testing and fetal heart monitoring, cardiac treadmill stress testing, and other procedures as available. Rotation length is two weeks.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 7001: Topics in Family and Community Medicine**

Selected topics of interest related to family and community medicine.

**Credit Hours:** 3

**Prerequisites:** Understanding of research methods, statistics (basic) and graduate, post graduate or instructor' consent

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**F\_C\_MD 7300: Problems Community Health Medicine Practice**

Directed exploration of community health problems.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7310: The Health Care System**

Overview of health care system and relationship between its components. Focuses on changing nature of the system and issues confronting the future health care system.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7350: Special Readings in Community Health**

Extensive reading and critical analysis of classical and current studies in selected areas of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7400: Problems in Community Health**

Intensive study of an area of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7490: Research in Community Health**

Independent investigation of some problem in community health to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**F\_C\_MD 7492: Field Experience in Community Health Education**

Field practice in a selected community setting under faculty or other competent supervision .

**Credit Hour:** 1-99

**Prerequisites:** Restricted to students specializing in community health education; consent of community health education faculty

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**F\_C\_MD 7750: Physical Function and Older Adults**

(same as ARCHST 7640, HMI 7750, H\_D\_FS 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_C\_MD 7751: Psychosocial Function and Older Adults**

(same as ARCHS] 7650, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A/F basis only.

**Credit Hours:** 3

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**F\_C\_MD 8330: Statistical Aspects of Public Health**

Classification and summarization of data used in public health practice and research. Probability, sampling, hypothesis testing. Correct and incorrect use of statistics in the literature.

**Credit Hours:** 3

**Corequisites:** concurrent registration in F\_C\_MD 8420 or instructor's consent

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**F\_C\_MD 8410: Principles and Practices in Medical Education**

An examination of the past and present influences on the education of physicians, the application of adult education principles and the future approaches to medical education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8411: Learning Strategies in Preclinical & Clinical Educ. of Physicians**

Examination of curricular strategies in preclinical and clinical education of medical students and graduate medical education. Emphasis will be placed on different types of instructional strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8420: Principles of Epidemiology**

Examines methods of study of disease frequency and distribution in populations. Utilizes small group discussions for understanding of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8421: Clinical Epidemiology/Evidence Based Medicine**

(same as V\_PBio 8421). Advanced epidemiologic theory and methods in the study and control of infectious and noninfectious diseases.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8422: Clinical Research Methods I**

Principles of designing, implementing and reviewing research in the health sciences.

**Credit Hours:** 3

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**F\_C\_MD 8423: Clinical Research Methods II**

This is a continuation of the Clinical Research Methods I (CRM\_I) introductory course on the multi-method approach to clinical research. Similar to the previous course, it covers both quantitative and qualitative research methods, but includes advanced applications.

**Credit Hours:** 3

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**F\_C\_MD 8424: Comparative Effectiveness Research**

Advanced research class that presents a framework for analyzing observational studies and randomized trials for comparative effectiveness. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Two recent semester-length courses in statistics such as NURSE 8020 or STAT 2500 or above; Working knowledge of managing and analyzing data in SPSS or SAS; Research methods; or consent of instructor

**Recommended:** One semester of epidemiology is strongly recommended

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**F\_C\_MD 8425: Participatory Approaches for Health and Health Systems**

(same as NURSE 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**F\_C\_MD 8430: Applications of Evidence-Based Medicine I**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8431: Applications of Evidence-Based Medicine II**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8450: Research in Community Health**

Original research in community health not leading to a thesis but requiring a formal research report.

**Credit Hour:** 1-99

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**F\_C\_MD 8491: Field Experience in Family and Community Medicine**

Supervised teaching experience in the preclinical, clinical, and residency programs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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## Film Studies (FILM\_S)

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**FILM\_S 1000: Introduction to Film for Non-Majors**

Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 1800. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 1800: Introduction to Film Studies**

(same as ENGLISH 1800, DST 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and Sophomores only or instructor's consent

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**FILM\_S 1880: Introduction to Digital Media Production**

(same as DST 1880; ENGLISH 1880). Introduction to concepts and skills for film making, video art, and digital storytelling, including media literacy and forms of narrative manifested historically and currently across

a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 2001: Topics in Film Studies-General**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**FILM\_S 2005: Topics in Film Studies- Humanities**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**FILM\_S 2010: The Philosophy of Film**

(same as PHIL 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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**FILM\_S 2020: World Cinema for Non-Majors**

World Cinema introduces students to the history of international cinema. The course focuses on particular cinematic movements and national cinemas as case studies for trends and trajectories that also characterize the national and non-Hollywood cinemas not covered in the course. Examines the relationship of form and genre to individual national, or localized, cultural contexts. No credit for students who have completed FILM\_S 2820. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 2160: Film Adaptation of Shakespeare - Non Majors**

This course serves as an introduction to the problems and complexities that arise when adapting William Shakespeare's plays to contemporary film. One basic task of the course is to develop students' ideas about adaptation, especially with reference to contemporary adaptation theory. This course hopes both to explain and discredit the value of "fidelity discourse," students should be liberated from the notion of "faithfulness" to the texts. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 2540: Introduction to Film Management**

Film Production Management is a hands-on exploration of the roles of feature film executive producers, producers and unit production managers. Creating balanced budgets, hiring personnel, creating meaningful business relationships, and managing post-production responsibilities are investigated. The feature film budget will be examined in each phase of the production; creating a sales pitch for a film, and developing a detailed approach to distribution is explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLISH 1800; sophomore standing or higher

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**FILM\_S 2820: Trends in World Cinema**

(same as GERMAN 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing, ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 2830: American Film History I, 1895-1950**

(same as ENGLISH 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 2840: American Film History II, 1950-Present**

(same as ENGLISH 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 2850: Italian Cinema**

(same as ITAL 2850). A course which concentrates on the development of Italian Cinema, primarily since the Post-WWII era, and the ways in which it reflects major economic, social and political events occurring in Italy. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILM\_S 2860: Film Themes and Genres**

(same as ENGLISH 2860, DST 2860) Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 2680.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 2865: The Art of Soviet and Russian Cinema**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILM\_S 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILM\_S 2870: Film and Literature**

(same as ENGLSH 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded A-F basis only

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILM\_S 1800

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**FILM\_S 3001: Topics in Film- General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 3005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 3005H: Topics in Film Studies - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing or instructor's consent. Honors eligibility required

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**FILM\_S 3005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 3490: Indian Cinema**

(same as S\_A\_ST 3490, AR\_H\_A 3790 and ANTHRO 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**FILM\_S 3530: Crafting Character and Story for Screen**

Analyze various script formats and apply different writing techniques and styles to create screenplays and teleplays. Work inside a creative critique environment to craft vivid storytelling and character elements while developing viable loglines and pitches for their stories. Screenwriting concepts include the three-act structure and the timing and placement of plot points. Graded on A-F basis only. May be restricted to Film Studies majors and minors during early registration

**Credit Hours:** 3

**Prerequisites:** . FILM\_S 1800 or ENGLSH 1800; sophomore standing or higher

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**FILM\_S 3540: Principles of Cinematography**

An exploration of the principles and techniques of cinematography that includes shot composition lighting styles, and storytelling, using the moving image. Students will examine historical and contemporary approaches to cinematography used in Hollywood, foreign and independent films. Analyzing cinematographic approaches of a wide range of work will help the students discriminate the quality of their own creative work. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800; Sophomore standing or higher. May be restricted to Film Studies majors and minors during early registration

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**FILM\_S 3550: Introduction to Field Production**

Provides a comprehensive overview of pre-production and production involved in the development of a film. Students will receive hands-on experience in lighting design, camera operation, grip and electrical, producing, directing, sound capture and design, and fundraising. Students will ultimately be responsible for the production of a commercially viable, competition grade short film at the end of the semester. Some outside class commitments are required.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800 and FILM\_S 3540

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**FILM\_S 3555: Directing for the Screen**

Directing for the Screen combines previous knowledge of the cinematic frame with the power of communication. This course focuses on developing the student's ability to effectively communicate to actors, cinematographers, and art departments, while also commanding a film crew and managing relationships with producers. Students develop concise personal vision and aesthetics with respect to scripts, and will work directly with actors to achieve performances that suit the project.

**Credit Hours:** 3

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**FILM\_S 3560: Audio Engineering for the Screen**

This course is an intensive study of the techniques and science behind the use of audio in today's cinema. The course will focus on four major areas of study: sound in cinema, sound creation, sound manipulation, and environmental sound layering.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 1800 or ENGLSH 1800, Sophomore standing. May be restricted to Film Studies majors and minors during early registration

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**FILM\_S 3775: The Ancient World on Film**

(Same as CL\_HUM 3775 and AR\_H\_A 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Prerequisites:** Prior 2000 level coursework in CL\_HUM, AR\_H\_A, or FILM\_S. Instructors consent required

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**FILM\_S 3780: Architecture in Film**

(same as AR\_H\_A 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**FILM\_S 3785: Art and Artists on Film**

(same as AR\_H\_A 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**FILM\_S 3820: Major Directors**

(same as ENGLISH 3820 and RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 3830: History of German Film**

(same as GERMAN 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3840: German Film After 1945**

(same as GERMAN 3840). Examines a selection of post-War films by German directors, as well as historical, literary, and theoretical texts.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing, or instructor's consent

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**FILM\_S 3845: Modern Israeli Film**

(same as HEBREW 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor required

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**FILM\_S 3850: Studies in Film History**

(same as ENGLISH 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 3855: Documentary Film**

(same as ENGLISH 3855; DST 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILM\_S 3861: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 3861.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 3865: The Holocaust on Screen**

(same as GERMAN 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILM\_S 3870: Russian Women and Film**

(same as RUSS 3870, WGST 3870) Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles).

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3875: Brazilian Cinema**

(same as PORT 3875). An introduction to Brazilian cinema, culture, and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; redefinition of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILM\_S 3880: Contemporary Chinese Film**

(same as CHINSE 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3885: Twenty-First Century South American Cinema**

(same as SPAN 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**FILM\_S 3890: Russian and Soviet Film**

(same as RUSS 3890). Introduces three significant genres of Russian cinema: comedy, literary adaptations, and films that explore issues of identity and autobiography. Includes examples from different epochs. Considers Soviet and post-Soviet films. Russia and Russian culture. Course conducted in English; films have English subtitles.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILM\_S 3895: Korean Society Through Cinema**

(Same as KOREAN 3890). Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore Standing

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**FILM\_S 3930: Screenwriting for Television and Film**

(same as THEATR 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILM\_S 4001: Topics in Film-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILM\_S 4005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILM\_S 4005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILM\_S 4030: Video Art and the Moving Image**

(same as ART\_GNRL 4030; cross-leveled with ART\_GNRL 7030). Video as a fine art form intersection sculpture, performing arts, doc filmmaking, pop culture and the Internet. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Final Cut Pro demonstrating technical ability and aesthetic vision.

**Credit Hours:** 3

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**FILM\_S 4130: Advanced Character Voice and Dialogue**

Builds upon principles of story arc and screenwriting techniques, while providing an in-depth study of character psyche and unique voice. Students will master the skills necessary to create vibrant, memorable characters through the exploration and development of unique character traits, physical imagery development and distinctive voice. Students will analyze dialog traits of scripts and films of industry professionals, and will craft their own characters using industry standard technology, adhering to the principles of industry standard formatting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILM\_S 3530, THEATR 3930, FILM\_S 3930, ENGLISH 2510, ENGLISH 2520 or ENGLISH 2530

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**FILM\_S 4370: Film Studies: The Intersection of Documentary Film and Journalism**

(same as JOURN 4370; cross-leveled with FILM\_S 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 4540: Advanced Cinematography**

Cinematography is an art based on control of light, motion, and the frame. Introduction to Cinematography gave students a basic understanding of the fundamental principles of cinematography. Advanced Cinematography builds upon these principles, placing students in a collaborative studio environment, focusing on application of advanced techniques and storytelling as an element of meaning within the frame. Students will utilize advanced camera systems, cinema grade lenses, and lab facilities to integrate contemporary post production techniques to alter their footage, creating highly stylized imagery.

**Credit Hours:** 4

**Prerequisites:** FILM\_S 1800 or ENGLISH 1800; FILM\_S 3540; sophomore standing or higher

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**FILM\_S 4550: Introduction to Post Production**

Introduction to the Post Production explores traditional and current audio and video post-production concepts, techniques and technology. Using non-linear editing and audio post-production software students develop techniques in video and audio editing, and investigate the post production concepts of color correction, audio mixing, and motion graphics. Using media encoding software, students examine exporting and compressing footage to a wide range of digital delivery formats. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** FILM\_S 1800 or ENGLISH 1800; sophomore standing or higher

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**FILM\_S 4580: Production Practicum**

Provides an intensive, comprehensive experience in film production. Students will receive hands-on experience in lighting and set design, camera operation, grip/electrical and sound capture. The course pits students against a rigorous industry standard shooting schedule - long hours are to be expected each day. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** FILM\_S 3540

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**FILM\_S 4810: Film Theory**

(same as ENGLISH 4810, DST 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000 and ENGLISH or FILM\_S 1800. Junior standing or above required

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**FILM\_S 4820: Studies in Film Genre**

(Same as ENGLISH 4820) Topics (e.g. The Western, film noir) announced at time of registration. No more than six hours may be taken toward the major.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800; Junior Standing or instructor's consent

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**FILM\_S 4840: Culture and Media**

(Same as ENGLISH 4840, DST 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800. Junior standing or instructor's consent required

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**FILM\_S 4860: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film., The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 4860.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**FILM\_S 4880: Capstone Experience**

This course is for Film Studies students who have completed their concentration requirements. The main objective is to help students independently create and complete a capstone project. The project should allow you to conceptualize and enter professional life after commencement.

**Credit Hours:** 3**Prerequisites:** Film Studies majors only. Consent of instructor required

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**FILM\_S 4935: Adaptation of Literature for Film**

(same as ENGLISH 4935 and THEATR 4935; cross-leveled with FILM\_S 7935, ENGLISH 7580 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**FILM\_S 4940: Internship**

This course is for Film Studies students who have the opportunity to work in an internship position in a related industry or at a government agency where they can gain valuable on the job experience and knowledge. The student must register for the Internship course in the semester in which the work takes place. Graded S/U basis only.

**Credit Hour:** 1-3**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800. Must have at least 15 hours of Films Studies credit. Online courses do not count for the 15 hours of Film Credit

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**FILM\_S 4960: Special Readings in Film Studies**

Arranged. Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-3**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800.

Consent of instructor required. Restricted to Film Studies majors in their final year

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**FILM\_S 4963: Latin American Cinema (in Spanish)**

(same as SPAN 4960). Subject varies according to instructor.

**Credit Hour:** 2-3**Prerequisites:** SPAN 3420 and SPAN 3430

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**FILM\_S 4995: Senior Honors Thesis**

Independent honors research under direction of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3**Prerequisites:** Senior standing required, consent of instructor required, Honors eligibility required

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**FILM\_S 7001: Topics in Film Studies-General**

Topics in Film Studies-General

**Credit Hour:** 1-3



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**FILM\_S 7370: The Intersections of Documentary Film and Journalism**

(same as JOURN 7370). (cross-leveled with JOURN 4370 and FILM\_S 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 7810: Film Theory**

(same as ENGLSH 7810). This course explore contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others. Graded on A-F basis only.

**Credit Hours:** 3

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**FILM\_S 7840: Culture and Media**

(same as ENGLSH 7840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

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**FILM\_S 7935: Adaptation of Literature for Film**

(same as THEATR 7935 and ENGLSH 7580; cross-leveled with FILM\_S 4935, ENGLSH 4935 and THEATR 4935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**FILM\_S 7975: Distorted Picture: Post-War Cinema in a Police State**

(Same as RUSS 7975) Considers strategies and stylistic devices employed by East European & Soviet directors to produce artistically worthy films under censorship. Discusses how artists adapted methods, boldness of expression, thematic content, and technical sophistication. Attention paid to production techniques.

**Credit Hours:** 3

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**FILM\_S 8005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Finance (FINANC)

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**FINANC 1000: Principles of Finance**

Financing business, consumer, and government activity; stocks, bonds, real estate, and financial markets; risk; insurance; inflation; cash and income management; capital accumulation and appreciation.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 2000: Survey of Business Finance**

An overview of the global financial system, financial markets, financial institutions, and principles of financial management.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 3000: Corporate Finance**

Financial decision-making in a corporate environment. Time value of money, capital budgeting, cost of capital, working capital management and financial instruments issued by the firm.

**Credit Hours:** 3

**Prerequisites:** Completed 45 semester hours; Stat 2500 (or Stat 2200 and Stat 1200 or Stat 1300 or Stat 1400); Acctcy 2027 or Acctcy 2037 or Acctcy 2137H; Econom 1014 or Econom 1024; Econom 1015 or Econom 1051 or 1051H

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**FINANC 3300: Personal Risk Management and Insurance**

Teaches the importance of risk in personal endeavors and the intelligent handling of such risk. Life, health, auto, homeowner and liability risks are treated.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FINANC 4010: Financial Management**

Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4020: Investments**

Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4020H: Investments - Honors**

Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000. Honors eligibility required

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**FINANC 4030: Financial Intermediaries and Markets**

Functions of intermediaries in the aggregation and allocation of funds, creation and transfer of assets, and distribution of risks. Regulation of financial institutions; financial institutions as instruments of public policy.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000 and ECONOM 3229

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**FINANC 4110: Financial Management Policy**

Application of the concepts and tools of finance to cases in working capital management, capital budgeting analysis and capital structure decisions.

**Credit Hours:** 3

**Prerequisites:** FINANC 4010

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**FINANC 4120: Security Analysis**

Classifies and analyzes securities, markets, industries. Formulation of investment policy for institutions, aggressive personal investors.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4130: Management of Financial Institutions**

Operating principles of major financial intermediaries, including commercial banking, savings, insuring, lending and investing institutions. Analysis of cases; study of current problems. Some sections of the course may be graded on A-F or S/U graded basis only.

**Credit Hours:** 3

**Prerequisites:** FINANC 4030

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**FINANC 4185: Problems in Finance**

Independent study, reports on selected topics. Some sections of this course may be offered A-F only or S/U only.

**Credit Hour:** 1-99

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**FINANC 4201: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on an experimental basis. Some sections of this course may be offered A-F only or S/U only.

**Credit Hours:** 3

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**FINANC 4220: Portfolio Management**

Development and application of the principles of modern portfolio theory to financial assets. Analysis of the concepts of diversification, portfolio construction, portfolio revision, and use of types of financial assets in effective portfolio management.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4310: Financial Modeling and Databases**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4320: Financial Futures and Options**

A basic overview of financial futures and options markets. Topics include: theoretical pricing of financial futures contracts and stock options, institutional aspects of these markets, hedging, and speculative strategies.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4450: Financial Ethics and Professional Standards**

The course comprises an intensive study of the CFA Institute Code of Ethics and Standards of Professional Conduct and Global Investment Performance Standards. It also includes a review of corporate governance issues.

**Credit Hours:** 3

**Recommended:** FINANC 4010 or departmental consent

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**FINANC 4500: Principles of Real Estate**

Principle factors influencing land use, practices in real estate business.

**Credit Hours:** 3

**Recommended:** FINANC 3000

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**FINANC 4510: Real Estate Appraisal**

Procedures for valuing industrial, commercial, residential realty by market, income, replacement cost approaches. Case method, field investigations.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4520: Real Estate Finance and Investment**

Financing of residential, commercial, and industrial real estate and real estate development. Instruments, institutions, and markets; role of government agencies; investment qualities of real estate.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4530: Real Estate Portfolio Analysis and REITs**

Management of real estate portfolios and analysis of real estate investment trusts including financial statement analysis, cash flows, and valuation techniques.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4620: Investment Strategy of Warren Buffett**

Survey and application of the investment philosophy and valuation methods of Warren Buffett. Prerequisites: FINANC 3000;

**Credit Hours:** 3

**Corequisites:** FINANC 4020

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**FINANC 4630: Introduction to Risk Management and Insurance**

Basic principles of risk management and insurance focusing on operational risks faced by organizations. Covers terminology, sources, dimensions, characteristics, measurement, and assessment of risk along with design and implementation of techniques to mitigate and control risk.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINANC 2000 or FINANC 3000

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**FINANC 4632: Principles of Commercial Property and Liability Insurance**

The objective of this course is to examine the principles and key elements of commercial property and liability insurance. The primary emphasis will be on the property and liability loss exposures faced by organizations and the corresponding types of insurance for covering those loss exposures. This course qualifies students who make a "B" or better to receive credit for CPCU 552 Commercial Liability Risk Management and Insurance.

**Credit Hours:** 3

**Prerequisites:** FINANC 2000 or FINANC 3000 or FINANC 4630, or permission of the instructor

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**FINANC 4640: Enterprise Risk Management**

This course addresses the principles, concepts, key elements and applications of Enterprise Risk Management (ERM) to businesses and other organizations. The principal objective of this course is to prepare students to understand the principles of ERM and to be able to integrate sound risk management principles into their work.

**Credit Hours:** 3

**Prerequisites:** FINANC 4630, or permission of instructor

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**FINANC 4710: Topics in International Finance**

Available during study abroad session. Emphasis is on international corporate governance, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4720: International Finance**

Application of domestic corporate finance to the international arena. Emphasis on international capital budgeting, working capital management, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination.

**Credit Hours:** 3

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**FINANC 4820: Investment Fund Management**

Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated once for credit for a total of six credits.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000, FINANC 4120 or FINANC 4620, instructor's consent required each enrollment

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**FINANC 4830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 7830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**FINANC 4840: Angel Capital Education Program**

(cross-leveled with FINANC 7840). In depth understanding of investing in start up enterprises, including structuring investment deals, doing due diligence, and monitoring of prior investments. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 4940: Professional Finance Internship**

Provides students experience with financial activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and the complete written assignments detailed in the plan.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000, College of Business students with a finance concentration or international business students with a finance emphasis, and instructor's consent

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**FINANC 7010: Financial Management**

Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7020: Investments**

Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7201: Special Topics in Finance**

Selected topics in Finance, insurance, or real estate. Offered on an experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 7210: Microeconomics for Business**

Examination of how the behavior of consumers and the business decisions of firms affect supply, demand, and the resulting prices of goods and services in the market.

**Credit Hour:** 1-3

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**FINANC 7220: Economics for Managers**

Applies the concepts and tools of economics to management issues and problems.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7210 or equivalent

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**FINANC 7410: Managerial Finance I**

Introduction to financial management including the time value of money capital budgeting techniques, risk measurement, and the valuation of financial securities.

**Credit Hour:** 1-3

**Prerequisites:** ACCTCY 7310

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**FINANC 7420: Managerial Finance II**

Continuation of the study of financial management with focus on the risk-return tradeoff, capital structure, corporate layout polices, long-term financing, elementary options pricing, and mergers and acquisitions.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7410

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**FINANC 7440: Managerial Finance**

Analyzes financial information relative to acquisition, management of assets; costs of alternative financial contracts; effect of mix of outstanding securities on entity's cost of capital; interaction between funding/ investment decisions.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 7310 or departmental consent

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**FINANC 7620: Investment Strategy of Warren Buffett**

Survey and application of the investment philosophy and valuation methods of Warren Buffett.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440

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**FINANC 7820: Investment Fund Management**

(cross-leveled with FINANC 4820). Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated 1 time for credit.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440; instructor's consent

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**FINANC 7830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 4830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 7840: Angel Capital Education Program**

(cross-leveled with FINANC 4840). In depth understanding of investing in start up enterprises, including structuring investment deals, doing due diligence, and monitoring of prior investments. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 8001: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 8010: Multicultural and Global Finance Study Abroad**

International topical issues in finance including cultural difference, corporate governance, differential approaches to regulation across countries, and cross-risk. Includes a study abroad component with on-site visits to businesses and other organizations. May be repeated as venues change.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8012: International Financial Markets**

International capital, foreign exchange, money markets, and financial institutions including exchange rates, instruments and securities, and multinational risk exposure. May include a study-abroad component with on-site visits to businesses and other organizations. May be repeated as venues change. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8070: Security Markets and Investments**

Valuation of securities including stocks, bonds, options and futures; risk-return analysis of financial assets.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440 or equivalent

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**FINANC 8085: Problems in Finance**

For independent investigation and analysis, graduate students select topics suggested by the foregoing undergraduate courses.

**Credit Hour:** 1-3

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**FINANC 8090: Master's Thesis Research**

Advanced research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent required

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**FINANC 8310: Financial Databases and Analysis**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FINANC 8312: Financial Modeling**

Financial modeling using Excel spreadsheet design and VBA programming. Includes alternative computational methods, simulation and the use of information retrieved from financial databases. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8310

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**FINANC 8320: Financial Markets**

Operation and structure of money markets and capital markets, including markets for stocks, bonds and derivatives securities. Study of the

securities that trade in those markets including characteristics, valuation and diversification.

**Credit Hour:** 1-3

**Prerequisites:** BUS\_AD 7440

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**FINANC 8330: Investment Policy and Portfolio Management**

Study of investment policies and the effects of risk and diversification on investment management including measurement of risk, identification of investment policy, and construction and maintenance of investment portfolios. Prerequisites: FINANC 8320

**Credit Hour:** 1-3

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**FINANC 8340: Derivative Financial Securities**

Comprehensive overview of derivative securities including financial futures and options, swaps, and financial engineering. Major topics: institutional aspects of these markets, advanced pricing models, pricing relationships among derivative securities, and risk shifting.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8070

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**FINANC 8350: Financial Statement Analysis I**

An introduction to financial statement analysis with emphasis on interpretation and understanding of the balance sheet income statement, and statement of cash flows.

**Credit Hour:** 1-3

**Prerequisites:** ACCTCY 7310

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**FINANC 8352: Financial Statement Analysis II**

Analysis of company financial statements and related accounting information with emphasis on investors' decisions to invest in the company.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8350

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**FINANC 8360: Equity Securities Analysis**

Theory and application of models and methods for valuing common stocks.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8370: Fixed-Income Securities Analysis**

Markets for fixed-income securities and theory and application of models for valuing bonds and other fixed-income securities. Prerequisites: FINANC 7420

**Credit Hour:** 1-3

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**FINANC 8380: Investment Banking**

Topics in investment banking including types of offerings and securities, analysis of comparable companies and transactions, valuation methods, and hedge funds and private equity. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANCE 7420 or equivalent

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**FINANC 8410: Advanced Financial Management**

Examination of the modern theory of finance. Capital budgeting capital structure, dividend theory and valuation.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8420: Working Capital Management**

Financial planning and short-term financial management; integration of quantitative techniques, microeconomics, and financial decisions; analysis of decisions about profit planning, financial forecasting, accounts receivable, cash management, and financial short-term assets.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8410

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**FINANC 8430: Capital Budgeting**

An investigation of long-term financial decisions. Topics include capital budgeting, leasing, long-term financing. Extensive use of cases.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8410

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**FINANC 8440: Financing Multinational Business**

Study of foreign exchange markets, currency derivatives, global capital budgeting, and international financial decision strategy. Some sections of this course may be offered on an A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8450: Ethics and Standards of Financial Practice**

Study of financial ethics with particular focus on standards of practice for investment performance standards. Recommended for students planning to take the CFA exam. Prerequisites: FINANC 7420

**Credit Hour:** 1-3

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**FINANC 8460: Mergers and Acquisitions**

Analysis of merger and acquisition transactions. Includes methods of financing, valuation and deal structure, hostile takeovers and restructuring.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8510: Management of Financial Institutions**

Study and analysis of policies, goals, practices and organizational changes in the management of financial institutions and intermediaries.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8520: Real Estate Investment I**

Analysis of real estate as an investment including forecasting net operating income and cap rates, risk analysis estimation of return on investment, and syndication.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7420

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**FINANC 8522: Real Estate Investment II**

A continuation of FINANC 8520. Advanced risk analysis, syndication, and renovation and disposition of investment property including case analyses. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8520

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**FINANC 8530: Real Estate Portfolio Analysis**

Portfolio analysis applied to real estate investment including diversification, portfolio theory, and management of real estate portfolios including real estate investment trusts (REITs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7420

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**FINANC 8540: Real Estate Finance**

Instruments and methods of financing real estate including fixed and variable rate mortgages, the mortgage loan underwriting process, financing investment property, and alternative financing methods. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8550: Real Estate Valuation I**

Valuation and appraisal methods for real estate. Includes cost, comparable sales, and income capitalization approaches. Credit may not be earned for both FINANC 7510 and FINANC 8550. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8552: Real Estate Valuation II**

A continuation of FINANC 8550. Focus is on advanced methods and the use of case analyses. Credit may not be earned for both FINANC 7510 and FINANC 8552. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8550

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**FINANC 8560: Real Estate Securities Analysis**

Analysis of real estate securities including in-depth financial statement analysis and valuation of real estate investment trusts (REITs) and real estate operating companies (REOCs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8530 or instructor's consent

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**FINANC 8570: Real Estate Development**

Developing real estate properties. Topics include organizational forms, land development, construction, and environmental issues. Includes issues specific to residential, office, industrial, and retail properties. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8620: Investment Strategy of Warren Buffett**

This course is designed to familiarize students with the investment philosophy of Warren Buffett. Buffett's criteria for evaluating potential acquisitions and investments will be analyzed in detail.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8630: Corporate Risk Management**

Principles of identifying, analyzing, assessing, and managing operational risks faced by large organizations. Sources, dimensions, and qualities of risk as well as development and implementation of methods to avoid, control, or transfer risk.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** FINANC 7420

**Recommended:** Undergraduate Business degree with major/emphasis/minor in Finance, Accounting or Economics

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**FINANC 8632: Corporate Insurance and Alternative Financing Mechanisms**

Basis and techniques for insuring hazard and operational risks encountered by large organizations. Analysis of insurance policies, determination of optimal limits and retentions, and assessment of alternative risk financing methods.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8630

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**FINANC 9001: Advanced Topics in Finance**

Selected topics in finance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9090: Research in Finance**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**FINANC 9100: Seminar in Corporate Finance**

Advanced theory, investigation of current research in financial management.

**Credit Hours:** 3

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**FINANC 9101: Topics Seminar in Finance**

Reading and critical evaluation of selected current finance literature and research. Departmental consent. May be repeated. Graded on S/U basis only. students only

**Credit Hour:** 1-3

**Prerequisites:** Ph.D

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**FINANC 9200: Research in Corporate Finance**

Advanced topics in corporate finance.

**Credit Hours:** 3

**Prerequisites:** Finance [FINANC] 9100

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**FINANC 9300: Financial Economics**

Utility analysis, efficient frontier mathematics, asset pricing and related topics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9400: Seminar in Investment Analysis**

Develops integrated theory and analytic techniques for evaluating investment potential of financial instruments. Emphasizes corporate securities. Selected cases and readings.

**Credit Hours:** 3

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## Fisheries And Wildlife (F\_W)

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**F\_W 1002: Topics in Fisheries and Wildlife**

Organized study of selected topics intended primarily for lower-level students in Fisheries and Wildlife Sciences.

**Credit Hour:** 1-99

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**F\_W 1012: Introduction to Captive Wild Animal Management**

(same as AN\_SCI 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 1100: Introductory Zoology with Laboratory**

(same as BIO\_SC 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**Credit Hours:** 5

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**F\_W 2002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics**

Organized study of selected topics. Intended for lower division Fisheries and Wildlife students. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**F\_W 2500: Introduction to Genetics and Evolution for Conservation**

Basic principles and processes of genetics and evolution and their importance for management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** NAT\_R 1070, BIO\_SC 1500, CHEM 1310, and MATH 1100

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**F\_W 2600: Ornithology**

(same as BIO\_SC 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab.

**Credit Hours:** 4

**Recommended:** 5 hours Biological Sciences

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**F\_W 2700: Ichthyology**

(same as BIO\_SC 2700). A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment.

**Credit Hours:** 4

**Recommended:** 8 hours Biological Sciences

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**F\_W 2900: Principles of Wildlife Management**

Expose students to the principles of wildlife management with emphasis on current issues faced by wildlife researchers and managers in the field. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** NAT\_R 1070 and one other course in biological or environmental science; sophomore standing or higher

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**F\_W 3002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics**

Organized study of selected topics. Intended for upper division students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**F\_W 3085: Problems in Fisheries and Wildlife**

Individual problems studies to supplement regularly organized undergraduate courses in Fisheries and Wildlife. Proposal for problems study must be arranged by student and supervising faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 3090: International Studies in Conservation**

International study abroad that enhances and expands conservation knowledge and experience. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** 12 hours biological science and/or conservation-related coursework. Restricted to Fisheries and Wildlife majors only

**Recommended:** 12 hours biological science and/or conservation-related coursework. Must complete a Study Abroad Proposal prior to attending the course

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**F\_W 3200: Aquaculture**

This course aims to develop an understanding of key aspects of the practice of fish culture, an awareness of aquatic species being cultured worldwide, and an appreciation of why aquaculture is expanding so rapidly on a global basis and the emerging environmental concerns associated with aquaculture growth. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 3300: Wildlife Damage Management**

To explore wildlife damage conflicts involving human health and safety, agricultural resources, economics and natural resources. The course studies damage caused by wildlife species and methods to alleviate damage. Covers wildlife diseases, human dimensions and wildlife policies. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 3350: Wildlife Damage Management Lab**

To explore wildlife damage management techniques in a field setting. To gain knowledge in assessing wildlife damage and the responsible species and determine the best approach to reduce that damage. Graded on A-F basis only. Prerequisites or

**Credit Hour:** 1

**Corequisites:** F\_W 3300

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**F\_W 3400: Water Quality and Natural Resource Management**

Introduction to broad aspects of water quality science, management and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology.

**Credit Hours:** 3

**Recommended:** CHEM 1000 or CHEM 1320 and ENV SC 1100 or NAT\_R 1070

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**F\_W 3500: Wildlife Conservation in British Cities**

Five week study abroad course focusing on approaches to wildlife conservation in London, Birmingham, Manchester, Liverpool and Edinburgh. Students will learn how managers blend ecology, conservation, and participatory approaches to management to conserve species in a human dominated landscape. Hands on involvement with conservation projects included.

**Credit Hour:** 3-6

**Recommended:** NAT\_R 1060 or NAT\_R 1070, and Management course in SNR

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**F\_W 3600: Introduction to Conservation Biology**

Introduction to principles of conservation biology. Application of ecological concepts and conservation biology principles to management of endangered species, biodiversity and threatened ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 3660: Mammalogy**

(same as BIO\_SC 3660). Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States.

**Credit Hours:** 4

**Recommended:** junior standing

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**F\_W 3700: Animal Behavior**

Behavior allows animals to react promptly to environmental changes, and is how they interact with others and their surroundings. Because behaving is central to an animal's life, knowing about behavior is fundamental to understanding animal ecology and to conservation efforts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** F\_W 1100

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**F\_W 3900: Ecology of Fishes**

This course considers fishes' interactions with their environments in relation to survival, growth and population processes. The course is for mid- to upper-level undergraduates interested in fisheries science,

management and fish conservation. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** STAT 2530 or STAT 1400; BIO\_SC 1500 or F\_W 1100; sophomore standing

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**F\_W 4002: Topics in Fisheries and Wildlife-Biological/Physical/Mathematics**

Organized study of selected topics intended primarily for senior-level students in Fisheries and Wildlife Sciences.

**Credit Hour:** 1-99

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**F\_W 4100: Limnology**

(same as BIO\_SC 4100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.). Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Recommended:** senior standing or BIO\_SC 3650

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**F\_W 4200: Urban Wildlife Conservation**

Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4200W: Urban Wildlife Conservation - Writing Intensive**

Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Recommended:** One 3000-level or above professional Fisheries and Wildlife management or techniques course

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**F\_W 4300: Fisheries Management**

Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650 and STAT 2530

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**F\_W 4400: Techniques for Fisheries Management and Conservation**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110 and F\_W 2700 or F\_W 4300

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**F\_W 4400W: Techniques for Fisheries Management and Conservation - Writing Intensive**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110 and F\_W 2700 or F\_W 4300

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**F\_W 4500: Animal Population Dynamics and Management**

Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species.

**Credit Hours:** 3

**Prerequisites:** MATH 1400, STAT and BIO\_SC 3650

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**F\_W 4600: Ecosystem Management**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650

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**F\_W 4600W: Ecosystem Management - Writing Intensive**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650

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**F\_W 4650: Wildlife Management Planning**

Students will be exposed to various wildlife planning tools. Student teams will develop wildlife management plans with strategic and operational components for current conservation issues in Missouri. Plans will be critiqued by peers and outside professionals. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and senior standing

**Recommended:** F\_W 2900

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**F\_W 4700: Wildlife Research and Management Evaluation Methods**

Techniques for conducting wildlife research and evaluating wildlife management practices.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 or F\_W 2900 or STAT

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**F\_W 4700W: Wildlife Research and Management Evaluation Methods - Writing Intensive**

Techniques for conducting wildlife research and evaluating wildlife management practices.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650 or F\_W 2900 or STAT

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**F\_W 4800: Environmental Toxicology**

Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and F\_W 3400

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**F\_W 4810: Wildlife Disease Ecology**

An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4880: Waterfowl Ecology and Management**

Ecology and management of North American waterfowl and their habitats. Laboratory exercises focus on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 4910: Senior Seminar in Captive Wild Animal Management**

(same as AN\_SCI 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012; junior or senior standing

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**F\_W 4940: Fisheries and Wildlife Internship**

Supervised professional experience with an approval public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Fisheries and Wildlife majors only

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**F\_W 4950: Undergraduate Research in Fisheries and Wildlife**

Individually directed field or laboratory research for students under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 4960: Special Readings in Fisheries and Wildlife**

Critical review of current literature and research in fisheries and wildlife sciences. Project must be arranged by student and faculty supervisor prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** supervising faculty member's consent required

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**F\_W 7002: Graduate Topics in Fisheries and Wildlife**

Organized study of selected topics intended primarily for graduate students in Fisheries and Wildlife Sciences. Graded on A-F basis only.

**Credit Hour:** 1-99

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**F\_W 7100: Limnology**

(same as BIO\_SC 7100). (lecture/lab: 4 hrs.; lecture only: 3 hrs.) Ecology of inland waters with emphasis on productivity.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 3650

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**F\_W 7200: Urban Wildlife Conservation**

Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Corequisites:** BIO SC 3650 or instructor's consent

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**F\_W 7220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Prerequisites:** One 3000-level or above professional management or techniques course or instructor consent

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**F\_W 7300: Fisheries Management**

Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and STAT 2530

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**F\_W 7400: Techniques for Fisheries Management and Conservation**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110 and F\_W 2700 or F\_W 4300

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**F\_W 7500: Animal Population Dynamics and Management**

Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1400, BIO\_SC 3650, Statistics

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**F\_W 7600: Ecosystem Management**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates

ecological, social-economic, and institutional factors that influence natural resource management agencies. Graded on A-F basis only.

**Credit Hours:** 4

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**F\_W 7700: Wildlife Research and Management Techniques**

Research and Management methods for wildlife populations and habitats.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 and STAT 2530 or NAT\_R 3110. One-week pre-semester field session required

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**F\_W 7800: Environmental Toxicology**

Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and F\_W 3400 or instructor's consent

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**F\_W 7810: Wildlife Disease Ecology**

An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_W 7880: Waterfowl Ecology and Management**

Ecology and Management of North American waterfowl and their habitats. Laboratory exercises focuses on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 8001: Topics in Fisheries and Wildlife**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_W 8050: Non-Thesis Research in Fisheries and Wildlife**

Independent research not leading to a thesis.

**Credit Hour:** 1-99

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**F\_W 8085: Graduate Problems in Fisheries and Wildlife**

Individualized problems studies to supplement regularly organized graduate courses in Fisheries and Wildlife.

**Credit Hour:** 1-5

**Prerequisites:** consent of supervising faculty member

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**F\_W 8087: Masters Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

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**F\_W 8090: Masters Thesis Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**F\_W 8300: Professional Development and Communications**

Intended to foster professional growth and development of graduate students. The course will present a rigorous introduction to professionalism, ethics, career development, and professional communications skills and techniques. Graded on A-F basis only.

**Credit Hour:** 1-3

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**F\_W 8440: Fish Ecology**

Advanced study of the interactions between fish and their environment. Topics include behavioral, physiological, population and community ecology of fishes, with emphasis on development and application of ecological theory in fishery management.

**Credit Hours:** 3

**Prerequisites:** F\_W 2700, F\_W 4100, BIO\_SC 3650 or equivalent

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**F\_W 8450: Advanced Limnology**

Physical, chemical and biological processes of lakes and streams emphasizing biological production, water quality and modern problems. Field, laboratory techniques in limnology research.

**Credit Hours:** 3

**Prerequisites:** F\_W 4100, BIO\_SC 3650, BIO\_SC 3510 or equivalent

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**F\_W 8460: Wetland Ecology**

A survey of the wetlands of North America; emphasis on nutrient dynamics, habitat structure, management, legislation and regulations, and man's impacts.

**Credit Hours:** 3

**Prerequisites:** F\_W 4100, BIO\_SC 3650 and instructor's consent

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**F\_W 8470: Fish Bioenergetics: Concepts and Applications**

Key concepts of fish bioenergetics are treated by readings, discussions of articles and lectures by the instructor. Concepts are applied through modeling. Novel applications, shortcomings and benefits of bioenergetics models are treated. The course applies to graduate students seeking careers in fisheries management, aquatic ecology, fish conservation and aquaculture. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**F\_W 8510: Ecology, Conservation, and Environmental Justice**

The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only.

Prerequisites: one undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**F\_W 8520: Stream Ecology**

Ecological principles applied to flowing waters. Emphasis on ecological processes within algal, invertebrate and fish communities. The influence of geomorphic processes, hydrologic principles and physical-chemical factors on the biota.

**Credit Hours:** 3

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**F\_W 8530: Quantitative Fish and Wildlife Assessment**

Methods to assess space use patterns, animal abundance and population status are drawn into quantitative framework for making inferences to wild populations. Practical application and limitations of techniques are emphasized through analysis and interpretation of field data.

**Credit Hours:** 4

**Prerequisites:** NAT\_R 3110 or equivalent

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**F\_W 8540: Wildlife Nutritional Ecology**

A comprehensive and comparative treatment of vertebrates interact with their environment to satisfy nutrient and energy requirements. Emphasis on nutrient requirements, food processing, bioenergetics and foraging strategies.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or instructor's consent

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**F\_W 8550: Advanced Waterfowl Ecology**

Advance studies of waterfowl ecology. Emphasis on mating systems, foraging ecology, energetics, and post-breeding and wintering ecology.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600, F\_W 3800 and BIO\_SC 3650 or instructor's consent

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**F\_W 8620: Vertebrate Behavioral Ecology**

In-depth study of the behavioral adaptations of vertebrates. Topics include reproductive strategies, mate selection, parental care, predator avoidance, habitat selection, foraging strategies and spacing patterns.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4640 and BIO\_SC 3650 or equivalents

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**F\_W 9087: PhD Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

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**F\_W 9090: Ph. D. Dissertation Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Food Science (F\_S)

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### **F\_S 1010: Introduction to Viticulture and Enology**

This course will give a general overview of growing grapes (viticulture) and winemaking (enology) with an emphasis on Missouri wines and wineries. This course is the first course in a sequence of courses in the viticulture and enology track of the food science degree program.

**Credit Hour:** 1

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### **F\_S 1030: Food Science and Nutrition**

Basic principles of science and technology as applied to the problem of providing safe, nutritious, and desirable food for man.

**Credit Hours:** 3

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### **F\_S 2114: Live Animal and Meat Evaluation**

(same as AN\_SCI 2114). The composition and quality meat produced from food animals is the driving component of livestock economic value. This course will teach the principles and procedures involved in evaluation, grading, selection, and economic value of meat animals and poultry and the carcasses they produce. This course is an excellent introduction and (or) prerequisite for all livestock production courses and will provide a baseline of information for students interested in livestock or meat judging.

**Credit Hours:** 3

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### **F\_S 2131: Dairy Products Evaluation**

(same as AN\_SCI 2131). Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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### **F\_S 2172: Elements of Food Microbiology**

Introductory microbiology course stressing basic principles as related to foods.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing. Restricted to Food Science Students during Early Registration

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### **F\_S 2195: Grapes and Wines of the World**

(same as PLNT\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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### **F\_S 2199: Seminar in Professional Development**

Readings and discussion related to professional development for the industry.

**Credit Hour:** 1

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### **F\_S 3190: Study Abroad: International Meat, Dairy and Enology**

(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand

(destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Prerequisites: instructor's consent

**Credit Hours:** 3

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### **F\_S 3190H: Study Abroad: International Meat, Dairy and Enology - Honors**

(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Enrollment is limited to Honors eligible students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **F\_S 3210: Kitchen Chemistry**

This course is targeted at current Food Science, Hospitality Management, Nutrition or Biochemistry students who wish to study the application of scientific principles to the practice of cooking. This on-line summer class assumes students have access to a working kitchen. Video cooking projects are submitted weekly. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or higher

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### **F\_S 3214: Principles of Meat Science**

(same as AN\_SCI 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biological Sciences

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### **F\_S 3231: Principles of Dairy Foods Science**

(same as AN\_SCI 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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### **F\_S 3240: Principles of Viticulture I**

(same as PLNT\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only. Prerequisites: F\_S 1010 and one of the following: F\_S 2195 or PLNT\_S 2195 or PLNT\_S 2100 or SOIL 2100 or PLNT\_S 2110 or PLNT\_S 2125.

**Credit Hours:** 4

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### **F\_S 3250: Physical Principles for Food Processing**

Introduction to basic engineering concepts used to process raw materials: Energy balance, Pipe flow, Viscosity, Heat exchange, Refrigeration.

**Credit Hours:** 3

**Recommended:** one calculus course and one physics course

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**F\_S 3385: Problems in Food Science**

Supervised study in a specialized phase of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4199: Food Industry Senior Seminar**

The course explores the structure and the various branches of the food industry. Emphasis is placed on industry trends and the manufacture of specific selected food products and their ingredients. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** F\_S 1030 or equivalent, F\_S 2199 or equivalent; junior or senior standing

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**F\_S 4301: Topics in Food Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4310: Food Chemistry and Analysis**

(cross-leveled with F\_S 7310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Recommended:** 5 hours Chemistry or Biochemistry

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**F\_S 4311: Investigation of Food Properties**

(cross-leveled with F\_S 7311). Study of the chemical and physical properties of foods and the interaction of food components.

**Credit Hours:** 3

**Recommended:** F\_S 4310 or equivalent, or instructor's consent

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**F\_S 4315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 7315)The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4315W: Food Chemistry and Analysis Laboratory - Writing Intensive**

(cross-leveled with F\_S 7315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4330: Principles of Food Processing**

(same as AG\_S\_M 4330; cross-leveled with F\_S 7330, AG\_S\_M 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy, material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 and AG\_S\_M 1040 or PHYSICS 1210

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**F\_S 4331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 7331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** F\_S 3231 or equivalent

**Recommended:** one Chemistry course

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**F\_S 4340: Principles of Viticulture II**

(same as PLNT\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**F\_S 4344: Processing Muscle Foods**

(same as AN\_SCI 4344; cross-leveled with F\_S 7344, AN\_SCI 7344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Recommended:** One Chemistry course

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**F\_S 4345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1020 or BIO\_SC 1030

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**F\_S 4354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 4354; F\_S 7354, AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or F\_S 3214 or instructor's consent

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**F\_S 4370: Food Microbiology**

(cross-leveled with F\_S 7370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172

**Recommended:** one Biochemistry course

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**F\_S 4375: Food Microbiology Laboratory**

(cross-leveled with F\_S 7375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites or Corequisites:** F\_S 4370

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**F\_S 4380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 7380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 4385: Problems in Food Science**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4390: Optimization and Management of Food and Agricultural Systems**

(same as AG\_S\_M 4390, HSP\_MGMT 4390; cross-leveled with F\_S 7390; AG\_S\_M 7390, HSP\_MGMT 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**F\_S 4440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 7440). The theoretical and practical basics needed by enologists/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or concurrent, or instructors consent

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**F\_S 4441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 7441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 4440

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or instructor's consent

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**F\_S 4940: Field Training**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**F\_S 4941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** one Food Science course

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**F\_S 4970: Food Product Development**

(cross-leveled with F\_S 7970). Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4970W: Food Product Development - Writing Intensive**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4980: Food Quality Assurance**

(cross-leveled with F\_S 7360). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or instructor's consent

**Recommended:** 9 credit hours of food science

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**F\_S 7310: Food Chemistry and Analysis**

(cross-leveled with F\_S 4310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Prerequisites:** 5 hours Chemistry or Biochemistry

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**F\_S 7311: Investigation of Food Properties**

(cross-leveled with F\_S 4311). Study of the chemical and physical properties of foods and the interaction of food components. Lecture.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or F\_S 7310 or equivalent, or instructor's consent

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**F\_S 7315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 4315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or concurrent enrollment

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**F\_S 7330: Principles of Food Processing**

(same as AG\_S\_M 7330; cross-leveled with F\_S 4330, AG\_S\_M 4330). Basic principles of food processing, with emphasis on blanching, pasteurization, commercial sterilization, refrigeration, freezing, concentration, dehydration and packing. Impacts of processing on product quality are evaluated.

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**Credit Hours:** 4

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**F\_S 7331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 4331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course and F\_S 3231 or equivalent

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**F\_S 7344: Processing Muscle Foods**

(same as AN\_SCI 7344; cross-leveled with F\_S 4344, AN\_SCI 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

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**F\_S 7345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_S 7354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 7354; cross-leveled with F\_S 4354, AN\_SCI 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent or F\_S 3214 or instructor's consent

---

**F\_S 7360: Food Quality Assurance**

(cross-leveled with F\_S 4980). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

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**F\_S 7370: Food Microbiology**

(cross-leveled with F\_S 4370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172 and one Biochemistry course or concurrent enrollment

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**F\_S 7375: Food Microbiology Laboratory**

(cross-leveled with F\_S 4375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites:** F\_S 4370 or concurrent enrollment

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**F\_S 7380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 4380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 7390: Optimization and Management of Food and Agriculture Systems**

(same as AG\_S\_M 7390, HSP\_MGMT 7390; cross-leveled with F\_S 4390, AG\_S\_M 4390, HSP\_MGMT 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_S 7440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 4440). The theoretical and practical basics needed by enologist/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 5 hours inorganic chemistry and organic chemistry or concurrent, or instructor's consent

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**F\_S 7441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 4441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 5 credit hours inorganic chemistry and organic chemistry and F\_S 4440 or instructor's consent

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**F\_S 7941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** One Food Science course and instructor's consent

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**F\_S 7970: Food Product Development**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000, and instructor's consent

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**F\_S 8050: Non-Thesis Research in Food Science**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students Only

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**F\_S 8085: Problems in Food Science**

Individual studies include a minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students only

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**F\_S 8087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications. Prerequisites: Masters standing

**Credit Hour:** 1

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**F\_S 8090: Research in Food Science**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students Only

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**F\_S 8253: Strategic Human Resource Management in Hospitality**

This course is designed to help graduate students pursuing a managerial position in the Hospitality Industry to understand the value and the competitive advantage that strategic human resource management provide.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 4253 or equivalent and instructors consent

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**F\_S 8263: Service Operations Management: Revenue Management**

This course offers an opportunity for students to learn the theory, concepts, and knowledge applied in service operations management. Students will find them useful in trying to cope with the dilemmas faced by operating managers in the hospitality industry. Especially, the course focuses on revenue management.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3153 or instructor's consent

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**F\_S 8273: Advanced Hospitality Marketing**

This course provides students with an advanced-level view of marketing strategies in the hospitality. The course encompasses analytical readings on segmentation and positioning, relationship marketing, marketing-mix development, and other strategic approaches applicable to hospitality industries.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 4273 or equivalent and instructors consent

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**F\_S 8401: Topics in Food Science**

Specialized topics in the area of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_S 8402: Research Methods in Food Science**

(same as BIOL\_EN 8402). Introduction to research. Defining research problems, developing hypotheses, searching scientific literature, designing experiments, presenting data, writing scientific papers and theses, making oral presentations.

**Credit Hours:** 2

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**F\_S 8404: Advanced Food Microbiology and Biotechnology**

Covers basic principles in biotechnology and applied food microbiology, including current topics of interest in food biotechnology. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8405: Advanced Microbiology of Foods**

Principles of microbial physiology, taxonomy, analytical methods applied to study of microorganisms added to foods and those causing food spoilage or food-borne illness. Roles of microorganisms in manufacture/distribution of foods.

**Credit Hours:** 3

**Prerequisites:** F\_S 4370 or equivalent

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**F\_S 8410: Food Chemistry II**

Study of chemical content of food, emphasizing aspects that exist uniquely in food.

**Credit Hours:** 4

**Prerequisites:** F\_S 4310 or equivalent

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**F\_S 8414: Meat Quality**

(same as AN\_SCI 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 or equivalent

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**F\_S 8419: Field Training in Food Science**

Internships and/or field experiences under supervision.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_S 8424: Meat Investigations**

(same as AN\_SCI 8424). Discussion of literature, special reports, assigned readings, techniques, interpretation of results.

**Credit Hours:** 3

**Prerequisites:** F\_S 4344 and F\_S 4310 or equivalent

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**F\_S 8440: Functional Foods and Nutraceuticals**

Principles and challenges involved in developing foods with health benefits beyond basic nutrition; efficacy, safety, regulatory and marketing aspects of functional foods and nutraceutical; current controversies



and evidence of therapeutic properties of functional foods and Dietary supplements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 3630 or equivalent and F\_S 4310 or equivalent, or instructor's consent

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#### **F\_S 8460: Food Biopolymers**

Study of physical, chemical, and functional properties of food biopolymers and their applications in food and other industries. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Organic chemistry and food chemistry

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#### **F\_S 9085: Problems in Food Science**

Individual studies includes minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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#### **F\_S 9087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications. Prerequisites: PhD standing

**Credit Hour:** 1

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#### **F\_S 9090: Research in Foods Science**

Original investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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#### **F\_S 9402: Advanced Research Methods in Food and Hospitality Systems**

This course provides doctoral students with introduction and review of research methods available for use in the study of food science, hospitality management and agricultural system management. Hence, the emphasis of this course is on empirical studies in the field, and will examine research conducted by scholars in the academic area. This course assists as baseline preparation for graduate students' continuing work in the graduate program. Specifically, the course provides students with knowledge and research experience in regard to 1) research fundamentals and backgrounds, 2) types of research, and 3) data analysis.

**Credit Hours:** 3

**Prerequisites:** Introductory research method course or statistics course; instructor's consent required

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#### **F\_S 9460: Advanced Food Quality Assurance**

Analyzes concepts of integrating laws, TQM and statistical process control into HACCP and ISO systems required for the quality of the global food industry.

**Credit Hours:** 3

**Prerequisites:** F\_S 4980 or equivalent and one Statistics course

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#### **F\_S 9470: Advanced Food Technology**

To understand the physical and chemical changes that occur during the processing and storage of food; study the quality and safety issues of foods and learn traditional and recent advances in food science and technology.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310, or equivalent or instructor's consent

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## **Forestry (FOREST)**

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#### **FOREST 1102: Topics in Forestry - Biological/Physical/Mathematical**

Organized study of selected topics in forestry. Intended for undergraduate students.

**Credit Hour:** 1-3

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#### **FOREST 1104: Topics in Forestry - Social Science**

Organized study of selected topics in forestry. Intended for undergraduate students.

**Credit Hour:** 1-3

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#### **FOREST 2151: Dendrology**

An introduction to the biology of trees, emphasizing identification in the field, taxonomy, ecology, geographic distribution and economic significance of forest species.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or PLNT\_S 2120 and PLNT\_S 3130

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#### **FOREST 2540: Forest Hydrology Field Studies**

Introduction to forest hydrology, watershed management, water quantity and quality, climate and biophysical relationships.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2541, FOREST 2542, FOREST 2543, FOREST 2544 and FOREST 2545

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#### **FOREST 2541: Forest Utilization**

Field studies of logging and milling of timber.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2542, FOREST 2543, FOREST 2544 and FOREST 2545

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#### **FOREST 2542: Forest Measurement and Inventory**

Field measurement of standing trees including diameter, height and age. Estimation of forest timber resources using a variety of sampling schemes and techniques. Introduction to Arcview and growth models.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2543, FOREST 2544 and FOREST 2545

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#### **FOREST 2543: Forest Ecology Field Studies**

Field studies of vegetation, soils, habitats and ecological units.

Application of ecological principles of natural resource management and

understanding of natural and managed forested communities with an emphasis on southeastern Missouri.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2544 and FOREST 2545

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**FOREST 2544: Introduction to Silviculture and Management**

Management objectives and stand prescriptions, regeneration and intermediate silvicultural treatments, management on private and federal forest lands, tree evaluation and timber marking.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2545

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**FOREST 2545: Forest Management Planning**

Preparation and presentation of a written forest management plan using material and data developed in prerequisite courses.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2544 concurrently

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**FOREST 3201: Topics in Forestry**

Organized study of selected topics. Intended primarily for undergraduate Forestry students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 3207: Forest Fire Control and Use**

Fundamentals of all phases of fire protection. Objectives and techniques in use of fire.

**Credit Hours:** 2

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**FOREST 3212: Forest Health and Protection**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3212W: Forest Health and Protection - Writing Intensive**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3217: Fire and Society**

A study of the relationship between society (humans) and fire. What kind of role does fire play in day-to-day life? How has fire influenced our behavior since Day 1? How do we view fire today?

**Credit Hours:** 2

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**FOREST 3240: Wood Technology**

Structure and identification of commercial woods. Relation of growth to physical and chemical properties of wood.

**Credit Hours:** 3

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**FOREST 3290: Urban Forestry**

The culture and management of trees in urban areas, including ownership patterns, species composition, growth environment, amenities provided and evaluation. One-day field trip required.

**Credit Hours:** 2

**Prerequisites:** FOREST 2151 or PLNT\_S 2210

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**FOREST 3300: Problems in Forestry**

Problems in Forestry

**Credit Hour:** 1-99

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**FOREST 3350: Special Readings in Forestry**

Critical review of current literature and research in forestry, fisheries and wildlife, and methods of presenting research results.

**Credit Hour:** 1-99

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**FOREST 4301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division students. Subjects and credit may vary from semester to semester.

**Credit Hours:** 3

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**FOREST 4320: Forest Ecology**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** Senior standing only. Recommended FOREST 2151

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**FOREST 4320W: Forest Ecology - Writing Intensive**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** Senior standing only. Recommended FOREST 2151

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**FOREST 4330: Practice of Silviculture**

Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 3

**Prerequisites:** FOREST 4320; Senior standing only

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**FOREST 4340: Tree Physiology**

Lectures on physical and chemical phenomena involved in the functions and activities of trees.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 2110, BIO\_SC 1200, CHEM 1100; or instructor's consent

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**FOREST 4350: Forest Economics**

Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 1042 or AG\_EC 2070

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**FOREST 4360: Photogrammetry, Inventory and Models**

Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

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**FOREST 4365: Logging Systems: Operations and Analyses**

A systems approach to timber harvesting from acquisition through engineering to log transport. Regional aspects and influences will be considered.

**Credit Hours:** 3

**Prerequisites:** FOREST 2540 and FOREST 2541

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**FOREST 4370: Wildland Fire Management**

Management, administration, and organization of wildland and prescribed fires and other natural and man-made disasters. Emphasis placed on organizational arrangements of incidents rather than on either strategy or tactics.

**Credit Hours:** 3

**Prerequisites:** FOREST 3207

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**FOREST 4375: Forest Stand Dynamics**

Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

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**FOREST 4380: Forest Resource Management**

Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350; Senior Standing only

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**FOREST 4385: Agroforestry I: Theory, Practice and Adoption**

Understand biophysical, ecological, social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**FOREST 4387: Agroforestry Economics and Policy**

This course focuses on economic principles applied to the adoption and management of agroforestry practices at both the micro and macro scale. This includes cost and benefits analysis of ecosystem services and marketing of goods and services from agroforestry. More specifically, this course emphasizes both market and nonmarket valuation of managed tree and crop/livestock interactions; investment alternatives related to economics and natural resources; and decision making with relation to financial principles, environmental principles, and social principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385, AG\_EC 1041 or permission of instructor

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**FOREST 4390: Watershed Management and Water Quality**

(cross-leveled with FOREST 7390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; Senior standing only

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**FOREST 4940: Forestry Internship**

Supervised professional experience with an approved public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent required

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**FOREST 4950: Forestry Undergraduate Research**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing, STAT 2530

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**FOREST 4960: Special Readings in Forestry**

Individualized study on particular topic in forestry. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing required

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**FOREST 4994: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent Required

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**FOREST 4995: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FOREST 7301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division and graduate students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 7320: Forest Ecology**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** FOREST 2151 or BIO\_SC 3210 or instructor's consent

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**FOREST 7330: Practice of Silviculture**

Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 3

**Prerequisites:** FOREST 4320

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**FOREST 7340: Tree Physiology**

Lectures on physical and chemical phenomena involved in the functions and activities of trees.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 2110; BIO\_SC 1200; CHEM 1100; or instructor's consent

---

**FOREST 7350: Forest Economics**

Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** Mathematics requirement completed; AG\_EC 1041, or AG\_EC 3080

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**FOREST 7360: Photogrammetry, Inventory and Models**

Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

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**FOREST 7365: Logging Systems: Operations and Analysis**

A systems approach to timber harvesting from acquisition through engineering to log transport. Regional aspects and influences will be considered.

**Credit Hours:** 3

**Prerequisites:** FOREST 2543 and FOREST 2544

---

**FOREST 7370: Wildland Fire Management**

Management, administration, and organization of wildland and prescribed fires and other natural and man-made disasters. Emphasis placed on organizational arrangements of incidents rather than on either strategy or tactics.

**Credit Hours:** 3

**Prerequisites:** FOREST 3207 or equivalent

---

**FOREST 7375: Forest Stand Dynamics**

Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural

systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

---

**FOREST 7380: Forest Resource Management**

Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350

---

**FOREST 7385: Agroforestry I: Theory, Practice and Adoption**

Understand biophysical, ecological social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

---

**FOREST 7390: Watershed Management and Water Quality**

(cross-leveled with FOREST 4390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or instructor's consent

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**FOREST 8050: Research in Forestry**

Original research not leading to preparation of dissertation.

**Credit Hour:** 1-99

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**FOREST 8090: Masters Thesis Research in Forestry**

Original investigation for presentation in a M.S. thesis. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**FOREST 8385: Ecological Principles of Agroforestry**

The course prepares students to develop an understanding of the complexity of agroforestry. Students will critically analyze classical and contemporary ecological theories and apply them in designing agroforestry practices to solve complex production and environmental issues. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**FOREST 8390: Physical Hydrology**

Students will obtain an understanding of hydrologic processes in terms of the occurrence, distribution and movement of water spanning the atmosphere and lithosphere. Students will have an opportunity to develop an understanding of physical processes governing mass and energy flux in wildland and anthropogenic systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**FOREST 8401: Topics in Forestry**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FOREST 8430: Applied Silviculture**

Ecological and economic factors affecting application of silviculture in each of eighteen forest regions in United States.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

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**FOREST 8450: Forest Soils**

Physical, chemical and biological properties of forest soils in relation to tree growth.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

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**FOREST 8460: Advanced Forest Ecology**

Lecture/discussion based course emphasizing contemporary and classic ecological studies and concepts in the context of current forest ecology issues and research. Prerequisites: undergraduate ecology course

**Credit Hours:** 3

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**FOREST 8490: Advanced Forest Management**

Modern quantitative methods to facilitate decision-making in harvest scheduling and regulation, land use allocation, and production planning in natural resource management.

**Credit Hours:** 3

**Prerequisites:** FOREST 4380

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**FOREST 8515: Advanced Forest Biometrics**

An introduction to the topics and philosophy of ecological modeling. The course will guide students through the process of developing a conceptual model, formalizing the model, formulating, parameterizing, and running the model as well as analyzing the results.

**Credit Hours:** 3

**Prerequisites:** STAT 7070 or instructor's consent

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**FOREST 8520: Social Forestry**

Issues with using forestry as an international development tool; planning, implementing and evaluating farm and community forestry projects.

**Credit Hours:** 3

**Prerequisites:** FOREST 4350, or AG\_EC 3270, or equivalent and instructor's consent

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**FOREST 8530: Ecosystem Management: The Human Dimension**

Overview of cultural, social, political and economic dimensions of natural resource problems and issues from an ecologically grounded management perspective.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4353 or equivalent

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**FOREST 8540: Tree Growth-Quality Relationships**

Response of tree growth (wood formation) to such environmental influences fertilization, moisture, nutrient supply, wounding pruning, etc.

**Credit Hours:** 3

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**FOREST 8620: Plant-Water Relations**

Absorption, translocation, utilization and loss of water by plants . Biophysics of water movement in the soil-plant-atmosphere continuum. Effects of water deficits on physiological processes.

**Credit Hours:** 3

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**FOREST 8625: Plant-Water Relations Laboratory**

Introduction to techniques and instrumentation used in studies of plant-water relations.

**Credit Hours:** 2

**Corequisites:** FOREST 8620

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**FOREST 9087: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs. Graded on S/U basis only.

**Credit Hour:** 1

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**FOREST 9090: Dissertation Research in Forestry**

Original investigation for presentation in a doctoral dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**FOREST 9410: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs.

**Credit Hour:** 1

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## French (FRENCH)

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**FRENCH 1100: Elementary French I**

An introductory course for students who wish to begin their study of French. It teaches the four skills--listening, speaking, reading, and writing. The class meets four days a week and one day in the lab. Classtime is used to practice the structures and vocabulary.

**Credit Hours:** 4

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**FRENCH 1100H: Elementary French I - Honors**

This course designed for Honors students with 2-3 years of high school French focuses on the four skills, speaking, listening, reading and writing, and offers enriched cultural opportunities in and out of the classroom, such as movies, guest lectures, art exhibits, and plays. Students practice those skills, using authentic materials in real-life situations. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 2 years high school French; Honors eligibility required

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**FRENCH 1200: Elementary French II**

The second course of the beginning language sequence is the continuation of FRENCH 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course. NO credit for both FRENCH 1200 and FRENCH 1250.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in FRENCH 1100 or equivalent

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**FRENCH 1250: Accelerated Beginning French**

Course is designed for students who have taken more than two years of High School French. It offers a reinforcement of the beginning concepts of the French language and the many cultures it encompasses. Course allows students to further develop all language skills. NO credit for both FRENCH 1200 and FRENCH 1250.

**Credit Hours:** 5

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**FRENCH 2001: Undergraduate Topics in French-General**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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**FRENCH 2004: Undergraduate Topics in French-Social Science**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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**FRENCH 2005: Undergraduate Topics in French-Humanities/Fine Arts**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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**FRENCH 2005H: Undergraduate Topics in French-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better. Honors eligibility required

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**FRENCH 2100: Elementary French III**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in FRENCH 1200 or FRENCH 1250, or their equivalent courses

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**FRENCH 2100H: Elementary French III - Honors**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in FRENCH 1200 or FRENCH 1250, or their equivalent courses. Honors eligibility required

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**FRENCH 2160: Intermediate French Composition and Conversation**

A course designed to develop the ability to speak, read, and write in French via the reading of French short stories and/or a short novel. Grammar review.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2100

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**FRENCH 2310: French Civilization**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 2310W: French Civilization - Writing Intensive**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 2320: French Literature and Thought in English Translation I**

This course examines how the masterworks of French literature, from the Middle Ages to the eighteenth century, have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**FRENCH 2330: French Literature in Translation II**

This course examines how the masterworks of French literature of the nineteenth and twentieth centuries have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**FRENCH 2350: New World Francophone Literature in Translation**

A survey of literature written by Caribbean writers of French expression. Writers include M. Conde, P. Chamoiseau, A. Césaire, E. Glissant, S. Bart-Schwartz, R. Depestre and G. Etienne.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FRENCH 2370: French Women Writers (in translation)**

Survey of texts and contributions of French women writers from the medieval period to the 20th century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 3001: Topics in French-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3005: Topics in French-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. Prerequisites: sophomore standing

**Credit Hour:** 1-3

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**FRENCH 3005H: Topics in French-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition. Honors eligibility required

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**FRENCH 3160: Advanced French Composition and Conversation I**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3180: Les Fondations de la Civilisation Francaise**

Overview of French civilization from its origins to French Revolution. Studies will examine key cultural objects from art, literature, and popular culture as well as political and historical movements that have shaped development of French civilization. Ideal for students interested in engaging with issues, debates, and problems that helped to define the nascent French state.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3280: Commercial French**

Composition and Conversation course based on materials related to the French business world. Acquisition of business-related vocabulary. Introduction to French business operations and correspondence.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3410: Introduction to Literary Analysis**

Will acquaint students with vocabulary required for analysis of literary texts. Along with the traditional French method of poetry explication, students will learn to analyze the major literary genres (poetry, theatre, prose).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**FRENCH 3420: Introduction to French Literature I**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3420W: Introduction to French Literature I - Writing Intensive**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3430: Introduction to French Literature II**

Study of selected masterpieces of French literature of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3430W: Introduction to French Literature II - Writing Intensive**

Study of selected masterpieces of French literature of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3440: Francophone Literature of North America**

A survey course of Francophone literature of New France, Louisiana territory and the French West Indies from its beginnings in the seventeenth century to the late twentieth century. Selected novels, poems and plays will be studied in their historical and social context.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, cultural and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 4004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** junior standing, departmental consent for repetition

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**FRENCH 4070: Intensive Beginning French**

Rapid acquisition of a reading knowledge of French. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FRENCH 4120: Foreign Language Teaching Methodology**

(same as SPAN 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

---

**FRENCH 4130: Stylistics**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4130W: Stylistics - Writing Intensive**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4410: French Medieval Literature**

Survey of representative works from the principal literary genres of the Middle Ages: epic (La Chanson de Roland), courtly romance (Chretien de Troyes), chantefable (Aucassin et Nicolette), short story (lai, fabliau), theatre, and lyric poetry.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4420: French Renaissance**

Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4430: Seventeenth-Century French Literature**

(cross-leveled with FRENCH 7430). Survey of major writers of the seventeenth century. The principal currents of the century as well as the Baroque and the classical movements are discussed. Authors include Corneille, Moliere, Racine, Descartes, Pascal, La Bruyere, La Rochefoucauld, and Madame de Lafayette.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 7440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4450: Nineteenth-Century French Literature**

(cross-leveled with FRENCH 7450). Selected readings from poetry and theatre with an emphasis on the various manifestations of Romanticism throughout the century. Works by Lamartine, Hugo, Vigny, Musset, Gautier, Nerval, Baudelaire, Verlaine, and Mallarme are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4460: Twentieth-Century French Novel**

(cross-leveled with FRENCH 7460). The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century. (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4470: Introduction to the Contemporary French Theatre**

Survey of twentieth-century French drama. Students read plays by Claudel, Giraudoux, Sartre, Anouilh, Beckett, Ionesco, Genet, and others. Strong emphasis is played on class discussions. Written analyses of two plays are assigned, and there is an hourly exam and a final.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4480: Introduction to Modern French Poetry**

Introduction to major currents of French poetry from beginning of the 19th century to the present. Students will write explications of poems, present oral analyses and will be tested on poetic terms and poetic content/styles of various poems and poets.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 7490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4510: African Francophone Literature**

Course introduces contemporary African Literature to students via readings and detailed analysis of literary texts by Francophone African writers.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4710: History of the French Language**

(same as LINGST 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external social, political, and historical factors that have affected the development of French, followed by a diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4720: Structure of Modern French**

(same as LINGST 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social

network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 3420 and FRENCH 3430 and departmental consent

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**FRENCH 4980: Special Themes in French**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4980H: Special Themes in French - Honors**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430. Honors eligibility required

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**FRENCH 4993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 4993H: The Capstone Experience in French - Honors**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**FRENCH 4996: Honors Reading in French**

Directed readings in area of honors thesis.

**Credit Hour:** 1

**Prerequisites:** admission to departmental Honors program

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**FRENCH 7004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**FRENCH 7110: Advanced oral French for Teachers**

Advanced speaking practice primarily for teachers with emphasis on pronunciation, syntactical accuracy and vocabulary expansion. May not

be used toward Arts and Science Major. May be repeated for a maximum of 12 hours credit.

**Credit Hour:** 1-99

**Prerequisites:** FRENCH 3160 or equivalent

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**FRENCH 7120: Foreign Language Teaching Methodology**

(same as SPAN 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

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**FRENCH 7130: Stylistics**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280 and FRENCH 3420 or FRENCH 3430

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**FRENCH 7410: French Medieval Literature**

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7420: French Renaissance**

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7430: Seventeenth-Century French Literature**

(cross-leveled with FRENCH 4430). Survey of major writers of the seventeenth century. The principal currents of the century as well as the Baroque and the classical movements are discussed. Authors include Corneille, Moliere, Racine, Descartes, Pascal, La Bruyere, La Rochefoucauld, and Madame de Lafayette.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 4440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7450: Nineteenth-Century French Literature**

(cross-leveled with FRENCH 4450). Selected readings from poetry and theatre with an emphasis on the various manifestations of Romanticism throughout the century. Works by Lamartine, Hugo, Vigny, Musset, Gautier, Nerval, Baudelaire, Verlaine, and Mallarme are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7460: Twentieth-Century French Novel**

(cross-leveled with FRENCH 4460). The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century. (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7470: Introduction to the Contemporary French Theatre**

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7480: Introduction to Modern French Poetry**

Introduction to major currents of French poetry from beginning of the 19th century to the present. Students will write explications of poems, present oral analyses and will be tested on poetic terms and poetic content/styles of various poems and poets.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 4490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7510: African Francophone Literature**

Course introduces contemporary African Literature to students via readings and detailed analysis of literary texts by Francophone African writers.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7710: History of the French Language**

(same as LINGST 7710). Required of M.A. candidates.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7720: Structure of Modern French**

(same as LINGST 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 7820: Blogging the World: The Web in Cultural Context**

(same as RUSS 7820 and GERMAN 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context. Working in cross-disciplinary teams, students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on

non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold: students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concepts of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

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**FRENCH 7960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**FRENCH 7980: Special Themes in French**

Subject varies according to instructor.

**Credit Hours:** 3

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**FRENCH 7993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 8080: Readings in French**

Independent readings in preparation for MA or MALT comprehensive examination in French. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FRENCH 8085: Problems in French**

Problems in French.

**Credit Hour:** 1-99

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**FRENCH 8087: Seminar in French**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**FRENCH 8090: Research in French**

Leads to preparation of MA or MALT thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**FRENCH 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**FRENCH 8411: Old French**

Old French.

**Credit Hours:** 3

**Recommended:** FRENCH 4710 or FRENCH 7710 and some knowledge of Latin

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**FRENCH 8412: Studies in French Medieval Literature**

Studies in French Medieval Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4410 or FRENCH 7710

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**FRENCH 8416: Studies in the French Renaissance**

Studies in the French Renaissance.

**Credit Hours:** 3

**Recommended:** FRENCH 4420 or FRENCH 7420

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**FRENCH 8417: Studies in Seventeenth-Century French Literature**

Studies in Seventeenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4430 or FRENCH 7430

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**FRENCH 8418: Studies in Eighteenth-Century French Literature**

Studies in Eighteenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4440 or FRENCH 7440

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**FRENCH 8419: Studies in Nineteenth-Century French Literature**

Studies in Nineteenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4450 or FRENCH 7450; or FRENCH 4490 or FRENCH 7490

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**FRENCH 8420: Studies in Twentieth-Century French Literature**

Studies in Twentieth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4460 or FRENCH 7460, FRENCH 4470 or FRENCH 7470 or FRENCH 4480 or FRENCH 7480

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**FRENCH 9080: Readings in French**

Independent readings in preparation for the PhD comprehensive examination in French.

**Credit Hour:** 3-6

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**FRENCH 9090: Research in French**

Leads to preparation of PhD dissertation in French. Graded on S/U basis only.

**Credit Hour:** 1-99

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## General Human Environmental Sciences (GN\_HES)

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### GN\_HES 1100: Introduction to Human Environmental Sciences

Introduction to Human Environmental Sciences

Credit Hour: 1

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## General Studies (G\_STDY)

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### G\_STDY 3301: Topics in General Studies

Experimental and/or interdisciplinary. Subjects and earnable credit may vary from semester to semester.

Credit Hour: 1-99

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### G\_STDY 4940: Internship in General Studies

Internship limited to students pursuing the Bachelor of General Studies degree. Graded on S/U basis only.

Credit Hour: 1-6

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### G\_STDY 4950: Special Project in General Studies

With advisor's approval, student works with a faculty member on a major reading, research, or creative project, usually of interdisciplinary nature.

Credit Hour: 1-6

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### G\_STDY 4960: Readings in General Studies

Independent readings with supervisory faculty member. May be repeated to a maximum of six hours.

Credit Hour: 1-6

Prerequisites: Open only to General Studies majors

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### G\_STDY 4970: Directed Readings in General Studies

Independent readings with supervisory faculty member; this course serves as the student's capstone experience.

Credit Hour: 1-6

Prerequisites: Open only to General Studies majors only

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### G\_STDY 4971: Internship in General Studies

Internship experience which serves as the student's capstone experience. Program advisor must approve internship. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

Credit Hour: 1-6

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## Geography (GEOG)

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### GEOG 1050: Introductory Meteorology

(same as ATM\_SC 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

Credit Hours: 3

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### GEOG 1100: Regions and Nations of the World I

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

Credit Hours: 3

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### GEOG 1100H: Regions and Nations of the World I - Honors

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

Credit Hours: 3

Prerequisites: Honors eligibility required

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### GEOG 1200: Regions and Nations of the World II

Introductory analysis for general education. Regional character, spatial relationships, problems of environment and development of the former Soviet Union, Pacific World, South and East Asia, Africa and Middle East. Organized around basic concepts in the field of geography. May be taken independently of GEOG 1100.

Credit Hours: 3

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### GEOG 1205H: Regions and Nations General Honors

Credit Hours: 3

Prerequisites: Honors eligibility required

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### GEOG 1550: Introduction to the Humanized Earth

Examines human culture as a geographical element; the power of culture and human institutions in human-environmental interaction and the creation of agriculture, folk culture, popular culture, cities, and a broad range of cultural landscapes.

Credit Hours: 3

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### GEOG 1600: Climate Change: Science and Public Policy

This course will explore the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. We will examine the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: freshman and sophomores only

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### GEOG 1800: Digital Earth: Introduction to the Geospatial Technologies

Introduction to technologies used to map a changing world, with an emphasis on digital mapping explorations of human and environmental interactions on Earth. Course includes lab and fieldwork to introduce geographic information data collection and analysis techniques. Graded on A/F basis only. May be repeated for credit.

Credit Hours: 3

**Prerequisites:** Freshman and sophomore standing or instructor's consent

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**GEOG 1840: Global Environmental Change**

Course uses a geographic framework to study patterns and processes related to global environmental change. Topics include environmental reconstruction, water resources, human-environment interactions, glaciers, fire, and climate.

**Credit Hours:** 3

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**GEOG 1900: Our Dynamic Planet in Film**

This course focuses on using documentary films (e.g., Planet Earth) as a medium for studying how global environmental change is impacting all spheres of our dynamic planet. To ensure a more complete understanding of course material, films are supplemented with active lectures and discussions of assigned readings from both periodicals and peer-reviewed literature that emphasize key points illustrated in the films. In doing so, this course synthesizes material from numerous fields of study that fall under the burgeoning umbrella field of global change ecology. This synthetic approach is used to highlight the formidable linkages on Earth between the non-living and living, thus permitting students to gain an appreciation and holistic understanding of how global environmental change is impacting Earth processes responsible for creating both our current landscapes and the remarkable diversity of life that inhabit them.

**Credit Hours:** 3

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**GEOG 2010: Exploring Geography**

We are all explorers. As children, we grew up testing the boundaries of our known worlds and trying to understand what was beyond. Geography gives us the means to formalize this impulse to explore the world around us, both local and distant. It allows us to make sense of the ways in which space and relationships between objects drives much of human, social, and environmental interaction. In this course, we will illustrate some of the principle ways in which Geographers investigate, explain, and map meaning, pushing the boundaries of what we know as individuals and society. Using a combination of discussion and field exercises, students will be asked to engage with a number of critical societal issues that have geographical elements at their core. Examples include the Geography of crime, imagining place, the city of the future, environmental change, terrorism, human trafficking, drones, and sustainability.

**Credit Hour:** 1

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**GEOG 2120: United States and Canada**

Intensive examination of selected areas and distributions. Regional systems, problems and planning.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GEOG 2130: Geography of Missouri**

Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100

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**GEOG 2210: Geography of Europe**

Survey of Europe's lands and peoples; emphasis on historical areal relationships as reflected in Europe's changing economic and political organization.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GEOG 2260: Geography of East Asia**

Cultural, physical and economic geography of China, Japan, and Korea, with emphasis on China. Landscape analysis, determination of regional identities, and study of political forces evident in the development of the contemporary scene are stressed.

**Credit Hours:** 3

**Prerequisites:** GEOG 1200

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**GEOG 2270: Geography of Asia**

(same as S\_A\_ST 2270). An introductory survey of the geography of Asia from India through Southeast Asia to China and Japan, emphasizing factors contributing to cultural similarities and variations, conflicts of interest, and current development.

**Credit Hours:** 3

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**GEOG 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, SOCIOL 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280W, SOCIOL 2280W). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2340: South America**

Physical environment and culture in the regional development of South America.

**Credit Hours:** 3

**Prerequisites:** one course in Geography or instructor's consent

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**GEOG 2450: Themes in the Geography of Africa South of the Sahara**

(same as BL\_STU 2450). Major concepts of African geography in current and historical perspective. Case studies of major African countries.

**Credit Hours:** 3

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**GEOG 2580: Geography of Cemeteries**

Cemeteries have a discernible spatial and temporal pattern providing a foundation for geographical study. Migration, demographics, spatial

analysis and basic mapping skills will be used to investigate cemeteries and their pattern.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only

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**GEOG 2610: Climate, Landforms and Vegetation: Introduction to Physical Geography**

Examination of the interacting natural systems that comprise the Earth's physical environment, including the atmosphere, biosphere, and landforms. Focus on relating fundamental physical, chemical and ecological processes to the global geographic patterns they produce.

**Credit Hours:** 3

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**GEOG 2660: Environmental Geography**

Historical perspectives on the human agency in transforming the earth, with emphasis on international environmental problems. Topics include basic biogeography; environmental impacts of population growth, underdevelopment and overdevelopment; and new approaches to management of global resources.

**Credit Hours:** 3

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**GEOG 2710: Economic Geography**

Geographical location and organization of world's major economic activities. Emphasizes agricultural and industrial patterns, commodity flows, transport networks, geographical principles of market and industrial location, internal spatial organization of cities, land-use models, geographic aspects of economics growth.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 2720: The City**

Study of cities: origin, development, distribution; social, economic, and demographic significance. Consideration of theories of structure, urban hierarchies, and land use planning.

**Credit Hours:** 3

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**GEOG 2904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 2904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 3040: Introduction to Geographic Information Systems GIS**

(same as CV\_ENG 3050). Introduces theory, concepts and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using GIS. Data management, current data models, GIS

applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GEOG 3140: Mexico, Central America, and the Caribbean**

Physical environment and culture in the regional development of Mexico, Central America, and the Caribbean.

**Credit Hours:** 3

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**GEOG 3260: Southeast Asia**

(same as S\_A\_ST 3260). Physical, cultural, historical and regional geography of Southeast Asia, with an introduction to East Asian geography. Emphasizes the problems of tradition and development.

**Credit Hours:** 3

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**GEOG 3270: Geography of the Middle East**

Cultural, physical and historical geography of Middle East, with emphasis on cultural adaptations to environments and conflicts over the resources.

**Credit Hours:** 3

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**GEOG 3280: Geography of South Asia**

(same as S\_A\_ST 3280). Topical and regional analysis of India, Pakistan, Sri Lanka. Historical development of distinctive cultural regions. Relations with neighboring areas. Impact of Westernization on economic activities, settlements, population.

**Credit Hours:** 3

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**GEOG 3290: Geography of Russia and the Newly Independent States of Eurasia**

Geographic analysis of social, economic and political issues confronting Russia and the NIS, including environmental problems, economic interdependence and prospects for regional economic development, population change and migration, inter-ethnic relations and ethno-territorial conflict.

**Credit Hours:** 3

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**GEOG 3385: Special Problems in Geography**

Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GEOG 3450: Geography of Africa**

Major concepts of African geography in current and historical perspective.

**Credit Hours:** 3

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**GEOG 3496: Digital Indigenous Studies**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in

innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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#### **GEOG 3496H: Digital Indigenous Studies - Honors**

(same as PEA\_ST 3496H). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **GEOG 3496W: Digital Indigenous Studies - Writing Intensive**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community

outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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#### **GEOG 3510: Historical Geography of North America**

Analysis of selected geographical patterns and themes in the continent's past. Focus is explicitly geographical, stressing extensive use of maps and recent scholarly work by historical geographers.

**Credit Hours:** 3

**Prerequisites:** junior standing, or instructor's consent

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#### **GEOG 3540: Geographies of Sexualities**

(Same as WGST 3540) This class will explore the relationship of sexuality and space. The class will focus on the ways that sexuality creates particular spaces, and the ways that sexuality and space shape one another in the midst of nation, gender, religion, race, class, and generation.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required

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#### **GEOG 3560: Native American Geographies**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**Credit Hours:** 3

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#### **GEOG 3560W: Native American Geographies - Writing Intensive**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**Credit Hours:** 3

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#### **GEOG 3600: Climates of the World**

(same as ATM\_SC 3600). A study of the world distribution of climates based on "cause and effect" relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** GEOG 1050 or equivalent or graduate standing

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#### **GEOG 3610: Physical Geography of the United States**

Study of natural regions of the United States by integrating topics from landforms, geology, climate, soils, vegetation, resources, and land use.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610

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#### **GEOG 3630: Earth Surface Systems**

Systematic study of landforms geomorphic processes governing them. Provides a foundation for the theoretical, technical, and practical understanding of environmental systems.

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**Credit Hours:** 3

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**GEOG 3740: Geography and Planning**

Emphasis on geographic techniques for gathering and generating environmental information for planners. Principles of land use planning will be applied to selected regions.

**Credit Hour:** 1-3

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**GEOG 3760: Geography of the World's Religions**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3760W: Geography of the World's Religions - Writing Intensive**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3780: World Political Geography: Patterns and Processes**

(same as PEA\_ST 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

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**GEOG 3800: Geography of Travel and Tourism**

This course examines the fundamentals of the geography of tourism and travel in both foreign and domestic contexts. During the past few decades, tourism has been a fast growing industry around the world, although tourism can easily be negatively influenced by terrorism, natural disasters, and economic downturns. During the semester we'll look at several common types of tourism and focus on the positive and negative impacts of tourism upon local cultures, the environment, and economic development. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 3830: Remote Sensing**

Introduction to the principles of remote sensing of the environment. Digital imagery from spacecraft, conventional and high-altitude aerial photography, thermal imaging, and microwave remote sensing.

**Credit Hours:** 3

**Recommended:** GEOG 2840

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**GEOG 3840: Cartography**

Principles of computer-assisted cartography. Automated cartographic display. "Hands on" experience with computer-mapping software and hardware systems. Role of computers in map design. Digital encoding of geographic data.

**Credit Hours:** 3

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**Prerequisites:** GEOG 2840

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**GEOG 3904: Topics in Geography - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated up to 6 hours credit with departmental consent.

**Credit Hour:** 1-12

**Prerequisites:** sophomore standing

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**GEOG 4130: The Geospatial Sciences in National Security**

(Same as CV\_ENG 4175). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior standing or above required

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**GEOG 4390: Special Readings in Geography**

Independent readings selected in consultation with supervisory faculty member. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 4520: Environmental Biophysics**

(same as ATM\_SC 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**GEOG 4550: Selected Themes in Cultural Geography**

Case studies in the patterns and processes of human-environmental interactions. Study of the cultural forces responsible for the continual transformation of the earth's cultural landscapes.

**Credit Hours:** 3

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**GEOG 4560: Resources and Indigenous Peoples**

This is a survey of indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

**Prerequisites:** Junior standing required

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**GEOG 4620: Biogeography: Global Patterns of Life**

Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Recommended:** GEOG 2610

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**GEOG 4630: River and Stream Dynamics**

Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 and GEOG 3630, or instructor's consent

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**GEOG 4710: Spatial Analysis in Geography**

Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data. Math Reasoning Proficiency Course

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**GEOG 4720: Seminar in Geography Education**

Study and research on fundamental themes in geography. Integration of these themes into regional and systematic approaches to the teaching of geography. Enrollment is restricted to students pursuing or considering careers in teaching.

**Credit Hours:** 3

**Prerequisites:** junior standing and instructor's consent

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**GEOG 4740: Location Analysis and Site Selection**

(same as CV\_ENG 4185). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 4770: Migration and Immigration**

Explores demographic, economic, and social issues surrounding immigration and migration. The course focuses on the global labor migration system, immigration to the United States, and internal migration within the US, as well as the linkages between these systems.

**Credit Hours:** 3

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**GEOG 4780: Selected Themes in Political Geography**

Study of basic writing, dominant geographers, case studies, bibliographies and development of research methods.

**Credit Hours:** 3

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**GEOG 4790: Geographic Information Systems for the Social Sciences**

Designed for social science students interested in learning about the tools available in GIS for linking to and analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

**Prerequisites:** juniors and seniors only

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**GEOG 4810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 4385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, or instructor's consent

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**GEOG 4850: Transportation Geography**

(same as CV\_ENG 4155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**GEOG 4860: Advanced Remote Sensing**

Advanced remote sensing to provide digital image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land use/land cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 4904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental Consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** junior standing

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**GEOG 4904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental Consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** junior standing

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**GEOG 4940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 7940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or instructor's permission

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**GEOG 4945: Internship in Applied Geography and Cartography**

Regularized individual work experience with local, regional, state or national agencies, with guidance and readings supplied by faculty coordinator. May repeat to maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent required

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**GEOG 4990: Senior Seminar in Geography**

A seminar in selected themes in Geography. Class will focus on research, writing, presenting, and discussing themes in contemporary geography. Required of all majors prior to graduation.

**Credit Hours:** 3

**Prerequisites:** 5 courses in geography or instructor's consent

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**GEOG 4996H: Honors in Geography**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4996HW: Honors in Geography - Honors/Writing Intensive**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4997H: Honors in Geography**

Special work for Honors candidates in geography.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 7130: The Geospatial Sciences in National Security**

(Same as CV\_ENG 7175). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior standing or above required; instructor's consent

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**GEOG 7520: Meteorology of the Biosphere**

(same as ATM\_SC 7520). Energy balance and mass transfer microenvironment of plants and animals. Effects of weather events on plants and animal production discussed.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 1400 or equivalent; one year of college physics; or instructor's consent

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**GEOG 7550: Selected Themes in Cultural Geography**

Case studies in the patterns and processes of human-environmental interactions. Study of the cultural forces responsible for the continual transformation of the earth's cultural landscapes.

**Credit Hours:** 3

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**GEOG 7560: Resources and Indigenous Peoples**

This is a survey of indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

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**GEOG 7620: Biogeography: Global Patterns of Life**

Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and

vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 or instructor's consent

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**GEOG 7630: River and Stream Dynamics**

Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 and GEOG 3630, or instructor's consent

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**GEOG 7710: Spatial Analysis in Geography**

Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**GEOG 7720: Seminar in Geography Education**

Study and research on fundamental themes in geography. Integration of these themes into regional and systematic approaches to the teaching of geography. Enrollment is restricted to students pursuing or considering careers in teaching.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 7740: Location Analysis and Site Selection**

(Same as CV\_ENG 7185). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 7770: Migration and Immigration**

As fertility and mortality decline to record low levels, immigration and migration have become the primary components of population change. Changes brought on by immigration to a country and the internal redistribution of population via migration pose challenges to governments, economic development, social and cultural relations, and environmental sustainability. This course explores issues surrounding immigration and migration. Beginning with the demographic overview of immigration, it focuses on the challenges faced by immigrant, sending, and receiving nations in the global migration system. The second part of the course focuses on the array of issues surrounding immigration to the United States, including the socio-economic adaptation of immigrants, the economic and cultural impacts of immigration, and illegal immigration. The third part of the course focuses on internal migration within migration within the US, discussing topics such as migration to the Sunbelt, Great Plains depopulation, poverty migration, migration to the suburbs, and migration's impact on community. Linkages between domestic migration and immigration will also be explored.

**Credit Hours:** 3

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**GEOG 7780: Selected Themes in Political Geography**

Study of basic writing, dominant geographers, case studies, bibliographies and development of research methods.

**Credit Hours:** 3

---

**GEOG 7790: Geographic Information Systems for the Social Sciences**

Designed for social science students interested in learning about the tools available in GIS for linking to an analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

---

**GEOG 7810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 7385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**GEOG 7840: Geographic Information Systems I**

Introductory study of theory, concepts and techniques related to basic analysis, creation and processing of geographic and spatial data using Geographic Information Systems (GIS). Independent learning and computer-based laboratory exercises supplement theoretical lectures and discussion.

**Credit Hours:** 3

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**GEOG 7850: Transportation Geography**

(same as CV\_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

---

**GEOG 7860: Advanced Remote Sensing**

Advanced remote sensing to provide digital image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land use/land cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 7904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

---

**GEOG 7940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 4940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 7840 or instructor's consent

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**GEOG 8080: Research in Geography**

Research not leading to thesis. May be repeated to a maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**GEOG 8085: Special Investigations in Geography**

Advanced studies to meet the needs of the individual student. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8090: Research in Geography**

Research leading to a thesis. May be repeated to a maximum of 8 hours. Graded on S/U basis only.

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8100: Seminar in World Regional Geography I**

Problems in the teaching of world regional geography on college level.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GEOG 8120: Seminar in the Geography of Anglo-America**

Readings and research on problems in the geography of the United States and Canada.

**Credit Hour:** 1-3

**Prerequisites:** restricted to graduate Geography majors or instructor's consent

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**GEOG 8200: Seminar in World Regional Geography II**

Continuation of course GEOG 8100.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GEOG 8270: Seminar in the Geography of the Middle East**

Advanced readings and analysis of topics in the geography of the Middle East.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 8710: Seminar**

May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**GEOG 8750: Research Design**

Application of scientific methods in geographic research. Critical evaluation of current geographical methodology.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate geography majors graduate or instructor's consent

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**GEOG 8760: Geographic Thought**

Discussion of the historic roots of the discipline, especially the ideas, theories and underlying philosophies that have defined Geography in the past century and a half. Students will also explore the philosophical and theoretical ideas that shape the way geographers approach the study of the world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 8815: Landscape Ecology and GIS Analysis II**

(same as NAT\_R 8395). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4365 or NAT\_R 7385 and FOREST 4302 or FOREST 7302 or equivalent and basic statistics course or instructor's consent

**Recommended:** GEOG 4810 or GEOG 7810

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**GEOG 8820: Field Geography**

Techniques of geographical investigation in the field.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Geography majors or instructor's consent

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**GEOG 8840: Seminar: Applied Remote Sensing**

Applied project in remote sensing. Data selection, image processing, land use and land cover change, and quantitative biophysical information extraction from remotely sensed data.

**Credit Hours:** 3

**Prerequisites:** GEOG 4830 or instructor's consent

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**GEOG 8902: Topics in Geography-Biological/Physical/Mathematical**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Geology (GEOL)

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**GEOL 1050: Planet Earth**

An introduction to Earth Science. Topics include: evidence for continental drift and plate tectonics, causes and prediction of natural hazards, the scale of geological time.

**Credit Hours:** 3

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**GEOL 1100: Principles of Geology with Laboratory**

Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip. For the Mizzou Online sections, there will not be required lectures, lab, and field trip.

**Credit Hours:** 4

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**GEOL 1100H: Principles of Geology with Laboratory - Honors**

Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**GEOL 1150: Physical Geology for Scientists and Engineers**

Introduction to physical geology and basic earth processes with a focus on applications and societal relevance. In addition to basic geologic processes, basic physical principles will illustrate the interactions between geology and engineering

**Credit Hours:** 4

**Corequisites:** MATH 1500

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**GEOL 1200: Environmental Geology with Laboratory**

The interaction between geologic processes and human society. Topics include mineral, water, and energy resources, volcanic hazards, earthquakes, landslides, floods, coastal erosion, pollution problems and environmental management.

**Credit Hours:** 4

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**GEOL 1250: The World's Oceans**

An interdisciplinary introduction to oceanography. Topics include: geologic evolution of ocean basins, properties of seawater, ocean circulation (waves, tides, and currents), marine ecosystems, instability of beaches and coastlines, coastal development and engineering.

**Credit Hours:** 3

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**GEOL 1400: Themes in Geology**

5-week course organized around a central theme or topic, up to 3 different sections can be taken for credit.

**Credit Hour:** 1

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**GEOL 2100: Independent Study in Geology**

Directed Library research in geological topics, under the supervision of faculty sponsor. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GEOL 2110: Introduction to Soil Science with Laboratory**

(same as SOIL 2110). Introduction to Soil Science with emphasis placed on physical, biological, and chemical properties and applications to land use, plant growth, and environmental problems with laboratory application of these concepts.

**Credit Hours:** 5

**Prerequisites:** CHEM 1320

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**GEOL 2120H: Faults and Earthquakes: Past, Present, and Future**

Seminar in science and societal ramifications of earthquakes. Geologic background includes causes, behavior, and distribution of faults. Student-led discussions cover historical disasters, economic, political, psychological, and cultural perspectives.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** Honors eligibility

---

**GEOL 2150: The Age of the Dinosaurs**

Study of the evolution of dinosaurs during the Mesozoic Era. New information on dinosaur life habits, food resources, dispersal by plate tectonics, and theories of extinction will be covered.

**Credit Hours:** 3

**Prerequisites:** 1000-level science course

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**GEOL 2160H: Volcanoes and the Human Environment - Honors**

(same as GN\_HON 2450H). This course gives students an understanding of how volcanoes work, how they are studied, and how they have impacted human cultures. Students will gain appreciation of volcanology as a broad scientific discipline within geology and the role that science plays in public policy. Graded on A/F basis only.

**Credit Hours:** 3

**Recommended:** Honors eligibility required

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**GEOL 2200: Oceanography**

Topics include: history and methods of marine research, properties of seawater, ocean circulation, biological productivity and zonation, origin and classification of marine sediments, character of major coastal and open-ocean environments, economic resources and environmental hazards. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or equivalent

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**GEOL 2220H: Honors Seminar: Headline Topics in the Geological Science**

Seminar organized around a central theme that is the focus of intense ongoing research and public debate.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** Honors eligibility

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**GEOL 2300: Earth Systems and Global Change**

Study of the earth as a whole, taking into account the many interwoven components of the geosphere, hydrosphere, atmosphere and biosphere.

**Credit Hours:** 3

**Recommended:** 1000-level Science course

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**GEOL 2350: Historical Geology**

Summary of principles and techniques used in reconstructing Earth's history. Survey of major events that have affected Earth and its inhabitants. Review of geologic history of North America.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and ENGLSH 1000

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**GEOL 2360: Historical Geology Laboratory**

A laboratory course designed to improve understanding of Earth History by examination of maps and mineral, rock, sediment and fossil samples.

**Credit Hour:** 1

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

**Corequisites:** GEOL 2350

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**GEOL 2400: Surficial Earth Processes and Products with Laboratory**

Semiquantitative analysis of geologic processes that shape the earth's surface. Includes topics in sedimentation and geomorphology.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and MATH 1100

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**GEOL 2450: Global Water Cycle**

Study of environmental geochemical factors controlling the composition of natural waters, and sources of water's constituents (natural or human-produced). Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** 1000-level science course

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**GEOL 2500: Regional Geology Field Trip**

Field based study of a particular geologic region, including classroom preparation prior to the field trip. The trip will last 7-10 days, either during Spring Break or immediately after finals week. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 2600: Mineral and Energy Resources of the Earth**

This course examines the geology of Earth's major mineral and energy resources--their origin, distribution, and characteristics--and societal implications of their use and abundance. Major topics: fossil fuels, nuclear energy, base & precious metals, non-metallic minerals, water.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 3085: Problems in Geological Sciences**

Problems in Geological Sciences.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**GEOL 3110: Geology of Missouri**

The physical, historical, and environmental geology of Missouri are described, discussed and interpreted.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and either GEOL 1100 or GEOL 1200

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**GEOL 3115: Geology of Missouri Laboratory**

A field based and laboratory based course that uses standard geological techniques to interpret the rock record of Boone County and Missouri.

**Credit Hour:** 1

**Corequisites:** GEOL 3110

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**GEOL 3200: Rocks and Rock-Forming Minerals: Identification, Occurrence and Origin**

Introduction to the classification, occurrence, and origin of rocks and rock-forming minerals.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1200 and CHEM 1310

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**GEOL 3210: Rocks and Rock-Forming Minerals Laboratory**

Identification of rock-forming minerals and rocks in hand specimen by their physical properties.

**Credit Hour:** 1

**Corequisites:** GEOL 3200

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**GEOL 3250: Mineralogy**

Introduction to crystallography, crystal chemistry and crystal structures. Systematic study of mineral groups. Includes identification of minerals by physical, chemical and optical properties.

**Credit Hours:** 5

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**GEOL 3300: Introduction to Geochemistry**

Fundamentals of chemistry as applied to geology. Includes phase diagrams, thermodynamics, redox chemistry, aqueous chemistry, stable and radiogenic isotopes. Computer-based homework problems (satisfies computing requirement for Geology majors).

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1330

**Prerequisites:** MATH 1400 or MATH 1500, and GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 3550: Introduction to Paleontology with Laboratory**

Study of the morphology, paleontology, patterns of evolution, and causes of extinction in geologically important groups of invertebrate and vertebrate fossils. Lab concentrates on identification of biostratigraphically important fossils (mostly invertebrates). Several half-day field trips.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200

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**GEOL 3650: Structural Geology**

The mechanical behavior of earth materials. Analysis of the geometry and mechanics of faults, fractures, and folds. Laboratory includes problems on stresses and strains associated with deformation, geometric analysis of deformation structures, and interpretation of geologic maps.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1140 or MATH 1160 or MATH 1500

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**GEOL 3800: Sedimentology and Stratigraphy with Lab**

Mechanics of sediment transport by fluid flow and gravity flow, origins of stratification and sedimentary structures, facies characteristics depositional environments.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

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**GEOL 4002: Topics in Geological Sciences-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4100: Groundwater Hydrology**

(cross-leveled with GEOL 7100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and PHYSCS 1210 or PHYSCS 2750, and MATH 1400 or MATH 1500

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**GEOL 4110: Karst Hydrology**

The hydrology of karst terrains is taught from the perspective of integrated drainage basins. Discussion addresses the origin and hydrogeology of karst aquifers and the biology of the animals that live in karstic aquifers.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 4120: Engineering Geology**

(cross-leveled with GEOL 7120). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and MATH 1500, or instructor's consent

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**GEOL 4130: Groundwater Modeling**

Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

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**GEOL 4180: Solar System Science**

(same as PHYSCS 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**GEOL 4200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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**GEOL 4210: Marine Geology**

Comprehensive examination of the geology of the oceans. Topics includes techniques of data collection and interpretation, physical oceanography, origin of marine sediments, marine tectonics, and ocean history.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800, CHEM 1330 and PHYSCS 1220

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**GEOL 4300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and ENV\_SC 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330. Junior standing or instructor's consent

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**GEOL 4350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 7350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and the hyper-abundant, we can address the fundamental question of paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 2350, GEOL 2360

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**GEOL 4400: Geomicrobiology and Microbial Biogeochemistry**

Roles of microbes in a variety of geological settings through time. Microbial roles in degradation of organic pollutants and transformation of toxic metals and radionuclides in contaminated environments.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 4500: Organic Geochemistry**

Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 4650: Plate Tectonics**

Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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**GEOL 4650W: Plate Tectonics - Writing Intensive**

Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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**GEOL 4680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 7680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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**GEOL 4700: Theoretical Geochemistry**

Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, CHEM 1330 and MATH 1700

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**GEOL 4800: Introduction to Geophysics**

(cross-leveled with GEOL 7800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1700 or instructor's consent

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**GEOL 4900: Igneous and Metamorphic Petrology with Laboratory**

Introduction to igneous and metamorphic rock associations and rock-forming processes. Emphasis on understanding the evolution of the Earth in view of igneous and metamorphic rock petrogenesis.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

**Recommended:** GEOL 3300

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**GEOL 4950: Senior Thesis**

Research conducted in an area of the Geological Sciences under the auspices of a member of the faculty. Under normal circumstances, this research should be completed over two semesters. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

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**GEOL 4990: Communicating in the Earth Sciences**

Synthesis of Geology curriculum through study of classic Earth Science papers. Emphasizes critical analysis of scientific papers, data interpretation, science writing and oral presentations. Satisfies Capstone for BA in Environmental Geology.

**Credit Hours:** 3

**Prerequisites:** instructors consent

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**GEOL 4991: Capstone in Environmental Geology**

Readings and discussions in selected areas of environmental geology. Subject depends on instructor. 3 credit hour Capstone must be completed unless student completes a Senior Thesis. In that case, Capstone + Senior Thesis credit hours must equal 3.

**Credit Hour:** 1-3

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**GEOL 4992: Geology Field Camp**

Field study of sedimentary, igneous and metamorphic rocks. Facies analysis of sedimentary rocks, mapping of folded and faulted sedimentary strata and fabric analysis of an igneous-metamorphic terrane. Excursion to Yellowstone and Grand Teton National Parks.

**Credit Hours:** 6

**Recommended:** GEOL 2350, GEOL 3650, and GEOL 3800

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**GEOL 7002: Topics in Geological Sciences-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 7085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 7100: Groundwater Hydrology**

(cross-leveled with GEOL 4100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200, and PHYSICS 1210 or PHYSICS 2750, and MATH 1400 or MATH 1500

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**GEOL 7110: Karst Hydrology**

Study of the mechanisms of groundwater flow in Karst terrains.

Emphasizing several scales including that of a conduit, a catchment, and regional framework.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 7120: Engineering Geology**

(cross-leveled with GEOL 4120). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1500, or instructor's consent

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**GEOL 7130: Groundwater Modeling**

Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

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**GEOL 7180: Solar System Science**

(same as PHYSICS 7180 and ASTRON 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSICS 1220 or PHYSICS 2760 or instructor's consent

---

**GEOL 7200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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**GEOL 7210: Marine Geology**

Comprehensive examination of the geology of the oceans. Topics includes techniques of data collection and interpretation, physical oceanography, origin of marine sediments, marine tectonics, and ocean history.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800 CHEM 1330 and PHYSICS 1220

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**GEOL 7300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3



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**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and ENV\_SC 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330 or instructor's consent

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**GEOL 7350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 4350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and hyper-abundant we can address the fundamental question of paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

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**GEOL 7400: Geomicrobiology and Microbial Biogeochemistry**

Roles of microbes in a variety of geological settings through time. Microbial roles in degradation of organic pollutants and transformation of toxic metals and radionuclides in contaminated environments.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 7500: Organic Geochemistry**

Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 7650: Plate Tectonics**

(cross-leveled with GEOL 4650). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, GEOL 3650 or instructor's consent

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**GEOL 7680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 4680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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**GEOL 7700: Theoretical Geochemistry**

Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, CHEM 1330 and MATH 1700

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**GEOL 7750: Microanalysis for Geological Sciences**

(cross-leveled with GEOL 4750). This course is intended to provide a working knowledge of electron and X-ray microbeam analytical instruments - both in principle and in practice. Lectures will focus on the physics of how these instruments collect data, and how these data can be interpreted. In addition, students will gain hands-on experience with operating these instruments, specifically on their own samples, as well as preparing their samples for microanalysis and interpreting/manipulating the resulting data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent (Instrument time is limited; graduate students who will use the instruments in their research will have priority)

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**GEOL 7800: Introduction to Geophysics**

(cross-leveled with GEOL 4800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 1150 or GEOL 1200 and MATH 1700 or instructor's consent

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**GEOL 7990: Research in Geological Sciences-Masters**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 7991: Investigation of Earth Materials**

Hands-on experience in all facets of quantitative field and laboratory analyses of near-surface earth materials.

**Credit Hours:** 3

**Prerequisites:** GEOL 2350, GEOL 4100, and GEOL 3800

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**GEOL 8002: Topics in Geological Sciences**

Organized study of selected topics. May be repeated with departmental consent.

**Credit Hours:** 3

**Prerequisites:** PhD standing, instructor's consent

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**GEOL 8050: Research in Geological Sciences-Masters Non-Thesis**

Research leading to a non-thesis Masters project. Graded on S/U basis only.

**Credit Hour:** 1-3

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**GEOL 8085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 8090: Research in Geological Sciences-Masters Thesis**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**GEOL 8100: Continental Tectonics**

The structural, metamorphic, and igneous evolution of mountain belts and continental rifts with emphasis on convergent margin settings and terrane accretion processes and products. Case studies are considered from the Precambrian to the recent.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 and GEOL 4900

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**GEOL 8140: Metamorphic Petrology**

Petrography and petrology of metamorphic rocks. Emphasis on textures, mineral assemblages, and mineral chemistry in order to determine the physico-chemical condition of metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8150: Earthquake Seismology**

Theory and techniques used in analyzing earthquake seismograms and seismicity data. Ray theory and phase identification for the whole earth. Epicenter determination. Frequency-magnitude relationships. Earthquake source mechanisms and parameters.

**Credit Hours:** 3

**Prerequisites:** GEOL 8320

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**GEOL 8160: Igneous Petrology**

Studies of the origin and evolution of magmas with use of phase equilibria, physical properties, and kinetics.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8170: Radiogenic Isotope Geochemistry**

Studies of the application of trace element and radiogenic isotope systematics to petrogenesis of rocks.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900

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**GEOL 8190: Advanced Paleontology**

Principles of taxonomy, biostratigraphy, functional morphology and paleoecology are illustrated by individual projects that combine field collecting, laboratory examination and literature research.

**Credit Hours:** 3

**Prerequisites:** GEOL 4550

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**GEOL 8200: Advanced Structural Geology**

Advanced analysis of deformation structures in rocks. Theory and techniques of stress and strain analysis and their application to the mechanics of formation of faults, folds, shear zones, and rock fabric. Techniques of multideformation structural analysis.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650

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**GEOL 8210: Advanced Aqueous Geochemistry**

Study of mineral-water interface geochemistry. Course will cover dissolution and precipitation kinetics, sorption reactions, and current theories.

**Credit Hours:** 3

**Prerequisites:** GEOL 4300 or GEOL 7300 or instructor's consent

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**GEOL 8230: Groundwater and Subsurface Geomicrobiology**

Distribution of microorganisms in subsurface environments and the effects of microbial activity on groundwater chemistry. In situ bioremediation of contaminated aquifers by subsurface microorganisms.

**Credit Hours:** 3

**Prerequisites:** GEOL 4400

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**GEOL 8240: Hydrogeologic Processes**

Quantitative analysis of role of groundwater in major geologic processes. Theory review of fluid flow, heat transport, reactive solute transport in porous media. Applications to sedimentary diagenesis, hydrothermal ore deposits, petroleum migration, earthquakes, magmatism, metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or GEOL 7100 or equivalent

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**GEOL 8300: Precambrian History**

Coupled evolution of the biosphere, lithosphere, hydrosphere, and atmosphere over the span of Precambrian history. Topics will be discussed largely in the context of biological evolutionary events and the fossil record, as well as with a focus on geochemical records.

**Credit Hours:** 3

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**GEOL 8320: Introduction to Seismology**

Principles of wave propagation in layered elastic media. Applications of digital signal processing to seismological problems. Emphasis on theoretical basis behind modern analysis techniques.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760, MATH 4500 and CMP\_SC 1050

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**GEOL 8350: Marine Chemistry**

Survey of biogeochemical processes in shallow and deep marine settings. Topics include sediment diagenesis, geochemical tracers, nutrient patterns and pathways, global biogeochemical cycles, paleoceanographic proxy records, and integrated paleoenvironmental reconstructions of ancient marine sequences.

**Credit Hours:** 3

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**GEOL 8400: Ancient Greenhouse Climate**

Will explore a wide range of data concerning greenhouse climates and different techniques used in paleoclimatology. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800, GEOL 3500 and GEOL 4300

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**GEOL 8450: Tectonics and Sedimentation**

Global survey of modern and ancient convergent plate boundaries with an emphasis on sedimentary facies and structural styles.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650, GEOL 3800 and instructor's consent

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**GEOL 8510: Geodynamics**

This course is designed to cover the fundamentals of the quantitative aspects of Plate Tectonics. The study of these subjects is generally referred to as Geodynamics or Geodynamic Theory. This theory revolutionized the earth sciences and the way people think of earth processes. By definition Geodynamics is an interdisciplinary paradigm therefore it is necessary to cover a wide range of topics from heat transfer to gravity. This course will overlap with subjects covered in both Plate Tectonics and Geophysics but we will emphasize the quantitative aspects of this theory in this course.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760

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**GEOL 8550: Stable Isotope Geochemistry**

Mechanisms and fundamental concepts of fractionation of light stable isotopes in nature. Emphasizes application of hydrogen, carbon, oxygen and sulfur isotopes to igneous, metamorphic and sedimentary rocks, metallic ore deposits, and to natural waters.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 8600: Quaternary Environments**

Study of the Earth's most recent glacial/interglacial cycles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 8650: Thermal Processes in the Solid Earth**

Principles of heat transfer in solid earth by conduction, advection and convection. Basic analytic and numerical solutions. Application in Earth's dynamic system, environmental sciences, and geological problems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 1220 or PHYSCS 2750

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**GEOL 8750: Silicate Glasses, Liquids and Magmas**

Theory of silicate liquid viscosity, heat capacity and configurational entropy, emphasizing the role of volatile components. Applications to magma rheology and eruptive behavior. Lab instruction in viscometry techniques.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900 and GEOL 4700, or instructor's consent

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**GEOL 8800: Applied Numerical Analysis**

A study of applied mathematical analysis of spatial and temporal data as applied in the geosciences.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 or MATH 2300, PHYSCS 1220 or PHYSCS 2760

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**GEOL 8990: Research**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 9090: Research in Geological Sciences-Doctoral Dissertation**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## German (GERMAN)

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**GERMAN 1100: Elementary German I**

For beginners with no prior knowledge of German. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication--oral and listening skills, reading and writing.

**Credit Hours:** 5

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**GERMAN 1100H: Elementary German I - Honors**

This course is designed for Honors students with little or no German language background and will provide students with a foundation in vocabulary and grammar in order to develop communication proficiency in German. Students will be trained using the five skills: listening, speaking, writing, reading and cultural knowledge. The course will be taught as a total immersion class and thus differs from the standard elementary German sequence. Furthermore, students will be required to complete lengthier reading and writing tasks as well as present a final oral multimedia project at the end of the semester.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GERMAN 1150: Freshman Introduction to German Studies**

Introduction to German Studies as academic field. Small seminar setting with senior faculty, their favorite texts, and questions pursued in the research and teaching. Recommended for all students interested in integrating German studies into their academic career, conducted in English.

**Credit Hour:** 1

**Prerequisites:** Restricted to Freshman students only

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**GERMAN 1200: Elementary German II**

A continuation of GERMAN 1100. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 5

**Prerequisites:** C- or better in GERMAN 1100, or equivalent

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**GERMAN 1200H: Elementary German II - Honors**

This course is designed for Honors students who either took the GERMAN 1100H section or are placing into GERMAN 1200 as honors eligible students. The main focus of this course is on further development of basic communication skills in speaking, listening, reading, and

writing in German adding more nuanced cultural and sociolinguistic competencies in a total immersion environment.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GERMAN 2001: Undergraduate Topics in German-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 2005: Undergraduate Topics in German-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

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**GERMAN 2005H: Undergraduate Topics in German-Humanities - Honors**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GERMAN 2100: Intermediate German I**

A continuation of GERMAN 1200. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 3

**Prerequisites:** C- or better in GERMAN 1200, or equivalent

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**GERMAN 2260: Intermediate German II: Language and Culture**

This course continues to help learners develop the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** C- in GERMAN 2100 or equivalent

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**GERMAN 2310: German Civilization: Beginning to 1850**

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLISH 1000.

**Credit Hours:** 3

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**GERMAN 2310W: German Civilization: Beginning to 1850 - Writing Intensive**

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLISH 1000.

**Credit Hours:** 3

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**GERMAN 2320: German Civilization: 1850 to Present**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLISH 1000

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**GERMAN 2320W: German Civilization: 1850 to Present - Writing Intensive**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLISH 1000

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**GERMAN 2480: Monstrous Births: Tales of Creation in 19th Century Literature**

Examines literary and other cultural works which explore the creation of human beings by traditional, technological, or magical means. Course and readings in English translation.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or equivalent

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**GERMAN 2820: Trends in World Cinema**

(same as FILM\_S 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1800 or FILM\_S 1800 or instructor's consent

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**GERMAN 3001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3160: German Conversation and Composition**

This course expands communicative competence in German and provides a review of advanced grammar concepts. Primary emphasis is on the further development of oral and written skills, reading comprehension, vocabulary expansion, and a broad exposure to relevant

topics of contemporary German culture and society. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3180: Business German**

Examines language within the economic and professional context of German-speaking countries. Introduces different economic concepts of Germany's turbulent 20th century, modern-day business systems and everyday commercial activities such as job applications, professional routines, capital investment and banking. Provides students with vocabulary, cultural knowledge and communicative abilities in order to participate in the professional German-speaking world using linguistically-solid and stylistically-persuasive writing and speaking skills.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3190: Contemporary German Culture**

This content-driven course provides insights into essential subjects of 20th century German history and contemporary society, using a variety of literature, journalistic sources and film. The course will improve German conversation and literacy skills, and will strengthen critical reading and writing, as well as interpretative abilities. Significant grammatical concepts will be thoroughly reviewed throughout the semester. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or instructor's consent

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**GERMAN 3230: Introduction to German Literature**

This course introduces students to German-language literary texts, images, and films in their cultural and historical context through exposure to major genres (poetry, drama, short stories, and the novel). It further builds their vocabulary and teaches them critical interpretive skills as preparation for the analysis of literary texts in upper-division courses - and in life.

**Credit Hours:** 3

**Prerequisites:** C- or better in either GERMAN 3160 or GERMAN 3190

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**GERMAN 3320: Readings in German Literature**

Readings in English of selected works of German literature from Goethe to the present, with a particular emphasis on writers and texts that have had a strong influence on European thought and culture.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1000

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**GERMAN 3440: After the Fact: Holocaust in Contemporary History, Art & Literature**

(same as PEA\_ST 3440). Explores responses to the Holocaust from numerous perspectives. Considers how the Holocaust is remembered, memorialized, and debated in a variety of national contexts. Touches on historical, philosophical, and aesthetic points of view.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GERMAN 3460: Marx & Nietzsche: Labor, Power, and the German Mind of 19th Century**

Examines writings of Germany's two most radical nineteenth-century thinkers. Explores key terms of political economy and philosophy developed by Marx and Nietzsche. Journal and three papers.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1000

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**GERMAN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as T\_A\_M 2810, PEA\_ST 2810, JOURN 3510, DST 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as JOURN 3510H, PEA\_ST 2810H, T\_A\_M 3010H, DST 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as JOURN 3510HW, T\_A\_M 3010HW, PEA\_ST 2810HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as T\_A\_M 2810W, PEA\_ST 2810W, JOURN 3510W, DST 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3520: Folk and Fairytales in a Global Context**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3520H: Folk and Fairytales in a Global Context**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520HW: Folk and Fairytales in a Global Context - Honors/ Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520W: Folk and Fairytales in a Global Context - Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3550: Resistance is Futile: The Advance of the Cyborg**

Contemporary culture is haunted by the image of artificial killing machine as metaphor for technology run rampant. Fears may be prompted by feelings of alienation in automated society and underlying suspicion that humans may be nothing more than sophisticated machines. Course maps history of l'homme machine, focusing on fictional representation of creatures that consist of both human and technological "parts." Goal is to discern source of fascination and sociopolitical mechanism behind evocation of "human machine."

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor

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**GERMAN 3605: The History of Blacks in Germany**

(same as BL\_STU 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, traveling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**GERMAN 3830: History of the German Film**

(same as FILM\_S 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GERMAN 3840: German Film After 1945**

(same as FILM\_S 3840). Examines a selection of post-War films by German directors, as well as historical, literary, and theoretical texts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**GERMAN 3865: The Holocaust on Screen**

(same as FILM\_S 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts.

Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GERMAN 3895: Service Learning in German Studies**

Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Does not meet Arts and Science foundation requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** GERMAN 2260, or instructor's consent

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**GERMAN 4001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005H: Topics in German-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and instructor's consent. Honors eligibility required

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**GERMAN 4005W: Topics in German-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4070: Intensive Beginning German**

Designed to lead to a reading knowledge of German. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent

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**GERMAN 4160: Advanced Language Proficiency**

(cross-leveled with GERMAN 7160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4180: Advanced German: Conversation and Stylistics**

(cross-leveled with GERMAN 7180). This course continues to emphasize all communicative skills in German: oral and listening skills, reading and writing. There is also an emphasis on advanced grammar. The content focuses on contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** senior or graduate standing, or instructor's consent

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**GERMAN 4220: Eerie Tales: Classic German Narratives**

In this class, we will read classic uncanny tales in German by major authors, and will explore the traits of this category across a variety of literary movements.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent language capacity

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**GERMAN 4230: Enlightenment and Revolution**

Reading and discussion of selected works by major German writers from 1740 to 1870.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4240: Modernism and Modernity**

Reading and discussion of selected works by major German writers from 1870 to the present.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4260: Recent German Literature**

This course examines 'post-unification' works (i.e. by formerly East and West German authors) of literature and film written since 1989 that addresses social and political changes leading to or resulting from unification and the experience of WWII. Students will analyze the diverse cultural, political and economic factors that influence writers and filmmakers whose aesthetic production in turn helps shape contemporary German society.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230

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**GERMAN 4440: Enlightenment and Sturm und Drang**

Survey of literature and thought of 18th-century Germany, with emphasis on the works of Lessing, Wieland, Herder and the younger Goethe.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4450: German Romanticism**

German Romanticism.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4530: The German Novelle**

The German Novelle.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4650: Faust**

(cross-leveled with GERMAN 7650). Faust.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4670: Medieval German Literature 1170-1210**

(cross-leveled with GERMAN 7670). Analysis of major narrative and lyric poetry of the Age of Chivalry.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 4730: German Internship and Methods**

(cross-leveled with GERMAN 7730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** junior standing, GERMAN 4230, or instructor's consent

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**GERMAN 4810: Case Studies in an Inter/Multicultural World**

(same as T\_A\_M 4810, PEA\_ST 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**GERMAN 4820: Blogging the World: The Web in Cultural Context**

(same as FRENCH 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new

social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as FRENCH 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4980: German Capstone Seminar**

(cross-leveled with GERMAN 7980). Required of all senior German majors; usually taken in the senior year. Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** senior standing or departmental consent

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**GERMAN 4996: Honors in German**

Special problems in Germanic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent of Honors director

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**GERMAN 7001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 7005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 7085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 7160: German Conversation and Composition III**

(cross-leveled with GERMAN 4160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 7180: Advanced German: Conversation and Stylistics**

(cross-leveled with GERMAN 4180). This course continues to emphasize all communicative skills in German: oral and listening skills, reading and writing. There is also an emphasis on advanced grammar. The content focuses on contemporary German culture and social life.

**Credit Hours:** 3

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**GERMAN 7440: Enlightenment and Sturm und Drang**

Survey of literature and thought of 18th-century Germany, with emphasis on the works of Lessing, Wieland, Herder and the younger Goethe.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7530: The German Novelle**

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7650: Faust**

(cross-leveled with GERMAN 4650). Faust.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7660: Recent German Literature**

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7670: Medieval German Literature 1170-1210**

(cross-leveled with GERMAN 4670). Analysis of major narrative and lyric poetry of the Age of Chivalry.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7730: German Internship and Methods**

(cross-leveled with GERMAN 4730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent, or instructor's consent

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**GERMAN 7820: Blogging the World: The Web in Cultural Context**

(same as RUSS 7820 and FRENCH 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context. Working in cross-disciplinary teams, students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold: students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

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**GERMAN 7960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GERMAN 7980: German Capstone Seminar**

(cross-leveled with GERMAN 4980). Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** one 3000-level literature course or equivalent, or instructor's consent

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**GERMAN 8001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 8005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 8007: SEMINAR:GERMAN**

Seminar in German.

**Credit Hours:** 3

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**GERMAN 8050: Research in German**

Translations or creative work not leading to thesis. Credit hours arranged.

**Credit Hour:** 1-3

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**GERMAN 8085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 8087: Seminar in German**

Course content varies.

**Credit Hours:** 3

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**GERMAN 8090: Research in German**

Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** graduate director's consent

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**GERMAN 8450: Reformation and Renaissance Literature**

The course investigates significant works of German literature of the late 15th and 16th Centuries.

**Credit Hours:** 3

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**GERMAN 8520: German Poetry from Sturm und Drang to 1848**

Reading of selected poetry by German writers of Sturm und Drang, Classicism, Romanticism, and Vomarz.

**Credit Hours:** 3

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**GERMAN 8615: History of the German Language**

(same as LINGST 8615).

**Credit Hours:** 3

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**GERMAN 8625: Middle High German**

(same as LINGST 8625).

**Credit Hours:** 3

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## Graduate School (GRAD)

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**GRAD 4010: Preparing To Be A Graduate Teaching Assistant**

Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

**Credit Hour:** 1

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**GRAD 7010: Preparing To Be A Graduate Teaching Assistant**

Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** graduate standing

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**GRAD 7020: Learning Across Borders Seminar**

Social, cultural, and economic problems--and their solutions--are increasingly global and interdisciplinary. Global awareness is essential, therefore, in order to compete in the increasing global marketplace. Coupling professional knowledge and skills with international experience gives graduates a competitive advantage, as employers look beyond the academic transcript for additional skills. The Learning Across Borders seminar (LAB) creates opportunities for graduate students to work across cultures and disciplines. Throughout the academic year students will participate in a series of Think Tanks (interactive discussions facilitated by MU faculty and special guests) and LAB-approved events. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Students must register for both semesters

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**GRAD 7070: Academic Interactions in the American University**

This course is designed to give graduate students new to the western academic environment an overview of classroom and departmental activities and expectations. Specifically, it will give students cultural insight into academic tasks and some of the linguistic tools necessary to accomplish those tasks.

**Credit Hours:** 3

**Prerequisites:** ibt TOEFL of 60

**Recommended:** for any students who have not previously studied in a western academic environment and strongly recommended for students with an overall TOEFL score of 80 or below or sub-scores in listening and/or speaking of 20 or less

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**GRAD 7302: Tools for Teaching American Students**

Emphasis on advanced academic listening, discrete pronunciation skills, techniques for laboratory teaching and one-to-one interactions. Integrated with a general overview of American classroom culture.

**Credit Hours:** 3

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**GRAD 7303: Communication and Culture for American College Teaching**

This class will focus on the linguistic aspects of teaching, as well as specific pedagogical; and cultural aspects of the American classroom. It will emphasize fluency development at the suprasegmental level, and interactive teaching skills, like organizational, questioning and compensation strategies.

**Credit Hours:** 3

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**GRAD 9001: Topics in Graduate School**

Organized study of selected professional and career development topics. Subjects and course credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's and academic advisor's consent

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**GRAD 9010: Preparing Future Faculty I**

First course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GRAD 9020: Preparing Future Faculty II**

Second course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Topics build upon those presented in GRAD 9010 and focus on the job search and career development processes. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** GRAD 9010

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**GRAD 9030: Teaching with Technology-Strategies for Your Online Classroom**

(same as IS\_LT 9477). Designed to assist current and future course instructors to integrate learning technologies into a traditional face-to-face course. Graded on A-F basis only.

**Credit Hour:** 1

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**GRAD 9050: Building Leadership Potential with Transferable Skills**

Specialized leadership and transferable skills course that helps students recognize their potential and versatility for careers within and beyond the academy. Beyond leadership theory, the course is framed by 4 competency areas: 1) Analytic competencies; 2) Personal competencies; 3) Communication competencies and 4) Organizational competencies. Learning is enhanced with short text readings and videos in the course management system. Guest speakers. To pass the course, students must attend class; complete a self-assessment; complete an informational interview or job shadow with a leader of choice; and submit 3 short assignments including an Individual Development Plan with goals. Graded on S/U basis only.

**Credit Hour:** 1

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**GRAD 9072: Science Policy and Public Engagement**

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hours:** 3

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**GRAD 9080: Essentials for Public Engagement**

This course will focus on understanding the role of scholarship and research in society and how to integrate public needs with research, ways to the public engages with scholarly research and how researchers can effectively engage individuals and groups. Topics covered include: different types of public engagement, public policy, ethics, broader impacts of research, extension education, public communication, theoretical rationale for engagement, historical trends in public engagement.

**Credit Hour:** 1

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**GRAD 9082: Science Policy and Public Engagement**

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals

and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hour:** 1

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**GRAD 9304: Instructional and Communication Strategies for Effective College Teaching**

This class will focus on teaching and presentation strategies such as lesson design, using case studies and problem based learning, interactive learning, and classroom and course management. The linguistic emphasis will be on reduction, linking and speech patterns as well as pragmatic issues of organizing, clarifying and emphasizing ideas. Requires an MU Oral Language Proficiency Assessment score of 3 and course consent. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ITAP language level 3P or GRAD 7303 and level 2; consent required

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## Greek (GREEK)

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**GREEK 1100: Elementary Ancient Greek I**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 5

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**GREEK 1100H: Elementary Ancient Greek I - Honors**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GREEK 1200: Elementary Ancient Greek II**

Continuation of GREEK 1100. Readings in Attic prose.

**Credit Hours:** 5

**Prerequisites:** GREEK 1100

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**GREEK 1200H: Elementary Ancient Greek II - Honors**

Continuation of GREEK 1100H. Readings in Attic prose.

**Credit Hours:** 5

**Prerequisites:** GREEK 1100, Honors eligibility required

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**GREEK 2000: Greek Reading**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200

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**GREEK 2000H: Greek Reading - Honors**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200, Honors eligibility required

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**GREEK 4120H: Intensive Beginning Greek II - Honors**

Continuation of GREEK 4110H. Attention to ability to read rapidly and accurately. Course meets five hours weekly for three hours credit.

**Credit Hours:** 3

**Prerequisites:** graduate standing and Honors eligibility required

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**GREEK 4300: Intermediate Readings**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000

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**GREEK 4350: The Greek New Testament**

(same as REL\_ST 4650). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4400: Homer**

Reading, discussion, and literary analysis of Iliad and Odyssey.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4500: Greek Stylistics**

Study and practice of Greek prose, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4505: Topics in Greek**

Topics course involving Greek texts. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4510: Greek Tragedy**

Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4520: Greek Comedy**

Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4530: Greek Lyric Poetry**

Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4540: Greek Oratory**

Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4550: Greek Philosophers**

Emphasis on readings and analysis of selected texts of major Greek philosophers.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4560: Greek Historians**

Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4570: Greek Epigraphy**

Introduction to study of Greek inscriptions and their contribution to the understanding of other aspects of ancient culture.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4700: Survey of Greek Literature**

Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 7300: Intermediate Readings in Greek**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000 or equivalent. Available to students for graduate credit in departments other than Classical Studies

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**GREEK 7350: The Greek New Testament**

(same as REL\_ST 7650). Readings in the Greek New Testament and similar literature, e.g., the Septuagint. Graduate students read significantly more Greek than do undergraduates and testing is accordingly more rigorous. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GREEK 4300 or instructor's consent

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**GREEK 7400: Homer**

Reading, discussion, and literary analysis of Iliad and Odyssey.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7500: Greek Stylistics**

Study and practice of general Greek prose tendencies, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

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**GREEK 7505: Topics in Greek**

Organized study of selected authors or eras. Subject and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** two years of Classical Greek or equivalent

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**GREEK 7510: Greek Tragedy**

Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Prerequisites:** wo years Classical Greek or equivalent

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**GREEK 7520: Greek Comedy**

Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7530: Greek Lyric Poetry**

Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7540: Greek Oratory**

Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7550: Greek Philosophers**

Emphasis on readings and analysis of selected texts of major Greek philosophers.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

---

**GREEK 7560: Greek Historians**

Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

---

**GREEK 7570: Greek Epigraphy**

Introduction to study of Greek inscriptions and their contribution to the understanding of other aspects of ancient culture.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000

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**GREEK 7700: Survey of Greek Literature**

Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent and two years Classical Greek or equivalent

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**GREEK 8000: Proseminar in Greek Texts**

This is a seminar-level introduction to Greek literary and historical texts. The emphasis in this course will be on wide and intensive reading, with the objective of helping the new graduate student quickly develop a sound literary and linguistic competence.

**Credit Hours:** 3

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**GREEK 8010: Greek Rough Guide**

Intensive exploration of Greek Literature from its earliest appearance through the Roman period. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**GREEK 8100: Greek Historiography**

(same as HIST 8500). Study of the major contemporary historians of Classical Greece and their methodology. Differential readings available to both students with a reading knowledge of Greek and also those without Greek.

**Credit Hours:** 3

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**GREEK 9287: Seminar in Greek Drama**

May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**GREEK 9387: Seminar in Greek Lyric Poetry**

Seminar in Greek Lyric Poetry.

**Credit Hour:** 1-99

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**GREEK 9487: Seminar in the Greek Philosophers**

Seminar in the Greek Philosophers.

**Credit Hours:** 3

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**GREEK 9587: Seminar in the Greek Historians**

Seminar in the Greek Historians.

**Credit Hours:** 3

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**GREEK 9687: Seminar in Greek Epic Poetry**

Seminar in Greek Epic Poetry.

**Credit Hours:** 3

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**GREEK 9787: Seminar on the Age of Pericles**

Study of Greek culture of mid-fifth century B.C., including law, religion, art, philosophy, science, and other aspects of the culture, to give students an integrated view of life of the period.

**Credit Hours:** 3

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**GREEK 9887: Seminar in Special Fields**

Seminar in Special Fields.

**Credit Hours:** 3

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## Health Management and Informatics (HMI)

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**HMI 4420: Fundamentals of Bioinformatics**

(cross-leveled with HMI 7420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**HMI 4440: Health Information Technology**

(cross-leveled with HMI 7440). In this course, the student will learn 1) the visual basic programming language and how to design a visual basic application 2) the SQL database language and how to design and operate a database, and 3) HTML, HTML5, javascript and vbscript languages and how to design a client-server database application using Visual Basic and a web database application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**HMI 6495: Health Care Management**

Health Care Management

**Credit Hours:** 5

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**HMI 6935: Healthcare Ethics for Physicians**

Students will participate in 8-two hour lecture-discussion sessions over the 2-week period. In each session, the instructor lectures for one hour and then the class discusses concepts and cases for one hour. Topics may include ethical theories and frameworks, decision-making capacity, informed consent, truth-telling and deception, medical errors, confidentiality, surrogate decision-making, medical futility, end-of-life

care and euthanasia, the physician-patient relationship, paternalism, vaccinations, newborn screening, gene therapy, treating minors, treating individuals with disabilities, deception of third-party payers, problematic documentation techniques, sexual harassment and discrimination, and conflicts of interest. When not participating in the lecture-discussion session, students will use their time reading the assigned material. This should take about two hours per day. There are no required student presentations but a high level of participation in discussion is expected. Two take-home exams will be given.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**HMI 6938: Biomedical Informatics**

Students will participate in 10-two hour lecture-discussion sessions over the 2-week period. These sessions will cover current and future developments in biomedical informatics. Selected topics include: electronic health records; public health informatics; imaging; practice management systems; information exchanges; data standards; privacy and security; consumer informatics; mobile technology; search engines; telehealth; bioinformatics databases; next generation sequencing; regulatory pathways; emerging trends.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**HMI 7410: Introduction to the US Health Care System**

This is a survey course about the American health system, meant to provide a conceptual foundation for students to think critically about the US health system and to build upon in their future related courses. It includes concepts and language in health care, public health, and personal health and provides an understanding of how these domains of health interrelate. Particular focus is given to health care delivery, including how health care services are organized, delivered, paid for, and measured. Selected key, forward-looking issues are covered. The roles of management, leadership, and physicians are highlighted. A resource bank and regular flow of good information sources is developed. Business writing skills are emphasized.

**Credit Hours:** 3

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**HMI 7420: Fundamentals of Bioinformatics**

(cross-leveled with HMI 4420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Open to undergraduates with dual enrollment

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**HMI 7430: Introduction to Health Informatics**

(same as INFOINST 7430). Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HMI 7431: Foundation of Public Health Informatics**

This course will cover foundational knowledge relevant to Public Health Informatics (PHI). The purpose of this course is to expose students to emerging research and application areas in the field of PHI. It will enhance abilities to know when and how to use theories, concepts, and tools of informatics applied to public health. The emphasis of the course is on the use of informatics tools and practices in public health and the existing and evolving relationship between clinical and public health systems. The focus is on PHI including topics such as data exchange and standards, interoperability, use of informatics tools, applying informatics to public health communication and dissemination, surveillance systems, public health policy and project management.

**Credit Hours:** 3

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**HMI 7432: Health Database Management and Public Health Data Systems**

This course will cover foundational knowledge relevant to database management and public health data systems for Public Health Informatics (PHI). The purpose of this course is to provide students with concepts relevant to the effective use of data, information, and knowledge tools to build, manage, merge, retrieve, and analyze public health data from appropriate health data systems. The emphasis of the course is to use, develop and adapt public health information systems as needed to support public health efforts through use of public health informatics tools and practices to support existing and evolving relationships between clinical and public health systems. The focus is to plan, develop, implement, manage and evaluate database management systems and health data systems that meet the needs of public health practice through PHI.

**Credit Hours:** 3

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**HMI 7440: Health Information Technology**

(cross-leveled with HMI 4440). In this course, the student will learn 1) the visual basic programming language and how to design a visual basic application 2) the SQL database language and how to design and operate a database, and 3) HTML, HTML5, javascript and vbscript languages and how to design a client-server database application using Visual Basic and a web database application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics

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**HMI 7471: Introduction to Accounting and Finance in Health Care**

This course introduces the current financial environment in which providers operate and the fundamentals of financial accounting, with an emphasis on accounting and financial management principles and concepts that are critical to decision making for department-level management of health services organizations. This course provides

the foundation for the second healthcare financial management course offered in the second year of this program.

**Credit Hours:** 3

**Prerequisites:** Graduate standing or consent of instructor

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**HMI 7564: Health Ethics Theory**

An introduction to health ethics theory and methodology. We discuss metaethics and normative ethics theories, normative ethics in health ethics and methods of ethics case work up.

**Credit Hours:** 3

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**HMI 7566: HIPAA, Social Media, and the Ethics of Health Information**

An introduction to how the increasing use of distance-based technologies, computers, and online communications may impact the ethical delivery of health care. Examples of questions to be addressed: Is it possible that the increasing use of computers in healthcare has made things worse? How should HIPAA be interpreted and why is there such confusion about it? Should patients be able to "post" negative comments about providers on social media sites? What should be done about the increasing amounts of personal information healthcare corporations are collecting on patients?

**Credit Hours:** 3

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**HMI 7567: Health Organizational Ethics**

Examples of questions to be addressed: Should hospitals and doctors try to maximize profits? Do providers have a moral obligation to serve people who cannot pay? Is it okay to deceive an insurance company if it means better patient care? What should employees do if their employer is committing fraud? Is it ethical for hospitals to drug-test employees and investigate their private lives? What is the ethical way to hire and fire healthcare staff? What should you do if your supervisor is evil?

**Credit Hours:** 3

**Prerequisites:** HMI 7564 or equivalent course, or permission of instructor

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**HMI 7750: Physical Function and Older Adults**

(same as F\_C\_MD 7750, ARCHST 7640, H\_D\_FS 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**HMI 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A- basis only.

**Credit Hours:** 3

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**HMI 8090: Thesis Research in Health Management and Informatics**

Research leading to a thesis. May be repeated to maximum of 9 hours.

**Credit Hour:** 1-6

**Prerequisites:** Advisor's consent

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**HMI 8401: Topics in Health Management and Informatics**

Organized study of selected topics. Subjects will vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**HMI 8435: Information Security, Evaluation and Policy**

The purpose of this course is to provide an extensive overview, practical applications and analyses of functionality and usability evaluations of health care information technology, and to discuss the impact of security on the present and future health care settings.

**Credit Hours:** 3

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**HMI 8437: Data Warehousing and Data/Text Mining for Health Care**

An introduction to the basic concepts of data warehouse and data/text mining, creating an understanding of why we need those technologies and how they can be applied to healthcare problems.

**Credit Hours:** 3

**Prerequisites:** HMI 8441

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**HMI 8441: Biomedical and Health Vocabularies and Ontologies**

Basic and advanced concepts of controlled terminologies and their use in the representation of biomedical information and knowledge, with emphasis on terminology management in the health care enterprise. Syntactic and semantic structure of controlled terminologies are examined and a number of representative terminologies are analyzed.

**Credit Hours:** 3

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**HMI 8443: Enterprise Information Architecture for Knowledge Driven Healthcare Systems**

Organization and development of infrastructure necessary to support an enterprise information system for patient care. Components of architecture are introduced in a problem-based approach, case examples are presented as the basis for addressing specific attributes of the components, as well as problems facing the design of an enterprise information system for health care.

**Credit Hours:** 3

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**HMI 8450: Methods of Health Services Research**

Writing intensive course provides students with basic understanding of literature search, experimental designs, evaluation methods, ethics, reporting and application of health services research. Practical research problems are discussed and students prepare a professional, managerially relevant research proposal.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Satisfactory completion of a college-level course in statistics

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**HMI 8451: Individual Executive Management Studies**

Students will investigate and address important issues in their organizations. Students will use scientific evidence and techniques to solve applied problems. They will develop data collection protocols, collect and analyze data, draw conclusions, and develop

recommendations using basic research methods tools. They will provide actionable and feasible recommendations based on their analysis.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 8450 or permission of instructor

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**HMI 8453: Executive Management Studies**

Students will use scientific evidence and techniques to solve applied problems in health care organizations. Students will serve as professional consultants, working within small teams to develop project specifications and plans in collaboration with their clients. They will develop data collection protocols, collect and analyze data, draw conclusions and develop recommendations using basic research methods tools. They will provide actionable, feasible recommendations to their clients based on their analysis. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Graduate standing or permission of the instructor

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**HMI 8460: Administration of Health Care Organizations**

Analyzes health care organizations, emphasizing organizational structure, and strategy, and managerial leadership. Topics include governance, adaptation, design, interorganizational networks, and organizational performance.

**Credit Hours:** 3

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**HMI 8461: Managing Human Resources in Health Care Organizations**

Provides a framework for understanding and thinking strategically about employee relations and management of people in organizations, drawing on insights from social sciences to explore how psychological, economic, social, and cultural forces influence human resources management in health care.

**Credit Hours:** 3

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**HMI 8470: Strategic Planning and Marketing for Health Care Organizations**

Analysis of strategic planning and services management and marketing concepts, techniques, and tools in the health care industry. Includes analyzing the environment, assessing the organization's strengths and weaknesses, formulating strategy to achieve competitive advantage, and implementing strategy through service management and marketing.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, and HMI 8524

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**HMI 8472: Financial Management for Health Care Organizations**

Application of concepts, tools and techniques of financial management and their interrelationships as they apply to current and future operation of health care organizations. Prerequisites: For Residential students: HMI 7410, HMI 7471, HMI 8460, HMI 8524. For Executive students: HMI 7410, HMI 8460, HMI 8524, and satisfactory completion of college-level courses in managerial accounting and financial management or satisfactory completion of HMI's online accounting and finance module.

**Credit Hours:** 3

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**HMI 8478: Knowledge Management in Health Care**

Representing clinical terms, concepts and knowledge in a form for manipulation by intelligent systems. Theoretical formalisms and conceptual representations of medical information. Examination of knowledge engineering tools and decision support systems.

**Credit Hours:** 3

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**HMI 8485: Problems in Health Management and Informatics**

Intensive study of an area of health services management.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**HMI 8515: Problems in Medical Ethics and Clinical Ethics Consultation Practicum**

The Problems in Medical Ethics Course is a practicum based course with a hands-on clinical ethics consultation component. The course will provide the student with a tailored learning experience that will encourage and develop skills and a working knowledge about health care ethics, and the ability to respond effectively when confronted with the difficult ethical dilemmas that may be encountered at multiple levels in the complex arena of health care. Specifically students will cultivate skills which will optimize their ability to work as an ethics consultant in a multidimensional and diverse society as well as an inclusive health care environment. The course is designed with flexibility in mind, however there are mandatory onsite components which will require the student to attend structured meetings, consultations and presentations.

**Credit Hours:** 5

**Prerequisites:** M-4 status for medical students. For Graduate students, HMI 7564 - Health Ethics Theory and HMI 8565 - Health Care Ethics and permission of instructor

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**HMI 8524: Health Economics**

Building upon previous knowledge of basic economic theories, concepts, and tools, the structure, organization, activities, functions, and problems of health and medical care are considered from an economics perspective.

**Credit Hours:** 3

**Prerequisites:** microeconomics

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**HMI 8544: Managerial Epidemiology (Population Health Management)**

Examination of basic epidemiological concepts and methods as applied to health services management. Equal emphasis on applications of epidemiology to health services planning, quality monitoring, policy development, system development, and finance.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students only

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**HMI 8545: Methods in Public Health Informatics/Biostatistics**

This course will cover foundational statistical knowledge and methods relevant to Public Health Informatics (PHI). The purpose of this course is to teach students to identify and perform appropriate statistical methods for the data analysis of data from many commonly used experimental designs in the field of PHI. The emphasis of the course is on the understanding of theoretical assumptions underlying these statistical methods. The focus of this course is to perform selected statistical

analyses using, SPSS and/or R and to interpret statistical results, in a manner relevant to public health informatics in the context of public health. This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them specifically to the public health field.

**Credit Hours:** 3

**Recommended:** college algebra

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**HMI 8546: Public Health Information and Visualization (GIS) in Public Health**

This course will cover foundational knowledge of Geographic Information Systems (GIS) relevant to Public Health Informatics (PHI). The purpose of this course is to learn basic descriptive and analytical functions of GIS for research and application areas in the field of PHI. The course emphasis is for students to gain hands-on experience in the use of GIS, mapping, and spatial data analysis software such as ArcGIS, R, and Instant Atlas. The focus is on the use of geographic information systems (GISs) in the analysis of public health data. No previous knowledge of mapping or GIS is required, but one is expected to have a working knowledge of MS Office, Windows operating systems, and Biostatistics (prerequisites Methods in Public Health Informatics/Biostatistics). This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them in a GIS context specific to Public Health Informatics.

**Credit Hours:** 3

**Prerequisites:** HMI 8545

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**HMI 8550: Health Data Analytics**

The purpose of this course is to provide you with an applied approach to analyze healthcare data. It will enhance abilities to know when and how to use theories, concepts, and tools of data analysis and statistics to evaluate and analyze health care data systematically. The emphasis of the course is on the use of data analysis in the health care field. The focus is on applying data analysis to health care data, problems and issues in the health care system, and on the data application necessary to make decisions based on the analysis. This course builds upon previous knowledge of basic statistics and analytics, concepts, and tools by applying them specifically to the health care system.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics or permission of instructor

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**HMI 8565: Health Care Ethics**

Explores ethics issues and controversies facing clinicians and healthcare administrators. Topics may include end-of-life care, imperiled newborns, maternal-fetal conflict, procreative liberty, genetic screening and enhancement, organ procurement and allocation, rationing, public health, workplace relationships, and conflicts of interest.

**Credit Hours:** 3

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**HMI 8571: Decision Support in Health Care Systems**

Applies principles and techniques of computer-assisted decision making to solve health care problems. Clinical and managerial applications of artificial intelligence, including expert systems reviewed. Advantages of integrating decision support programs with databases are discussed.

**Credit Hours:** 3

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**HMI 8573: Decision Making for Health Care Organizations**

Applies and integrates data and decision making techniques with process analytic and improvement tools and techniques. Also includes applications of spread sheets and relational databases in healthcare settings.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students

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**HMI 8574: Health Care Law**

Survey of the function and methods of law as applied to health care administration and health care.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 7471, HMI 8460, HMI 8524. Non HMI students with a Graduate or professional school career may be able to take the course with instructor consent

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**HMI 8575: Health Policy and Politics**

Overview and critical analysis of health policy issues in the United States, including how the dynamics of the policy making process have shaped outcomes, successful and unsuccessful, of a number of important policy initiatives.

**Credit Hours:** 3

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**HMI 8580: Project Management**

This course is designed to provide an in-depth understanding of the fundamentals of project management and its application to the provision of health care. A problem-based approach is used to frame both the theoretical underpinnings of project management and hands-on practical application. Students will develop an understanding of the foundations of project management designed to enable them to successfully complete the certification exam to become a certified project manager. Course content includes project scope development, project work breakdown, financial control, and human resources management for projects.

**Credit Hours:** 3

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**HMI 8610: Consumer Health Informatics**

Consumer health informatics explores the branch of medical informatics that analyzes consumers' needs for information; studies and implements methods of making information accessible to consumers; and models and integrates consumers' preferences into medical information systems.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 or instructor's consent

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**HMI 8689: Field Experience in Health Management and Informatics**

Supervised field experience in approved health agencies and institutions. Opportunity for observation and service participation in various fields of health. Graded on an A-F basis only.

**Credit Hours:** 3

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**HMI 8810: Research Methods in Informatics**

(same as INFOINST 8810). Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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**HMI 8870: Knowledge Representation in Biology and Medicine**

(same as INFOINST 8870). The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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**HMI 9440: Technology Evaluation in Health Care Systems Research**

(same as NURSE 9470). Examines technology applications and evaluator methods used to determine outcomes, efficiencies, effectiveness, satisfaction, and cost of using technology. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410 or faculty consent

**Prerequisites:** 6.0 credit of graduate statistics

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## Health Professions (HTH\_PR)

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**HTH\_PR 1001: Topics in Health Professions**

Organized study of selected topics in Health Professions. Particular topics and credit may vary each semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 2000: Leadership in Health Care**

This course will cover a broad range of concepts in leadership and professional development. Focus will be placed on knowledge and skills necessary for effective leadership in the Health Professions. The first of two semesters series. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructors consent

**Recommended:** to students in specified leadership programs

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**HTH\_PR 2001: Topics in Health Professions**

Organized study of selected topics in health professions. Particular topics and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing and instructor's consent

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**HTH\_PR 2960: Special Readings in Health Professions**

Directed study of literature and research reports in the health-related professions.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 4085: Problems in Health Professions**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HTH\_PR 4250: Human Kinesiology**

(same as PH\_THR 4250 and OC\_THR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Application through analysis of daily functional performance, exercise and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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**HTH\_PR 4310: Health Policy for the Health Professional**

Seminar to facilitate understanding of health policy, the legislative process, and politics. Emphasis on health professions, including issues of workforce, funding, and advocacy in the context of current health policy issues.

**Credit Hour:** 1-3

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**HTH\_PR 4950: Research Apprenticeship in Health Professions**

This course provides undergraduate students in the health professions and related disciplines experience with research in the health professions and related disciplines experience with research in the health professions. Students will assist in the development and execution of research projects under the supervision of an SHP faculty member.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 7001: Topics in Health Professions**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 7300: Health Care in the United States**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**HTH\_PR 7310: Health Policy for the Health Professional**

Seminar to facilitate understanding of health policy, the legislative process, and politics. Emphasis on health professions, including issues of workforce, funding, and advocacy in the context of current health policy issues.

**Credit Hour:** 1-3

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**HTH\_PR 8001: Topics in Health Professions**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 8085: Problems in Health Professions**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 8960: Directed Readings in Health Professions**

Selected readings on specific topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Health Sciences (HLTH\_SCI)

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**HLTH\_SCI 1000: Introduction to the Health Professions**

Overview of clinical/non-clinical health careers; aptitudes/abilities needed for each; the history, current and future state of health care in the U.S: introduction to diverse populations and patient/family issues; Assists with career planning/selection of appropriate majors. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2100: Health Sciences Seminar**

Professional Development course for Health Science Majors. Topics include resume development/ revision , interviewing skills, applying to graduate/professional programs and/or jobs, professional communication, etc. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** sophomore standing required; restricted to Health Science majors only

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**HLTH\_SCI 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2200W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 3300: Public Health Principles, Practice, and Education**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or

compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3300H: Public Health Principles, Practice, & Education - Honors**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 3300W: Public Health Principles and Practice - Writing Intensive**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3310: Social and Behavioral Health Theory and Practice**

Social and Behavioral Health (SBH) is the core discipline of public health that focuses on the factors that influence individuals' and communities health actions and decisions. This course will take both a theoretical and a practical approach to understanding SBH. Students will gain an understanding of theory and develop practical skills to apply theories to real world health issues. Readings, assignments, and discussions will focus largely on ways to understand and change health behaviors and various individual, relational, community, and social-level influences on health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration. Sophomore standing required

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**HLTH\_SCI 3400: Global Public Health and Health Care Systems**

(same as PEA\_ST 3401). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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**HLTH\_SCI 3500: Mental Health**

This course provides a look at mental health problems with regard to influences, etiology, diagnosis, and treatment. Students learn theories of mental health, diagnostic criteria, treatment modalities, and community issues concerning the mental health system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 3600: Health Promotion Programs I: Assessment and Planning**

Health promotion planning is the development and implementation of a well-researched and tailored intervention to increase the health status of an individual and population. This course will provide a comprehensive introduction to health promotion planning and assessment by integrating a solid theoretical foundation of the discipline with hands-on experience in assessing needs, assets and capacity for health education, health education and project planning, funding, intervention development, implementation of health education projects, and evaluation. Special attention placed on implementing health education and promotion programs that are tailored to the particular population in need as well as specialized for the appropriate setting be it school, work, health care clinic, or the community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors during pre-registration

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**HLTH\_SCI 3610: Health Promotion Programs II: Implementation, Evaluation, and Communication**

This course builds on topics covered in Health Promotion Programs I: Assessment and Planning. It will provide a comprehensive introduction to the implementation, evaluation and communication required for successful health promotion programs by integrating a solid theoretical foundation of the discipline with hands-on experience in the implementation of health promotion program, developing an evaluation and communication strategies for successful health education and health promotion programs in a variety of community-based settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors only

**Corequisites:** HLTH\_SCI 3600

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**HLTH\_SCI 3900: Introduction to The Research Process and Evidence Base**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education

and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 3900W: Introduction to The Research Process and Evidence Base - Writing Intensive**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 4001: Topics in Health Science**

Organized study of selected topics. Subjects will vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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**HLTH\_SCI 4300: Health Care in the United States**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4300H: Health Care in the United States - Honors**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 4400: Culture and Health Literacy for the Health Professions**

This course will explore differences and attitudes towards the health care industry across various social, cultural and ability groups. This exploration will result in more culturally competent health professionals by promoting self-awareness and challenging the existing assumptions and biases of the health care system.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**HLTH\_SCI 4410: Humanism and Health Literacy**

This class will teach how the humanities can help students become better health professionals. Topics include: spirituality and health; non-medical factors that impact health; representation of disability in art history; and literature and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4420: Health Literacy and Behavioral Compliance**

Students will learn about the behavioral, psychological, and cognitive factors that impact health literacy and the ability to follow healthcare recommendations.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4480: Clinical Ethics**

Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4480W: Clinical Ethics - Writing Intensive**

Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4500: Health Care Management**

Examines various management concepts as they relate to the unique environment of health care. Concepts include planning, decision making, budgeting, staffing, organizing, and motivating for working with individuals or teams. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100; junior standing

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**HLTH\_SCI 4510: Essential Tools for the Health Care Leader: A Problem-Based Approach**

This course is designed to increase students' ability to evaluate, synthesize, and perform tasks in the areas of business intelligence, business analysis, performance and process improvement, data management and mining, information security and privacy, and project management. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above; HLTH\_SCI 2100. Restricted to Health Sciences Majors Only

**Recommended:** Access to and experience using Microsoft Excel 2010

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**HLTH\_SCI 4975: Internship in Health Sciences**

Focuses on knowledge, skills and attitudes that enhance personal effectiveness and professional success. Opportunities to research selected career paths and related topics in health sciences and participate in directed service learning projects or internships in selected emphasis area. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 4985: Healthcare Organization and Leadership**

(same as CDS 4985). In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100; senior standing required

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**Hebrew (HEBREW)**

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**HEBREW 1100: Elementary Hebrew I**

For beginners with no prior knowledge of Hebrew. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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**HEBREW 1200: Elementary Hebrew II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in HEBREW 1100, or equivalent

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**HEBREW 2001: Topics in Hebrew-General**

Organized study of selected topics. Subjects and topics may vary semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

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**HEBREW 2005: Topics in Hebrew - Humanities**

Organized study of selected topics. Subjects and topics may vary semester to semester. May be repeated with departmental consent. No knowledge of Hebrew required. No language credit.

**Credit Hour:** 1-3

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**HEBREW 3085: Problems in Hebrew**

Supervised study of Hebrew language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HEBREW 3310: Introduction to Israeli Culture**

Examines unique qualities that shape modern Israeli culture; looks at major social and political events that have shaped ethnicity, ideology, religion, identity, and diversity of the State of Israel. Discusses literature, the fine arts, language, and the mass media. No Foreign Language credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**HEBREW 3845: Modern Israeli Film**

(same as FILM\_S 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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**Honors-General (GN\_HON)**

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**GN\_HON 1010H: Career Explorations**

Colloquia in which experts from both the University and the Columbia communities discuss their specialties and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 1030H: Honors Discussion Groups**

Informal discussion between students and faculty on various academic topics. Graded S/U only.

**Credit Hour:** 1-2

**Prerequisites:** Honors eligibility required

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**GN\_HON 1050H: Honors Seminar**

Freshman-sophomore seminar offering a small group opportunity to write about and discuss basic works chosen by instructor.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1070H: Honors Elective Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1080H: Honors Internship**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2010H: Honors Tutorial**

Small group of students (2-5) engage in collaborative work under faculty guidance. The focus is determined in advance by a faculty member and shaped through discussion with the enrolled students. Course may be repeated for credit. Honors eligibility required

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GN\_HON 2015H: Theory and Practice of Tutoring Writing Seminar**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies

students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2085H: Honors Problems**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2111H: The Ancient World**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2111HW: The Ancient World - Honors/Writing Intensive**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112H: The Middle Ages and the Renaissance**

The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112HW: The Middle Ages and the Renaissance - Honors/Writing Intensive**

The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment**

The third segment of the Sequence treats the cultural developments in the West from the Baroque to the Enlightenment through Romanticism. The works of Cervantes, Descartes, Milton, Voltaire, Kant, Austen, Goethe, and Dickinson are among those studied. The music and visual arts of these periods are also included.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114H: The Modern Era**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114HW: The Modern Era - Honors/Writing Intensive**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2230HW: Honors Social Science Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2243H: Human Sciences Sequence I: Personal Identity**

This interdisciplinary course approached the perennial but fascinating question of how we define, develop, and present ourselves. It considers this question from a range of disciplinary, regional, and thematic perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2244H: Social Relations**

This interdisciplinary course explores the construction of human identity as it related to social groups (these groups might include anything from the family to fan clubs, sports teams to college students).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2245H: Social Organization**

This course examines various forms of social organization from an interdisciplinary perspective. The course will examine small organizations (such as families and kin networks) that are grounded in face-to-face relationships and then consider the impact of large-scale organizations (such as markets and states). The class will also explore how these larger organizations can hold together in the absence of direct personal connections between members.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2246H: Global Citizenship**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2246HW: Global Citizenship - Honors/Writing Intensive**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2310H: Honors Behavioral Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2450H: Honors Biological, Physical, Math (Computer Science) Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Biological, Physical or Mathematical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2461H: Environment: From Molecules to the Cosmos**

Inquiry-based exploration of how the world was made, environments formed, life evolved, and how it works together to sustain life on Earth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2462H: Energy: From Particles to Civilizations**

Inquiry based exploration of energy, what it is, how it is used, and how it sustains our life on Earth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 1-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 3070H: Honors Electives Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3070HW: Honors Electives Colloquium - Honors/Writing Intensive**

Honors Electives Colloquium - Honors/Writing Intensive.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3112H: Interdisciplinary Topics in the Humanities: Aesthetics and Performance**

Aesthetics and Performance is the 2nd course offered in a four-semester, upper-level Humanities Series. It takes an Interdisciplinary approach to a variety of topics relevant to such disciplines as Art History, Art, Theater, English, and Film Studies. Students will be introduced to key figures, ideas, and texts in aesthetics and performance. The course format will be a combination of guest lectures, small-group discussion, and when possible, team-teaching. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing. Honors eligibility required

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**GN\_HON 3113H: Interdisciplinary Topics in the Humanities: Big Ideas, Big Questions**

Big Ideas, Big Questions is the third course offered in a four-semester, upper-level Humanities Series. It takes an interdisciplinary approach to concepts, theories, debates, and questions central to our understanding of the humanities.

**Credit Hours:** 3

**Prerequisites:** upper-level standing or permission of instructor; Honors eligibility required

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**GN\_HON 3120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3120HW: Honors Humanities Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210H: Honors Behavioral Colloquium**



**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210HW: Honors Behavioral Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3230HW: Honors Social Science Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3241H: Human Nature**

(same as ANTHRO 3340H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3241HW: Human Nature - Honors/Writing Intensive**

(same as ANTHRO 3340H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary "self" or are we made up of many (and sometimes contradictory) selves? Is there a single "human" nature or are there distinct "male" and "female" natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of "human nature" is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3242H: Interdisciplinary Topics in the Human Sciences: The Nature of Humans**

This course investigates the dynamic qualities of human experience in psychological, social, and environmental context with a focus on contemporary global issues. Course topics vary by semester but will bridge the social and behavioral sciences to address an overarching question: What makes us human? We will explore the social and behavioral factors that shape our shared human condition as well as those that contribute to diversity in the human experience. We will then investigate the complexities of what it means to be human within the globally interconnected societies we live in today. How do we deal creatively with human diversity in addressing the global problems and uncertainties that confront us? What attitudes, practices, and projects might help us manage global uncertainties and opportunities more effectively? What is your role in the global community of the twenty-first century? In exploring these questions through intensive reading, writing, research, and discussion, this course will help you develop a global consciousness that is sensitive to the lived textures and realities of places and peoples around the world. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3242HW: Interdisciplinary Topics in the Human Sciences: The Nature of Humans - Honors/Writing Intensive**

This course investigates the dynamic qualities of human experience in psychological, social, and environmental context with a focus on contemporary global issues. Course topics vary by semester but will bridge the social and behavioral sciences to address an overarching question: What makes us human? We will explore the social and behavioral factors that shape our shared human condition as well as those that contribute to diversity in the human experience. We will then investigate the complexities of what it means to be human within the globally interconnected societies we live in today. How do we deal creatively with human diversity in addressing the global problems and uncertainties that confront us? What attitudes, practices, and projects might help us manage global uncertainties and opportunities more effectively? What is your role in the global community of the twenty-first century? In exploring these questions through intensive reading, writing, research, and discussion, this course will help you develop a global consciousness that is sensitive to the lived textures and realities of places and peoples around the world. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3450H: Honors Biological, Physical, Math (Computer Sci.) Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 4070H: Advanced Honors Elective Colloquium**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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**GN\_HON 4070HW: Advanced Honors Elective Colloquium - Writing Intensive**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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**GN\_HON 4950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 2-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Junior standing required. Honors eligibility required

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## Hospitality Management (HSP\_MGMT)

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**HSP\_MGMT 1100: Introduction to Hospitality Management**

An overview of the size, scope, form, analysis and development of various sectors in the hospitality industry. These include hotel, tourism, food and beverage, convention and events, club, cruise, gaming, managed services, and sport venue management. Emphasis will be on the global nature of the industry and its impact on economy and employment. Students will be exposed to career opportunities, cultural diversity, ethical consideration and current trends facing industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to freshman and sophomore students only

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**HSP\_MGMT 2100: Hospitality Law**

Provides an integrated analysis of the legal system as it applies to the hospitality industry. Topics include: theories of recover/liability; employment laws, property rights and contracts, lawsuits and their prevention; familiarization with legal arguments, litigation, ethical issues and the tort of negligence in professional context. Relevant federal and state cases, statutes, and regulations will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2115: Club Management and Operations**

Examines aspects of club operations from a managerial perspective. Topics include: history, types of club and membership systems, club

management structure, charter, by-laws; athletic activities, master and club calendars; unique features of club operations including food and beverage operations, human resources management, finances, building and facilities management, external and governmental factors, trends and the future of clubs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2190: Seminar in Professional Development**

A systematic approach to expose students to a journey of self assessment and to develop life-long skills for their careers in the hospitality industry. Using professionalism as a framework, students are made aware of the foundation of effective workplace relationship and how to appropriately manage these relationships toward career success. Topics include self management, workplace relationship, and career planning tools. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100; restricted to Hospitality Management majors only

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**HSP\_MGMT 2200: Fundamentals of Conference and Events Industry**

Overview of the Meeting, Incentive, Convention and Exhibition (MICE) management industry in hospitality and tourism from a macro perspective. The knowledge and information available to conference and meeting business are described and evaluated, including the trend and issues facing the industry, the characteristics of the size and scope of the market, key players, and different sectors in the meeting industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2300: Fundamentals of the Food and Beverage Industry**

An introduction to the macro aspects and a comprehensive overview of the Food and Beverage industry. The course begins with a history of meals away from home and an overview of commercial versus noncommercial food and beverage operations. Detailed considerations are given to components of the food service businesses: size and scope of the industry, major classifications, ownership types, key players, consumer purchasing behavior, quality assurance, trends, challenges, cultural diversity, ethical consideration, and impact of globalization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2400: Fundamentals of Lodging Industry**

Explores the foundations of the global lodging industry. The history of the industry, relationship of tourism, size and scope, classification and types, major global players will be examined. Issues related to the impact of globalization, international hotel investment, development and operations, global competitions, political aspects, human resources and cultural diversity will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2500: Fundamentals of Sport Venue Industry**

An overview of the Sport Venue Industry from a macro perspective. Students will be exposed to the major aspects regarding management of athletic and recreational facilities. Topics will include: history, trends and globalization of sport and venue development, types of sport facilities and major key players, construction and finance, facility systems and operations, sales and marketing, liability and risk management, ticket and box office operation, and event management. Cultural diversity, ethical issues and career opportunities in Sport Venue Management will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 3100: Service Management**

Addresses the essence of delivering memorable guest experience through service management. Topics include concepts of service, guest behavior, perceptions and satisfaction, service compliance standards, assessment methods and service recovery strategies. Students will then learn how to leverage their understanding of these concepts to establish service culture and strategies to meet organizational goals within the context of hospitality businesses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3104: Topics in Hospitality Management**

An examination of specific subject matter areas in the field of hospitality management will be addressed. Current issues, trends and challenges will also be discussed. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** HSP\_MGMT 1100; Restricted to Hospitality Management junior and senior students

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**HSP\_MGMT 3105: Problems in Hospitality Management**

Students develop problem solving, analytical skills by engaging in a supervised study of a selected field in the hospitality industry. Challenges and issues will be identified and probable solutions will be weighed and evaluated. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**HSP\_MGMT 3115: Management of Gaming Operations**

An overview, analysis of gaming management and financial elements unique to operating gaming businesses. Topics include: History and development of gaming, economic relationships, social impact, legal and changing competitive environments, consumer behavior and psychological forces, corporate culture and technology, revenue control, and promotion and marketing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3200: Conference and Meeting Management**

Addresses the different operational aspects regarding convention and meeting planning management. Students will be exposed to skill-based knowledge pertaining to meeting and event planning, implementation

and management. Topics discussed to include group business market, the role of the event planner, the various techniques and services used to meet their needs. Food and beverage, technology used, legal issues, social responsibility, and international aspects in the convention and meeting industry will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2200; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3300: Food Production Management**

Explore the production and service aspects of the food and beverage businesses. It will examine principles of concept development, menu planning, pricing and costing, forecasting, standardize recipe and testing, purchasing, food sanitation and safety, quantity food production, delivery of service, inventory control, quality assurance, professionalism and team work. Students will rotate through the different functions of the "front" and "back of the house" of a food facility. This supervised student-operated facility enables students to apply theories to the actual food service operation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; Restricted to Hospitality Management juniors and seniors only

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**HSP\_MGMT 3310: Food Service Budgeting and Controls**

Examines management systems and techniques in the food and beverage industry. Topics include: effective use and control of food, beverage, and labor costs to manage a company's operations, with emphasis on computer applications, problems solving and analytical skills, making sound financial decisions, and excellence in customer service. This is a Math Reasoning Proficiency course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100, MATH 1100.; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3315: Banquet and Catering Management**

Engage in the management of service and production systems in catering operations and banquet facilities. An emphasis will be placed on the fundamentals of communication and planning with event coordinators, menu planning, sales and marketing, food and beverage cost control, guest service standards, quantity food productions, food safety, needs and challenges of catering both on and off premises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3320: Beverage Management**

Explore and analyze operational and managerial elements of the bar and beverage industry. Topics include: alcoholic versus non-alcoholic beverage, beverage menu development, pricing strategy and costing, sensory evaluation, food and beverage pairing, marketing and promotion, inventory control, training of personnel, legal aspects of responsible service of alcohol. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300.; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3400: Lodging Operations and Management**

Exposes students to the principles of managing lodging businesses regarding the fundamental principles, hows and whys of management. Topics include: Analysis of the functions of each department, organization structure, inter-relationship among various departments of a lodging facility, property management system, safety and security, guest service and satisfaction, and total quality issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400

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**HSP\_MGMT 3420: Technology Applications in the Lodging Industry**

Survey of the technology applications, issues, and trends in the lodging industry. The role of technology in operations and as a strategic tool to achieve competitive advantage will be examined. Students will need to have a good grasp of how to best implement information technology that will impact the future of their organizations. Current technology issues of interest and importance to the industry will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 3500: Sport Venue Operation Management**

Examines the various operational dynamics and management of sport venues and facilities. Topics such as public versus private ownership and governance structures, facility planning and feasibility study, design and construction, event planning, programming and execution, sales and marketing, box office operations, and financial management will be addressed. Ethical issues, legal responsibilities, risk and security management will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500; Restricted to Hospitality Management junior and senior students only

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**HSP\_MGMT 3993: Field Training in Hospitality Management**

Applies theories into actual industry setting. Aspects such as career paths, team work, inter-relationship in the workplace and professionalism are explored. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 4100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4100W: Hospitality Human Resources Management - Writing Intensive**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4110: Hospitality Sales and Marketing Management**

(cross-leveled with HSP\_MGMT 7110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4180: Strategic Management in the Hospitality Industry**

Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think "out-of-the-box" in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3100 and MANGMT 3000. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4190: Trends in Hospitality Management**

To keep abreast of the development that affects current managerial practices, this course is a survey of key trends and critical issues that impact the hospitality industry. Best practices, opportunities and challenges facing the industry will also be discussed. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100 and open to Hospitality Management students only

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**HSP\_MGMT 4200: Destination Management**

(cross-leveled with HSP\_MGMT 7200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2200. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4280: Special Events Management**

Synthesis of theories and a comprehensive guide in understanding, planning, promoting and producing and managing special events. Topics include: Event design, feasibility studies, legal compliance, promotion, safety and security, logistics, staffing, financial control and technology. It is based on a systematic, step-by-step approach to event planning, implementation, and management. This course requires a considerable amount of teamwork. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3200. Open Hospitality Management senior students only

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**HSP\_MGMT 4280W: Special Events Management - Writing Intensive**

Synthesis of theories and a comprehensive guide in understanding, planning, promoting and producing and managing special events. Topics include: Event design, feasibility studies, legal compliance, promotion, safety and security, logistics, staffing, financial control and technology. It is based on a systematic, step-by-step approach to event planning, implementation, and management. This course requires a considerable amount of teamwork. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3200. Open Hospitality Management senior students only

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**HSP\_MGMT 4380: Managing Food Service Businesses**

Students explore the market positioning and the management of the student-run food service operation from concept development to execution. Students will apply knowledge gained from marketing, human resources and operational budgeting to develop their themes and execute their meals. Students will hone their problem solving, leadership and interpersonal skills while engaging in team building. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3300. Open to Hospitality Management senior students only

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**HSP\_MGMT 4380W: Managing Food Service Businesses - Writing Intensive**

Students explore the market positioning and the management of the student-run food service operation from concept development

to execution. Students will apply knowledge gained from marketing, human resources and operational budgeting to develop their themes and execute their meals. Students will hone their problem solving, leadership and interpersonal skills while engaging in team building. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3300. Open to Hospitality Management senior students only

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**HSP\_MGMT 4400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 7400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100, FINANC 2000. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4480: Advanced Lodging Management**

Apply, integrate, and synthesize previously learned knowledge, skills, and experience to solve real problems that the lodging industry faces. Specifically, managerial responsibilities, organizational structures and current trends will be examined. Throughout the class students will develop their professional identity, leadership skills and confidence to participate in the workforce. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3400. Open to Hospitality Management senior students only

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**HSP\_MGMT 4480W: Advanced Lodging Management - Writing Intensive**

Apply, integrate, and synthesize previously learned knowledge, skills, and experience to solve real problems that the lodging industry faces. Specifically, managerial responsibilities, organizational structures and current trends will be examined. Throughout the class students will develop their professional identity, leadership skills and confidence to participate in the workforce. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3400. Open to Hospitality Management senior students only

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**HSP\_MGMT 4500: Management and Promotion of Live Entertainment**

Examines the various media used to promote venues, events and live entertainment. Topics include: Artist management, budgets and financial management, insurance, liabilities, contracts and riders, event production and tour scheduling, sport communication, and community relations. In particular, emphasis will be on the use of social media platforms in promotions, public relations, and other revenue generating activities of the industry. The principles of organizational advocacy, press conferences, and crisis communication plans will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500, open to Hospitality Management students only

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**HSP\_MGMT 4515: The Business of Sport Venue Management**

Focuses on the business aspects of managing athletic and recreational venues. The course examines the management and financial tools that managers use to run their sport venues and businesses. Traditional and innovative methods of revenue acquisition, financial business structure, sponsorship and forecasting processes as it pertains to the effective management of venues and sport organizations are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4580: Sport Venue and Facility Management**

Applies previously learned principles and concepts of sport venue management and develop critical planning and organizational skills required of sport venue managers. The course will address three main modules: Security and risk management, the sport venue, and the sport event. The security and risk management module will examine efficient best practices and how they can significantly reduce the occurrence of injury and loss at sports venues and events. The sport venue and event modules will integrate concepts of venue planning, construction and operations; and event conception, planning, execution and reconciliation through case study analysis. Ethical considerations will also be stressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3500. Open to Hospitality Management seniors only

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**HSP\_MGMT 4580W: Sport Venue and Facility Management - Writing Intensive**

Applies previously learned principles and concepts of sport venue management and develop critical planning and organizational skills required of sport venue managers. The course will address three main modules: Security and risk management, the sport venue, and the sport event. The security and risk management module will examine efficient best practices and how they can significantly reduce the occurrence of injury and loss at sports venues and events. The sport venue and event modules will integrate concepts of venue planning, construction and operations; and event conception, planning, execution and reconciliation through case study analysis. Ethical considerations will also be stressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3500. Open to Hospitality Management seniors only

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**HSP\_MGMT 4993: Internship in Hospitality Management**

Students apply concepts and theories from their coursework to practical work experiences in the hospitality industry, under the direction of industry professionals and faculty evaluation. It is the student's responsibility to secure an internship position and all internship experience must have prior approval from his/her advisor. In addition to the field experience, students will develop their problem solving and analytical skills through projects that are operational in nature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**HSP\_MGMT 7100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 4100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7110: Hospitality Sales and Marketing**

(cross-leveled with HSP\_MGMT 4110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7180: Strategic Management in the Hospitality Industry**

(cross-leveled with HSP\_MGMT 4180). Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think "out-of-the-box" in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**HSP\_MGMT 7200: Destination Management**

(cross-leveled with HSP\_MGMT 4200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7390: Optimization and Management of Food and Agriculture Systems**

(same as F\_S 7390 and AG\_S\_M 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 4400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Human Development And Family Studies (H\_D\_FS)

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**H\_D\_FS 1520: Drop-In Child Care Programs**

Examination of appropriate planning for and experience in a drop-in child care program.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 or equivalent and instructor's consent

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**H\_D\_FS 1600: Foundations of Family Science**

Introduction to family studies discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**Credit Hours:** 3

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**H\_D\_FS 1600H: Foundations of Family Science - Honors**

Introduction to family studies discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**H\_D\_FS 1610: Intimate Relationships and Marriage**

Examination of issues pertaining to intimate and marital relationships such as relationship foundation and dissolution processes, love, sex, behavioral scripts, and conflict. Diversity related to race, ethnicity, gender, and sexual orientation is explored.

**Credit Hours:** 3

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**H\_D\_FS 2085: Problems in Human Development and Family Science**

Graded on S/U basis only.

**Credit Hour:** 1-30

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**H\_D\_FS 2200: Research Methods in Human Development and Family Science**

Introduction to research methods in the social sciences. Emphasis on both qualitative and quantitative methods, as well as applied research and program evaluation.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**H\_D\_FS 2300: Multicultural Study of Children and Families**

Study of cultural variation in family life around the world and within America (e.g.: African-American, Hispanic American). Attention is paid to the external conditions that affect the internal workings of these families.

**Credit Hours:** 3

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**H\_D\_FS 2400: Principles of Human Development**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 3

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**H\_D\_FS 2400H: Principles of Human Development - Honors**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**H\_D\_FS 2400HW: Principles of Human Development - Honors/ Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**H\_D\_FS 2400W: Principles of Human Development - Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLISH 1000

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**H\_D\_FS 2450: Human Sexuality Across the Life Span**

An introductory survey of human sexuality including gender, love and intimacy, sexual expression and variation, sexual orientation, contraception, pregnancy and birth, sexually transmitted infections, sexual coercion, and sex in society. Sexuality within the context of intimate relationships across the life course will be emphasized.

**Credit Hours:** 3

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**H\_D\_FS 2510: Observation, Assessment, and Curriculum Planning**

This course is fundamental for students in the emphasis area Child Development and Education and for other students planning to engage

in work that requires observing young children to plan curriculum and assess their development.

**Credit Hours:** 4

**Prerequisites:** H\_D\_FS 2400

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**H\_D\_FS 3050: Child Development: Birth to 3 (Infant/Toddler)**

Child development from birth to age 3. Topics include growth patterns; influences of disabilities and risk factors; environmental factors and attachment; language acquisition; brain development; cognitive and social-emotional development; and perceptual and sensory motor skills. Some course content overlaps with H\_D\_FS 3500.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 3090: Research Experience in Human Development and Family Science**

Student training and engagement in research with a H\_D\_FS faculty member. Students learn about the research process and methods, and develop research skills (e.g., data collection, entry, coding, analysis) through hands-on work. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200; instructor's consent

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**H\_D\_FS 3150: Child Development 4-8 (Early Childhood)**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3150W: Child Development 4-8 (Early Childhood) - Writing Intensive**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3250: Introduction to Early Childhood Education in a Mobile Society**

Role of a professional as a teacher, administrator, or advocate in early childhood programming. Topics include professionalism and ethics; identifying child abuse; the role of an early childhood educator; program models and working with children and professional colleagues.

**Credit Hours:** 3

**Prerequisites:** enrollment restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 3350: Child Guidance and Classroom Environments**

Examines developmentally appropriate practice in child guidance. Current guidance methods and programs will be covered. Students will develop their own approach to guidance based upon course content.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 3420: Early and Middle Childhood**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3420W: Early and Middle Childhood - Writing Intensive**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3430: Adolescence and Young Adulthood**

Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 3440: Adulthood and Aging**

Examination of biological, cognitive, psychological and social changes experienced across adulthood.

**Credit Hours:** 3

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**H\_D\_FS 3450: Health, Safety and Nutrition**

Topics include planning, promoting, and maintaining health and safe learning/care environments; understanding childhood illnesses and establishing healthy lifestyles; performing first aid; and maintaining care providers' health and safe relationships with others; identifying and reporting child abuse; nutrients for life; and safe food preparations.



**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains Idea Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3500: Infant-Toddler Practicum**

Practical experience working with infants and toddlers, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social/emotional, creative and motor development; and staff and family relationships in child care settings. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3050 or H\_D\_FS 3420 or instructor's consent

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**H\_D\_FS 3530: Foundations of Community-Based Programs for Children and Youth**

Examines non-academic community-based programming for children and youth. Experience working with these age groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 or equivalent or instructor's consent

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**H\_D\_FS 3550: Technology and Young Children**

Students will learn how electronic technology impacts the development of young children in educational, home and community environments, and how technology can be used to enhance teaching and learning.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3600: Partnering with Parents and Families**

Examination of stages of parenthood, caregiving styles, and the impact of relationships and culture on caregiving and its challenges. Development of applied skills working with parents and families in a service learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2400

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**H\_D\_FS 3650: Diversity in the Lives of Young Children and Families**

In this course, students will explore cultural diversity in daily life and beliefs in families with young children. The focus is on U.S. families, with attention to the multiple cultures from which they come. Course content overlaps with H\_D\_FS 2300. Not recommended for students to enroll in both courses. Students may not receive credit for both H\_D\_FS 3650 and H\_D\_FS 2300.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 3700: Preschool Practicum**

Practical experience working with children ages 2.5-5 years of age, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social and emotional, creative, and motor development, and family and staff relationships in a child care setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3150 or H\_D\_FS 3420 or instructor's consent

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**H\_D\_FS 3720: Student Teaching Prekindergarten**

Experience working with children (2-5 years), using general guidance principles and methods for fostering creativity.

**Credit Hours:** 6

**Prerequisites:** H\_D\_FS 3420 or equivalent and instructor's consent

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**H\_D\_FS 3730: Field Training Practicum**

Field training experiences under supervision. May be repeated for credit. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** advisor's consent

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**H\_D\_FS 3750: Working with Families**

This course focuses on application of an ecological model to the understanding of variation in parental roles, perspectives, approaches, and challenges. The course also provides an overview of effective communication strategies and parent education programs. Course content overlaps with H\_D\_FS 3600. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 3600 and H\_D\_FS 3750.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 3800: Children's Play**

This course is an examination of the complex phenomenon of play in children's lives. Emphasis is placed on the value of play in developmental, social, and cultural contexts. Topics include the exploration of play theories and supporting empirical evidence, play materials, various environments, violence and conflict resolution, and therapeutic uses of play. Observation and assessment of children at play and analysis of play environments is required.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400, H\_D\_FS 3420, PSYCH 2410 or ESC\_PS 2500 or equivalent, junior standing. Enrollment is restricted to H\_D\_FS and Pre H\_D\_FS majors during preregistration period

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**H\_D\_FS 3950: Practicum I: Child Observations in Classroom Environment**

Opportunity for Early Childhood Education teacher candidates to have a guided learning experience in a professional agency that provides services to children and families. Some course content overlaps with LTC 4110.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE); H\_D\_FS 3050, H\_D\_FS 3150, H\_D\_FS 3250, H\_D\_FS 3350 and H\_D\_FS 3450

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**H\_D\_FS 3960: Readings in Human Development and Family Science**  
Readings in recent research; critical discussions.

**Credit Hour:** 1-30

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**H\_D\_FS 4001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-6

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**H\_D\_FS 4085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 4090: Advanced Research in Human Development and Family Science**

Advanced training and engagement in research with a H\_D\_FS faculty member. Student develops research skills (e.g., data collection, entry, coding, analysis) and works semi-independently on own research project. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 and H\_D\_FS 3090; instructor's consent

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**H\_D\_FS 4100: Children in Health Care Settings**

Overview of the medical conditions and treatments commonly encountered by children and adolescents in health care settings and their typical reactions to them. Introduction to the philosophy and the role of the child life profession.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400 and H\_D\_FS 3420, or equivalent. Restricted to Human Development and Family Studies and Pre- Human Development and Family Studies majors during pre-registration period

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**H\_D\_FS 4110: Child Life Theory and Practice**

Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3420, H\_D\_FS 3500 or H\_D\_FS 3700, and instructor's consent

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**H\_D\_FS 4130: Child Life Practicum**

Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 4150: Development of Curriculum for Children Ages Birth to 3**

Students will learn and use assessment and documentation to inform curriculum; plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages birth to 3.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4200: Latino/a Youth and Families**

Current issues in theory, methods, and research in U.S. Latino/a youth and families are examined from a social and developmental psychological perspective. The course is an advanced level study, with a particular focus on history, theories, methods, research, and applied social issues. Topics will include, parenting, siblings, youth development and adjustment, stress, risky behaviors, gender issues, assessment, study design, cultural values, intervention programs, and immigration issues.

**Credit Hours:** 3

**Prerequisites:** Pre-H\_D\_FS and H\_D\_FS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400

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**H\_D\_FS 4250: Development of Curriculum for Children 4-8**

Students will learn and use assessment and documentation to inform curriculum, plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages 4-8.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4300: Black Families**

(same as BL\_STU 4300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the Black family.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent, and junior standing

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**H\_D\_FS 4350: Assessing Young Children and their Environments**

Use of appropriate assessment tools for children birth to 8. Using data to inform decisions about teaching and intervention. Emphasis on the ethical use of assessments, validity of assessments, multicultural sensitivity and assessment for children with special needs.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4400: Childhood Death and Bereavement**

An exploration of issues that arise for children and families when facing life-threatening illness and death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400, H\_D\_FS 3420 and instructor's consent. Restricted to HDFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 4420: Environmental Influences on Lifespan Cognition**

This course covers the change and growth of cognition through the lifespan with particular attention to how the environment influences cognition (including perception, language memory, attention executive functions, and problem solving).

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS Majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400 and H\_D\_FS 3420

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**H\_D\_FS 4450: Understanding and Adapting for Developmental Differences**

This course focuses on knowledge of disability conditions, assessment and identification, interventions in inclusive environments, and collaborations among service providers.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4550: Practicum II: Child Observations in Classroom Environments**

Practicum in ECE is an opportunity for teacher candidates to have a guided learning experience in a professional agency that provides services to children and families, and allows teacher candidates to have the opportunity to use and implement theories and practices. Course content overlaps with LTC 4110. Not recommended for students to enroll in both courses.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 4570: Development and Administration of Child Services Programs**

The development of leadership and management skills for administering community-and hospital-based programs for children. Includes an overview of office policy and procedure, staff and volunteer management, public relations, budgeting, accounts, accountability, and quality assurance.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-HDFS and HDFS Majors. Must have also completed H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400 and H\_D\_FS 3700

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**H\_D\_FS 4610: Stress and Resilience in Families**

Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4620: Family Interaction**

Analysis of intrafamilial interaction from a systems perspective; includes comparative study of family paradigms, family subsystems, goals, and resources, boundaries, and patterns of feedback.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4630: The Process of Divorce**

Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies are considered.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4640: Interpersonal Relationships**

In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students are introduced to the field of close relationships.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4650: Administration/Supervision in Early Childhood Settings**

Exploration of issues surrounding the administration of ECE programs including identification of community needs, analysis of business opportunities, evaluation and appropriate use of quality programming, consideration of policy and equal responsibilities, and professionalism. Course content overlaps with H\_D\_FS 4750. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 4650 and H\_D\_FS 4750.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 4655: History of the Family in Russia**

Survey of family relations in Russia from the Kievan period. Materials drawn from child development and family studies, education, history, sociology, and literature.

**Credit Hours:** 3

**Prerequisites:** 3 hours in Social/Behavioral Sciences

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**H\_D\_FS 4655H: History of the Family in Russia - Honors**

Survey of family relations in Russia from the Kievan period. Materials drawn from child development and family studies, education, history, sociology, and literature.

**Credit Hours:** 3

**Prerequisites:** 3 hours in Social/Behavioral Sciences. Honor eligibility required

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**H\_D\_FS 4680: Family Communication**

(same as COMMUN 4520). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**H\_D\_FS 4700: Children and Families in Poverty**

Study of the extent, distribution, and implications of poverty on children and families. Examination of myths and realities, social conditions, policies, and programs that contribute to or reduce poverty and its consequences.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4720: Child and Family Advocacy**

Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement. There will be sections restricted to H\_D\_FS majors and to Education majors. The H\_D\_FS section will be for 3 credits and the Education will be for 2 credits.

**Credit Hour:** 2-3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400

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**H\_D\_FS 4740: Parent-Child Relations Over the Life Course**

Examines the development, continuities, transitions, and discontinuities of parent-child relationships over the life course. Considers the influence of parents on children and children on parents.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent

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**H\_D\_FS 4750: Practicum III: Capstone Experience**

This is a 15-week experience allowing the student to demonstrate practical application of developmentally appropriate early childhood teaching techniques and skills, teaching experience and developmental feedback. Includes observation and evaluation of classroom experience. Course content overlaps with H\_D\_FS 3700 and LTC 4170. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 4750 and H\_D\_FS 3700 or H\_D\_FS 4750 and LTC 4170.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). H\_D\_FS 3950, H\_D\_FS 4150, H\_D\_FS 4250, H\_D\_FS 4350, H\_D\_FS 4450 and H\_D\_FS 4550

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**H\_D\_FS 4800: Program and Curriculum Design for FACS Education in Middle and Secondary Schools**

What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2010 and SPC\_ED 2020 or equivalent. Admission to Phase II, and instructor's consent

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**H\_D\_FS 4820: Assessment in Family and Consumer Sciences Education**

What should a teacher do to determine the extent to which program/lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design.

**Credit Hours:** 2

**Prerequisites:** admission into Phase II, H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 4830: Methods of Teaching FACS in Middle and Secondary Schools**

What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using

instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations.

**Credit Hours:** 3

**Prerequisites:** admission into Phase II, and instructor's consent

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**H\_D\_FS 4940: Field Experience in Family and Consumer Sciences**

Students will observe and assist in FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 4941: Field Experience in Family and Consumer Sciences**

Students will be involved in real-world experiences in a FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4830; requires instructor's consent

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**H\_D\_FS 4942: Student Teaching FACS in Middle and Secondary Schools**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLSH 1000, admittance to Phase III, and instructor's consent

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**H\_D\_FS 4942W: Student Teaching FACS in Middle and Secondary Schools - Writing Intensive**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLSH 1000, admittance to Phase III, and instructor's consent

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**H\_D\_FS 4970: Families and Lifespan Development Capstone**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**H\_D\_FS 4970W: Families and Lifespan Development Capstone - Writing Intensive**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**H\_D\_FS 4971: Child Development and Education Capstone**

Practical experience working with young children (up to 10) in out-of-home care facilities. Program planning for children and working with parents. Lab hours required.

**Credit Hours:** 9

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3500 and H\_D\_FS 3700, or equivalent and instructor's consent

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**H\_D\_FS 4993: Internship in Human Development and Family Science**

Internships or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 or equivalent and instructor's consent

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**H\_D\_FS 7001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 7085: Problems**

Independent work on special problems in human development and family studies. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 7100: Children in Health Care Settings**

Overview of the medical conditions and treatments commonly encountered by children and adolescents in health care settings and their typical reactions to them. Introduction to the philosophy and the role of the child life profession.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400 and H\_D\_FS 2420 or equivalent

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**H\_D\_FS 7110: Child Life Theory and Practice**

Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 and H\_D\_FS 3500 and instructor's consent

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**H\_D\_FS 7130: Child Life Practicum**

Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 7200: Latino Families and Youth**

This course will cover the critical integration of theoretical, methodological, and empirical issues in Latino psychology using a cross-cultural, cross-ethnic perspective, including the increased sensitivity to issues and challenges facing Latino families and youth from a social science perspective. There will be a particular focus on selected topics in social and developmental psychology, as well as, understanding the relevance to other areas of study, to policy contexts, and to applied

settings. Students will provide a written, integrative literature review and research proposal related to the course topic. The course will consist primarily of seminar discussions based on the textbook and additional readings. Students will lead class discussions based on the readings and their QRCs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 7231: Foundations of Youth Development**

This course provides an introduction to the field of youth development and the professions that include youth work. This course is designed to provide a foundation of knowledge that students will need to begin any course in the Great Plains IDEA Youth Development programs. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hour:** 1

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**H\_D\_FS 7233: Basic Grant Development and Management**

This course introduces students to grant development and management. This short-course is not intended to cover all aspects of grant development and management, but it will help students gain confidence in their grant development abilities and inspire them to learn more. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7252: Adult Development**

This course presents a life-span, multidisciplinary developmental framework that considers sociohistorical influences, individual differences, and concern for promoting optimal functioning. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7253: Physical Health and Aging**

This course identifies the basic physiologic changes during aging and their effects on health and disease. The focus will be on successful aging with special emphasis on physical activity and nutrition. Practical application to community settings is addressed. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7255: Aging Policy**

Policy development in the context of the economic status of the elderly populations. Retirement planning and the retirement decision; Social Security and public transfer programs for the elderly; intrafamily transfers to/from the elderly; private pensions; financing medical care for the elderly; prospects and issues for the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7256: Environments and Aging**

Examination of attributes of physical environments that support special needs of older people and application of this knowledge to the design

and management of housing, institutional settings, neighborhoods and communities. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7257: Aging and the Family**

Theories and research related to personal and family adjustments in later life affecting older persons and their inter-generational relationships. Related issues including demographics are also examined through the use of current literature. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7259: Mental Health and Aging**

Student is introduced to the range of issues utilizing several theoretical perspectives and the systems framework. Major mental, emotional, and psychiatric problems encountered in old age are examined, along with normal processes of aging individual's personality, mental and brain functions. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7260: Women and Aging**

Women and aging is the study of theory, research and application of issues related to women and the aging experience. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7261: Biological Principles of Aging**

This course will give an overview of the normal aging process of the human body systems, environmental factors influencing normal aging, diseases and disorders associated with aging. A special topics unit will include but is not limited to interviews and observations dealing with the aging process in humans. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7262: Long-Term Care Administration**

Provides information for persons interested in leadership role in long-term care, or for those considering careers intersecting with senior living organizations. Also considers long-term care options. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7300: Black Families**

(same as BL\_STU 7300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the black families.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent

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**H\_D\_FS 7400: Childhood Death and Bereavement**

An exploration of issues that arise for children and families when families when facing terminal illness or death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400 and H\_D\_FS 3420

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**H\_D\_FS 7470: Problems of Development in Multicultural Context**

Within the context of socio-cultural diversity, this course covers developmental problems from conception to early adulthood. Theoretical and empirical contributions to classification, assessment, intervention, and public policy are emphasized.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400, H\_D\_FS 1600, H\_D\_FS 2300, and H\_D\_FS 3420, or instructor's consent

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**H\_D\_FS 7500: Developing Plans of Care for Community-Dwelling Older Adults**

This applied course focuses on conducting geriatric assessments across multiple domains in order to develop holistic plans of care for older adults. Designed for students with some familiarity with the large age-graded income and health programs (e.g., Social Security, Medicare), the course examines the broad range of community resource programs designed to support more specific medical, psychosocial, and functional needs. Although service delivery varies by community, students will be trained to seek out those that are locally provided, up to and including resources providing a transitional bridge to respite and long-term care services. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Bachelor or Master's degree in Human Services, Social Work, Mental Health, Nursing, Physical Rehabilitation, or Psychology. Must be enrolled in Graduate Certificate in Geriatric Care Management Program

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**H\_D\_FS 7520: Ethical, Legal, and Business Considerations in Geriatric Care Management**

This applied eight-week course addresses multiple issues that geriatric care managers must consider in their work with the vulnerable older population. Topics include the ethics of care management, developing cultural and spiritual competencies, legal requirements in both the fee-for-service and nonprofit settings, as well as business aspects for those considering independent practice in this growing field, including national certification. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 7500, H\_D\_FS 8012 and H\_D\_FS 7510; Bachelor or Master's degree in human services, social work, mental health, nursing, physical rehabilitation or psychology required; must be enrolled in Graduate Certificate in Geriatric Care Management program

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**H\_D\_FS 7570: Program Development and Administration**

(cross-leveled with H\_D\_FS 4570). The development of leadership and management skills for administering community-based early childhood programs for children and their families. Includes an overview of early childhood standards; budgeting, funding and financial matters; developing, equipping, and staffing a center; recruiting children and

families; curriculum; health, safety, and nutrition; volunteer and staff development, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400 and H\_D\_FS 3500 or H\_D\_FS 3700; Restricted to H\_D\_FS majors only

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**H\_D\_FS 7583: Personal Financial Issues of Older Adults**

(same as FINPLN 7583). Principles and practice of personal finance relevant to assessing and improving the financial security of older individuals. Topics covered include sources of income, management of cash flow, credit use and abuse, risk exposure, investment management, housing, and financial planning. Financial vulnerabilities of seniors will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Bachelor or Master's degree in human services, social work, mental health, nursing physical rehabilitation or psychology; must be enrolled in Graduate Certificate in Geriatric Care Management program. May be repeated for credit

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**H\_D\_FS 7600: Resilience in Families**

Exploration of the evolution of a resilience approach to the study of families and human development. Using a lifespan approach, students will explore resilience across time as well as within special populations such as families experiencing crisis and trauma, culturally diverse families, and military families. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7610: Stress and Resilience in Families**

Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

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**H\_D\_FS 7630: The Process of Divorce**

Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies will be considered.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, and H\_D\_FS 2200 or equivalent; or instructor's consent

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**H\_D\_FS 7640: Interpersonal Relationships**

In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students will also be introduced to the field of close relationships.

**Credit Hours:** 3

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**H\_D\_FS 7650: Family Crisis Intervention**

Individuals and families in crises are examined. Focus is on grief and loss, substance abuse, family violence, and suicidal ideation. Examination of evidence-based preventions and treatments and community resources for those affected by stress, trauma, and crises. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7690: Family Resource Management**

Survey course of personal finance and family resource management literature to provide an overview of how individual and family members develop and exercise their capacity to obtain and manage resources to meet life needs. Resources include the self, other people, time, money, energy, material assets, space, and environment. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7720: Child and Family Advocacy**

Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement. There will be sections restricted to Human Developmental and Family Studies majors and to Education majors. The Human Developmental and Family Studies section will be for 3 credits and Education will be for 2 credits.

**Credit Hour:** 2-3

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**H\_D\_FS 7750: Physical Function and Older Adults**

(same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, NURSE 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7800: Program and Curriculum Design for FACS Education in Middle and Secondary School**

What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2010 and SPC\_ED 4020 or equivalent.

Admission to Phase II, and instructor's consent

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**H\_D\_FS 7820: Assessment in Family and Consumer Sciences Education**

What should a teacher do to determine the extent to which program/ lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design.

**Credit Hours:** 2

**Prerequisites:** admission into Phase II, H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 7830: Methods of Teaching FACS in Middle and Secondary Schools**

What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations.

**Credit Hours:** 3

**Prerequisites:** admission into Phase II, and instructor's consent

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**H\_D\_FS 7940: Field Experience in Family and Consumer Sciences Education**

Students will observe and assist in FACS classroom.

**Credit Hour:** 1

**Corequisites:** H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 7941: Field Experience in Family and Consumer Sciences**

Students will be involved in real-world experiences in a FACS classroom.

**Credit Hour:** 1

**Corequisites:** H\_D\_FS 4820, H\_D\_FS 4830, and instructor's consent

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**H\_D\_FS 7942: Student Teaching FACS in Middle and Secondary Schools**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hours:** 15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, instructor's consent

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**H\_D\_FS 8001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 8012: Family Dynamics and Intervention**

(same as NURSE 8010). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**H\_D\_FS 8085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8087: Seminar in Human Development and Family Science**

Seminar in selected topics in human development and family science.

**Credit Hour:** 1-99

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**H\_D\_FS 8090: Research in Human Development and Family Science**

Independent research not leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 8100: Foundations and Principles of Family and Community Services**

This course provides an introduction to the field of family studies and related professions that involve working with individuals and families in communities. This course is designed to provide a foundation of knowledge that students will need in the Great Plains IDEA family and Community Services program. This course is organized around theory, research, and practice of Family Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8110: Developmental Perspectives on Health and Illness**

Seminar on child and adolescent development as applied to illness and hospitalization, with a focus on applying psychosocial research and theory in work with pediatric populations. Graded on A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor consent; coursework in human development and experience with pediatric populations

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**H\_D\_FS 8200: Research Methods in Human Development and Family Science**

Examination of the rationale for conducting scientific research; various research methods pertinent to the study of individuals over the life span, close relationships, marriages, and families; hypothesis formulation; selection of appropriate designs, instrumentation, and analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8210: Theories of Human Development**

Major theories of life span human development. Attention given to structure, content, and major research critiqued for theoretical strengths.

**Credit Hours:** 3

**Prerequisites:** 6 hours of 300-level Behavioral Sciences courses or instructor's consent

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**H\_D\_FS 8220: Family Theories**

Reviews existing family theories, their assumptions, values, propositions, and applications. Examines processes of theory testing and construction and linkages between theory and research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8221: Gerontechnology**

Population aging is combining with technological advancement to create and change the world of modern older people, their families, and their communities. This course takes an interdisciplinary approach to the understanding of the biological, environmental, and social spheres where technology and gerontology meet. Graded on A-F basis only.

**Credit Hours:** 3



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**H\_D\_FS 8222: Creativity and Aging**

What happens to creativity as a person ages? This unique class will help students to understand developmental and pathological changes in the brain that can lead to changes in creative output over time. Through hands-on experiences and direct association with older adults, students will grow an appreciation for creativity produced and inspired by older people. This course is intended to provide experiences that will help the student to be able to create art programs for older adults. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8231: Management and Leadership**

This course serves as an overview of management and leadership concepts related to the operational and administrative competencies necessary in effective community-based family and youth organizations and agencies. It is designed to provide students with foundational skills and knowledge to manage day-to-day functions related to organizational systems such as human resource management, financial management, risk management, strategic planning, governance and advisory structures, and marketing. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8232: Youth Professionals as Consumers of Research**

This course will help youth development professionals understand and evaluate the quality of research reports. Students will learn the basics of quantitative and qualitative research approaches that will enable them to understand, evaluate, and critique research articles reported in newspaper, journals or other sources. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8234: Adolescents and their Families**

This course explores adolescent development in the context of the family. The bi-directional influences between adolescents and their families will be examined. Implications for professionals working with youth and families will be explored and highlighted. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8235: Administration and Program Management**

This course introduces students to the development, administration and management of youth-serving organizations. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8236: Federal and State Policies that Impact Youth Development**

This course examines various federal and state policies that effect developmental opportunities for youth. Course participants will also examine not only how policies are developed, but also why. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8237: Youth Cultures and the Cultures of Youth**

This course examines the cultural contexts that affect youth from within and outside the family. Students will study social, ethnic, and educational processes that affect youth, and they will examine how history has shaped the current cultural climate of the U.S. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8238: Program Design, Implementation and Evaluation**

The course will discuss program design, implementation, and outcome evaluation. This course will focus on planning, designing logic models, and evaluating program. Students will evaluate a community-based project.

**Credit Hours:** 3

**Prerequisites:** graduate standing required. Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8239: Community Youth Development**

This course focuses on community youth development from a strength-based or developmental asset approach. This approach encompasses both individual development and interrelationships with social environments. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8240: Youth Development**

This course introduces the developmental period of adolescence. Emphasis will be on developmental tasks of this life stage and influences of family and home, school, peers and other contextual forces. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8251: Perspectives in Gerontology**

An overview of current aging issues including the prevailing focus of gerontology theory and research, critical social and political issues in aging, the interdisciplinary focus of gerontology, career opportunities, and aging in the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8253: Physical Health in Aging**

This course identifies the basic physiologic changes during aging and their effects on health and disease. The focus will be on successful aging with special emphasis on physical activity and nutrition. Practical application to community settings is addressed. Priority given to students in the Great Plains Idea Group master's and certificate program.

**Credit Hours:** 3

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**H\_D\_FS 8254: Gerontology Research Methods and Program Evaluation**

Overview of program evaluation, research methods and grant writing in gerontology. Includes application of quantitative and qualitative methods in professional settings. Priority given to students in the Great Plains Idea Group master's and certificate programs.

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**Credit Hours:** 3

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**H\_D\_FS 8258: Professional Seminar in Gerontology**

An integrative experience for gerontology students designed to be taken near the end of the degree program. By applying knowledge gained in earlier course work, students strengthen skills in ethical decision-making behavior, apply these skills in gerontology-related areas such as advocacy, professionalism, family and workplace issues.

**Credit Hours:** 3

**Prerequisites:** Completion of all other gerontology program coursework. Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8300: Advanced Seminar on Multicultural Families**

Advanced study of multicultural (racial, ethnic, social) families within American society. Attention is focused on each group's unique cultural heritage and social environment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8400: Programs for Young Children**

An examination of program models that serve as a framework for curriculum in programs for children birth through age 5.

**Credit Hours:** 3

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**H\_D\_FS 8420: Cognitive Development**

(same as PSYCH 8420). Study of the development of reasoning, perception and language.

**Credit Hours:** 3

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**H\_D\_FS 8430: Temperament and Personality Development**

(same as PSYCH 8430). Intended for graduate students in psychology and related fields. This course is a survey of theory and research in the area of temperament and personality development, with emphasis on child development. Prerequisite: instructor's consent.

**Credit Hours:** 3

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**H\_D\_FS 8440: Social and Emotional Development**

(same as PSYCH 8440). Seminar on emotional and social development in children, with focus on research and theory on the impact of various family, school, and societal factors.

**Credit Hours:** 3

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**H\_D\_FS 8450: Adolescence and Emerging Adulthood**

Seminar on development during adolescence and emerging adulthood from biological, cognitive, psychsocial, and cultural perspectives, and with a focus on health-related attitudes and behaviors.

**Credit Hours:** 3

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**H\_D\_FS 8460: Life Course Perspective**

Seminar on the life course perspective, an interdisciplinary approach to the study of lives over time and the interplay between human lives and social institutions. Deals with how individual lives are shaped by social change and social structure.

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**Credit Hours:** 3

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**H\_D\_FS 8470: Identity Development**

Uses an Eriksonian framework to explore research regarding developmental tasks related to identity, such as attachment, self-esteem, moral behavior, achievement, and the formation of an abstract sense of self. Also considers such issues as gender identity, ethnic identity, and sexual identity.

**Credit Hours:** 3

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**H\_D\_FS 8500: Prosocial and Moral Development**

The course objective is to increase the understanding of the study of morality from psychological and developmental perspectives and the critical integration of theoretical, methodological, and empirical issues in moral psychology. It will also cover understanding the relevance of moral concepts and findings to other areas of study, policy contexts, and applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 8510: Parenting Education**

Study of theories, models, research and skills regarding parenting effectiveness and parent-child relations in the context of Western and Eastern cultures. Included are comparisons of the relative strengths and weaknesses of various parenting approaches, historical perspective on parenthood and children, parenting roles, strategies for contemporary parenting, developmental interaction from infancy through adulthood and selected special concerns of parents. A Bio-Ecological Systems approach will be utilized in this course. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8520: Lifespan Development**

This course covers the human development including the cognitive, social-emotional, motor, language, and moral domains from both a lifespan and a bio-ecological perspective. Course content focuses on the major theories of development as well as current research on the micro-macro interrelationship. Students who complete this course will have a better understanding of individual human developmental processes and their relationship with context and within family and community matters. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8610: Remarriage & Stepfamilies: Development, Dynamics, & Intervention**

The processes of remarriage and reconstituted family dynamics; special developmental needs and intervention models will be studied. The impact on children is considered.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8620: Work and Family**

Study of the interaction between paid labor, unpaid labor, and the American family. Heavy concentration is placed on the roles gender, race, and history play in the workplace and in the home.

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**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8630: Gendered Relations in Families**

(same as WGST 8630). From a feminist perspective, the roles of gender in shaping family life experience and of family life experience in shaping gender will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8640: Family Interaction**

Examination of intrafamilial interaction. Includes an overview of theories used to study family interaction, critical review of the assessment of family interaction; and examination of contemporary research on family interaction focusing on intra and inter-generational relationships.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2200 or equivalent; or instructor's consent

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**H\_D\_FS 8710: Children, Families and Public Policy**

Seminar on societal issues relating to children and families, with focus on the development of public policies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8770: Poverty**

Implications of poverty for child, adult, and family functioning. Poverty-related policies and programs.

**Credit Hours:** 3

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**H\_D\_FS 8960: Readings in Human Development and Family Science**

Readings in recent research; critical evaluation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8972: Internship in Human Development and Family Science**

Internships and/or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 9090: Research in Human Development and Family Science**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 9100: Teaching Practicum**

Supervised experience in teaching various audiences, including college students, professionals, and community residents. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9130: Writing Research Proposals: Skill Building**

(same as NURSE 9132) This course teaches the components of writing a research proposal for external funding. Graded on S/U basis only

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 9200 and graduate level statistics course; instructor's consent; PhD Students only

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**H\_D\_FS 9131: Responsible Conduct of Research in Health and Social Sciences**

(same as NURSE 9131). This course examines professional research ethics including the rights of human subjects. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**H\_D\_FS 9200: Advanced Research Methods in Human Development and Family Science**

(same as NURSE 9410). Examination of issues related to the study of individuals and their families: measurement, designs, and interpretation of statistical analyses. Statistics are placed in perspective through readings and discussions of the relationships between theory, research design, and data analyses.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 8200 or instructor's consent

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**H\_D\_FS 9210: Research Practicum in Human Development and Family Science**

Independent research activities in conjunction with faculty. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9400: Macro Social Theory**

(same as SOC\_WK 9400). An in-depth examination of human development and social environmental theories appropriate to social welfare practice in formal organizations, interorganizational combinations, communities, and larger political entities. Students may not receive credit for both H\_D\_FS 9400 and SOC\_WK 9400.

**Credit Hours:** 3

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**H\_D\_FS 9420: Qualitative Methods**

(same as NURSE 9420). Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**H\_D\_FS 9550: Meta Analysis Research**

(same as NURSE 9550). Examines quantitative synthesis including research questions, search strategies, coding issues, meta-analysis

statistical procedures, and interpretation of findings. Emphasizes conceptual understanding and practical methods. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites:** 6 hours of graduate statistics; H\_D\_FS 9200 or graduate level quantitative methods course

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#### **H\_D\_FS 9560: Qualitative Systematic Reviews**

(same as SOC\_WK 9560 and NURSE 9560). Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 9420 or equivalent

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#### **H\_D\_FS 9700: Social Welfare Policy Seminar**

(same as SOC\_WK 9700) Critical examination of comparative models of social policy development; preparation of a professional social work policy analysis in the student's area of interest/specialization.

**Credit Hours:** 3

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## **Industrial And Manufacturing Systems (IMSE)**

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#### **IMSE 1000: Introduction to Industrial Engineering**

Introduction to industrial engineering profession, the Industrial and Manufacturing Systems Engineering department, and the core topics of industrial engineering. Introduction to problem solving, ethics and industrial engineering design and analysis techniques.

**Credit Hour:** 1

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#### **IMSE 1010: Experimental Course**

For freshman-level students. Content and credit to be listed in the Schedule of Courses.

**Credit Hour:** 1-99

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#### **IMSE 1087: Undergraduate Seminar**

Seminars are held monthly to provide a forum for departmental communication of upcoming opportunities (jobs, speakers, deadlines, etc.), speakers from industry to provide educational context, and student interaction. Required every semester of enrollment for graduation. Graded on S/U basis only.

**Credit Hours:** 0

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#### **IMSE 2030: Fundamentals of Systems Design and Analysis**

Develop an understanding of a systems approach to the design and operation of modern industrial organizations: systems structure and function, system specification, structured problem solving and system design methodology.

**Credit Hours:** 3

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#### **IMSE 2110: Probability and Statistics for Engineers**

Introduction to data analysis, probability concepts, random variables, parameter estimation and hypothesis testing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500. Restricted to Engineering Students who are non-IMSE majors

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#### **IMSE 2210: Linear Algebra for Engineers**

Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700

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#### **IMSE 2410: Introduction to Information Technologies**

A survey of current technologies and their use. Different technologies will be reviewed. Examples: web search strategies, common application tools, searching and sorting on the WWW, upcoming trends and directions in information technologies. This is a web-based self-study course with instructor's guidance.

**Credit Hour:** 1

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#### **IMSE 2710: Engineering Economic Analysis**

Fundamentals of engineering economic decision making. Includes time value of money, breakeven analysis, capital budgeting, replacement, after-tax analysis, inflation, risk, sensitivity analysis and multi-attribute analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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#### **IMSE 2810: Performance Measurement and Ergonomics**

Design of man-machine systems considering capabilities and limitations of the human component. Method of measuring human performance in man-machine systems; includes lab.

**Credit Hours:** 3

**Prerequisites:** IMSE 2110

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#### **IMSE 3001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering. May be repeated to 6 hours.

**Credit Hour:** 0-4

**Prerequisites:** instructor's consent

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#### **IMSE 3030: Manufacturing and Supply Systems**

Provide a structured approach for the design and optimization of a system throughout its lifecycle: techniques following the logical sequence of strategic analysis, system design, implementation, and monitoring.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030

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#### **IMSE 3110: Probability Models for Engineers**

Introduction to probability concept and theory, random variables, discrete and continuous probability distributions, joint probability distributions.

**Credit Hours:** 3

**Prerequisites:** MATH 1500. Restricted to IMSE students only

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**IMSE 3810: Ergonomics and Workstation Design**

Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students and ENGINR 1200

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**IMSE 3810W: Ergonomics and Workstation Design - Writing Intensive**

Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students and ENGINR 1200

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**IMSE 4001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 4085: Problems in Industrial Engineering**

Supervised investigation in industrial engineering presented in form of an engineering report.

**Credit Hour:** 1-4

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**IMSE 4110: Engineering Statistics**

Understanding and application of statistical analysis techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE).

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. Grade of C- or better in IMSE 3110

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**IMSE 4210: Linear Optimization**

(cross-leveled with IMSE 7210). Theory and application of linear optimization.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. Grade of C- or better in IMSE 2210

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**IMSE 4220: Optimization Modeling and Computational Methods**

(cross-leveled with IMSE 7220). Modeling and solution techniques for mathematical optimization, including linear, nonlinear, integer, and stochastic programming. Emphasis on formulation of models for most-efficient use of solution algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 3110, IMSE 4210

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**IMSE 4230: Operations Research Models**

Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. Grade of C- or better in IMSE 2210 and IMSE 3110

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**IMSE 4280: Systems Simulation**

Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. INFOTC 1040 or CMP\_SC 1050. Grade of C- or better in IMSE 4110

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**IMSE 4310: Integrated Production Systems Design**

Design and operation of production systems, including lean six sigma concepts, just-in-time/kanban, facility layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4210, IMSE 4280

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**IMSE 4330: Material Flow and Logistics System Design**

Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 and IMSE 4280

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**IMSE 4350: Production and Operations Analysis**

Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4210 and IMSE 4230

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**IMSE 4360: Supply Chain Engineering**

(cross-leveled with IMSE 7360). Modeling and analysis of supply chain network design and management issues including integration of production, inventory control, supplier selection, risk management and logistics network design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4350

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**IMSE 4380: Six Sigma Methodology**

(cross-leveled with IMSE 7380). An overview of the Six Sigma DMAIC methodology for analyzing and improving processes. Requires completing a Six Sigma Green Belt project. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in IMSE 2110 or IMSE 4110 or STAT 4710

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**IMSE 4385: Lean Six Sigma Green Belt Project**

Application of the Lean Six Sigma methodology in an industry-based project. Prerequisites: IMSE 4310

**Credit Hour:** 1

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**IMSE 4410: Management Information Systems Design**

MIS concepts and management issues, HTML for web pages and eShop (front-office operations), back-office operations using relational databases, introduction to SQL.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. INFOTC 1040 or CMP\_SC 1050 and junior standing required

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**IMSE 4420: Web-Based Information Systems**

Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410 and instructor's consent

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**IMSE 4550: Computer Aided Design and Manufacturing**

(cross-leveled with IMSE 7550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 4

**Prerequisites:** Restricted to IMSE students; Junior Standing

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**IMSE 4560: Introduction to Rapid Prototyping**

(cross-leveled with IMSE 4560). Course covers all five MU systems: FDM, SLS, SLA, Polyjet, 3DP. Students will learn fundamental rapid prototyping and related concepts, and design and produce models from each system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**IMSE 4570: Computer Integrated Manufacturing Control**

Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking.

**Credit Hours:** 3

**Prerequisites:** Junior Standing

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**IMSE 4580: Industrial Energy Efficiency and Management**

(cross-leveled with IMSE 7580). Introduction to the fundamentals of industrial energy efficiency and management. Covers the essential concepts, best practices, management systems and current standards to achieve and improve energy efficiency in industrial settings, and utilizes hands-on experiences involving real assessment and analysis of industrial site visits and projects.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030 or instructor's consent

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**IMSE 4610: Engineering Quality Control**

Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4110

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**IMSE 4750: Entrepreneurial Innovation Management: Enterprise Conception**

(same as MANGMT 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**IMSE 4755H: Entrepreneurial Innovation Management: Enterprise Conception-Honors**

Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Honors eligibility required

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**IMSE 4760: Entrepreneurial Innovation Management: Enterprise Design**

(same as MANGMT 4760). Expand on IMSE 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes.

**Credit Hours:** 3

**Prerequisites:** IMSE 4750

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**IMSE 4765H: Entrepreneurial Innovation Management: Enterprise Design-Honors**

(same as MANGMT 4765H). Expand on IMSE 4755H business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes.

**Credit Hours:** 3

**Prerequisites:** IMSE 4755H. Honors eligibility required

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**IMSE 4770: Entrepreneurial Innovation Management: Enterprise Operations**

(same as MANGMT 4770). Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Prerequisites: Junior Standing

**Credit Hours:** 3

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**IMSE 4775H: Entrepreneurial Innovation Management: Enterprise Operations-Honors**

Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery.

**Credit Hours:** 3

**Prerequisites:** Junior Standing. Honors eligibility required

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**IMSE 4810: Cognitive Ergonomics**

(cross-leveled with IMSE 7810). This course will cover the study of empirical research in Cognitive ergonomics and Human-Computer Interaction (HCI). Students will learn cognitive information processing, mental workload, human reliability, and empirical methods in HCI research. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior or senior level undergraduate students

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**IMSE 4910: Industrial Engineering Internship**

An industry-based learning experience that provides opportunities to apply industrial engineering skills, concepts and theories in a practical context. Requires submission of an internship plan for prior approval and a final oral presentation / written report at the completion of the internship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor and departmental consent

**Recommended:** junior standing

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**IMSE 4920: Industrial Engineering COOP**

An industry-based learning experience that provides opportunities to apply industrial engineering skills, concepts and theories in a practical context. Requires submission of a COOP plan for prior approval and a final oral presentation / written report at the completion of the COOP. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor and departmental consent

**Recommended:** junior standing

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**IMSE 4970: Capstone Design I**

Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to IMSE students; Senior Standing, IMSE 2030; IMSE 2710

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**IMSE 4970W: Capstone Design I - Writing Intensive**

Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to IMSE students; Senior Standing, IMSE 2030; IMSE 2710

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**IMSE 4980: Capstone Design II**

Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering curriculum. Must immediately follow IMSE 4970.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE student; IMSE 3810, IMSE 4310, and IMSE 4970

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**IMSE 4980W: Capstone Design II - Writing Intensive**

Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering curriculum. Must immediately follow IMSE 4970.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE student; IMSE 3810, IMSE 4310, and IMSE 4970

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**IMSE 4990: Undergraduate Research in Industrial Engineering**

Independent investigation or project in industrial engineering. May be repeated to 6 hours.

**Credit Hour:** 0-6

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**IMSE 4995: Undergraduate Research Industrial Engineering - Honors**

Independent investigation or project in industrial engineering. May be repeated to 6 hours. Enrollment limited to receiving departmental honors

**Credit Hour:** 0-6

**Prerequisites:** Restricted to IMSE students only

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**IMSE 7001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 7110: Engineering Statistics**

Understanding and application of statistical analysis of techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE).

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 3110

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**IMSE 7210: Linear Optimization**

(cross-leveled with IMSE 4210). Theory and application of linear optimization.

**Credit Hours:** 3

**Prerequisites:** IMSE 2210

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**IMSE 7220: Optimization Modeling and Computational Methods**

(cross-leveled with IMSE 4220). Modeling and solution techniques for mathematical optimization, including linear, nonlinear, integer, and stochastic programming. Emphasis on formulation of models for most-efficient use of solution algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 3110, IMSE 4210

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**IMSE 7230: Operations Research Models**

Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 2110 and IMSE 3110

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**IMSE 7280: Systems Simulation**

Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 4110, INFOTC 1040 or CMP\_SC 1050

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**IMSE 7310: Integrated Production Systems Design**

Design and operation of production systems, including lean production concepts, just-in-time / kanban, facility layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210, IMSE 4280

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**IMSE 7330: Material Flow and Logistics System Design**

Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210, IMSE 4280

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**IMSE 7350: Production and Operations Analysis**

Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 and IMSE 4230

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**IMSE 7360: Supply Chain Engineering**

(cross-leveled with IMSE 4360). Modeling and analysis of supply chain network design and management issues including integration of production, inventory control, supplier selection, risk management and logistics network design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4350

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**IMSE 7380: Six Sigma Methodology**

(cross-leveled with IMSE 4380). An overview of the Six Sigma DMAIC methodology for analyzing and improving processes. Requires completing a Six Sigma Green Belt project. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in IMSE 2110 or IMSE 4110 or STAT 4710

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**IMSE 7385: Lean Six Sigma Green Belt Project**

Application of the Lean Six Sigma methodology in an industry-based project.

**Credit Hour:** 1

**Prerequisites:** IMSE 4310

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**IMSE 7410: Management Information Systems Design**

MIS concepts and management issues, HTML for web pages and eShop (front office operation), back-office operations using relational databases, introduction for SQL. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050

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**IMSE 7420: Web-Based Information Systems**

Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410 and instructor's consent

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**IMSE 7550: Computer Aided Design and Manufacturing**

(cross-leveled with IMSE 4550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 4

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**IMSE 7560: Introduction to Rapid Prototyping**

(cross-leveled with IMSE 4560). Course covers all five MU systems: FDM, SLS, SLA, Polyjet, 3DP. Students will learn fundamental rapid prototyping and related concepts, and design and produce models from each system. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 7570: Computer Integrated Manufacturing Control**

Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking.

**Credit Hours:** 3

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**IMSE 7580: Industrial Energy Efficiency and Management**

(cross-leveled with IMSE 4580). Introduction to the fundamentals of industrial energy efficiency and management. Covers the essential concepts, best practices, management systems and current standards to achieve and improve energy efficiency in industrial settings, and utilizes hands-on experiences involving real assessment and analysis of industrial site visits and projects.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030 or instructor's consent

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**IMSE 7610: Engineering Quality Control**

Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology.

**Credit Hours:** 3

**Prerequisites:** IMSE 4110 or IMSE 7110

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**IMSE 7750: Entrepreneurial Innovation Management: Advanced Enterprise Conception**

Develop a new business and technology plan (including marketing, finance, engineering, manufacturing, and production concepts) in this joint College of Engineering/College of Business course.

**Credit Hours:** 3

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**IMSE 7760: Entrepreneurial Innovation Management: Advanced Enterprise Design**

Expand on IMSE 7750 business and technology plan into a business operation plan: advertising designs, facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and product prototypes.

**Credit Hours:** 3

**Prerequisites:** IMSE 7750

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**IMSE 7770: Entrepreneurial Innovation Management: Advanced Enterprise Operations**

Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales, and delivery.

**Credit Hours:** 3

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**IMSE 7810: Cognitive Ergonomics and Decision Making**

(cross-leveled with IMSE 4810). This course will cover the study of empirical research in cognitive ergonomics and Human-Computer Interaction (HCI). Students will learn cognitive information processing, mental workload, human reliability, decision-making, and empirical methods in HCI research. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8001: Advanced Topics in Industrial & Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 8030: Advanced Manufacturing and Supply Systems**

The design, regulation, and optimization of manufacturing and supply systems through systems analysis.

**Credit Hours:** 3

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**IMSE 8070: Research Methods in Industrial & Manufacturing System Engineering**

Development of research approach. Selection of topic area including techniques of literature search with special emphasis on problem definition. Topics pertinent to planning, organizing and carrying out industrial engineering research or design project.

**Credit Hour:** 1

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**IMSE 8085: Problems in Industrial and Manufacturing Systems Engineering**

Supervised investigation in industrial engineering to be presented in the form of an engineering report.

**Credit Hour:** 1-99

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**IMSE 8087: Industrial Engineering Graduate Seminar**

Selected topics in industrial engineering; oral presentations and engineering reports. Graded on S/U basis only.

**Credit Hours:** 0

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**IMSE 8110: Engineering Experimentation**

Application of advanced statistical methods for the analysis of engineering design and experimental problems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4110 or IMSE 7110

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**IMSE 8210: Operations Research-Discrete Models**

Applications of discrete operations research methods, including linear programming, fuzzy sets, integer programming, and meta-heuristics.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or IMSE 7210

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**IMSE 8220: Nonlinear Optimization**

Introduces computational non-linear mathematical programming procedures their use in solving complex industrial systems design problems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or IMSE 7210

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**IMSE 8230: Operations Research-Stochastic Models**

Theory and applications of stochastic processes; includes continuous time Markov chain, Markov decision process, queueing theory, and stochastic manufacturing systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4230 or IMSE 7230

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**IMSE 8280: Advanced Systems Simulation**

Theory and practice of dynamic modeling and statistical experimentation.

**Credit Hours:** 3

**Prerequisites:** IMSE 4280

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**IMSE 8310: Advanced Integrated Production Systems**

Advanced study of the design and operation of flow shop, job shop, and cell-based production systems, including scheduling, layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** IMSE 4310 or IMSE 7310

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**IMSE 8370: Supply Chain Modeling and Analysis**

Theory and application of supply chain networks, integration of production and inventory control methods.

**Credit Hours:** 3

**Prerequisites:** IMSE 8210, IMSE 8230

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**IMSE 8410: Advanced Management Information Systems Design**

Develops requirements for management information, staffing, cost estimating, evaluation, and the design of management communication systems; includes case studies.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410

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**IMSE 8550: Advanced CAD/CAM**

Covers the state-of-the-art in CAD/CAM and explores the latest developments, residual problems, and new direction in CAD/CAM. Includes sculptured surface modeling, rapid prototyping and manufacturing, integrated process planning, shape analysis, machine intelligence.

**Credit Hours:** 3

**Prerequisites:** IMSE 4550 or IMSE 7550

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**IMSE 8610: Advanced Quality Systems**

Advanced process control charts, empirical model-building, fractional factorial designs and Taguchi techniques as tools for process and product improvement, professional ethics in quality management; TQM and ISO 9000.

**Credit Hours:** 3

**Prerequisites:** IMSE 4610, IMSE 8110

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**IMSE 8730: Strategic Enterprise Management**

Topics including enterprise strategies, process and content models, strategy implementation, value chain analysis, business processes, systems engineering approaches, business process reengineering, and dynamic systems modeling.

**Credit Hours:** 3

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**IMSE 8810: Human Factors**

Human factors inputs, outputs and environment and their influence on design and evaluation of man and machine systems.

**Credit Hours:** 3

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**IMSE 8850: Health Care Systems Design and Analysis**

Health care systems design principles and major problems, basic organization within health care system, alternative system design strategies, factors affecting design process success.

**Credit Hours:** 3

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**IMSE 8990: Research-Masters Thesis in Industrial Engineering**

Independent investigation in field of industrial engineering to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**IMSE 9210: Advanced Linear Optimization**

Advanced study of linear programming, including optimization and its application including large-scale optimization, primal-dual methods, decomposition, interior point methods, convex analysis, and integer programming. Prerequisites: IMSE 4210 or IMSE 7210

**Credit Hours:** 3

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**IMSE 9230: Stochastic Service Systems**

Development and application of stochastic models in the design of service systems in which either demands for service or services supplies, or both, have a probabilistic nature.

**Credit Hours:** 3

**Prerequisites:** STAT 4750, IMSE 8230

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**IMSE 9250: Dynamic Programming**

Introduces theory and computational aspects of dynamic programming; its application to sequential decision problems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or IMSE 7210 and IMSE 4230 or IMSE 7230

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**IMSE 9260: Integer and Combinatorial Optimization**

Theory, solution methodology, and application of integer and combinatorial optimization.

**Credit Hours:** 3

**Prerequisites:** IMSE 8210

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**IMSE 9990: Research-Doctoral Dissertation in Industrial Engineering**

Independent investigation in field of industrial engineering to be presented as a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Information Science And Learning Technologies (IS\_LT)

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**IS\_LT 1111: Information Use and Student Success**

In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools.

**Credit Hour:** 1

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**IS\_LT 1111H: Information Use and Student Success - Honors**

In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools. Honors eligibility required

**Credit Hour:** 1

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**IS\_LT 4310: Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 4356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 7356). The purpose of this course is to provide students with opportunities to explore, use, and synthesize various JavaScript frameworks, user interface and visualization libraries, and plugins while creating interactive user experiences with html5, JavaScript animation, and mobile platforms. The course will cover topics like interactive photo galleries, mobile Web design, animation, user interactivity, jQuery, and development environments.

**Credit Hours:** 3

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**Prerequisites:** IS\_LT 4370

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**IS\_LT 4360: Introduction to Web Development**

Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4361: Introduction to Digital Media**

(cross-leveled with IS\_LT 7361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4364: Flash Authoring**

Teaches skills required to plan, develop and evaluate a multimedia project using digital authoring software. Emphasizes instructional design and user interface issues. Course is production-based. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4370: Intermediate Web Development**

(cross-leveled with IS\_LT 7370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4360 or instructor's consent

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**IS\_LT 4371: Exploring Sakai**

(cross-leveled with IS\_LT 7371). This course will prepare students to work within the Sakai Learning Management System (LMS) to set up and manage an online course. Students in this course will investigate and manipulate components of Sakai from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4372: Exploring Blackboard**

(cross-leveled with IS\_LT 7372). This course will prepare students to work within the Blackboard (BB) Learning Management System (LMS) to set up and manage an online course. Students in the course will investigate and manipulate components of Blackboard from an instructor's perspective. Graded on A-F basis.

**Credit Hour:** 1

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**IS\_LT 4373: Exploring Moodle**

(cross-leveled with IS\_LT 7373). This course will prepare students to work within the Moodle Learning Management System (LMS) to set up and manage an online course. Students in the course will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4374: Exploring Canvas**

(cross-leveled with IS\_LT 7374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4375: Mobile Web App Development**

(cross-leveled with IS\_LT 7375). The purpose of this course is to provide students with knowledge necessary to create a mobile app with basic functions using HTML 5, JavaScript, and CSS3. Through this course, students will obtain knowledge of mobile web app development including both design and development phases. Upon the completion of this course, students will produce a mobile web app that can be operated via a mobile device. Graded on A-F basis only. Recommended: Students must be able to hand code: html, Styling and positioning web pages using CSS & JavaScript, and JavaScript basic functions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or permission of instructor

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**IS\_LT 4384: Designing Games for Learning**

(cross-leveled with IS\_LT 7384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ("mods"), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or senior standing required

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**IS\_LT 4467: Technology to Enhance Learning**

This course is designed for undergraduates in the teacher education program. Emphasis is placed on strategies for integrating technology into the teaching and learning process, with a focus on enhancing how students think rather than what they think. Special attention given to supporting higher order thinking and problem solving with technology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent required (students must be admitted to College of Education's Teacher Education program)

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**IS\_LT 7301: Introduction to Information Technology**

The nature of information and information transfer in the institutional setting; covers the culture of information in society, standards for information processing and transfer, and networking in communications perspectives of information providing agencies.

**Credit Hours:** 3

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**IS\_LT 7302: Organization of Information**

An overview of the research that addresses information-seeking behavior and the history, background, and development of catalogs and indexes.

**Credit Hours:** 3

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**IS\_LT 7305: Foundations of Library and Information Science**

An introduction to the background, contexts, organizations, issues, ethics, values, and terms of information science, the information professions, and the library as an idea, space, institution, and repository of the cultural record.

**Credit Hours:** 3

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**IS\_LT 7310: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 7312: Principles of Cataloging and Classification**

Theory and practice of cataloging and classification of library materials using current standards and tools. Principles, developments, and trends in cataloging and access to library data.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305

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**IS\_LT 7313: Collection and Access Management**

Selection of materials for libraries and information agencies, policies for collection management, freedom and diversity of information, access to information and evaluation of collections and access.

**Credit Hours:** 3

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**IS\_LT 7314: Reference Sources and Services**

General reference sources with emphasis on print sources. principles, developments and trends in reference services and reference service organization.

**Credit Hours:** 3

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**IS\_LT 7315: Management of Information Agencies**

Concepts of management applied to libraries and information systems; management tools, programming, models and simulation in an environment of an information producing or disseminating agency.

**Credit Hours:** 3

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**IS\_LT 7320: Emerging Technologies in Libraries**

Critically examines web technologies, devices, and methods used to access collections and services, promote social interaction, and facilitate communication. Focuses on new and emerging software, resources, and communication methods including their discovery and implementation. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7334: Library Information Systems**

Focuses on the automated library systems marketplace. Covers integrated online library systems from the systems, functional and user

perspective. Includes management approaches for procurement and operation of such systems.

**Credit Hours:** 3

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**IS\_LT 7356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 4356). The purpose of this course is to provide students with opportunities to explore, use, and synthesize various JavaScript frameworks, user interface and visualization libraries, and plugins while creating interactive user experiences with html5, JavaScript animation, and mobile platforms. The course will cover topics like interactive photo galleries, mobile Web design, animation, user interactivity, jQuery, and development environments.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370

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**IS\_LT 7357: Web Application Development I**

Students learn to develop Web applications to support online learning and collaboration using ASP.Net, PHP, or Java. In this course students will learn fundamental Web programming principles and develop web applications. Specific concepts taught in this course include: reading and writing files to a server, interacting with users through web forms, storing and retrieving data in relational databases (MS SQL, MySQL, or Oracle), objected-oriented programming, and web application security.

**Credit Hours:** 3

**Prerequisites:** Intermediate Web Development

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**IS\_LT 7358: Web Application Development II**

Building on Web Application Development I, this course covers advanced Web programming techniques and focuses on developing Web-based learning applications. With intensive programming, students will analyze and learn how the applications in existing learning environments operate and interact, and then develop learning applications of their own. Specific concepts covered in this course include task analysis, algorithms, APIs, user rights and permissions, data integrity, flexible design, code documentation, Web Services, Web for mobile handheld devices or Ajax.

**Credit Hours:** 3

**Prerequisites:** Web Application Development I

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**IS\_LT 7360: Introduction to Web Development**

Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7361: Introduction to Digital Media**

(cross-leveled with IS\_LT 4361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7364: Flash Authoring**

Plan, develop, and evaluate a multimedia project using digital authoring software (Macromedia Flash). Emphasizes scripting and user interface issues for web-based animations. Course is production-based. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7366: Technology Leadership in Schools**

Develop skills, knowledge, and values needed to provide leadership in schools. Analyzes characteristics of effective leaders, focusing on staff development. Explores technology and school reform, technology integration, and current issues. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7368: Technology Across the Curriculum**

The emphasis in this course is on using technologies to enhance and support student collaboration and learning in K-23 classrooms.

**Credit Hours:** 3

**Prerequisites:** admission to the Teaching Fellowship Program

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**IS\_LT 7370: Intermediate Web Development**

(cross-leveled with IS\_LT 4370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7360 or instructor's consent

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**IS\_LT 7371: Exploring Sakai**

(cross-leveled with IS\_LT 4371). This course will prepare you to work within the Sakai Learning Management System (LMS) to set up and manage an online course. As a student in this course you will investigate and manipulate components of Sakai from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7372: Exploring Blackboard**

(cross-leveled with IS\_LT 4372). This course will prepare you to work within the Blackboard Learning Management System (LMS) to set up and manage an online course. As a student in the course, you will investigate and manipulate components of Blackboard from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7373: Exploring Moodle**

(cross-leveled with IS\_LT 4373). This course will prepare you to work within the Moodle Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7374: Exploring Canvas**

(cross-leveled with IS\_LT 4374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

---

**IS\_LT 7375: Mobile Web App Development**

(cross-leveled with IS\_LT 4375). The purpose of this course is to provide students with knowledge necessary to create a mobile app with basic functions using HTML 5, JavaScript, and CSS3. Through this course, students will obtain knowledge of mobile web app development including both design and development phases. Upon the completion of this course, students will produce a mobile web app that can be operated via a mobile device. Graded on A-F basis only. Recommended: Students must be able to hand code: html, Styling and positioning web pages using CSS & JavaScript, and JavaScript basic functions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370 or permission of instructor

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**IS\_LT 7378: Electronic Portfolio Development**

This course provides an overview of electronic portfolio development. Students will select, categorize and document their accomplishments in the Technology in Schools emphasis area for review and assessment. Students will demonstrate mastery of the ISTE Standards and commitment to ongoing learning. Web development skills are required.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted into the Technology in Schools emphasis

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**IS\_LT 7380: School Library Practicum**

Directed, project-based experience in school libraries.

**Credit Hour:** 1-3

**Prerequisites:** admission to MA, initial certification or 24 completed LIS credit hours taken at MU; instructor's consent

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**IS\_LT 7381: Practicum in Information Agencies**

Provides a supervised work experience for master's degree students in a public, academic, or special library. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** IS\_LT 7301, IS\_LT 7302 or IS\_LT 7312, IS\_LT 7314, IS\_LT 7315

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**IS\_LT 7383: Rapid Development Tools for Online Learning**

Students will apply principles of rapid development and use rapid development tools to create a prototype of an e-learning module that uses technology features that can enhance learning (e.g. learner interactions). Specific competencies include: Storyboard and "rapidly" develop an e-learning module using software designed to support this process; Use software tools that develop specific elements of e-learning (e.g. video, animation, gaming), and incorporate those elements into an e-learning module; Evaluate rapidly developed e-learning products; Compare and contrast features of rapid development software packages. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7384: Designing Games for Learning**

(cross-leveled with IS\_LT 4384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ("mods"), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9085: Problems in Information Science and Learning Technology**

Independent, directed study on a topic in the areas of information science and learning technologies.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**IS\_LT 9090: Research in Information Science and Learning Technologies**

Dissertation research. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Doctoral Committee Chair's consent

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**IS\_LT 9407: Intellectual Freedom and Its Discontents**

The course examines principles and contradictions of intellectual freedom and their relation to librarianship. The nature of free speech, the First Amendment, sources of censorship, and professional disputes about intellectual freedom practice in libraries will be important topics.

**Credit Hours:** 3

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**IS\_LT 9408: Information Policy**

Examination of the roles of private and public sectors in information policy formation. Includes consideration of social, economic, political and technological issues.

**Credit Hours:** 3

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**IS\_LT 9409: Seminar in Digital Libraries**

This course is a project-based learning environment that combines Instructor-prepared content, group-based student projects, and threaded asynchronous discussions on selected topics relating to the design, development, and implementation of practical digital libraries. Research directives within the broad domain of digital library development are also covered.

**Credit Hours:** 3

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**IS\_LT 9410: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 9411: Doctoral Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in information science and learning technologies. Graded on A-F basis only.

**Credit Hour:** 1-3

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**IS\_LT 9412: Information Storage and Retrieval**

Introduces students to concepts and terminology associated with the storage and retrieval of bibliographic information. Emphasizes design of applied database management systems.

**Credit Hours:** 3

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**IS\_LT 9413: Electronic Resource Management**

This course explores electronic resources (primarily subscription journals and databases) in terms of products, pricing, in-house management of resources, both technical and organizational, licensing, configuring databases and organizing websites for the end user, statistical reporting, and future trends.

**Credit Hours:** 3

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**IS\_LT 9417: Technology Action Research**

Study of concepts associated with action research; and the processes and procedures for conducting action research. Culminating project is the development of an action research project.

**Credit Hours:** 3

**Prerequisites:** 12 credit hours completed prior to enrolling

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**IS\_LT 9419: American Library History**

Students in this course will learn about the history of libraries in America, reading about and analyzing the political, cultural, and social roles of particular libraries and the library as an institution. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9420: Scholarly Communication**

Exploration of the production and communication of information and knowledge in the disciplines.

**Credit Hours:** 3

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**IS\_LT 9421: Usability of Information Systems and Services**

Introduction to concepts and methods of usability testing and research and user-centered design strategy. Course takes a process approach to define target audiences and usability problems, create and administer investigative procedures, analyze results, and report findings effectively. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9423: Ethics, Data, and Information**

Critical inquiry into perennial and emerging issues in the ethics of data and information.

**Credit Hour:** 1-3

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**IS\_LT 9427: Social Constructs of Information**

This course focuses on information as it is used, and defined, by society. The primary lens, or theoretical background, used in this investigation is the notion of "cultural hegemony," proposed by Antonio Gramsci. We will study the complex relationship between information and society, looking at how each is a reflection and shaper of the other. The relationship of libraries and other information agencies to the state, and the role of information professionals in the political and cultural spheres are central themes in the course. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9428: History of Books and Media**

Examines the history and philosophy of books and media from the beginnings of writing to the Internet, emphasizing the effects of changes in communication and information technologies. The focus is on the social, cultural, intellectual, scientific, and religious impacts of shifts in the media for preserving and transmitting information. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9429: Metadata**

Explores principles, standards, and schema for metadata in diverse online environments to facilitate information retrieval and use. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9431: Children's Library Materials**

Evaluation and selection of materials for children birth-age 13 (Grade 6). Early literacy, emergent readers, reader response theory; social, cultural contexts of readers and reading, trends in publishing.

**Credit Hours:** 3**IS\_LT 9432: Online Searching**

Search strategies and techniques for commercial online databases. The course first covers the basic concepts of online information retrieval and then focuses on selection and online searching in the most prominent social science, science, humanities, and numerical databases.

**Credit Hours:** 3**Prerequisites:** IS\_LT 4301 or IS\_LT 7301 and IS\_LT 4314 OR IS\_LT 7314**IS\_LT 9433: Youth Services in Libraries**

Examines physical, mental, and emotional development of youth birth through high school. Emphasis on community analysis, outreach services, program design and techniques. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9434: Teen Library Materials**

Evaluation, selection of print, alternate formats for teens, 13-18 (Grades 7-12). Personal, social, popular culture contexts of teen readers and texts; emphasizes reader response; challenges common assumptions about teens and reading.

**Credit Hours:** 3**IS\_LT 9435: Adult Services in Libraries**

Library services to adults, including special populations. Emphasis on information needs of adults, organization and management of adult services.

**Credit Hours:** 3**IS\_LT 9437: Reader Advisory Services**

Examination of value and role of leisure reading and leisure reading materials. Coverage of reader advisory techniques, support processes, and resources for providing reader advisory services to various audiences. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9438: Marketing and Libraries**

This course provides an introduction to marketing - concepts, planning, strategies and evaluation - as related to libraries and information agencies. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9439: Digital Humanities and Information**

This course on history, philosophy, and methods in the emerging field of 'digital humanities' focuses on topics at the nexus of information, the humanities disciplines, technology, and culture, as well as the contexts of the academy, libraries/archives, museums, and media. Graded on A-F basis only.

**Credit Hours:** 3**IS\_LT 9440: Learning with Web-based Technologies**

Explores the potential of the Internet to support inquiry-based learning through collaborative activities, research, and authoring/publishing. Investigates goals and methods of online learning. Examines learning theories and models of teaching/learning in relation to selected Internet activities for K-12, undergraduate students and learners in other fields outside education (e.g., work placed learning, non-formal learning).

**Credit Hours:** 3**IS\_LT 9443: The Academic Library**

Development, objectives, organization and structure, nature of the collections and responsibility for their development, philosophy of library services, measurement and standards of library effectiveness.

**Credit Hours:** 3**IS\_LT 9444: The Public Library**

An overview of public library history, missions, and societal roles. Includes public library funding, organization, and management.

**Credit Hours:** 3**IS\_LT 9445: Special Libraries and Information Centers**

Goals of special librarianship including information provision, management styles. Library functions as performed in special libraries. Contributions of special libraries, such as information analysis centers, information brokering, and accountability for and evaluation of services.

**Credit Hours:** 3

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**IS\_LT 9446: International and Comparative Librarianship**

International libraries, intercultural information concerns, how information agencies differ between nations and global information issues. Course presents various countries, their information infrastructures and the influence of information and communication technologies.

**Credit Hours: 3**

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**IS\_LT 9447: Human Centered Design**

This course provides an overview to the Human Computer Interaction (HCI) field while focusing on the use and adaptation of existing HCI theories and research to a range of interface design problems. The course points the way to acquiring continuing information on the field and also provides groundwork for understanding future applied research papers in the field. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9449: Services for Business Communities and Entrepreneurs**

The course covers the introduction to and application of basic concepts of business information in academic, public and special library environments, and the information searching techniques used for specific business information needs (finding company information, industry information, investment information, statistical information, marketing information, etc.) Course includes service to entrepreneurs. Content covers company, investment, industry, statistical and marketing information and includes use of GIS systems.

**Credit Hours: 3**

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**IS\_LT 9450: Introduction to Research in Library and Information Science**

Examination of the nature, utility, and methodologies of research in the profession. Emphasis is on understanding and evaluating potential and actual research.

**Credit Hours: 3**

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**IS\_LT 9452: Information Literacy and Instruction**

This course is designed to prepare Library Science students/Information professionals for the variety of teaching situations they will encounter in library and information agency settings. Students will consider learning theory applicable to library instruction, learning styles, teaching methods, and appropriate evaluation of library instruction. Students will also learn strategies for incorporating library instruction into the institutional curriculum. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9453: Planning and Evaluation of Information Services**

The course focuses on the complexity of the planning process in libraries and other information agencies, including the influence of external environments (upper administrations, user communities, information producers) on planning. Internal elements of the organization (staffing, services, finances) are discussed, as are external elements (requirements of a parent organization, legal constraints, etc.). The role of evaluation of personnel, budgets, facilities, access to information, and services is integrated into the process of providing service.

**Credit Hours: 3**

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**IS\_LT 9454: Copyright in Libraries**

An introductory and practical course covering the foundations of copyright, fair use, e-reserves, related laws including DMCA and TEACH and managing copyright in the public and school environments.

**Credit Hours: 3**

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**IS\_LT 9455: Formative and Summative Evaluation**

Study of the process of gathering data and making judgments about the effectiveness of instructional programs that uses technology. Covers techniques of a formative evaluation process to revise instruction. Culminating project is planning and conducting a portion of a summative evaluation of instructional program.

**Credit Hours: 3**

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**IS\_LT 9456: Designing Computer Support for Collaborative Learning**

Students will examine the theoretical bases for using collaboration and social interaction as methods for learning, and learn key methods and approaches for designing computer supported collaborative learning. Graded A-F only.

**Credit Hours: 3**

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**IS\_LT 9457: Designing Computer Support for Cooperative Work**

Study of the tools and methods of groupware and communities of practice, including their psychological, social and organizational effects. Students focus on designing and developing improved tools and methods. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9458: Technology and Assessment**

Learn how to assess specific types of knowledge, using technology to enhance the process. Topics include use of tools/strategies for data collection to guide instructional decision-making and investigating technologies to improve assessment of student learning. Emphasis on aligning learning objectives, activities, and assessments and developing performance assessments to measure higher-order thinking. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9461: Interaction Design**

Students will learn the basic concepts of interaction design, then focus on usability engineering and prototyping principles to support the design process for learning and performance based technologies.

**Credit Hours: 3**

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**IS\_LT 9466: Learning Analytics**

Learning Analytics (LAK) addresses the questions of how people learn together and how computers can participate with and augment that learning. LAK researchers address the socio-technical aspects of how technology mediates learning practices. Graded on A-F basis only.

**Credit Hours: 3**

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**IS\_LT 9467: Technology to Enhance Learning**

Strategies for integrating technology into the teaching and learning process, with a focus on enhancing how students think rather than what



they think. Special attention given to supporting higher order thinking and problem solving with technology.

**Credit Hours:** 3

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**IS\_LT 9468: Learning and Task Analysis**

Multiple methods for conducting task analysis for learning to identify learning processes, learning topics, and learning experiences, including procedural, prerequisites, cognitive simulations, case libraries, environmental analysis, and decision making.

**Credit Hours:** 3

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**IS\_LT 9469: Designing Electronic Performance Support Systems**

Performance support systems (PSS) are technology systems that support human activity within the complexities of organizational requirements and processes. Students build competency for designing PSS.

**Credit Hours:** 3

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**IS\_LT 9471: Instructional Systems Design**

Develop knowledge and skills related to the systematic design of instruction. Learn to analyze, design, develop, implement, and evaluate learning systems and instruction. Identify appropriate technologies to support learning and explore alternative models of instructional design.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** course in Curriculum or Instruction

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**IS\_LT 9472: Designing and Modeling Systems**

Examination of living systems, general systems theory, and the art and practice of the learning organization.

**Credit Hours:** 3

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**IS\_LT 9473: Project Management**

This course introduces the learner to the necessary and practical project management concepts and skills that lead to reductions in project cycle time while maintaining control over budget, resources, risk, and delivered value. This course proposes to integrate practical project management skills within the project management lifecycle (i.e., initiating, planning, executing, controlling, and closing).

**Credit Hours:** 3

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**IS\_LT 9474: Front End Analysis of Systems**

Develop skills for systematically analyzing learning, or other types of systems, that need to be improved. Develop data collection instruments (e.g. surveys, observation protocols, interviews); analyze secondary data; analyze tasks or activities in the system, and interpret data to make recommendations for system improvement. Skills will be learned by doing and applying to real systems that need improvement.

**Credit Hours:** 3

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**IS\_LT 9475: Diffusion of Educational Innovations**

In-depth analysis of innovation development and adoption processes in educational organizations, including schools, universities, and training centers.

**Credit Hours:** 3

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**IS\_LT 9478: Designing Problem-Based Learning Environments**

Based on theories of situated learning, constructivism, everyday cognition, case-based reasoning, and activity theory, students will design and develop a learning environment that engages learners in constructive learning and problem solving with emphasis on assessing higher-order learning. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9480: Internship in Information Science and Learning Technologies**

Provides internship experience under supervision in advanced levels of practical experience in Information Science and Learning Technology Research and Teaching. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** School director's consent

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**IS\_LT 9483: Capstone: Online Educator Emphasis Area**

Culminating course for Online Educator emphasis area in Information Science and Learning Technologies graduate degree. Design/develop/evaluate an online course or rework existing course. Analyze evaluation data from two external reviewers (novice/expert). Write paper describing results and modifications. To be taken during last semester of student's program. Graded on S/U basis only.

**Credit Hour:** 1

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**IS\_LT 9484: Teaching Online Courses**

Learn to be an effective online instructor! Examine issues in teaching and learning online; instructor and student roles; instructional strategies for supporting diverse learners; methods of student assessment; online communication; classroom management; characteristics of online learning management systems. Projects put you in the role of instructor to practice what you learn.

**Credit Hours:** 3

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**IS\_LT 9485: Designing Online Learning**

Online learning is everywhere! This online course will teach you how to leverage existing software tools to design and develop online learning activities in multiple domains that are grounded in sound learning principles. Course will focus on developing online learning for meaningful learning outcomes such as problem solving, building communities, and developing collaboration skills.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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## Information Technology (INFOTC)

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**INFOTC 1001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 1040: Introduction to Problem Solving and Programming**

An introduction to problem solving methods and programming concepts, providing experience in designing, developing, implementing, and testing programs. Cannot be taken for credit after CMP\_SC 1050.

**Credit Hours:** 3

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**INFOTC 1610: Introduction to Entertainment Media**

This course is an introduction to the basic fundamentals of entertainment products such as postproduction technology, camera and lighting technology, audio creation and mixing technology, and broadcast technology. Computer programs designed for visual special effects are used.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2600: Digital Multimedia**

This course introduces broad views of concepts, software, hardware, and solutions in entertainment media applications. It will examine career options in fields such as information technology, news, film production and postproduction, website design, advertising, or communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2610: Audio/Video I**

This is an introductory course on digital audio and video editing. Background presented in the course will include an overview of the techniques used in modern Non-Linear video editing, and understanding of block editing, and why it is essential when using modern digital technology. The course is hands-on with students at workstations, learning the software directly at the keyboard, and working on assignments in a lab context.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 2620: Computer Modeling and Animation I**

Introduction to the field of computer modeling and animation with an emphasis on tools. Learn programming methods for developing customized modeling and animation algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 1050. May be restricted to Information Technology majors during early registration

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**INFOTC 2810: Fundamentals of Network Technology**

This course includes an overview of networking and the common wireless standards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050. May be restricted to Information Technology majors during early registration

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**INFOTC 2910: Cyber Security**

This course covers numerous platform-independent security topics including threats, problem ports and services, theory and practice of defense in security, intrusion detection, data security, securing remote access, user education and support, designing a secure network and security management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050, INFOTC 2810. May be restricted to Information Technology majors during early registration

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**INFOTC 3001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 3610: Audio/Video II**

This course presents broad professional techniques for completing an off-line edit and the progression to online and finishing, adding depth to topics introduced in A/V I. Students will gain experience in editing techniques involving dialogue, action, documentaries, music videos, and multi-camera projects. The course also introduces special effects, audio finishing, clip and media management, and use of various media formats.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2610. May be restricted to Information Technology majors during early registration

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**INFOTC 3620: Computer Modeling and Animation II**

This course covers advanced methods for modeling and animation with an emphasis on computer science theory and virtual reality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2620. May be restricted to Information Technology majors during early registration

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**INFOTC 3630: Introduction to Game Design**

This class will focus on the theory, design, and implementation of games using the industry standard game development tools. Students will learn about the workflow for designing, creating and implementing vital components for modern games, with respect to data structures, algorithms, content, development tools and practice of game development. The final project is a fully functional, your own custom game.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050. May be restricted to Information Technology majors during early registration

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**INFOTC 3640: Digital Effects**

This course is an introduction to the fundamentals of digital motion picture effects technology. This course is designed for a student interested in pursuing a career in information technology, news, film production and film postproduction, website design, or communication.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or C- or higher in INFOTC 2610. May be restricted to Information Technology majors during early registration

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**INFOTC 3850: Computer System Administration**

This course will cover network management tools, network maintenance, data management, remote access management, management tasks, responsibilities and ethics, required plans and policies, design of a well-managed network. Some work will be done in both Windows and Linux environments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, junior standing. May be restricted to Information Technology majors during early registration

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**INFOTC 3940: Internship in Information Technology**

Information Technology-related experience in business or industry jointly supervised by faculty and IT professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on an S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor Consent

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**INFOTC 4001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 4390: Database Administration**

This course is designed to give a firm foundation in Database Administrators' tasks. The primary goal is to give necessary knowledge and skills to setup, maintain and troubleshoot an Oracle database. This is an instructor-led course featuring lecture and hands-on exercises. Online demonstration and written practice sessions reinforce the concepts and skills introduced. The course defined objectives are designed to support preparation for the Oracle Certified Professional examination.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4380. May be restricted to Information Technology majors during early registration

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**INFOTC 4400: C#/ .NET Development**

Learn how to develop and debug multi-threaded Windows desktop applications based on the object-oriented (OO), Model-View-Controller (MVC), and Model View ViewModel (MVVM) paradigms using C#, .NET, Windows Presentation Foundations (WPF), and Visual Studio. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050. May be restricted to Information Technology majors during early registration

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**INFOTC 4500: Team-Based Mobile Device Application Development**

(same as JOURN 4444). This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** for Journalism majors (Designers), instructor's consent; for Computer Science or Information Technology majors (Developers), CMP\_SC 2050 or permission of instructor. May be restricted to Information Technology majors during early registration

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**INFOTC 4630: Game Design II**

This course explores 1) the manual and procedural development of static and dynamic game content, 2) programming for gameplay, interactivity, UI, game Artificial Intelligence, and 3) algorithms, ADTs, and research vital to game design.

**Credit Hours:** 3

**Prerequisites:** INFOTC 3630. May be restricted to Information Technology majors during early registration

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**INFOTC 4640: Digital Effects II**

This course builds on fundamentals of digital motion picture effects technology learned in Digital Effects I. Computer programs designed for digital visual special effects in film and broadcast are integrated throughout the course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 3640. May be restricted to Information Technology majors during early registration

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**INFOTC 4650: Shader Programing**

The focus of this course is modern computer graphics algorithms and programming, with an emphasis on games, shader languages, (GLSL and Cg) and Graphical Processor Units (GPUs).

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, INFOTC 2620. May be restricted to Information Technology majors during early registration

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**INFOTC 4970: Senior Capstone Design**

This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT) program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel, complex, and integrated project requirements in real-world IT problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing. Restricted to INFOTC majors

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**INFOTC 4970W: Senior Capstone Design - Writing Intensive**

This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT) program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel,

complex, and integrated project requirements in real-world IT problems.  
Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4320 and senior standing.  
Restricted to INFOTC majors

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## Integrative Neuroscience (NEUROSCI)

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### **NEUROSCI 7990: Non-Thesis Research in Neuroscience**

The course is intended primarily for post-baccalaureate students who have not entered a formal graduate program but who are performing neuroscience research. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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### **NEUROSCI 8020: Advances in Neuroscience and Neuropathology**

In depth review of recent advances in basic neuroscience research as well as pathological conditions affecting nervous systems at the cellular and systems level, and the methods and techniques used to study the nervous system. Graded on A-F basis only.

**Credit Hour:** 1-3

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### **NEUROSCI 8090: Thesis Research in Neuroscience**

The course is intended primarily for graduate students who are working with mentors in departments that do not offer courses (e.g. Radiology). Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent required

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### **NEUROSCI 8187: Neuroscience Journal Club**

In depth readings and presentations/discussions of neuroscience journal articles including recent advances in basic neuroscience research, pathological conditions affecting nervous systems, and neuroscience techniques. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

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### **NEUROSCI 8440: Integrative Neuroscience 1**

(same as BIO\_SC 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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### **NEUROSCI 8442: Integrative Neuroscience II**

(same as BIO\_SC 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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### **NEUROSCI 9090: Thesis Research in Neuroscience**

The course is intended primarily for graduate students who are working with mentors in departments that do not offer courses (e.g. Radiology). Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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## Interdisciplinary Studies (INTDSC)

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### **INTDSC 1001: Proseminar in Interdisciplinary Studies**

Lecture/discussion survey of time-management, note taking techniques, in the context of the three courses that are part of a Freshman Interest Group. Regular use of library, electronic mail and computing facilities is stressed. Elective credit only; students cannot receive credit for INTDSC 2001 and INTDSC 1001 or INTDSC 1150. Graded on S/U basis only.

**Credit Hour:** 1

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### **INTDSC 1020: University Freshmen Seminar**

(same as SSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester.

**Credit Hour:** 1

**Prerequisites:** Restricted to freshman only

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### **INTDSC 1940: Internship**

Limited to freshmen/sophomores who are "undecided" or otherwise not accepted into a major. Graded on S/U basis only.

**Credit Hour:** 0-1

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### **INTDSC 2001: Proseminar in Interdisciplinary Studies**

Lecture/discussion survey of a range of issues of special importance for transfer students new to the University. Elective credit only; no credit for INTDSC 1001 and/or SSC 1150. Graded on A-F basis only.

**Credit Hour:** 1

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### **INTDSC 2940: Internship in Interdisciplinary Studies**

Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

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### **INTDSC 2960: Readings in Interdisciplinary Studies**

Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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### **INTDSC 4940: Internship in Interdisciplinary Studies**

Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental Consent Required

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**INTDSC 4960: Readings in Interdisciplinary Studies**

Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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**INTDSC 4970: Service Learning Project.**

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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**INTDSC 4970W: Service Learning Project. - Writing Intensive**

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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**INTDSC 4971: Capstone Internship in Interdisciplinary Studies**

Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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## Internal Medicine (IN\_MED)

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**IN\_MED 6002: Medicine Clerkship**

Students spend eight weeks on the medicine inpatient service at University Hospital and Harry S. Truman Veterans Hospital where they learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

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**IN\_MED 6012: Rural Medicine Clerkship**

Rural Medicine Clerkship

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**Credit Hours:** 8

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**IN\_MED 6022: Springfield Medicine Clerkship**

Students learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**IN\_MED 6035: SCC Medical Intensive Care**

Internists and medical sub-specialists frequently encounter patients with critical conditions that require unique skills. During this rotation medicine students will: 1. Provide assessment, management and follow-up of critically ill patients under the supervision of the medical critical care attending. 2. Be intimately involved in this multidisciplinary approach to patient care. 3. Work collaborative with medical attending physicians, nurses, pharmacists, respiratory therapists and nutritional support staff. 4. Work in a coordinated fashion with consulting physicians and services, social services, physical therapy workers, and the radiology, pathology laboratory departments and chaplain services.

**Credit Hours:** 5

**Prerequisites:** Successful completion of IN\_MED 6002 or IN\_MED 6012 or IN\_MED 6022 or IN\_MED 6102

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**IN\_MED 6102: Remediation Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** IN\_MED 6002 Medicine Clerkship, received unsatisfactory grade

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**IN\_MED 6261: ABS Medicine Investigation**

ABS Medicine Investigation

**Credit Hours:** 5

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**IN\_MED 6263: ABS Internal Medicine Research**

ABS Internal Medicine Research

**Credit Hour:** 5-10

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**IN\_MED 6265: ABS IN MED RSCH/REVIEW**

ABS in Medicine Research Review

**Credit Hours:** 5

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**IN\_MED 6267: ABS Quality Improvement and Patient Safety**

ABS Quality Improvement and Patient Safety

**Credit Hours:** 5

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**IN\_MED 6365: ABS Internal Medicine Research and Review**

ABS Internal Medicine Research and Review

**Credit Hour:** 5-10

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**IN\_MED 6450: Dermatology I**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology; Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist; Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health; Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases; Learn appropriate use of both systemic and topical dermatologic medications; Learn basic punch, shave, and excisional biopsy techniques; Become proficient in skin surveillance, especially early detection of skin cancer. Students are evaluated using a standard evaluation. The student's knowledge of subject matter is evaluated in the following settings: informal discussion during clinics, ward rounds, inpatient consultation rounds and scheduled conferences. A slide (Kodachrome) practical and written examination at the end of the block will be administered at UMC on the last day of the block. Material covered is from the student slide set given in CD format, the AAD Core Curriculum website ([www.aad.org/education/titlepage.htm](http://www.aad.org/education/titlepage.htm)), weekly student lectures, and Unknowns Conference.

**Credit Hours: 5**

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**IN\_MED 6500: Cardiology Consultation Service**

On the inpatient cardiology consultation block, the senior student gains experience in cardiology consultation at either the University Hospital or the Harry S Truman VA Hospital. Through active participation in the consult service the student is provided the opportunity to acquire knowledge of cardiovascular anatomy, physiology, cardiovascular pharmacology, prevention of cardiovascular disease, risk factors for cardiac disease, lipid disorders, chronic coronary artery disease management and its complications, cardiac arrhythmias and conduction abnormalities, hypertension, valvular heart disease, cardiomyopathy, pericardial disease, pulmonary heart disease, peripheral vascular disease, cerebral vascular disease, adult congenital heart disease, and pre- and post-operative assessment of patients with or without cardiac problems. Students will be evaluated using the standard department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours: 5**

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**IN\_MED 6507: Endocrinology/Metabolism**

The Endocrinology rotation is designed to enable the student to deal with clinical problems in Diabetes endocrinology and metabolism with particular emphasis on the more common problems in an ambulatory setting. During the rotation the student will have the opportunity to see patients with a wide range of endocrine disorders. These patients will be used as the focus for teaching with the emphasis placed on differential diagnosis, pathophysiology, management, and how the disorder affects the patient as a whole. By the end of the rotation the student should

be able to evaluate and manage (with supervision) patients with: 1. Diabetes Mellitus 2. Hypoglycemia 3. Thyroid disorders including goiters, thyroid nodules, hyperthyroidism and hypothyroidism 4. Adrenal disorders including adrenal incidentalomas, Cushing and Hyperaldosteronism 5. Pituitary problems including hypopituitarism, conditions due to pituitary hormone excess that including Cushing's disease, acromegaly and prolactinoma. 6. Calcium abnormalities including hyperparathyroidism, hypoparathyroidism, hypercalcemia, hypocalcaemia and osteoporosis. 7. Polycystic ovarian syndrome. Evaluations: The course grade will be based on students' skill in performing a history and physical exam, the quality of the presentation, the quality of their knowledge base and the quality of their interactions.

**Credit Hours: 5**

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**IN\_MED 6508: General Internal Medicine Outpatient**

General Internal Medicine Outpatient

**Credit Hours: 5**

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**IN\_MED 6509: Internal Medicine Off-Site Elective**

Internal Medicine Off-Site Elective

**Credit Hours: 5**

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**IN\_MED 6511: Quality Improvement and Patient Safety**

Quality Improvement and Patient Safety

**Credit Hours: 5**

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**IN\_MED 6513: Infectious Diseases**

The goals of the Infectious Diseases elective will be to: 1. Teach the student how to be an effective consultant. 2. Assist the student in his/her knowledge of disease processes. 3. Help the student improve his/her history taking and physical examination skills. 4. Enhance the student's knowledge regarding the use of antimicrobial agents. 5. Improve the student's understanding of the diagnosis and management of commonly-encountered infectious diseases with attention to the use of the history and readily available laboratory tests..

**Credit Hours: 5**

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**IN\_MED 6515: Problems in Medical Ethics**

Problems in Medical Ethics

**Credit Hours: 5**

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**IN\_MED 6517: Geriatrics-Internal Medicine Elective**

Geriatrics-Internal Medicine Elective

**Credit Hours: 5**

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**IN\_MED 6671: General Medicine - Offsite**

This course was established to accommodate fourth year medical students who wish to take an elective at another medical institution. There is no specific maximum number of students who will be permitted to enroll in this course.

**Credit Hours: 5**

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**IN\_MED 6700: Cardiology Consultation Services - Rural**

Cardiology Consultation Services - Rural

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**Credit Hours:** 5

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**IN\_MED 6702: Immunology/Rheumatology - Rural**

Immunology/Rheumatology - Rural

**Credit Hours:** 5

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**IN\_MED 6704: General Internal Medicine Outpatient - Rural**

General Internal Medicine Outpatient - Rural

**Credit Hours:** 5

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**IN\_MED 6705: Pulmonary Medicine - Rural**

Rural Pulmonary Medicine general elective.

**Credit Hours:** 5

**Prerequisites:** IN\_MED 6002. Restricted to fourth year medical student

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**IN\_MED 6707: General Internal Medicine Outpatient - Rural**

The 4th year medical student will work with an IM community-based faculty member at a rural training site. Students will see patients in clinic, perform the history and physical examination, and develop an assessment and plan for these patients on their own. They will then discuss with the community-based faculty member and see the patient together. The 4th year student will complete oral presentations and document encounters as directed by the community-based faculty member. Course may be repeated for credit.

**Credit Hours:** 5

**Prerequisites:** IN\_MED 6002, 4th year medical student

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**IN\_MED 6750: DERMATOLOGY 1-RURAL**

Dermatology 1 - Rural

**Credit Hours:** 5

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**IN\_MED 6800: Coronary Care Unit**

During the Coronary Intensive Care Unit rotation, the medical student is provided the opportunity to acquire knowledge in the evaluation and management of acute and chronic coronary artery disease, life threatening cardiac arrhythmias, acute severe congestive heart failure, acute valvular disease, acute infective endocarditis, hypertensive emergencies, cardiac tamponade, aortic dissection, aortic pulmonary embolism, life threatening complications of cardiac therapy, hypotension, and shock. The Coronary Intensive Care rotation allows the student to evaluate and treat these patients in close conjunction with medical residents, cardiology fellows and cardiology faculty. Students will be evaluated using the standard Department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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**IN\_MED 6801: Diabetes Mellitus Externship**

Diabetes Mellitus Externship

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**Credit Hours:** 5

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**IN\_MED 6802: Gastroenterology**

Medical students will be assigned to the inpatient GI consultation service, where they will see and evaluate patients, read about their problems, and present them to the GI fellow and/or teaching attending. They should attend all endoscopic procedures on the patients they follow on the inpatient service. They should also attend a sampling of outpatient procedures each week in the Endoscopy Center. As time permits, they may be assigned to one or more GI clinics during the rotation as well. Medical students will be expected to attend all GI conferences during the rotation. Students are also encouraged to attend Internal Medicine Grand Rounds and Internal Medicine Morning Report. They may also be assigned to give one formal presentation during their rotation. It is recommended that they read the entire GI-Liver section of the Internal Medicine textbook that they used on their third-year Internal Medicine Clerkship. Ongoing feedback is provided to the student during the rotation. At the end of the rotation, a formal written evaluation will be prepared by the inpatient attending, in conjunction with the GI fellow with whom the resident/medical student worked with. Conference participation is factored in.

**Credit Hours:** 5

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**IN\_MED 6803: Subinternship in Internal Medicine**

The internal medicine subinternship builds on the skills begun during the internal medicine clerkship and prepares the student for the internship year. 1. Students will refine and further develop skills in: a. Physical exam, history taking, chart review, and written notes; b. Problem list development and management plan; data interpretation and synthesis; c. Oral presentation; d. Interpersonal relations with patients, families, staff and peers ; e. Time management i. Self-directed learning ii. Evidence-based medicine 2. Expand knowledge base in general internal medicine 3. Assume primary responsibility for inpatient care 4. Further develop in the role of primary care giver Patient management skills, medical record keeping, presentation skills, knowledge base, and ability to handle responsibility will be carefully observed by both the senior ward resident and the attending physician. Students will receive constructive feedback/suggestions for improvement throughout the rotation from both the attending and the senior ward resident. The attending, with input from the senior ward resident and the third year students, will report the final scores using the Department of Internal Medicine standard electives evaluation form. Students will meet with the attending physician at the end of the block to discuss their performance. Students will not receive elective credit for three weeks rotations.

**Credit Hours:** 5

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**IN\_MED 6804: Geriatrics - Internal Medicine @ VA**

Geriatrics - Internal Medicine @ VA

**Credit Hours:** 5

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**IN\_MED 6805: Hematology and Medical Oncology Chronic Care**

The specific objective of the course is to assist the student in developing a greater understanding for the care of chronically ill patients with hematologic and neoplastic diseases. The student's evaluation is based predominantly on his/her performance in presentation and in written chart notes of patients under the student's care. This evaluation will be by the attending physician with whom the student has worked. The standard

department student elective evaluation form will be used to document student performance.

**Credit Hours:** 5

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**IN\_MED 6806: Immunology/Rheumatology**

The overall curricular objectives of this elective include: 1. Basic Information. The student should be able to: a. Perform a medical history and screening physical examination with attention to symptoms and signs of rheumatic disease. Understand the basic pathophysiology and clinical diagnosis of common arthritic and musculoskeletal diseases in adults. b. Understand the natural history of rheumatic diseases, particularly rheumatoid arthritis, soft tissue rheumatism, degenerative joint disease, systemic lupus erythematosus and spondyloarthropathies. c. Understand the short and long term management of rheumatic conditions and apply these principles together with overall clinical judgment in the management of individual patients. These therapeutic measures include: 1. drug therapy, 2. physical rehabilitative measures, and 3. surgical intervention. d. Learn the uses and pitfalls of laboratory tests in practice. e. Formulate ways to approach the emotional problems of patients with chronic disease. f. Understand the value of the comprehensive approach in arthritis treatment including patient education, the role of the allied health professional and community resources.

**Credit Hours:** 5

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**IN\_MED 6807: Medical Intensive Care**

Under the supervision of the medical critical care attending, the medical students are part of a team providing assessment, management, and follow-up of critically ill patients. Students will be intimately involved in this multidisciplinary approach to patient care. As a member of the ICU patient management team, the student will work collaboratively with residents, fellows, medical attendings, nurses, pharmacists, respiratory therapists and the nutritional support staff. The team will work in a coordinated fashion with consulting physicians and services, social services, physical therapy workers, and the radiology and pathology laboratory departments, and chaplain services.

**Credit Hours:** 5

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**IN\_MED 6808: Nephrology Advanced Elective**

This elective builds on the knowledge and skills students have acquired in the third year course in Internal Medicine. Students will have the opportunity to perform histories and physicals, participate in the decision-making process of patient management, and be responsible for daily follow-up in patients with fluid and electrolyte problems, acid-base disturbances, acute and chronic renal failure and a variety of renal diseases. The focus in these areas will be at a much higher level of responsibility and management than in the third-year course.

**Credit Hours:** 5

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**IN\_MED 6809: Pulmonary Medicine Diagnostic Services**

The Pulmonary Medicine Service is designed to allow students to participate in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. This service evaluates and assists in management of adult patients at the University or VA Medical Centers. Either rotation includes intensive care unit patients with primary surgical or cardiac diagnoses, the rotation at the VA Medical Center also includes intensive care unit patients with primary medical diagnoses. The rotation will

introduce the student to major clinical entities including the diagnosis and management of infectious lung disorders, neoplasms of the lungs, chronic obstructive pulmonary disease, asthma, acute respiratory failure, occupational pulmonary disease and interstitial lung disorders. The student will be introduced to the variety of diagnostic tests including radiographic studies, fiberoptic bronchoscopy, pulmonary function testing, cardiopulmonary exercise testing, surgical lung biopsy, thoracentesis and pleural biopsy, and arterial blood sampling. Students also participate in consultation on patients requiring outpatient pulmonary clinic evaluation. Each student is encouraged to spend extra time in the pulmonary function lab, and have pulmonary function tests and cardiopulmonary exercise tests done on themselves, depending on available time. Each student rotating through the pulmonary service will be expected to evaluate and present patients fully on a daily basis to the pulmonary consult team, including the attending physician. The student will have an opportunity to assist fellows and faculty with procedures such as bronchoscopy and thoracentesis. Students will have the opportunity to interpret pulmonary function tests, chest radiographs and other radiographic studies such as computed tomography and nuclear medicine studies of the thorax.

**Credit Hours:** 5

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**IN\_MED 6820: General Medicine - Offsite**

This course was established to accommodate fourth year medical students who wish to take an elective at another medical institution. There is no specific maximum number of students who will be permitted to enroll in this course.

**Credit Hours:** 5

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**IN\_MED 6821: Internal Medicine Off-Site Selective**

Internal Medicine Off-Site Selective

**Credit Hours:** 5

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**IN\_MED 6850: DERMATOLOGY 2**

DERMATOLOGY 2

**Credit Hours:** 5

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**IN\_MED 6911: Cardiology Procedure Service**

The Cardiology Procedure Service is designed to allow students to participate in the cardiology procedures involved in the diagnosis and care of hospitalized patients with an acute cardiac problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**IN\_MED 6914: Pulmonary Medicine Procedure Service**

The Pulmonary Medicine Procedure Service is designed to allow students to participate in the pulmonary procedures involved in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2



**Prerequisites:** Successful completion of the first two years of medical school

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**IN\_MED 6932: Adult Diabetes and Endocrinology**

During the elective rotation, students will participate in clinical activities of the division-inpatient and outpatient. The Diabetes and Endocrine Service has a strong ambulatory curriculum with daily outpatient clinics held at the Cosmopolitan International Diabetes and Endocrinology Center. These clinics provide the student with the opportunity to evaluate patients with a wide variety of endocrine disorders. These patients will be used as the focus for teaching with the emphasis placed on differential diagnosis, pathophysiology, management, and how the disorder affects the patient as a whole. If interested, students can get involved in inpatient consultations in conjunction with the fellow on call and inpatient nurse practitioner. The student will participate in Tuesday afternoon endocrine conferences that include case conferences, basic science conferences, Journal clubs, Endocrine lectures, research conferences and Endocrine board review sessions. Endocrine board review sessions will be optional for the students. In addition to this they will also participate in diabetes patient education session/sessions.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

**Recommended:** Completion of Medicine Clerkship

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## International Studies (INTL\_S)

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**INTL\_S 2940: Capstone Internship in International Studies**

Internship limited to students pursuing the AB in International Studies Degree. May be repeated to a maximum of six hours. Graded on S/U basis only.

**Credit Hour:** 1-6

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**INTL\_S 2960: Capstone Readings in International Studies**

Independent readings with supervisory faculty member. Open only to international studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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**INTL\_S 4290: Pre-Departure Seminar for the TaLK Program**

Prior to beginning the TaLK Program in Korea, students will explore Korean language, culture and educational system through seminars and workshops provided by the Asian Affairs Staff and guest speakers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**INTL\_S 4940: Internship in International Studies**

Internship limited to students pursuing the AB in International Studies degree. May be repeated to a maximum of six hours. Graded on S/U basis only.

**Credit Hour:** 1-6

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**INTL\_S 4960: Readings in International Studies**

Independent readings with supervisory faculty member. Open only to International Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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**INTL\_S 4970: Special Readings in International Studies**

Independent readings with supervisory faculty member; this course serves as the students' capstone experience. Open only to International studies majors.

**Credit Hour:** 1-6

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**INTL\_S 4971: Capstone Internship in International Studies**

Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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## Italian (ITAL)

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**ITAL 1100: Elementary Italian I**

Intensive approach to beginning language. Designed to give students an overview of the grammar and syntax of Italian. Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets Arts and Science or Journalism foreign language requirements.

**Credit Hour:** 5-6

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**ITAL 1200: Elementary Italian II**

Continues basic grammar and syntax of Italian . Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meet Arts and Science or Journalism foreign language requirements.

**Credit Hour:** 5-6

**Prerequisites:** grade of C- or better in ITAL 1100 or its equivalent

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**ITAL 1200H: Elementary Italian II - Honors**

Continues basic grammar and syntax of Italian . Emphasis is on oral, with some reading and writing. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meet Arts & Science or Journalism foreign language requirements.

**Credit Hour:** 5-6

**Prerequisites:** grade of C- or better in ITAL 1100 or its equivalent.

Honors eligibility required

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**ITAL 2001: Undergraduate Topics in Italian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2004: Undergraduate Topics in Italian-Social Science**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2005: Undergraduate Topics in Italian-Humanities/Fine Arts**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2160: Intermediate Italian**

Continues development of language skills acquired in Elementary Italian. While learning new structures and new vocabulary, students also review basic grammar components. By the end of the course, students are able to understand (through reading and listening) and communicate (in writing and orally) in a variety of both formal and informal situations.

**Credit Hours:** 3

**Prerequisites:** ITAL 1200

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**ITAL 2310: Italian Civilization**

Open to any student interested. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ITAL 2850: Italian Cinema**

(same as FILM\_S 2850). A course which concentrates on the development of Italian Cinema, primarily since the Post-WWII era, and the ways in which it reflects major economic, social and political events occurring in Italy. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ITAL 3001: Topics in Italian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

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**ITAL 3005: Topics in Italian-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

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**ITAL 3005H: Topics in Italian-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**ITAL 3150: Post-Intermediate Italian**

Gives emphasis on acquiring communicative multi-skills competence necessary to understand and discuss a variety of written and aural texts,

from newspaper articles to brief literature excerpts. It offers students opportunity to review grammar components as well as learning more complex structures, to expand their vocabulary, and to use language in a variety of cultural contexts.

**Credit Hours:** 3

**Prerequisites:** ITAL 2160

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**ITAL 3160: Italian Composition**

Continues the development of the language skills acquired in Intermediate and Post-Intermediate Italian. It offers students the opportunity to expand their vocabulary, to use the language in a variety of contexts prompted by cultural activities, and to acquire more complex grammatical structures. Emphasis is given on refining writing skills in connection with different text types.

**Credit Hours:** 3

**Prerequisites:** ITAL 3150

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**ITAL 3310: 20th Century Italian Fiction in Translation**

This course is designed to present American students with a selection of Italian novels aimed at introducing them to some key issues in the historical, social, and literary developments of Italian life from the turn of the century to the 1960s.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or ENGLISH 1000

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**ITAL 3420: Introduction to Italian Literature**

This course introduces students to the literacy terminology that will enable them to study Italian literature.

**Credit Hours:** 3

**Recommended:** ITAL 2310 and basic reading knowledge of a Romance Language

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**ITAL 3430: Survey of Italian Literature**

Designed to expose students to the rich variety of Italian letters. Emphasis will be placed on textual analysis as well as on authors, themes and stylistic features.

**Credit Hours:** 3

**Recommended:** ITAL 2310 and basic reading knowledge of a Romance Language

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**ITAL 3820: Films of Federico Fellini**

(same as FILM\_S 3820). In studying the filmic career of one of the supreme stylists of the cinematic world, students will view films from each phase of Fellini's career.

**Credit Hours:** 3

**Prerequisites:** ITAL 2850 or ENGLISH 1810 or ENGLISH 1820; instructor's consent

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**ITAL 4070: Intensive Beginning Italian**

Designed for rapid acquisition of a reading knowledge of Italian. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ITAL 4960: Special Readings in Italian**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

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## Japanese (JAPNSE)

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**JAPNSE 1100: Elementary Japanese I**

For beginners with no prior knowledge of Japanese. Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

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**JAPNSE 1200: Elementary Japanese II**

Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

**Prerequisites:** C- or better in JAPNSE 1100, or equivalent

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**JAPNSE 2001: Topics in Japanese-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester.

**Credit Hour:** 1-3

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**JAPNSE 2005: Topics in Japanese - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. No knowledge of Japanese required. No language credit.

**Credit Hour:** 1-3

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**JAPNSE 2160: Japanese Conversation and Composition**

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 1200, or equivalent

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**JAPNSE 2310: Japanese Civilization I**

Survey of Japanese culture and arts before 1868. May be taken independently of JAPNSE 2320. No knowledge of Japanese required. No foreign language credit.

**Credit Hours:** 3

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**JAPNSE 2320: Japanese Civilization II**

Survey of Japanese culture and arts after 1868. May be taken independently of JAPNSE 2310. No knowledge of Japanese required. No foreign language credit.

**Credit Hours:** 3

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**JAPNSE 2330: The World of Japanese Business**

Designed to assist the student to achieve successful business contacts with Japanese counterparts by understanding the characteristics of Japanese business in cultural, economical, and practical contexts and by learning useful Japanese terms and expressions in business.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3085: Problems in Japanese**

Supervised study in Japanese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**JAPNSE 3160: Intermediate Japanese Composition and Conversation**

Further develops oral command of Japanese as well as listening comprehension and further essay writing skills.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 2160

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**JAPNSE 3320: Classical Japanese Literature (in translation)**

This course studies Classical Japanese Literature preceded by a brief historical survey of Japanese literature. Analyzes such works as "The Tale of Genji", "Essays in Idleness", "The Pillow Book", "Hojoki" and NO drama. Readings and lectures in English.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3360: Modern Japanese Literature (in Translation)**

Surveys Japanese literature from 1868 to present. Analyzes works by such authors as Soseki, Tanizaki, Kawabata, Mishima, Oe, Murakami, and others. Readings and lectures in English.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3370: Intermediate Readings in Japanese**

Develops reading and speaking skills and acquisition of more Kanji, vocabulary, and complex structures.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 3160, or equivalent, or instructor's consent

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**JAPNSE 3380: Intermediate Japanese II**

Continues development of intermediate reading, listening, speaking, and writing skills achieved in JAPNSE 3370, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multi-media materials also help students gain greater familiarity with Japanese culture. Encourages development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3370

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**JAPNSE 3850: Traditional Japanese Theatre**

Study of the history, scripts, and performance techniques of Japanese theatre from 14th century through late 19th century. Examines major plays (in English translations) and the culture that created them. Looks at staging and performance techniques of traditional puppet theatre. Course included stage performances and performances on campus and/or in the community.

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**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 3880: Japan and its Cinema**

Survey and analysis of selected Japanese films from the 1940s to present. Films will be viewed and discussed in terms of history, techniques, artistry, and social impact. English subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 4005: Topics in Japanese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing

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**JAPNSE 4005H: Topics in Japanese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing; Honors eligibility required

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**JAPNSE 4160: Advanced Japanese I**

Continues development of reading, listening, speaking, writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature, exercises using authentic multi-media materials. Encourages development of student autonomy in language learning with introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3380 or equivalent, or instructor's consent

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**JAPNSE 4180: Advanced Japanese II**

This course continues the development of reading, listening, speaking, and writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multimedia materials also help students gain greater familiarity with Japanese culture. The course encourages the development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 4160

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## Journalism (JOURN)

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**JOURN \_0900: News Practicum**

Instruction in fundamentals of newswriting for students entering the graduate program without an undergraduate degree in journalism.

**Credit Hours:** 3

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**JOURN 1000: The News Media: Journalism and Advertising in a Democratic Society**

This course surveys the fields of journalism and advertising and discusses their role in a democratic society. Pre-Journalism and Journalism Majors cannot count this course towards the Bachelor of Journalism.

**Credit Hours:** 3

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**JOURN 1010: Career Explorations in Journalism**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Undeclared Journalism, Pre-Journalism, or Science and Agricultural Journalism majors only

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**JOURN 1010H: Career Explorations in Journalism - Honors**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Freshman Journalism and Science and Agricultural Journalism Majors only. Honors Eligibility Required

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**JOURN 1100: Principles of American Journalism**

Course designed to acquaint students with concepts and functions of journalism in American society. Stresses the basic issues and problems facing journalists and the mass media.

**Credit Hours:** 3

**Recommended:** For first-time college students a high school core GPA of 3.0 or higher and 15 college credits (dual, AP, IB or other). For current MU students a GPA of 2.75 and 15 college credits

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**JOURN 1940: Pre-Sequence Internship**

Internship for Journalism students who have not yet entered their emphasis areas. Used to satisfy employer requirements. Graded on S/U basis only.

**Credit Hour:** 0-1

**Prerequisites:** Consent from internship coordinator required

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**JOURN 2000: Cross-Cultural Journalism**

Cross-Cultural Journalism provides journalistic tools for the coverage of diverse ethnic, gender, ability and ideological groups inside and outside the United States. The critical role of diverse voices in a democracy will be discussed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required; C- or higher in JOURN 1100 and UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism Students Only

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**JOURN 2100: News**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic

news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of "B-" or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2100H: News**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of "B-" or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100HW: News - Honors/Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of "B-" or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100W: News - Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several "live" assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of "B-" or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2150: Fundamentals of Multimedia Journalism**

This course deals with the challenges faced by journalists and other communicators working with still photos, audio, video and print. Students learn the basics and ethics of cross-platform, multimedia storytelling. May not be taken concurrently with JOURN 2100. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in JOURN 1100; sophomore standing and a UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students only

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**JOURN 3000: History of American Journalism**

American mass media from colonial days to present in the context of social, economic and political change.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism or Science and Agricultural Journalism majors

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**JOURN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, T\_A\_M 2810, PEA\_ST 2810, DST 3510).

This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, PEA\_ST 2810H, T\_A\_M 3010H, DST 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, PEA\_ST 2810HW, T\_A\_M 3010HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 2810W, DST 3510W, T\_A\_M 3010W). This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 4000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism and Science and Agricultural Journalism majors

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**JOURN 4050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4050H: Communications Practice - Honors**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050HW: Communications Practice - Honors/Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050W: Communications Practice - Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4056: Intersession Colloquium**

Lecture portion of any course the student plans to take later during an intersession.

**Credit Hour:** 1

**Prerequisites:** Consent of Dean required. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4058: New York Program: Journalism Theory and Practice**

Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences.

**Credit Hour:** 2-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4116: Managing and Leading People**

Dramatic changes in technology and in the media's role in covering technologies requires new management and leadership techniques and paradigms based on new management theories. Students will write case studies examining these changes and applying these new theories.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4120: New Media Basics**

Students will learn how to use the Internet to communicate with others, find human and electronic sources for stories and publish on the World Wide Web.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 7122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Students and Junior standing

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**JOURN 4126: Digital Audio and Visual Basics for Journalists**

Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Agricultural Journalism majors only

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**JOURN 4130: Account Services**

(cross-leveled with JOURN 7130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4136: Creative Techniques**

(cross-leveled with JOURN 7136). Designed for advanced strategic communication students preparing for careers in creative work. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4138: Public Relations Techniques**

(cross-leveled with JOURN 7138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4140: Interactive Techniques**

(cross-leveled with JOURN 7140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4146: Strategic Communication Techniques**

(cross-leveled with JOURN 7146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4148: Interviewing Essentials**

(cross-leveled with JOURN 7148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 4150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150. Journalism and Science and Agricultural Journalism majors and Junior Standing

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**JOURN 4198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4200: Principles of Strategic Communication**

(cross-leveled with JOURN 7200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors. Junior Standing Required

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**JOURN 4206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 4208: Strategic Writing II**

(cross-leveled with JOURN 7208). Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 7212) Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 7213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 7214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4216: Media Sales**

(cross-leveled with JOURN 7216). Focus of this course is to familiarize students with how to sell a variety of media, including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4218: MoJo Ad Staff**

(cross-leveled with JOURN 7218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required.

**Credit Hours:** 3**Prerequisites:** Consent of Instructor

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**JOURN 4220: Creative Portfolio**

(cross-leveled with JOURN 7220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3**Prerequisites:** JOURN 4208 or JOURN 4228. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4224: Effective Job Search Strategies**

Are you getting ready to apply for a job or internship? A resume is a brief written account of personal, educational, and professional qualifications and experience that you prepare as part of your application materials for a prospective job. To ensure that your resume is read by the recipient, you will need a cover letter that markets your unique qualifications for the specified job description. In the current global economy, it is essential for job seekers to optimize their chances of being considered and hired for positions that are well-suited to their qualifications and interests. This course will help you effectively develop employment application materials for today's job market by honing your resume writing skills, providing you with tools to create an impressive resume (or to improve the one you already have), and giving suggestions on developing an effective cover letter. You will study different types of resume and cover letter formats that can be applied to various prospective employment situations and your own personal career goals. You will undertake a critical assessment of the professional skills you already possess, brainstorm and apply the best ways to market these skills in your resume and cover letter, and

enhance your application materials by using specific tips and techniques to make you more competitive for the job you seek. Special focus is placed on developing effective application correspondence, follow-up correspondence and interviewing techniques. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4226: Strategic Design and Visuals I**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3**Prerequisites:** junior standing. Restricted to Strategic Communications students only

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**JOURN 4226H: Strategic Design and Visuals I - Honors**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3**Prerequisites:** Restricted to Strategic Communication students only with junior standing or higher. Honors eligibility required

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**JOURN 4228: Strategic Design and Visuals II**

(cross-leveled with JOURN 7228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line.

**Credit Hours:** 3**Prerequisites:** Consent of Instructor required

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**JOURN 4236: Psychology in Advertising**

(cross-leveled with JOURN 7236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the "lifestyle" factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4238: Broadcast Advertising**

(cross-leveled with JOURN 7238). Broadcast advertising production. Emphasis on equipment, directing, script/storyboard preparation and commercial analysis. Students become familiar with procedures, techniques and facilities used in basic radio and television production.

**Credit Hours:** 3**Prerequisites:** JOURN 4204. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4240: Direct and Mail Order Advertising**

(cross-leveled with JOURN 7240). Direct mail advertising and mail order promotion, retail and national; mailing lists, copy, production, postal regulations, strategy.

**Credit Hours:** 2**Prerequisites:** JOURN 4204. Restricted to Strategic Communications and Science and Agricultural Journalism students only



**JOURN 4248: Media Strategy and Planning**

(cross-leveled with JOURN 7248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4250: Management of Strategic Communication**

(cross-leveled with JOURN 7250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4252: Branded Strategic Storytelling**

(cross-leveled with JOURN 7252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4256H: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Honors eligibility required

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**JOURN 4258: Global Communication**

(cross-leveled with JOURN 7258). Understanding global communication systems with an emphasis on planning and executing strategic communication campaigns. Particular attention will be paid to cultural, political and economic differences as they affect marketing and development communication.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4262: Digital Strategy I**

(cross-leveled with JOURN 7262). Course covers every step from integrating Internet efforts into the overall strategic communication plan

to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4263: Digital Strategy II**

(cross-leveled with JOURN 7263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4262

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**JOURN 4268: Strategic Communication Practicum**

(cross-leveled with JOURN 7268). Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4270: Public Relations Writing**

(cross-leveled with JOURN 7270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4300: Broadcast News I**

Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4301W: Topics in Journalism - Writing Intensive**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300

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**JOURN 4308: Broadcast News III**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4308W: Broadcast News III - Writing Intensive**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4310: News Producing**

(cross-leveled with JOURN 7310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308

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**JOURN 4320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 7320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308

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**JOURN 4328: Advanced News Communication**

(cross-leveled with JOURN 7328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Majors only with Junior Standing or higher

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**JOURN 4330: From Murrow to Moore: What Good Journalists Read**

Introduces undergraduates to seminal works in broadcast and print Journalism that influences contemporary professional practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 7340). The course will examine images of journalists in American films ranging from "Citizen Kane" to the present.

Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 4350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4350H: Problems in Journalism - Honors**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior Standing required. Honors eligibility required

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**JOURN 4350W: Problems in Journalism - Writing Intensive**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4360: Fundamentals of Design**

(cross-leveled with JOURN 7360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or JOURN 2150

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**JOURN 4370: Film Studies: The Intersections of Documentary Film and Journalism**

(same as FILM\_S 4370; cross-leveled with FILM\_S 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that

journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms - documentary film and journalism - and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 4371: Editing for Documentaries**

(cross-leveled with JOURN 7371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4372: Documentary Reporting**

(cross-leveled with JOURN 7372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 4373: Documentary Development**

(cross-leveled with JOURN 7373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4371

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**JOURN 4375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 7375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4564

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**JOURN 4377: Documentary Senior Project**

Students in this course will begin work on a yearlong documentary project to be the capstone of their work in the documentary journalism program. This course will concentrate on the research, reporting and field acquisition work for the senior documentary project. Students will show and discuss their work in group settings to share progress and report results. Each will also meet individually with the instructor to fine tune the direction and content of the project. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4375

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**JOURN 4379: Documentary Senior Capstone**

Focus on the completion of a long-form documentary work and its place in current documentary programming. Students will apply knowledge from previous documentary courses in this capstone experience through writing, in-class presentations and their finished work.

**Credit Hours:** 3

**Prerequisites:** JOURN 4377

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**JOURN 4379W: Documentary Senior Capstone - Writing Intensive**

Focus on the completion of a long-form documentary work and its place in current documentary programming. Students will apply knowledge from previous documentary courses in this capstone experience through writing, in-class presentations and their finished work.

**Credit Hours:** 3

**Prerequisites:** JOURN 4377

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**JOURN 4400: Introduction to News Editing**

(cross-leveled with JOURN 7400). Introduces the fundamentals of editing stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hour:** 1-2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4406: Digital News Editing**

(cross-leveled with JOURN 7406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work

is hands-on experience at columbiamissourian.com and the Missouriian newspaper.

**Credit Hours:** 3

**Prerequisites:** restricted to Journalism and Science and Agricultural Journalism Majors only

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**JOURN 4408: Magazine Editing**

(cross-leveled with JOURN 7408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410: Intermediate Writing**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missouriian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410W: Intermediate Writing - Writing Intensive**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missouriian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required  
**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4412: Lifestyle Journalism**

(cross-leveled with JOURN 7412). In-depth reporting, research and writing techniques focused on lifestyle journalism. Students produce articles for Vox, the Missouriian and other magazines, publications or digital outlets. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4414: Field Reporting on the Food System and Environment**

(same as SCI\_AG\_J 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4415: Current Issues in Science Journalism**

(same as SCI\_AG\_J 4415). Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 or instructor's consent

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**JOURN 4416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4416W: Science, Health and Environmental Writing - Writing Intensive**

(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4418: Critical Reviewing**

(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4418W: Critical Reviewing - Writing Intensive**

(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4422: Sports Journalism**

(cross-leveled with JOURN7422). A review of everything from "how to watch Sports" to the history of sports writing. Contact instructor for consent on this course. Priority will be given to Sports Journalism

students. All other consent will be given on a first-come, first-serve basis as space allows. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450/JOURN 7450 or JOURN 4804/JOURN 7804 or JOURN 4306/JOURN 7306 or JOURN 4560/JOURN 7560.

Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-served basis as space allows

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#### **JOURN 4424: Covering Traumatic Events**

(cross-leveled with JOURN 7424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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#### **JOURN 4426: Religion Reporting and Writing**

(same as REL\_ST 4418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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#### **JOURN 4428: Health Reporting Skills**

This course focuses on research and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** Consent of Instructor required. Recommended JOURN 4450 or JOURN 4306 or JOURN 4804

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#### **JOURN 4430: Computer-Assisted Reporting**

How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior Standing

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#### **JOURN 4432: Advanced Data Journalism**

(cross-leveled with JOURN 7432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end

of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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#### **JOURN 4434: The Art and Mechanics of the Business Story**

The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only; JOURN 4450 or JOURN 7450, or JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556

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#### **JOURN 4436: Investigative Reporting**

Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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#### **JOURN 4438: Business and Economics Reporting**

Advanced reporting course concentrating on writing and reporting about business and the economy. Emphasis on sources, records, documents and writing techniques.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 and JOURN 4410 or JOURN 4506

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#### **JOURN 4440: Mapping for Stories and Graphics**

Learn mapping software to discover information for news stories and lay the foundation for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

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#### **JOURN 4444: Team-Based Mobile Device Application Development**

(same as INFOTC 4500). This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4204 or JOURN 4306 or JOURN 4450

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#### **JOURN 4450: News Reporting**

Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4450W: News Reporting - Writing Intensive**

Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4460W: Advanced News Reporting - Writing Intensive**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4462: Emerging Technologies in Journalism**

This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4464: Magazines Across Platforms**

(cross-leveled with JOURN 7464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480: Will Write for Food (and Wine)**

(same as SCI\_AG\_J 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480W: Will Write for Food (and Wine) - Writing Intensive**

(same as SCI\_AG\_J 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4482: Field Reporting: Wine Country Writing**

(same as SCI\_AG\_J 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only. Prerequisites: JOURN 2100

**Credit Hours:** 3

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**JOURN 4482W: Field Reporting: Wine Country Writing - Writing Intensive**

(same as SCI\_AG\_J 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only. Prerequisites: JOURN 2100

**Credit Hours:** 3

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**JOURN 4500: Publication Design**

Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use and execution of design style guides. Recommended: JOURN 4360

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4502: Multimedia Planning and Design**

Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** Completion of one of the following--JOURN 4804 or JOURN 4508 or JOURN 4406 or JOURN 4506 or JOURN 4204 or JOURN 4306 or OURN 4450 or JOURN 4560

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**JOURN 4506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4508: Information Graphics**

Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4510: Visual Communication**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4550: Basic Photography and Photo Editing**

A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4554: Visual Editing for Multimedia**

This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4556: Fundamentals of Photojournalism**

A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4556W: Fundamentals of Photojournalism - Writing Intensive**

A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 7558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques--available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556

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**JOURN 4560: Staff Photojournalism**

(cross-leveled with JOURN 7560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor Required

**Recommended:** JOURN 4558

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**JOURN 4562: Photojournalism Business Practices**

Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566 or consent of instructor; junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4564: Micro-Documentary Photojournalism and Videography**

This course extends student's understanding and abilities to produce short-form video journalism. They will produce, from concepts to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 4306 or JOURN 4804

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**JOURN 4566: Electronic Photojournalism**

Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 and instructor's consent

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**JOURN 4568: History of Photojournalism**

Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4568W: History of Photojournalism - Writing Intensive**

Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary

tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4650: International Issues and the Media**

(cross-leveled with JOURN 7650). Attached to an internship-based journalism study abroad program, this course is an overview of the media in a geographic region. The course aims to enhance students' research, writing, reporting and analytical skills so that they can produce articles, multimedia products and communications campaigns.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4200

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**JOURN 4656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

**Prerequisites:** junior standing in Journalism or Science and Agricultural Journalism

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**JOURN 4658: International Journalism**

An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4660: Media Forces Shaping the European Union**

Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4662: Global News Across Platforms**

(cross-leveled with JOURN 7662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4372 or JOURN 4564

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**JOURN 4700: Participatory Journalism**

An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of "news". Students will

work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4306 or JOURN 4206 or JOURN 4560

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**JOURN 4706: The Community Newspaper**

The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4710: Newspaper Management**

Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern to newspaper management. Cases examine critical newspaper management issues.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors with Junior standing

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**JOURN 4716: Women and the Media**

(same as WGST 4716; cross-leveled with JOURN 7716, WGST 7716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills. Enrollment limited to Journalism and Science and Agricultural Journalism majors only with junior standing required.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4718: Law and the Justice System**

(cross-leveled with JOURN 7718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4720: Internet Law**

This course will focus on how to avoid legal pitfall while doing e-mail or e-commerce or browsing the Web and how to use the law to your benefit.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4728: Confronting Controls on Information**

A review of actions by government, society and the communications media calculated to limit or alter the content of information in the United States and elsewhere around the world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only



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**JOURN 4730: Journalism and Conflict**

(same as PEA\_ST 4830). Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**Credit Hours:** 3

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**JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior Standing. Restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4736: Changing Media Business Models**

Analysis of the economic changes in news media industry. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4738: Thought, Language and Journalism**

This seminar uses the methods of science to explore and better understand the biases and limitations of language, culture, technology and other factors shaping the semantic environment as applied to the practice of journalism and mass communications studies.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4802: Fundamentals of TV, Radio and Photojournalism**

Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 and instructor's consent required. Restricted to Journalism and Science and Agricultural Journalism majors only. Sophomore standing required

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**JOURN 4804: Convergence Reporting**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4804W: Convergence Reporting - Writing Intensive**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4806: Convergence Editing and Producing**

(cross-leveled with JOURN 7806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804 or JOURN 4450

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**JOURN 4810: Advanced Global Converged News**

(cross-leveled with JOURN 7810). Internet news services offers real-world newsroom experience synthesizing worldwide news coverage and revealing alternative perspectives on current events. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor consent required

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**JOURN 4812: Online Audience Development**

(cross-leveled with JOURN 7812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 4804 or JOURN 4306 or JOURN 4450 or instructor consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4814: Multimedia Sports Journalism**

(cross-leveled with JOURN 7814). Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 4940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent from internship coordinator required

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**JOURN 4950: Understanding Audiences**

Focuses on the recipients of journalistic efforts by teaching students to identify, analyze and address media audiences. Students will learn a

variety of research methods and gain hands-on experience with audience analysis through team-based practical projects.

**Credit Hours:** 3

**Prerequisites:** JOURN 2000 and junior standing. Strategic Communication students may not enroll in this entry level research course

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**JOURN 4952: Strategic Communication Research I**

(cross-leveled with JOURN 7952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4970: Strategic Campaigns**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4970W: Strategic Campaigns - Writing Intensive**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4972: Photo and Visual Editing**

An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or or JOURN 4204 or JOURN 4500 or JOURN 4560

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**JOURN 4974: Advanced Internet Applications for Radio/TV News**

Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4976: Seminar in Radio/TV News**

Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4978: Media Management and Leadership**

Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4980: The Picture Story and Photographic Essay**

Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560

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**JOURN 4984: Magazine Staff**

(cross-leveled with JOURN 7984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4408 and JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986: Advanced Writing**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986W: Advanced Writing - Writing Intensive**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4988: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level

design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4988W: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4990: Journalism and Democracy**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4990W: Journalism and Democracy - Writing Intensive**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4992: Reporting, Editing and Marketing of Converged Media**

Capstone course brings together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate journalistic content and applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4992W: Reporting, Editing and Marketing of Converged Media - Writing Intensive**

Capstone course brings together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate journalistic content and applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4994: Magazine Publishing**

(cross-leveled with JOURN 7994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for

advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 and either JOURN 4410 or equivalent, or JOURN 4360 or 4500. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 7000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

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**JOURN 7050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean. Some sections of the course may be offered on either A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Study Abroad sections require consent by International Program. Obtain consent in 76 Gannett

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**JOURN 7056: Intersession Colloquium**

Lecture portion of any course the student plans to take later during an intersession.

**Credit Hour:** 1

**Prerequisites:** Dean's consent

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**JOURN 7058: New York Program: Journalism Theory and Practice**

Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences.

**Credit Hour:** 2-3

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**JOURN 7120: New Media Basics**

Students will learn how to use the Internet to communicate with others, find human and electronic sources for stories and publish on the World Wide Web.

**Credit Hour:** 1

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**JOURN 7122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 4122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. Graded on A-F basis only. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Restricted to Graduate Journalism students.

**Credit Hour:** 1

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**JOURN 7126: Digital Audio and Visual Basics for Journalists**

Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals.

**Credit Hour:** 1

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**JOURN 7130: Account Services**

(cross-leveled with JOURN 4130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary.

**Credit Hour:** 1

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**JOURN 7136: Creative Techniques**

Designed for advanced Strategic Communication students preparing for careers in creative work. Section topics vary.

**Credit Hour:** 1

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**JOURN 7138: Public Relations Techniques**

(cross-leveled with JOURN 4138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary.

**Credit Hour:** 1

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**JOURN 7140: Interactive Techniques**

(cross-leveled with JOURN 4140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary.

**Credit Hour:** 1

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**JOURN 7146: Strategic Communication Techniques**

(cross-leveled with JOURN 4146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

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**JOURN 7148: Interviewing Essentials**

(cross-leveled with JOURN 4148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 7150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**JOURN 7152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at

how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150

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**JOURN 7198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

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**JOURN 7200: Principles of Strategic Communication**

(cross-leveled with JOURN 4200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

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**JOURN 7204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agriculture Journalism Majors

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**JOURN 7206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 7208: Strategic Writing II**

(cross-leveled with JOURN 4208). Advanced course in the creation of strategic communication materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 4212). Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 4213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Graduate Students

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**JOURN 7214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 4214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7216: Media Sales**

(cross-leveled with JOURN 4216). Focus of this course is to familiarize students with how to sell a variety of media including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7218: Mojo Ad Staff**

(cross-leveled with JOURN 4218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative, media and research. Other electives required based on position. Application required.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 7220: Creative Portfolio**

(cross-leveled with JOURN 4220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** core courses and JOURN 4208 or JOURN 7208

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**JOURN 7226: Strategic Design and Visuals I**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

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**JOURN 7228: Strategic Design and Visuals II**

(cross-leveled with JOURN 4228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7236: Psychology in Advertising**

(cross-leveled with JOURN 4236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the "lifestyle" factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7952, JOURN 4204 or JOURN 7204

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**JOURN 7238: Broadcast Advertising**

(cross-leveled with JOURN 4238). Broadcast advertising production. Emphasis on equipment, directing, script/storyboard preparation and commercial analysis. Students become familiar with procedures, techniques and facilities used in basic radio and television production.

**Credit Hours:** 3

**Prerequisites:** JOURN 4206 or JOURN 7206

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**JOURN 7248: Media Strategy and Planning**

(cross-leveled with JOURN 4248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7592, JOURN 4204 or JOURN 7204. Restricted to Journalism graduate students

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**JOURN 7250: Management of Strategic Communication**

(cross-leveled with JOURN 4250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 7252: Branded Strategic Storytelling**

(cross-leveled with JOURN 4252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200/JOURN 7200, JOURN 4204/JOURN 7204 and JOURN 4952/JOURN 7952. Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for-profit organizations.

**Credit Hours:** 3

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**Prerequisites:** JOURN 4200

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**JOURN 7258: Global Communication**

(cross-leveled with JOURN 4258). Understanding global communication systems with an emphasis on planning and executing strategic communication campaigns. Particular attention will be paid to cultural, political and economic differences as they affect marketing and development communication.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4204 or JOURN 7204, JOURN 4952 or JOURN 7952

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**JOURN 7262: Digital Strategy I**

(cross-leveled with JOURN 4262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7200, JOURN 7204 and JOURN 7952

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**JOURN 7263: Digital Strategy II**

(cross-leveled with JOURN 4263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7262. Restricted to Journalism Graduate students

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**JOURN 7268: Strategic Communication Practicum**

(cross-leveled with JOURN 4268) Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4204 or JOURN 7204 and JOURN 4952 or JOURN 7952

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**JOURN 7270: Public Relations Writing**

(cross-leveled with JOURN 4270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7300: Broadcast News I**

Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

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**Prerequisites:** JOURN 2100

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**JOURN 7301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

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**JOURN 7306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300 or JOURN 7300

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**JOURN 7308: Broadcast News III**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306, instructor's consent required

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**JOURN 7310: News Producing**

(cross-leveled with JOURN 4310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 4320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7328: Advanced News Communication**

(cross-leveled with JOURN 4328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 4340). The course will examine images of journalists in American films ranging from "Citizen Kane" to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 7350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

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**JOURN 7360: Fundamentals of Design**

(cross-leveled with JOURN 4360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or 2150

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**JOURN 7370: The Intersections of Documentary Film and Journalism**

(same as FILM\_S 7370; cross-leveled with JOURN 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 7371: Documentary Theory**

(cross-leveled with JOURN 4371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** JOURN 7564

**Recommended:** JOURN 7370

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**JOURN 7372: Documentary Reporting**

(cross-leveled with JOURN 4372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 7373: Documentary Development**

(cross-leveled with JOURN 4373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone in on a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7371

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**JOURN 7375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 4375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 7564

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**JOURN 7400: Introduction to News Editing**

(cross-leveled with JOURN 4400). Introduces the fundamentals of editing of stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 7406: Digital News Editing**

(cross-leveled with JOURN 4406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work

is hands-on experience at columbiamissourian.com and the Missourian newspaper.

**Credit Hours:** 3

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**JOURN 7408: Magazine Editing**

(cross-leveled with JOURN 4408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 7410: Intermediate Writing**

(cross-leveled with JOURN 4410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804. Restricted to Journalism majors only

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**JOURN 7412: Lifestyle Journalism**

(cross-leveled with JOURN 4412). In-depth reporting, research and writing techniques focused on lifestyle journalism. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets. This course can serve as a substitute for JOURN 7410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804. Restricted to Journalism majors only

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**JOURN 7414: Field Reporting on the Food System and Environment**

(same as SCI\_AG\_J 7414) Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 4416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 7410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804

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**JOURN 7418: Critical Reviewing**

(cross-leveled with JOURN 4418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets.

Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 7422: Sports Journalism**

A review of everything from "How to Watch Sports" to the history of sports writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450, or JOURN 4804 or JOURN 7804, or JOURN 4306 or JOURN 7306. Restricted to Journalism and Science and Agricultural Journalism students only. Instructor's consent required. Priority will be given on first-come, first-served basis as space allows

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**JOURN 7424: Covering Traumatic Events**

(cross-leveled with JOURN 4424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 7426: Religion Reporting and Writing**

(same as REL\_ST 7418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or its equivalent in professional writing experience and instructor's consent

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**JOURN 7428: Health Reporting Skills**

This course focuses on reporting, sourcing and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** JOURN 4450 or JOURN 7450, JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804 and instructor's consent



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**JOURN 7430: Computer-Assisted Reporting**

How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

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**JOURN 7432: Advanced Data Journalism**

(cross-leveled with JOURN 4432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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**JOURN 7434: The Art and Mechanics of the Business Story**

The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers. Those classes include: JOURN 4450 or JOURN 7450; JOURN 4306 or JOURN 7306; JOURN 4804 or JOURN 7804; JOURN 4556 or JOURN 7556.

**Credit Hours:** 3

**Prerequisites:** Journalism Graduate students who have passed a newsroom reporting class (or its equivalent)

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**JOURN 7436: Investigative Reporting**

Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 and instructor's consent

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**JOURN 7438: Business and Economics Reporting**

Advanced reporting course concentrating on writing and reporting about business and the economy. Emphasis on sources, records, documents and writing techniques.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 and JOURN 4410 or JOURN 7410 or JOURN 4506 or JOURN 7506

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**JOURN 7440: Mapping for Stories and Graphics**

Learn mapping software to discover information for news stories and lay the foundations for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 2100 and instructor's consent

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**JOURN 7450: News Reporting**

Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting, and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7462: Emerging Technologies in Journalism**

This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded A-F basis only.

**Credit Hour:** 1-3

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**JOURN 7464: Magazines Across Platforms**

(cross-leveled with JOURN 4464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804

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**JOURN 7480: Will Write for Food (and Wine)**

(cross-leveled with SCI\_AG\_J 4480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing, instructor's consent and JOURN 4450. Restricted to Journalism and Science Agriculture Journalism students only

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**JOURN 7500: Publication Design**

Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use of execution of design style guides.

**Credit Hours:** 3

**Prerequisites:** JOURN 4360 and instructor's consent. Restricted to Journalism Graduate students only

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**JOURN 7502: Multimedia Planning and Design**

Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages. Prerequisites: Completion of one of the following: JOURN 4804, JOURN 4508, JOURN 4406, JOURN 4506, JOURN 4204, JOURN 4306, JOURN 4450 or JOURN 4560; or by instructor's consent.

**Credit Hours:** 3

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**JOURN 7506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

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**JOURN 7508: Information Graphics**

Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or the professional equivalent, or instructor's consent

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**JOURN 7510: Visual Communications**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hour:** 2-3

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**JOURN 7550: Basic Photography and Photo Editing**

A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7554: Visual Editing for Multimedia**

This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agriculture Journalism students only

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**JOURN 7556: Fundamentals of Photojournalism**

A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 4558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques-available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556

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**JOURN 7560: Staff Photojournalism**

(cross-leveled with JOURN 4560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558

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**JOURN 7562: Photojournalism Business Practices**

Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566, or instructor's consent required. Restricted to graduate Journalism majors only

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**JOURN 7564: Micro-Documentary Photojournalism and Videography**

This course extends students' understanding and abilities to produce short-form video journalism. They will produce, from concept to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 or JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804 or consent of instructor. Restricted to Journalism or Science and Agricultural Journalism students only

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**JOURN 7566: Electronic Photojournalism**

Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556 and instructor's consent required

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**JOURN 7568: History of Photojournalism**

Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

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**JOURN 7650: International Issues Reporting**

An advanced professional seminar on how to recognize, report and write about the domestic influence of international political, economic and cultural problems and trends.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

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**JOURN 7658: International Journalism**

An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

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**JOURN 7660: Media Forces Shaping the European Union**

Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

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**JOURN 7662: Global News Across Platforms**

(cross-leveled with JOURN 4662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

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**JOURN 7700: Participatory Journalism**

An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of "news." Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 7706: The Community Newspaper**

The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 and JOURN 2100

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**JOURN 7710: Newspaper Management**

Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern

to newspaper management. Cases examine critical newspaper management issues.

**Credit Hours:** 3

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**JOURN 7716: Women and the Media**

(same as WGST 7716; cross-leveled with JOURN 4716, WGST 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7718: Law and the Justice System**

(cross-leveled with JOURN 4718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers, with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7720: Internet Law**

This course will focus on how to avoid legal pitfall while doing e-mail or e-commerce or browsing the Web and how to use the law to your benefit.

**Credit Hours:** 3

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**JOURN 7728: Confronting Controls on Information**

A review of actions by government, society and the communications media calculated to limit or alter the content of information in the United States and elsewhere around the world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7730: Journalism and Conflict**

Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**Credit Hours:** 3

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**JOURN 7734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Agricultural Journalism students only

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**JOURN 7736: Changing Media Business Models**

Analysis of the economic changes in news media. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

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**JOURN 7738: Thought, Language and Journalism**

This seminar uses the methods of science to explore and better understand the biases and limitations of language, culture, technology and other factors shaping the semantic environment as applied to the practice of journalism and mass communications studies.

**Credit Hour:** 1-3

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**JOURN 7802: Fundamentals of TV, Radio and Photojournalism**

Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7804: Convergence Reporting**

(cross-leveled with JOURN 4804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7802 or instructor's consent

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**JOURN 7806: Convergence Editing and Producing**

(cross-leveled with JOURN 4806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804

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**JOURN 7810: Advanced Global Converged News**

(cross-leveled with JOURN 4810). Internet news services offers real-world newsroom experience synthesizing world wide news coverage and revealing alternative perspectives on current events. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7812: Online Audience Development**

(cross-leveled with JOURN 4812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 7814: Multimedia Sports Journalism**

Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306, or JOURN 4450 or JOURN 7450, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556 or JOURN 4560 or JOURN 7560. Restricted to Journalism and Science and Agricultural Journalism students only. Instructor's consent required

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**JOURN 7940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Restricted to Journalism students only

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**JOURN 7952: Strategic Communication Research I**

(cross-leveled with JOURN 4952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7970: Strategic Campaigns**

(cross-leveled with JOURN 4970). This capstone course gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7972: Photo and Visual Editing**

An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 or JOURN 4204 or JOURN 7204 or JOURN 4500 or JOURN 7500 or JOURN 4560 or JOURN 7560

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**JOURN 7974: Advanced Internet Applications for Radio/TV News**

Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7976: Seminar in Radio-TV News**

Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions. Not for students who have taken JOURN 8096.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306; instructor's consent required

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**JOURN 7978: Media Management and Leadership**

Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804

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**JOURN 7980: The Picture Story and Photographic Essay**

Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 7560

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**JOURN 7984: Magazine Staff**

(cross-leveled with JOURN 4984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410, JOURN 4408 or JOURN 7408

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**JOURN 7986: Advanced Writing**

(cross-leveled with JOURN 4986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410 or equivalent. Restricted to Journalism students only

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**JOURN 7988: Advanced Publication Design**

(cross-leveled with JOURN 4988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500 or JOURN 7500

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**JOURN 7992: Reporting, Editing and Marketing of Converged Media**

Capstone course brings together the reporting, editing, management and marketing skills gained in previous convergence courses. Students plan, produce, promote and evaluate journalistic content and applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804, JOURN 4806 or equivalent level of multimedia experience; instructor's consent required

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**JOURN 7994: Magazine Publishing**

(cross-leveled with JOURN 4994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 and either JOURN 4410 or 7410 or equivalent, or JOURN 4360 or JOURN 7360 or JOURN 4500 or JOURN 7500. Restricted to Journalism students only

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**JOURN 8000: Mass Media Seminar**

Concepts, functions and major problems of print and electronic media in the United States. Two hours lecture and one hour of discussion lab each week.

**Credit Hours:** 3

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**JOURN 8001: Seminar on Topics in Journalism**

Problems, issues and approaches to research in selected topic areas. Specific content varies by needs of faculty and students and will be announced in advance.

**Credit Hours:** 3

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**JOURN 8006: Quantitative Research Methods in Journalism**

Research methods of utility in journalism and philosophy of science. Emphasis on understanding common quantitative methods and tools.

**Credit Hours:** 3

**Prerequisites:** six hours of journalism or instructor's consent

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**JOURN 8008: Qualitative Research Methods in Journalism**

Course is designed to introduce graduate students to common qualitative approaches applicable to the study of journalism and mass communication. Students will learn a variety of approaches, practical methodologies and tools that will help them conduct research.

**Credit Hours:** 3

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**JOURN 8010: Advanced Qualitative Methods in Journalism**

Designed to familiarize doctoral students with qualitative approaches applicable to the study of journalism and mass communication. Students will be introduced to a variety of philosophical and conceptual approaches as well as to practical tools-oriented methodologies in four major areas of qualitative research.

**Credit Hours:** 3

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**JOURN 8016: Advanced Quantitative Research Methods**

Experimental design, factor analysis, semantic differential and Q methodology as tools for the researcher in journalism, communication.

**Credit Hours:** 3

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**JOURN 8018: Strategic Communication Research II**

Course reviews the latest principles of strategic communication with emphasis on the crucial role of research to develop informed strategy, monitor communication programs and evaluate overall campaign effectiveness.

**Credit Hours:** 3

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**JOURN 8020: Principles and Tools in Strategic Communication Planning**

Introduces the latest principles of strategic communication and the importance of strategic planning in many contemporary communication fields. A significant operational component in the course introduces skills such as budgeting, scheduling objective-setting, organizing personal time, and managing people.

**Credit Hours:** 3

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**JOURN 8026: Philosophy of Journalism**

Seminar deals with wide assortment of philosophical questions in journalism but concentrates on epistemology, political press theory and ethics. Such questions as "objectivity" in journalism, press responsibility, professionalism.

**Credit Hours:** 3

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**JOURN 8028: The Literature of Journalism**

Reading of ten basic books about journalism. Several books are assigned to everyone; several are assigned on an individual basis, and several are electives. Oral reports, short papers, and class discussion.

**Credit Hours:** 3

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**JOURN 8030: History of Mass Media**

American mass media from colonial days to present in the context of social, economic and political change. History research.

**Credit Hours:** 3

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**JOURN 8032: Media Sociology**

This course examines the relationship between media (and journalism in particular) and society by addressing the impact of society on media and the impact of media on society. It connects media actors, organizations, and institutions to important sociological concepts, such as socialization, social interaction, social roles, and social structures, concerns, such as power, ideology, autonomy, and identity, and debates, such as agency-structure, subjectivity-objectivity, and stability-change. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 8036: Historical Methods**

Graduate seminar in research methods and theoretical approaches used by media historians, including oral history, biography, quantitative and archival research.

**Credit Hours:** 3

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**JOURN 8038: Seminar in Communications Law**

A graduate-level survey of issues in media law, as well as an introduction to First Amendment theory and scholarship. The course familiarizes students with fundamental concepts of mass media law through exposure to primary materials and provides students with the opportunity to analyze the issues discussed in class through individual research projects.

**Credit Hours:** 3

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**JOURN 8042: Health News and Promotion**

This is an advanced seminar that examines and critiques the literature on health communication in news about health and its impact and health promotion campaigns.

**Credit Hours:** 3

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**JOURN 8044: Strategic Conflict Management**

Strategic conflict management is a cross-disciplinary study that integrated organizational behavior, crisis management, conflict resolution and image repair. This course melds theory with practice, and is for those venturing into media management, law, and strategic communication.

**Credit Hours:** 3

**Prerequisites:** graduate journalism standing required

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**JOURN 8046: Controls of Information**

A detail of actions by government, largely the federal government, calculated to limit or alter the content of information in the United States.

**Credit Hours:** 3

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**JOURN 8052: Case Studies in the Digital Globe**

This course seeks to broaden students perspective about how digital technology affects the world around us. Final course in the CDiG certificate. Inter-departmental course.

**Credit Hours:** 3

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**JOURN 8054: Entrepreneurship and Media of the Future**

This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Us and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Journalism or MBA program

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**JOURN 8056: Theory of Mass Communication**

Major communication theories and theorists. Interpersonal theories are included as they relate to mass communication.

**Credit Hours:** 3

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**JOURN 8058: Communication in Media Organizations**

Covers key concepts in management and communication in media organizations, including print, broadcast, advertising and public relations. Topics include leadership, human resource management, managerial/employee communication, career success, financial decision-making, teambuilding and goal setting in media organizations.

**Credit Hours:** 3

**Prerequisites:** Open to students in the online master's program only

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**JOURN 8068: The Mass Media and the Presidency**

This seminar examines that historical triad of the free expression clauses of the First Amendment, the presidency and the American mass media through readings, class assignments and a project.

**Credit Hours:** 3

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**JOURN 8070: Proseminar in Communications**

Seminar on professional and academic issues in journalism and communication. Specific discussion topics selected by faculty and students on a per class basis.

**Credit Hour:** 1-3

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**JOURN 8080: Media Ethics**

An introduction to and application of ethical theory to their contemporary mass media.

**Credit Hours:** 3

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**JOURN 8085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the master's thesis or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Master's students only

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**JOURN 8090: Research in Journalism**

Guidance for graduate students engaged in research toward production of the thesis. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**JOURN 8092: Photography in Society**

Social and political dimensions of still photography with emphasis on critical thinking and analysis in visual communication.

**Credit Hours:** 3

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**JOURN 8098: MA Project Seminar**

Choosing and designing an appropriate profession project; preparation to carry out work successfully; discussion of trends and future directions in various areas of journalism. Must be completed before starting the professional project. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8100: MA Thesis Seminar**

Choosing and developing an appropriate research topic for a thesis; designing a research strategy and learning appropriate investigative techniques. Must be completed before starting thesis. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8106: The Magazine: Then and Now**

Examines magazines' history, role, economics and ethical practices, and the companies and people who produce them, particularly in the United States. It also reviews research perspectives that have illuminated this medium.

**Credit Hours:** 3

**Prerequisites:** JOURN 8000

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**JOURN 8108: News Reporting and Writing for the High School Advisor**

Introduction to fundamentals of new writing. Provides training under deadline pressure in writing news stories for publication. Stories include several "live" reporting assignments.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8110: Editing and News Design for the High School Advisor**

Fundamentals of editing and headline writing for publication. Principles of design with emphasis on newspaper usage.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8120: Media Law and Ethics for the High School Advisor**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they related to print, broadcast, scholastic journalism, advertising and other areas. Includes examination of media ethics and practice.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8122: Graduate Proseminar for High School Advisors**

This seminar is designed to introduce students to the multiplicity of approaches to the study of journalism and mass communication. The course will focus on theories that relate to adolescents and children, plus other areas of interest to high-school educators.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8185: Area Seminar in Journalism**

Seminar designed to accompany JOURN 8190, Area Problem. Through readings and discussions the master's student examines the special area related to the project.

**Credit Hours:** 3

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**JOURN 8190: Area Problem in Journalism**

Work project enabling a master's student to demonstrate professional competence; may be one offered in a graduate reporting program or a creative project designed to meet a particular interest of student. Graded on S/U basis only.

**Credit Hour:** 1-9

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**JOURN 9000: Doctoral Theory and Research I**

First semester of a one-year course that covers theory and method in important topic areas. Each topic would be examined from several theoretical and methodological points of view. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9006: Doctoral Theory and Research II**

Continuation of JOURN 9000. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9008: Readings in Journalism**

Directed readings for doctoral candidates. Designed to supplement work in other courses and to broaden student's knowledge of trends, interpretations and developments in the media.

**Credit Hour:** 1-5

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**JOURN 9010: Doctoral Research Design**

This course is designed to meet the University requirement for a first-year qualifying examination process for doctoral students, involve students in research early in their programs and encourage students to recruit members of their doctoral committees.

**Credit Hours:** 3

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**JOURN 9016: Advanced Seminar, Theory of Communication**

In-depth investigation of communication theory with emphasis on problems of theory building in communication.

**Credit Hours:** 2

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**JOURN 9018: Media and Politics**

With a general premise that the mass media play a central role in American politics, this seminar seeks to answer how the class will examine various theoretical bases for that role and the ensuing political communications, the issues raised in covering American politics, and the types of effects both from politicians and from the mass media coverage on the American society.

**Credit Hours:** 3

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**JOURN 9020: Risk Communication**

Designed to acquaint students from a variety of disciplines and with a variety of career goals with the scholarship of risk communication.

**Credit Hours:** 3

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**JOURN 9026: Mass Communication and Cultural Theory**

Explores the relationship between mass communication and the idea of culture as it emerges during the second half of the twentieth century in the United States.

**Credit Hours:** 3

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**JOURN 9085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the doctoral dissertation or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Doctoral students only

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**JOURN 9087: Professional Development**

Weekly discussion session for doctoral students. Required of all doctoral students. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 9090: Research in Journalism**

Guidance for doctoral candidates engaged in investigations looking toward production of the dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-9

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## Korean (KOREAN)

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**KOREAN 1001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1100: Elementary Korean I**

Introductory course on Korean language. Five hours classroom instruction with one hour lab weekly.

**Credit Hours:** 6

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**KOREAN 1200: Elementary Korean II**

Five hours classroom instruction with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in KOREAN 1100

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**KOREAN 1830: Survey of East Asian History**

(same as HIST 1830)Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era. Graded on A-F basis only.

**Credit Hours:** 3

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**KOREAN 2001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2160: Intermediate Korean Language I**

Intermediate Korean I continues to build on the skills students acquired in the first-year series with increasing work in authentic materials and situations in conversation and reading that encourage students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 1200

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**KOREAN 2310: Korean Civilization I**

Focuses on understanding traditional Korean people and culture through examining social, political, economic, and belief systems. Considers literature, art, folklore, and history up to the late 19th century. May be taken independently of KOREAN 2320.

**Credit Hours:** 3

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**KOREAN 2320: Korean Civilization II**

Considers the situation and culture of Korea at the end of the Chosun Kingdom, and the period of modernization beginning about 1876. Investigates how modernization has changed Korea by looking at attitudes, behaviors, values, philosophies, and trends of Korea in the 20th and 21st centuries. May be taken independently of KOREAN 2310.

**Credit Hours:** 3

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**KOREAN 2330: Study Tour of Korea**

Study tour allows students to experience firsthand important cultural, historical, and education aspects of Korea. Visit key landmarks, museums, and other sites. Provides information and insight needed to cultivate greater understanding of Korea. Graded on A-F basis only.

**Credit Hours:** 3

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**KOREAN 2810: History of Korea: Premodern to Hypermodern**

(same as HIST 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history. More time is devoted to the contemporary period than other periods, and North Korea is equally considered with South Korea. This course is not only about what happened in Korea but also about how Korea's historical events are causally connected to world events, with the greater aim of universalizing Korea's historical questions.

**Credit Hours:** 3

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**KOREAN 3001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: sophomore standing and instructor's consent;

**Credit Hour:** 1-3

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**KOREAN 3005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 3160: Intermediate Korean Language II**

Continues to build on the skills students acquire in the third semester of Korean language with increasing work in authentic materials and situations in conversation and reading. Encourages students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 2160, or instructor's consent

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**KOREAN 3180: Advanced Korean I**

The course is designed to advance students to greater strength in oral communication competence, reading skills, and socio-cultural knowledge of Korea. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in KOREAN 3160, or equivalent

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**KOREAN 3650: The Korean Peninsula in World Affairs: Political, Economic, and Cultural Forces**

Designed as interdisciplinary introduction to Korean politics, public policy, economics, and society, paying special attention to the government and politics of South Korea. The Korean peninsula (South and North Korea) has important implications for U.S. foreign policy toward East Asia. Surrounded by Russia, China, and Japan, the Korean peninsula long been regarded among social scientists as one of major regional cases that informs the broader theoretical debate on political and economic issues including democratization, civil society, economic development, and security. Course aims to provide students with the information necessary to understand and analyze modern South and North Korea, and discuss the future of the two Koreas as well as of U.S. foreign policy toward Korea.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 3800: Korean Economic Development and US-Korean Free Trade Agreement**

Covers introductory theories of economic development and overviews Korean historical economic development plans. Aids with understanding how South Korea achieved high levels of economic development and what policies the South Korean Government implemented to spur growth. US -Korea Free Trade Agreement is a good example of how trade promotes the achievement of development goals.

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**Credit Hours:** 3

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**KOREAN 3850: Religion and Culture in Modern Korea**

Survey of religious traditions and culture in Korea within a broader context of world religions: Shamanism, Buddhism, Confucianism, and Christianity, as well as new religions that have sprouted since the late nineteenth century. Intended to help students understand how religious values, ideas and practices have been integrated into the modern contemporary Korean society and culture. Discussion of how religious traditions in Korea have interacted with each other and culture. No knowledge of Korean language or culture or history required.

**Credit Hours:** 3**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 3890: Korean Society Through Cinema**

(same as FILM\_S 3895). Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Graded on A/F basis only.

**Credit Hours:** 3**Prerequisites:** sophomore standing

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**KOREAN 4001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4220: Korean Unification**

Explores many different topics related to Korean Unification. Studies North Korean ideology, political system, economic system, military, and negotiating behavior. Examines Unification policies of Korea as well as past efforts toward Unification. Considers various scenarios of unification. Studies unification attitudes and values of Korean people including anti-American values, and the roles of neighboring countries.

**Credit Hours:** 3**Prerequisites:** junior standing required

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**KOREAN 4260: The Korean Diaspora in the U.S., Japan and China**

Interdisciplinary course related to the phenomenon of migration and settlement from Korea. Course seeks to deepen understanding of the ways in which Korean immigrants have shaped and continue to shape social thought as well as institutions in the United States, Japan and China. Draws upon literature, history and cultural studies to examine experiences of Koreans living in the U.S., Japan and China. Through reading critical literatures, students address issues such as immigration history, race/ethnicity, racism and resistance, gender and sexuality,

culture and identity, labor, migration and globalization, class, education, religion.

**Credit Hours:** 3**Prerequisites:** sophomore standing or instructor's consent required

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**KOREAN 4867: North Korea: History, Political Economy, Culture** (same as HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** sophomore standing, or instructor's consent

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## Laboratory Animal Medicine (LAB\_AN)

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**LAB\_AN 8085: Problems in Laboratory Animal Medicine**

Advanced studies not expected to terminate in a thesis.

**Credit Hour:** 1-99

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**LAB\_AN 8090: Research in Laboratory Animal Medicine**

Research expected to terminate in a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LAB\_AN 8450: Research in Laboratory Animal Medicine**

Research not expected to terminate in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**LAB\_AN 9085: Topics in Laboratory Animal Medicine**

Courses on various specialized topics in laboratory animal medicine or comparative medicine given on an as needed basis; content depends on faculty expertise and student need.

**Credit Hour:** 1-99**Prerequisites:** instructor's consent

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**LAB\_AN 9087: Seminar in Laboratory Animal Medicine**

Theme-oriented seminars and discussions in the field of laboratory animal medicine, comparative medicine or related areas. Graded on S/U basis only.

**Credit Hour:** 1**Prerequisites:** departmental consent

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**LAB\_AN 9437: Pathology of Laboratory Animals**

Pathogenesis, pathology and diagnosis of naturally occurring diseases in animals used in research.

**Credit Hours:** 4**Prerequisites:** departmental consent

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**LAB\_AN 9468: Laboratory Animal Biology**

Anatomy, taxonomy, reproduction, genetics, nutrition, and behavior of common laboratory animals. Emphasis is placed on mice and rats, including genetically-engineered models with comparative discussions on other laboratory animals. Prerequisites: departmental consent

**Credit Hours:** 4

**LAB\_AN 9469: Laboratory Animal Resource Management**

Policies, standards and regulations in the care and use of laboratory animals, including colony management, animal procurement, cost accounting, facility design, and supervisory skills.

**Credit Hours:** 4

**Prerequisites:** departmental consent

**LAB\_AN 9475: Methodology of Animal Experimentation**

Topics include experimental design, applied biostatistics, concepts of animal modeling.

**Credit Hours:** 3

**Prerequisites:** departmental consent

**LAB\_AN 9476: Grant and Manuscript Writing for Biomedical Researchers**

Topics include experimental design applied biostatics and writing effective grant proposals and scientific manuscripts. Methods include lecture, discussion and assignments including an individual grant proposal which will be reviewed by a mock study section.

**Credit Hours:** 3

**Prerequisites:** LAB\_AN 9475; instructor's consent

**LAB\_AN 9477: Laboratory and Project Management**

This course will provide graduates with professional development skills and career guidance including instruction in laboratory and project management. Topics will include job searching, start-up considerations, equipping a lab, personnel management and budget management. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrollment in Comparative Medicine Area Program or approval of course coordinator

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## Latin (LATIN)

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**LATIN 1100: Elementary Latin I**

Forms, grammar, syntax.

**Credit Hours:** 5

**LATIN 1100H: Honors Elementary Latin**

Beginning Latin for Honors Eligible students.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

**LATIN 1200: Elementary Latin II**

Continuation of LATIN 1100.

**Credit Hours:** 5

**Prerequisites:** LATIN 1100

**LATIN 1200H: Honors Elementary Latin II**

Continuation of LATIN 1100H.

**Credit Hours:** 5

**Prerequisites:** LATIN 1100. Honors eligibility required

**LATIN 2000: Latin Reading**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200

**LATIN 2000H: Latin Reading - Honors**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200. Honors eligibility required

**LATIN 4300: Latin Poetry**

Readings in selections from the Latin poets.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

**LATIN 4350: Latin Prose**

Selections from various Latin prose writers; some composition at instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

**LATIN 4500: Latin Stylistics**

Study and writing of connected prose compositions.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

**LATIN 4505: Topics in Latin**

Topics course involving Latin texts. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** LATIN 4300

**LATIN 4510: Age of the Scipios**

Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

**LATIN 4520: Age of Cicero**

Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Recommended:** LATIN 4300

**LATIN 4530: Vergil**

Readings, discussion, and literary analysis of Vergil Aeneid.

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**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4540: Augustan Literature**

Critical readings in and integrated analyses of the culture of Augustan Rome.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4550: Latin Epigraphy**

Introduction to the study of Latin inscriptions and their contributions to ancient culture.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4560: Neronian Literature**

Critical readings in and integrated analysis of the culture of the age of Nero.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4570: Age of Pliny and Tacitus**

Critical readings in and integrated analyses of the ages of Domitian and Trajan.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4580: The Theodosian Age**

A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4590: Medieval Latin**

Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4600: Survey of Latin Literature**

Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 7300: Latin Poetry**

Readings in selections from the Latin poets. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000 or equivalent

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**LATIN 7350: Latin Prose**

Selections from various Latin prose writers; some composition at instructor's discretion. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 7500: Latin Stylistics**

Study and writing of connected prose compositions.

**Credit Hours:** 3

**Prerequisites:** two years classical Latin or equivalent

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**LATIN 7505: Topics in Latin**

Topics in Latin.

**Credit Hours:** 3

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**LATIN 7510: Age of the Scipios**

Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7520: Age of Cicero**

Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7530: Vergil**

Readings, discussion, and literary analysis of Vergil's Aeneid.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7540: Augustan Literature**

Critical readings in and integrated analyses of the culture of Augustan Rome.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7550: Latin Epigraphy**

Introduction to the study of Latin inscriptions and their contributions to ancient culture.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7560: Neronian Literature**

Critical readings in and integrated analysis of culture of the age of Nero.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7570: Age of Pliny and Tacitus**

Critical readings in and integrated analyses of the ages of Domitian and Trajan.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7580: The Theodosian Age**

A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7590: Medieval Latin**

Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 7600: Survey of Latin Literature**

Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 2-3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 8000: Proseminar in Latin Texts**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 8010: Latin Rough Guide**

Intensive exploration of Latin literature from the Roman Republic through the Late Empire. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies.

**Credit Hours:** 3

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**LATIN 9187: Seminar in Roman Comedy**

Seminar in Roman Comedy.

**Credit Hours:** 3

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**LATIN 9287: Seminar in Latin Lyric and Elegiac Poetry**

Seminar in Latin Lyric and Elegiac Poetry

**Credit Hours:** 3

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**LATIN 9387: Seminar in Neronian Literature**

Seminar in Neronian Literature

**Credit Hours:** 3

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**LATIN 9487: Seminar in Roman Historians**

Seminar in Roman Historians.

**Credit Hours:** 3

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**LATIN 9587: Seminar in Latin Epic Poetry**

Seminar in Latin Epic Poetry.

**Credit Hour:** 1-99

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**LATIN 9687: Seminar in the Augustan Age**

Integrated studies in the culture of the age of Augustus--its literature, art and architecture, religion, political and social institutions.

**Credit Hour:** 3-6

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**LATIN 9787: Seminar in Late Antiquity**

Integrated studies in the culture of late antiquity with interdisciplinary focus.

**Credit Hours:** 3

**Prerequisites:** consent required for non graduate students

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**LATIN 9887: Seminar in Special Fields**

Seminar in special fields.

**Credit Hours:** 3

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## Law (LAW)

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**LAW 5010: Civil Procedure I**

Fundamental and recurrent problems in civil actions in federal and state courts; remedies; pleading; discovery; trials; jurisdiction; appeals; joinder; preclusion.

**Credit Hour:** 1-3

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**LAW 5015: Civil Procedure II**

Continuation of LAW 5010.

**Credit Hour:** 1-3

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**LAW 5020: Contracts I**

Contract formation, insufficient and defective agreement, bases of promissory liability (including consideration and promissory estoppel), resolution, and abuse of bargaining process, Statutes of frauds, parole evidence rule and principles of interpretation, contract performance and risk allocation, remedies for breach.

**Credit Hour:** 1-3

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**LAW 5025: Contracts II**

A continuation of Law 5020

**Credit Hour:** 1-3

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**LAW 5035: Criminal Law**

The purposes of criminal law; nature of criminal responsibility; characteristics of particular crimes.

**Credit Hour:** 1-4

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**LAW 5050: Property**

Classification of real and personal property; rights to found goods; bailments; possession and adverse possession; estates in land and future interests; concurrent ownership; Landlord and tenant; easements, profits and licenses; covenants running with land and equitable servitudes; contracts for the sale of land; conveyancing.

**Credit Hour:** 1-5

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**LAW 5070: Torts**

Principles and practices governing recovery of damages for injuries to person or property. Topics typically covered are intentional torts, negligence, strict liability, products liability, immunities and a survey of various "no fault" proposals.

**Credit Hour:** 1-5

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**LAW 5080: Legal Research and Writing**

An introduction to the basics of legal research (using print materials), legal citation and legal writing. Each student writes two objective office memoranda, and a client letter.

**Credit Hour:** 1-2

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**LAW 5085: Advocacy and Research**

An introduction to Computer Assisted Legal Research, written advocacy, oral advocacy, and the Missouri rules of appellate procedure. Each student writes a trial court motion and brief and then argues that motion. Each student also writes an appellate brief and presents an oral argument in the First Year Moot Court Competition directed by the Board of Advocates (BOA).

**Credit Hour:** 1-3

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**LAW 5090: Legal Reasoning**

A limited enrollment course designed to assist first-year students to better understand the legal system, prepare for examinations and improve their legal analysis and reasoning skills. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5095: Lawyering: Problem Solving and Dispute Resolution**

This course is designed to provide students in introduction to critical lawyering skills; to give students an overview of the alternative processes that a lawyer can employ to resolve a client's problem; and to offer students an understanding of the lawyer's role as a problem solver. It includes an introduction to Interviewing, Counseling, Negotiation, Mediation, Arbitration, mixed dispute resolution processes and ways to choose or build dispute resolution process.

**Credit Hour:** 1-2

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**LAW 5220: Constitutional Law**

Study of theories of judicial review and justiciability; sources of federal legislative power, commerce, taxing, spending, treaty, presidential, military powers; power of states to regulate and tax interstate commerce; preemption; state actions doctrine; due process, equal protection, First Amendment rights.

**Credit Hour:** 1-4

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**LAW 5240: Criminal Procedure**

Constitutional and other limitations placed upon law enforcement officers and prosecutors.

**Credit Hour:** 1-3

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**LAW 5260: Evidence**

The basic law of evidence; use in trials, relevancy, circumstantial proof and real proof; use of witnesses, methods of examination; presumptions and burden of proof; functions of judge and jury.

**Credit Hour:** 1-4

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**LAW 5280: Professional Responsibility**

Responsibilities of lawyer to client, courts and the public. Topics include: organization of the legal profession, fees, conflicts of interest, the confidential relationship, advertising and solicitation, unauthorized practice and courtroom behavior.

**Credit Hour:** 1-3

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**LAW 5310: Administrative Law**

(same as PUB\_AF 8864). Administrative Law is concerned with the process government agencies used to make decisions. As such it develops the requirements for establishing rules and policies. It also covers the means by which regulations and statutory provisions are enforced by agencies, and the means for securing judicial review of rules and enforcement actions.

**Credit Hour:** 1-3

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**LAW 5320: Advanced Legal Research**

Skill training in advanced research techniques and resources used in law practice. Designed to help students become critical legal information consumers with emphasis on developing effective, cost-efficient research strategies. Topics include advanced litigation research, legislative and regulatory history, audience research, research in transactional practices areas, and research in other practices areas including legal ethics, public interest law, and international law. In-depth practice with Lexis, Westlaw and free Internet sources, including appropriate and effective use of social networking tools to extend research.

**Credit Hour:** 1-2

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**LAW 5321: Advanced Legal Writing**

This course is designed to help students to think purposefully about the process of writing and to practice writing and editing in a disciplined way. Students will do exercises involving: rhetorical techniques; grammar; punctuation; and, word usage. Students also will rewrite and critique

portions of appellate briefs or judicial opinions as a way to practice particular writing techniques.

**Credit Hour:** 1-3

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**LAW 5323: Advanced Torts: Dignitary and Economic Torts**

The Advanced Torts: Dignitary and Economic Torts class will examine dignitary and economic torts covering but not limited to such topics as: defamation, invasion of privacy, tortious interference, misrepresentation and injurious falsehood. Unlike tortious conduct that results in an individual suffering physical harm or contact, the claims that arise from these torts represent one of two kinds of non-physical injury - independent dignitary that are similar to or include emotional harms or independent economic or commercial harms. The purpose of the course is to provide students with an opportunity to explore tortious conduct and remedies available that are omitted typically from the First Year Torts course.

**Credit Hour:** 1-3

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**LAW 5325: Advanced Trial Practice**

This course will expand student knowledge of opening statements, direct/cross examination witnesses, jury instruction, closing arguments and will focus significantly on the examination/cross examination of expert witnesses. Grading is based on student participation in examination of witness and semester-ending written trial brief. NOTE: Intersession Trial Practice will not satisfy the prerequisite.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5260 Evidence and LAW 5925 Trial Practice

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**LAW 5327: Advertising and Marketing Law**

This course will cover the regulation of false and misleading advertising under the Lanham Act, the FTC Act and state consumer protection laws. Students will examine advertising and analyze what claims are being made and whether those claims are false or misleading under applicable law. Students will examine the procedures available for competitors, the government and consumers to challenge false or misleading advertising and the remedies available through those procedures.

**Credit Hour:** 1-3

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**LAW 5330: Advocacy, Family Violence and Public Policy**

Interdisciplinary presentations examine both the state of family violence in America and the cross disciplinary issues in effective intervention, including legal procedures. The seminar is open to 2nd or 3rd year law students and other professional graduate students with permission of the faculty. (Not available to students on probation, except for students classified as 3L students).

**Credit Hour:** 1-2

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**LAW 5337: American Legal History to 1876**

This is a revision of Legal History. The course covers such topics as the impact of the English common law heritage; the development of law in the American colonies; slavery, race and gender in nineteenth century America. The course ends with the conclusion of the Civil War. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5338: American Legal History from 1876**

Historical study of the development of American law since the Civil War. The course will cover such topics as the Civil War amendments to the Constitution; Reconstruction and its aftermath; legal change during the rise of industrialism; race and gender in late 19th century and 20th century America; law in the Progressive Era; the growth of civil liberties and civil rights in the Supreme Court; the law during war and the Depression; jurisprudential trends; and the Civil Rights Movement of the 1960s. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5340: Antitrust Law**

Introduces antitrust and economic analysis and the role of competition, with emphasis on price fixing, horizontal and vertical restraints of trade, monopoly and merger problems.

**Credit Hour:** 1-3

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**LAW 5345: Appellate Advocacy**

Enhances skills training for the preservation and presentation of matters on appeal. In addition, an introductory examination of extraordinary remedies (as a complement to appeal) and other unique actions filed in the Supreme Court of Missouri.

**Credit Hour:** 1-3

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**LAW 5350: Arbitration**

Law, policy and practices relating to arbitration process as it is utilized in commercial and international sectors. Topics include modern arbitration statutes (e.g., the Federal Arbitration Act), enforceability of agreements to arbitrate, public policy defenses against enforcement of arbitration agreements, arbitrators and administering institutions, components of the arbitral process, arbitral remedies and awards, and the arbitration award in the courts.

**Credit Hour:** 1-3

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**LAW 5357: Advanced Topics in Automobile Insurance**

This course will explore advanced topics in a major area of insurance law and practice - automobile insurance. It will examine automobile insurance at a national level, but with special emphasis on Missouri law. The class will focus primarily on acquiring a foundational understanding of policy forms, statutes, regulations, and cases relevant to the representation of accident victims, insurance companies, and those who receive representation under the terms of their automobile liability insurance policies. Practitioners with substantial experience in automobile insurance claims processing, dispute resolution, and litigation will be brought into the course periodically for the purpose of linking the substantive law of automobile insurance with practice skills.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5635 Insurance Law

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**LAW 5365: Bankruptcy**

Focuses on rights of both secured and unsecured creditors under state and federal law. State law covers collective actions and such individual actions as execution, attachment, garnishment, and the law of fraudulent

conveyances. Federal law concentrates on liquidation proceedings under Chapter 7 of the Bankruptcy Code and reorganizations for wage earners under Chapter 13 of the Code. Includes, as time permits, an introduction to the business reorganization provisions of Chapter 11.

**Credit Hour:** 1-3

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**LAW 5375: Basic Federal Income Taxation**

Federal income tax problems of individuals taxpayers; nature of income; when and to whom income is taxable; exclusion from tax base; deduction; tax effects of exchange or other disposition of capital assets. This course is designed to introduce students to the income tax considerations that arise in a variety of legal contexts and will benefit even those students not planning to pursue a career in tax.

**Credit Hour:** 1-4

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**LAW 5385: BOA Competition**

This is a late summer moot court competition directed by the Board of Advocates. The competition is open to 2Ls and 3Ls, but only 2Ls can advance to the final rounds. Students receive an assignment in the spring, submit their written appellate briefs at the end of July, and participate in oral arguments at the beginning of fall semester. The top six 2L competitors present their final arguments in Jefferson City before Missouri Supreme Court judges. These finalists are invited to represent the law school during the following academic year as members of our regional teams for the National Moot Court Competition. Regional team members must enroll in Moot Court I and Moot Court II. Class may be dropped anytime up to the day that the Appellate Brief is due. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** LAW 5085 Advocacy & Research (or the equivalent for transfer students)

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**LAW 5392: Business, Entrepreneurship, and Tax Law Review**

The Business, Entrepreneurship, and Tax Law Review (BETR) will be affiliated with the Center for Intellectual Property and Entrepreneurship. The BET Review journal will give students an opportunity to hone their legal research and writing skills, as well as their leadership skills as editors of the journal, on contemporary issues in growing areas of legal practice. It will also provide an outlet for the publication of articles stemming from symposia and a colloquium series that will be held on topics in the fields of intellectual property, entrepreneurship, and tax.

**Credit Hour:** 1-2

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**LAW 5395: Business Organizations**

The law school's foundation course in business law; recommended for students in all areas of interest. Course coverage includes the study of agency, partnership, limited partnerships, limited liability partnerships, limited liability companies, and corporations. This course is a prerequisite for several advanced electives in business law.

**Credit Hour:** 1-4

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**LAW 5410: Children and the Law**

This course covers the status, rights and obligations of children in contemporary American law; civil proceedings and criminal prosecutions alleging child abuse or neglect; foster care; termination of parental rights; juvenile protective legislation; and delinquency. Emphasis is placed on

juvenile justice doctrine, policy and practice issues and the historical and contemporary operation of juvenile and family courts.

**Credit Hour:** 1-3

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**LAW 5415: Constitutional and Civil Rights Litigation**

Advanced analysis of protection of civil liberties that derive from the United States Constitution and federal statutes. The statutes which will be covered most extensively include the Reconstruction Era laws now codified at 42 U.S.C. section 1981, 1983 and 1985, Rehabilitation Act of 1973, Titles IX of the Educational Amends. of 1972, and Titles II and VI of the Civil Rights Acts of 1964.

**Credit Hour:** 1-3

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**LAW 5420: Client Interviewing and Counseling**

This course covers the nature and conduct of counseling process including basic interviewing techniques, psychological factors affecting the interview process, facilitating and structuring the interview, clarification of statements and ascertaining legal issues, and dealing with client resistance and hostility. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5425: Clinical Skills**

Skills training for students enrolled in the Criminal Clinic. Lectures and simulations designed to facilitate student skills in case preparation and presentation and client representation: ethical concerns, fact investigation, interviewing and counseling, drafting legal documents, direct and cross examination, making and responding to objections. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence and LAW 5280 Professional Responsibility

**Corequisites:** LAW 5470 Criminal Clinic and LAW 5475 Criminal Clinic Writing Project

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**LAW 5430: Commercial Real Estate Leasing**

Seminar course focused on the study of selected topics involved in the negotiation, drafting, and interpretation of commercial real estate leases. Topics will include but are not limited to: rental provisions, defining the premises, use of the premises, condition of the premises, assignments and subleases, maintenance and repairs, casualty insurance, default/remedies, and collateral lease documentation. The course looks at the various parties involved in the process of commercial real estate leasing, their respective interests, and the dynamics of the negotiation and drafting process in which these parties memorialize their respective interests in the lease document. There is a heavy focus upon the careful reading, review, negotiation and revision of the lease document. Grading is based upon a series of exercises involving document review, negotiation, and drafting, and includes both individual and group work.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5856 Real Estate Finance, or LAW 5858 Real Estate Transactions, or LAW 5697 Landlord/Tenant Law and Practice

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**LAW 5435: Comparative Law**

This course examines differences and similarities between the major legal systems of the world, focusing on distant areas of substantive and procedural law to demonstrate diverse methods of addressing



similar legal issues. The course includes a discussion of the historical distinctions between the common and civil law traditions but also moves the analysis forward to address more recent legal innovations and the recognition of new groupings of legal systems. Students will leave the class with a solid understanding of (1) how U.S. legal principles compare to approaches used elsewhere and (2) the uses and benefits of the comparative approach. Principles taught in this course will be equally applicable to those who anticipate practicing domestic U.S. law as well as those who expect to develop an international practice. No foreign language skills are necessary for this course.

**Credit Hour:** 1-3

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#### **LAW 5440: Complex Litigation**

Course will examine principles and practical techniques relevant to complex civil cases. Building on civil procedure, the course will focus on litigation involving multiple parties and/or multiple jurisdictions. Each student will be required to complete several drafting assignments.

**Credit Hour:** 1-3

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#### **LAW 5441: Complex Litigation: Mass Torts**

This course will explore aspects of complex civil litigation through the lens of mass torts lawsuits. It will specifically examine issues such as discovery and scientific evidence, alternative liability issues, class action and multi-district litigation, and alternatives to litigation. This course will involve a final exam.

**Credit Hour:** 1-3

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#### **LAW 5450: Conflict and Conflict Management**

This course is designed to give lawyers a better understanding of the meaning and dynamics of conflict, so that they may better understand their client's situations, as well as the mechanisms that may be most appropriate to the resolution of any particular dispute. Course draws its theoretical teachings from a variety of disciplines beyond law: psychology, sociology, anthropology and economics.

**Credit Hour:** 1-3

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#### **LAW 5454: Contract Drafting**

Course teaches students the principles of drafting commercial agreements. Although the course will be of particular interest to students pursuing a corporate or commercial law career, the concepts are applicable to any transactional practice. Students will learn how transactional lawyers translate business deals into contract provisions, as well as techniques for minimizing ambiguity and drafting with clarity. Through a combination of lecture, hands-on drafting exercises and extensive homework assignments, students will learn about different types of contracts, other documents used in commercial transactions, and the drafting problems that contracts and other documents present. Course will also focus on how a drafter can add value to a deal by finding, analyzing and resolving business issues. Grades will be based on the graded assignments, good faith completion of the ungraded assignments, and class participation.

**Credit Hour:** 1-3

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#### **LAW 5455: Copyright Law**

Nature of copyright law; common law misappropriation; scope of common law copyrights; Copyright Revision Act of 1976 as amended; formalities

of registration (fixation, copyright notice); copyrightable subject matter; originality; exclusive rights of copyright owner; scope of copyright protection; substantial similarity and infringement; fair use; joint and composite works; duration, renewal, termination, transfer; remedies; artists moral rights; federal preemption; international protection; copyrightability of computer software; copyright issues on the internet.

**Credit Hour:** 1-3

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#### **LAW 5465: Corporate Taxation**

This course will provide an in-depth study of the federal income taxation of corporations and their shareholders, including the tax aspects of forming and capitalizing a corporation, corporate distributions, redemptions, and taxable and tax-free corporate liquidations. This course will be taught using the problem methods of instruction.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** Must have taken or be currently enrolled in LAW 5375 Basic Federal Income Taxation

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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#### **LAW 5470: Criminal Clinic**

The Criminal Clinic is available during both the Fall and Winter semesters. It can only be taken once. Enrollment is limited to 8 students per semester. Students must also enroll in Clinical Skills and Criminal Clinic Writing Project and have completed, or be enrolled in, LAW 5280 Professional Responsibility and LAW 5260 Evidence. (Not available to students on probation).

**Credit Hour:** 1-5

**Prerequisites:** LAW 5280 Professional Responsibility, LAW 5260 Evidence. Students must have prior permission of professor

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#### **LAW 5475: Criminal Clinic Writing Project**

This is the Writing Section accompanying course LAW 5470.

**Credit Hour:** 1-2

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#### **LAW 5477: Criminal Justice Administration**

This course will examine the justice system's processing of formal criminal cases from the point at which a defendant is formally charged and going forward. In other words, it will be a "procedure" course reviewing the processing and adjudication of criminal cases. Topics will include the defendant's rights under the Sixth Amendment (e.g. jury trial, speedy trial, confrontation clause, and compulsory process rights); Eighth Amendment issues (e.g. bail and cruel and unusual punishment); criminal discovery (e.g. the prosecutor's Brady obligation to provide exculpatory evidence to defendants and notice requirements for alibi and insanity defenses); expert witnesses; pretrial and trial publicity; plea bargaining; sentencing (e.g. use of discretionary guidelines and minimum mandatory systems); and appeals. Other topics that may be reviewed are: post-conviction relief (e.g. habeas corpus, pardons, and commutations); fraud and other white collar crimes; conspiracy and the expanding federal presence in investigation, prosecution, and incarceration. This will be both an advanced criminal procedure course (similar to "bail to jail" courses at other law schools) and an advanced criminal law course.

**Credit Hour:** 1-3

**Recommended:** successful completion both LAW 5035 Criminal Law and LAW 5240 Criminal Procedure before taking this course

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**LAW 5485: Cross-Cultural Dispute Resolution**

The course will focus on the impact culture can have on the private ordering of disputes. Culture affects communication, perceptions regarding conflict and methods for resolution. As the world becomes more interrelated and Missouri and the U.S. more diverse, lawyers need to be prepared to resolve problems across cultural lines. 20-25% of the grade will come from timely attendance and class participation.

**Credit Hour:** 1-3

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**LAW 5496: Deal Skills Class**

Introduces students to business and legal issues common to commercial transactions. Class will emphasize the thought process involved in, and required by, the practice of transactional law, skills as interviewing, counseling and communicating with your client, understanding business issues and drafting contract provisions to reflect those issues, negotiation deals and managing a transaction closing. Simulation exercise, in-class role-play and lectures, out-of-class due diligence, negotiation and other exercises.

**Credit Hour:** 1-3

**Prerequisites:** Either LAW 5395 - Business Organization or LAW 5454 - Contracting Drafting. Students cannot enroll concurrently in Corporate Finance and Deal Skills. Students who have completed Deal Skills are precluded from enrolling in Corporate Finance. However, students are allowed to enroll in Deal Skills even if they have already taken Corporate Finance

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**LAW 5497: Death Penalty Law**

The primary focus of this course will be on the Supreme Court's capital punishment jurisprudence over the past 35 years, with particular attention to how it has shaped state statutory schemes and legal argumentation in capital sentencing trials.

**Credit Hour:** 1-3

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**LAW 5516: Dispute Resolution in the Digital Age**

This course will explore the need for expanded and equalized access to remedies in consumer cases, and how the internet opens doors to online dispute resolution ("ODR") systems that utilize cost-effective negotiation, mediation, and arbitration processes for resolving complaints. ODR has its drawbacks, but it can be especially effective and satisfying for low dollar claims such as those in most consumer contexts because of its efficiencies. ODR also has potential to ease power imbalances that have hindered market regulation. Accordingly, this course will look at the various systems currently used by major companies such as eBay, as well as the rules and treaty developments in global markets. We also will do ODR simulation exercises, led by Colin Rule, who has been a leader in creating ODR systems. The class also will include deep consideration of both the potential and drawbacks of ODR systems. All ODR processes are not beneficial, and thus we will also discuss development of best practices and question policy directions.

**Credit Hour:** 1-4

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**LAW 5520: Drafting of Legal Instruments**

Problems frequently encountered in general office practice (land transfers, mortgages, leases, contracts, wills, business organizations, etc.), with drafting of the related instruments. Use and adaptation of legal forms. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5525: Education Law**

This course examines the application of discrete doctrines from criminal law, constitutional law, juvenile law, employment law, and disability law to the legal problems facing American schools. Students will explore the ways in which the objectives of these discrete legal doctrines either promote or interfere with our educational policies. Substantive areas of concentration include state regulation of education; freedom of speech, association and religion; equal educational opportunity; employment of teachers; and discipline of students.

**Credit Hour:** 1-3

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**LAW 5530: Elder Law**

This course address legal issues impacting older individuals, including discussion of government benefits (Social Security, Medicaid, Medicare, Supplemental Security Income), long-term care (types, contract issues, civil rights, and financial planning), guardianship and conservatorship, planning for incapacity, and health care decisions at the end of life. The course emphasizes planning techniques for the average client. Grade will be based on a short paper and take-home exam. The course may be taken for writing credit.

**Credit Hour:** 1-3

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**LAW 5532: Election Law**

Election Law has become more important in recent years. This course will introduce students to the many theoretical and practical constitutional, statutory, common law, and policy issues that accompany the franchise, including: legislative districting, voting rights, campaign finance, political parties, interest groups, direct democracy, and alternative democratic structures. The course will emphasize federal law, but will also address Missouri state law as appropriate.

**Credit Hour:** 1-3

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**LAW 5534: Electronic Discovery**

This course provides an in-depth treatment of the legal, technical, and cost management issues involving electronically stored information ("ESI") in civil litigation. Covers the 2006 FRCP ESI amendments (Rules 26 meet and confer, 34, production, and 37 sanctions), FRE 502 (privilege review and production), state e-discovery rules, the rapidly developing ESI case law, and emerging best practices from the Sedona Conference Cooperation Proclamation, the Electronic Discovery Reference Model, and other E-discovery authorities. Practice drafting litigation holds, preservation orders, and related e-discovery documents regularly used in civil litigation. Grading is based on student projects and a final examination.

**Credit Hour:** 1-3

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**LAW 5537: Emotional Intelligence in Law**

Success in law requires more than substantive legal knowledge. It also requires self-awareness, or "emotional intelligence," by the lawyer in order to be able to operate effectively in a complex and nuanced legal environment. This course is designed to help students develop their emotional intelligence by cultivating such personal and social competencies as personal and social awareness, understanding of motivation, empathy and social skills.

**Credit Hour:** 1-3

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**LAW 5540: Employment Discrimination**

This course examines the laws which prohibit discriminatory practices in employment. Title VII is the primary focus, but coverage is also given to the Equal Pay Act, the Americans with Disabilities Act, and the Age Discrimination in Employment Act. Additionally, the course addresses the administrative process available for dealing with employment discrimination complaints, the prima facie case requirement and burden shifting analysis fused in civil rights cases, and affirmative action requirements.

**Credit Hour:** 1-3

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**LAW 5543: Employment Law**

Employment Law focuses on the legal relationship between employers and employees in the non-unionized workplace. The course will survey a variety of issues regarding the establishment, maintenance and termination of the employment relationship. For example, the course will cover the common law aspects of that relationship, particularly contracts and torts. It will examine statutory modifications of the common law in areas such as wage and hours, pensions, whistle-blower protection, unemployment insurance, workers compensation, and health and safety.

**Credit Hour:** 1-3

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**LAW 5544: Entrepreneurship Legal Clinic**

The Entrepreneurship Legal Clinic (the "Clinic") combines business law issues, intellectual property, and transactional experiential learning. The Clinic explores the lawyer's role as counsel to entrepreneurs engaged in early-stage ventures. Students will survey the legal and business issues encountered by entrepreneurs and develop the practical skills necessary to effectively represent them, including client interviewing and counseling, entity formation and planning, governance issues, employee issues, intellectual property analysis (except patents [presently]), and contract drafting. Students will work on actual client matters approved by the Clinic's Supervising Attorney. Students must have the Supervising Attorney's permission to enroll, and they must meet the Requisites listed below. The Clinic is graded and enrollment is limited.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5395 -Business Organizations

**Corequisites:** LAW 5280 - Professional Responsibility

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**LAW 5545: Environmental Law**

Federal and state regulation of the environment, including the economic and philosophical foundations of environmental regulation, the common law roots of environmental regulation, and substantive coverage of a number of environmental statutes, such as the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, National Environmental Policy Act, and Endangered Species Act.

**Credit Hour:** 1-3

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**LAW 5555: Estate Planning and Taxation**

This is a tax-oriented planning course, including discussion of federal estate and gift tax, income taxation of estates and trusts, and techniques for transferring property of a minimal tax cost both during life and at death. Grade will be based on the preparation of one or more projects.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5560 and LAW 5375

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**LAW 5560: Estates and Trusts**

Wills: probate process and will contests, intestate succession; restrictions on testation; execution, revival of wills; integration, incorporation by reference, events of independent significance; will substitutes; will construction; family protection.. Trusts: elements and creations; modification and termination; beneficial interests; charitable trusts; trust construction; powers of appointment; trust administration and fiduciary duties.

**Credit Hour:** 1-4

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**LAW 5570: Externship**

The Externship offers students an opportunity to develop the skills necessary to bridge the gap between law school and law practice. Through the Externship, students prepare for "effective and responsible participation in the legal profession" (ABA Std. 301) by applying the core concepts learned in law school courses to the challenges presented in the actual, in-office practice of law. Details concerning the requirements and structure of the course are available at the Externship webpage. Students cannot take more than 6 hours of Externship credits. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5575: Family Law**

After surveying the variety of family arrangements in contemporary America and central issues concerning the practice of domestic relations law, this course covers marriage; dissolution; distribution of marital property; alimony; child custody' visitation and support; post-dissolution disputes over custody and child-rearing; non-marital families and non-marital children; private agreements in family law; and alternative dispute resolution in collaboration with other professions in client representations, and ethical and policy issues.

**Credit Hour:** 1-3

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**LAW 5580: Family Violence Clinic: Individual and Social Justice**

Rule 13 certified law students represent needy abused women and children in 13 rural Missouri counties. Students obtain orders of protection in adult abuse courts, and appear in protective custody cases in juvenile courts. Weekly debriefings may include interprofessional graduate students. Law students must complete LAW 5330 Advocacy, Family Violence and Public Policy before or during their clinical experience. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5280 Professional Responsibility

**Corequisites:** LAW 5330 Advocacy, Family Violence and Public Policy

**Recommended:** LAW 5260 Evidence

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**LAW 5584: Fiduciary Administration**

This course will cover key issues that arise in the administration of decedent's estates and trusts, including the necessity for probate, rights of creditors, the fiduciary obligations of trustees and personal representatives, investments, and accounting and distribution. Depending on class size, grading will be based either on an exam, a practice-oriented project, or both.

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**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trusts

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**LAW 5585: Federal Courts**

The course will examine the role of federal courts and their relationship to state courts. Topics covered: justiciability; federal question and diversity jurisdiction; sovereign immunity; abstention; and habeas corpus.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** LAW 5220 Constitutional Law

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**LAW 5590: Freedom of Speech and Association**

A study of the rights of speech and association under the First Amendment of the United States Constitution. Major Supreme Court decisions regarding freedom of speech, including content-based and content-neutral restrictions of speech, regulation of commercial speech, regulation of obscenity and pornography, regulation of speech in public and private fora, libel and privacy law, forced association with persons or ideas, and subsidization of speech.

**Credit Hour:** 1-3

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**LAW 5591: Food Law and Policy**

This course examines the laws that govern food safety and food labeling, and considers how well this network works to protect American consumers. It also considers current issues affecting the global food system. Representative topics include recent food safety problems such as tainted meat and salmonella contamination of eggs; food labeling issues such as the use of the term "grass fed" in meat labeling and the use of GMO seed; organic standards; government efforts to address the obesity problem; urban food deserts; animal welfare concerns; the regulation of pet food, and the like. Specific topics addressed each semester will depend on current events and recent legal developments. Students will be graded on the basis of research paper and class participation. The course will often include a writing section designed to meet the upper-level writing requirement. The course may be offered from time to time as a paper-only course, designed to meet the upper-level writing requirement.

**Credit Hour:** 1-3

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**LAW 5592: Firearms Law**

This class will examine the historical development and modern context of the regulation of firearms. Although emphasizing domestic law, some international and comparative perspectives will be examined. The class may be taken for writing credit.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5220 Constitutional Law

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**LAW 5595: Gender, Race, Sexuality and the Law**

A study of the treatment of gender by the legal system. Topics will include a survey of writings by influential feminist legal scholars, historians and social scientists; a comparison of different theoretical frameworks; and an overview of substantive law and the latest legal developments involving gender. The primary aim of the course is to study various feminist theories to discern how gender is viewed by today's lawmakers and courts.

**Credit Hour:** 1-3

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**LAW 5615: Health Care Law: The Doctor-Patient Relationship**

An examination of the law governing the interactions between patients and their health care providers (doctors, hospitals and managed care organizations). The course will focus on rules governing the duty to treat, confidentiality, informed consent, medical malpractice liability, institutional vicarious liability, managed care liability, ERISA preemption and medical malpractice reform. As time permits, the class may also cover selected elements of public health law.

**Credit Hour:** 1-3

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**LAW 5632: Innocence Project Clinic**

This is a joint clinic among the MU and UMKC law schools, the MU School of Journalism and The Midwestern Innocence Project, a non-profit organization. Law students will work under the supervision of the Clinic Director, a practicing lawyer, on cases of possible actual innocence from six states. Graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5946 Wrongful Convictions

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**LAW 5635: Insurance Law**

A basic course in the fundamentals of insurance law. Topics covered include defining insurance; risk and the nature of the insurance relationship; insurable interest; indemnity; fortuity; subrogation; coordination of benefits; interpretation; rights a variance with policy provisions; contract formation; warranties, misrepresentation and concealment; condition; agents and brokers; introduction to regulation; introduction to insurance coverage.

**Credit Hour:** 1-3

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**LAW 5637: Insurance Claims Processing and Dispute Resolution**

This course provides an in-depth examination of claims processing and dispute resolution in the insurance business in both first-party (property, life, etc.) and third-party (liability) insurance. Topics covered include notice of loss, proof of loss, duty to cooperate; negotiation of insurance claims; appraisal; mediation and arbitration of insurance claims; remedies for noncompliance with claims processing obligations; bad faith. The topics will be covered from a national perspective, but special emphasis will also be given to Missouri law. This course is approved to count as an elective toward the Dispute Resolution Certificate.

**Credit Hour:** 1-4

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**LAW 5640: Intellectual Property**

This course is an introduction to the four broad areas of intellectual property. Students will learn about intellectual property, contract, and tort knowledge gained from the first year curriculum. The course will cover trademarks, trade secrets, patent law, and copyright law. Thus, the course will cover how one obtains the special property rights called the copyright, patent, trademark contract. Further, the course will cover how these intellectual property rights are protected from the tortious act of infringement, as well as any defense to infringement it is important to note that this introductory class cannot be used to satisfy any of the requirements for the Intellectual Property certificate; nor is this introductory course substitute for the more in-depth coverage offered by Patent Law and Policy, Copyright Law or Trademark Law. Rather, it is designed to allow students to explore basic intellectual property issues and to meet any prerequisites for Cyberspace Law, Software Law and International Intellectual Property. Students may find that taking this

introductory course complements the rest of the intellectual property curriculum. Class participation and preparations is required, as is class attendance. An exam and several small written projects will be required.

**Credit Hour:** 1-3

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**LAW 5652: International Commercial Arbitration**

This course offers a study of arbitration as a dispute resolution process for international trade and business disputes. The course reviews ad hoc and institutional arbitration, the authority of arbitral panels, enforcement of agreement to arbitrate, challenging arbitrators, procedure and choice of law in arbitral proceedings, the enforcement of international arbitral awards. Special attention will be given to the international convention on the recognition and enforcement of international arbitral agreements and awards (New York Convention) and the UNCITRAL (U.N. Commission of International Trade Law) arbitral rules and model law. The course focuses on commercial arbitration as an international practice and not on arbitration under any particular national system. Students will participate in a hypothetical arbitration matter, beginning from the development of the claim to preliminary proceedings, the arbitration hearing, and ending with the arbitrators' award.

**Credit Hour:** 2-3

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**LAW 5660: International Human Rights**

The purpose of this course is not enable students to develop a basic understanding of the concept of international human rights law and the role played by international and regional organizations, states and private actors in defining and enforcing human rights. Beginning with the historical origins of human rights, the course will examine the international regional human rights instruments and institutions that form the sources of human rights law (the UN system, including the Charter and treaties, European, African and Inter-American human rights regimes). It will also examine the role of non-governmental organization, the International Criminal Court and International humanitarian law (the law of war), and the interaction between US civil rights law and International human right. Throughout the course, students will be introduced to important critical themes of human rights, including: the distinctions between public and private acts, evolving theories of statehood, sovereignty immunity, cultural relativism, and the western tradition of individual rights, and the relationship between rights and duties. Issues examined will include: political participation and democratization, religious freedom, the use of torture, corporate liability, woman's rights, the right and status of refugees, genocide and war crimes.

**Credit Hour:** 1-3

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**LAW 5665: International Law**

Introduction to the international legal system, with emphasis on relations between nation-states or international entities. Topics include statehood and recognition, legislative and judicial jurisdiction, human rights and the status of the individual, treaties and international organizations.

**Credit Hour:** 1-3

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**LAW 5675: International Taxation**

This course examines the federal income tax treatment of international transactions. It will focus on the principles and policies underlying the United States tax system as it relates to income earned by U.S. citizens and residents doing business and investing outside the country, as well

as income derived from foreign persons doing business and investing in the United States. Topics include jurisdiction issues, source of income rules, effectively connected income, FDAP income, the foreign tax credit, the role of tax treaties in international tax, and an introduction to subpart F and other anti-deferral mechanisms.

**Credit Hour:** 1-3

**Recommended:** LAW 5375 Basic Federal Income Taxation

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**LAW 5677: Internet Law and Practice**

This course will focus on preparing to advise business client dealing with electronic commerce an internet law issues. There is no technological background requirement or prerequisite to take the class. We will explore a variety of themes including the control over the internet by both government and private actors; how online activities differ from their off-line counterparts; and how the laws should react to new forms of interaction and social structures found online. Specific doctrinal topics include problems of digital authorship and publication including rights of anonymity, copyrights, trademarks, defamation and other torts; sales and licensing of products; marketing, advertising and data-mining, including privacy issues; jurisdiction over online actors; and cyber-squatting. Grades will be based on the final exam and an optional short paper.

**Credit Hour:** 1-3

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**LAW 5679: Introduction to Privacy Law**

This course will focus on the fundamental principles of privacy and these principles' implementation in statutes, regulations and case law. Covered topics include: (a) why privacy matters; (b) fundamental privacy principles; (c) scope of "privacy law;" (d) U.S. Federal privacy laws (including HIPAA, COPPA, GLB, FCRA); (e) key State privacy laws (including CalOPPA, Massachusetts's Data Security Regulation, and overview of breach notification laws); (f) overview of foreign privacy regimes, with a particular focus on European Union's evolving privacy laws; (g) restrictions on, and methods to accomplish, trans-border data transfer in light of varying laws (e.g. U.S. Safe Harbor, Model Contracts); and (h) key enforcement bodies and selected enforcement decisions.

**Credit Hour:** 1-3

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**LAW 5680: Journal of Dispute Resolution**

Credit for work as prescribed by the faculty for members of the Journal of Dispute Resolution. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5690: Jurisprudence**

The major part of the course will cover classic jurisprudential questions about the nature of law - what law is-and related questions regarding judicial decision-making: Under what conditions is a rule a law within a legal system? Are there moral principles that are part of the law even though a legislature has not enacted them? How do judges actually interpret statutes and constitutional clauses? How should they interpret them and are there definitive right answers to disputes about what the law is? Is it possible to refrain from "legislating from the bent." or does judicial decision-making necessarily involve making new law based on moral and political judgments? In the second part of the course, we will begin thinking about the proper function or aim of some core areas of substantive law. For example, questions might include: Does the criminal law aim to exact retributive justice, to achieve deterrence, or both? Is it legitimate for the legislature to use law to enforce morality of

the community's moral belief? Does tort law aim to achieve corrective justice? Does corrective justices require reparations to groups for long past injuries? Reading will include Hart, Fuller, Dworkin, Raz, Ely, Holmes, Scalia, Feinberg, and others.

**Credit Hour:** 1-3

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**LAW 5691: Jury Instructions**

Theoretical and practical aspects of jury instructions (including general and special verdicts) at trial are presented from the perspectives of the judge, counsel, the jury, and the court of appeals. The course will involve the students in researching and drafting instructions, using pattern instructions, observing or participating in a simulated jury instruction conference, and writing an appellate court opinion that describes what the student has learned during the course.

**Credit Hour:** 1-3

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**LAW 5695: Labor Law**

The regulation of relations between employers and labor unions at common law and under federal and state legislation; primary emphasis on the National Labor Relations Act, as amended.

**Credit Hour:** 1-3

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**LAW 5697: Landlord Tenant Law and Practice**

This course focuses primarily on litigation under the Missouri Landlord Tenant statute and under federal administrative regulations governing public entities which provide housing and housing subsidies to low-income people including the processes for litigating against such entities. The course will address proper pleading, relevant evidentiary issues, and requisite settlement skills/strategies. This course is available to all 2L's and 3L's. The course is required for all students enrolled in the Landlord/Tenant Practicum.

**Credit Hour:** 1-3

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**LAW 5698: Landlord/Tenant Practicum**

The Landlord-Tenant Practicum serves indigent individuals in Mid-Missouri. A Mid-Missouri Legal Services Corporation staff attorney supervises Rule 13 certified law students representing tenants including but not limited to those who are being evicted and/or who wish to sue their landlords for habitability or security deposit non-return. Students may also represent tenants who reside in public or subsidized housing in administrative actions brought by or against a Housing Authority. The practicum is graded and enrollment is limited.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** LAW 5697 Landlord/Tenant Law and Practice

**Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5700: Land Use Controls**

This course focuses on laws governing the use and development of land. The course examines legal rules and policy considerations related to zoning, subdivision controls, building codes, historic preservation, aesthetic regulation, growth management, eminent domain, nuisance law, regional land use conflicts, development exactions, and environmental land use restrictions.

**Credit Hour:** 1-3

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**LAW 5715: Law and Economics**

Study of the use of microeconomic analysis and methods in influencing the law. Topics: economic analysis of tort, contract and property law, the use and misuse of economics in the common law judging tradition, limitations on the use of economic analysis in law and links between economic analysis and constitutional law/public choice theory.

**Credit Hour:** 1-3

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**LAW 5717: The Law of Habeas Corpus and Post-Conviction Relief**

Course will cover principles and practices of post-conviction remedies available to collaterally attack a criminal conviction in state and federal courts. Students will prepare post-conviction motions and petitions for a writ of habeas corpus under state and federal rules.

**Credit Hour:** 1-3

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**LAW 5721: Law Practice Management and Technology**

Managing a successful law practice requires time and project management skills, as well as knowledge about the business of practicing law. This course explores the practical and ethical challenges that confront the solo or small firm lawyer. Students will be introduced to a range of resources for the solo and small firm lawyer, and gain practical experience in preparing a business plan, client welcome package, and policies and procedure manual. Material presented is relevant to both the litigation and the transactional lawyer.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5280 Professional Responsibility

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**LAW 5723: The Law and Practice of Criminal Sentencing**

This simulation-based course examines the substantive law and practical operation of state and federal criminal sentencing systems and seeks to provide students with entry-level competence as advocates in the sentencing phase of criminal cases. Students will participate in a series of simulated sentencing proceedings in state and federal court, acting as counsel for the government or the defendant, or as the sentencing judge. Criminal Procedure and Criminal Justice Administration are recommended, but not required.

**Credit Hour:** 1-4

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**LAW 5724: Law and Public Policy**

This course provides students with a framework for making decisions about the policies that governments should adopt to respond to important public problems. It takes an interdisciplinary perspective and argues that decision-makers manage four kinds of risk: litigation risk, political risk, policy risk and implementation risk. Students are introduced to techniques for identifying and minimizing such risks, and apply these techniques to real-world policy problems. Guest speakers also provide a perspective on the challenges of policy choice. More information on the course can be obtained from <http://www.a.roberts.us/category/law-and-public-policy>.

**Credit Hour:** 1-3

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**LAW 5727: The Law of Tax Exempt Organizations**

This course will briefly address theories and rationales for exempt organizations and examine in some depth the Internal Revenue Service's tests for tax-exemption and the major types of 501(c)(3) organizations and related contribution deductions, as well as a collection of other 501(c)

associations. Attention will be paid to state law regarding the formation and operation of Missouri Nonprofit corporations and the IRS application process for recognition of tax-exemption in addition to nonprofit corporate governance matters. Focus will be on Internal Revenue Code provisions, Treasury Regulations, IRS interpretive rulings and case law.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

**Recommended:** LAW 5395 Business Organizations

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**LAW 5730: Law Review**

Credit for work as prescribed by the faculty for members of the Missouri Law Review. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5745: Legislation**

Study of how statutes are drafted, adopted, and interpreted. The principal focus of the course is on the interpretation of statutes by courts.

**Credit Hour:** 1-3

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**LAW 5746: Legislative Practicum**

This course provides students with the opportunity to work with individual lawyer legislators, or lawyer staff, at the Missouri General Assembly. The students will assist members of the General Assembly with drafting legislation, preparing materials for hearings, conducting research and analysis to respond to broad public policy issues as well as constituent concerns. On occasion students may be assigned to legislative committees, legislative staff support services, or to groups lobbying for legislation. Students will be expected to meet periodically with the professor and to maintain a journal of their activities. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5748: Life Skills for Lawyers**

Readings and discussions will focus on how members of the class want to live their lives as a lawyer. Students will be asked to examine their law school experience and visualize their place in the legal profession. Various problems faced by lawyers (e.g. the pressure to produce billable hours and dealing with clients) will be discussed. Some of the positive aspects of being a lawyer will be identified. The emphasis will be on what the problems and opportunities mean to you personally and the importance of taking responsibility for your own personal and professional life. (not available to students on probation, except for students classified as 3L students).

**Credit Hour:** 1-3

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**LAW 5750: Local Government Law**

(same as PUB\_AF 8866). Structure and powers of local government units; state-local relations, including "home rule"; local government finance, including taxation and indebtedness; incorporation and annexation; eminent domain; tort liability; land use controls; labor relations.

**Credit Hour:** 1-3

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**LAW 5765: Mediation**

A study of the process in which a neutral third party assists others in resolving a dispute or planning a transaction. The course addresses the mediation movement as regards public policy, politics, professional responsibility, malpractice, and negotiation. Students develop mediation and negotiation skills through readings, demonstrations, experimental exercises, and preparation of a case study.

**Credit Hour:** 1-3

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**LAW 5770: Mediation Clinic**

(same as LAW 6970). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LAW 5765 Mediation (or concurrent enrollment), or completion of an approved training. Limited to J.D. or LL.M. students in Designated semesters

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**LAW 5800: Moot Court I**

Required only for those students participating in the National Moot Court or ABA Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5805: Moot Court II**

Required only for those students participating in the National Moot Court or ABA Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5808: Natural Resources Law**

This course is a foundational survey course in the law and policy related to management of natural resources. Resources covered may include public lands, waters, submerged lands and wetlands, forests, minerals and energy, wildlife and biodiversity and ecosystems. Topics also may include organic statutes establishing certain resource management standards and procedures, generally applicable statutes governing agency behavior, judicial review of agency decisions, integrated management of multiple resources, the use of ecosystem management and conservation methods, and takings.

**Credit Hour:** 1-3

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**LAW 5810: Negotiation**

Negotiation is an essential skill for most lawyers, regardless of practice area. Lawyers must negotiate with their counterparts, clients, partners, staff, courts, and many others in the course of representing a client. This course provides an in-depth understanding of the different models of negotiation, and practical skill development for meeting the many challenges that negotiation presents.

**Credit Hour:** 1-3

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**LAW 5815: Partnership Taxation**

This course will study the federal income tax treatment of partnerships and other entities treated as partnerships, including limited liability companies. The course will examine partnership formations, contributions to and distributions from partnerships, partnership operations, including special allocations of income and losses among partners, transfers of

partnership interests, and partnership dissolution. This course will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5820: Patent Law and Policy**

This course will provide comprehensive coverage of the U.S. Patent Laws for those interested in obtaining general information about patents, as well as for those interested in practicing before the Patent and Trademark Office. The course will trace an invention through the application, examination, reconsideration, re-examination and litigation processes. If time permits, there may also be coverage of international treaties that affect U.S. Patent Laws as well as some comparison of U.S. Patent Laws and the Patent Laws of select countries. There are no course prerequisites and a technical background is not required because the course primarily focuses on the Patent Act, its requirements and its jurisprudence. Thus, students need only be familiar with applying statutes and cases to a fact pattern. In lieu of an examination or a paper, up to six written projects, between 3-10 pages each (approx. 40 pages overall), will be due at the semester, giving students an intensive writing experience. The professor will review drafts of some of these projects during the semester and all of the projects will be discussed in class. These projects will allow students to help solve a clients hypothetical patent problem as we work through the Patent Act and its jurisprudence. Students may also have the opportunity to engage in client interviewing and counseling in order to complete the projects. There are no prerequisites and a technical background is not required.

**Credit Hour:** 1-3

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**LAW 5830: Pretrial Litigation**

Focus on the study of the legal principles, techniques, strategies and skills which pertain to civil pretrial practice, including: Professional and Ethical Considerations, Case Selection Case Investigation, Development of a case theory, Pleading, Discovery, Pretrial Conference, Motion Practice, Settlement Processes and Alternative Dispute Resolution.

**Credit Hour:** 1-3

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**LAW 5835: Products Liability**

A study of civil liability for personal injury, property damage, and economic loss caused by defective products. The study includes actions for negligence, strict liability, misrepresentation and the effect of state and federal legislation on those actions.

**Credit Hour:** 1-3

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**LAW 5837: Property, Life, Disability and Health Insurance Law**

This course will explore the legal issues that arise in connection with the purchase and ownership of "first-party" insurance policies, which includes the categories of personal and commercial property insurance, life insurance, accidental death insurance, disability insurance, and health insurance. The course will examine the law from a national perspective but will give special attention to Missouri law when appropriate. The emphasis will be on the legal issues that typically arise when the consumer comes into contact with the insurance industry with respect to these products. The coverage of health insurance will focus on the provision and regulation of private insurance, as distinct from government programs providing access to the health care system through insurance or insurance-like benefits.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5635 Insurance Law

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**LAW 5845: Publicly Held Corporation**

This course focuses on legal issues most relevant to large public corporations. Recommended for students interested in pursuing a career in corporate law or for students desiring study in corporate law beyond the Business Organizations course.

**Credit Hours:** 3

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**LAW 5855: Real Estate Transactions and Finance**

Real estate mortgages and financing substitutes--theory and practice; receivers; redemption; foreclosure; priorities; the Missouri Deed of Trust; subdivision development; leasehold mortgages; shopping centers; government intervention in the mortgage market.

**Credit Hours:** 4

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**LAW 5856: Real Estate Finance**

This course examines legal and transactional issues relating to the financing of real estate. The course covers mortgage documentation; the use of mortgagee prior to foreclosure; transfers of mortgaged property; transfers of mortgages and securitization; payment and discharge of mortgages; default and impact of bankruptcy on real estate transactions. The grade will be based upon a final examination.

**Credit Hour:** 1-3

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**LAW 5858: Real Estate Transactions**

This course examines issues relating to the transfer of real estate and the practice of transactional real estate law. The course covers conveyance documentation, the recording system, title and survey review, title insurance, purchase and sale transactions, basis entity structure and tax considerations, environmental review, commercial leasing, valuation of real estate, and project cash flow. The grade will be based on a final examination.

**Credit Hour:** 1-3

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**LAW 5859: Real Estate Transaction Skills Project**

Students will participate in a weekly seminar class focused on contract drafting, negotiation, due diligence, and client management in the context of a transactional real estate law practice. The grade for the course will be based upon student performance on drafting and practice skills assignments. Projects may include the negotiation and drafting of a purchase contract; the negotiation and modification of a commitment for title insurance; survey review; review and evaluation of lease; lease drafting and negotiation. Student projects will include both individual and group work.

**Credit Hour:** 1

**Corequisites:** Concurrent registration in LAW 5858 Real Estate Transaction is required

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**LAW 5861: Regulation of Drugs and Medical Devices**

This course examines the U.S. Food and Drug Administration (FDA) interpretation and implementation of the federal Food, Drug, and Cosmetic Act (FDCA) and the Public Health Service Act (PHSA). FDA regulates food, drugs, animal drugs and feed, cosmetics, medical



devices, tobacco products, and biological products (broadly speaking "food and drugs"). The course considers not only the substantive regulations and policies applicable to food and drugs, but also issues of administrative law (agency practice and procedure, as well as judicial review), enforcement authority (powers and priorities), the agency's place within our federal system, and the place of food and drug law in the larger legal environment. The scope of the class will vary from semester to semester, usually covering at least drugs and devices.

**Credit Hour:** 1-3

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#### **LAW 5870: Remedies**

Survey of damages, history of equity; coverage of various equitable remedies and their adequacy, practicability, defenses, procedural problems, enforcement of decrees, merger of law and equity, contempt.

**Credit Hour:** 1-3

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#### **LAW 5875: Research in Law**

Independent Research with a faculty member is available during the Summer, Fall and Spring Semesters. Any student enrolling for Research credit must designate at the time of enrollment the professor who will supervise the research project. Credit is earned at the rate of 20 pages per credit hour. No more than three hours of Research may be taken or counted toward the law degree. Enrollment in LAW 5875 may, but need not, be structured so as to satisfy the upper-level writing requirement. Enrollment in LAW 5875 Research satisfies the Law School's writing requirement only if the project culminates in an individually authored paper of at least 20 pages, based on independent research, through a process that involves an initial draft, critique by the supervising faculty members, and rewrite.

**Credit Hour:** 1-3

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#### **LAW 5885: Secured Transactions**

The course focuses on the rights of secured creditors and debtors under Article 9 of the Uniform Commercial Code, and includes coverage of creditors with special rights (such as taxing authorities and artisans), documentary exchanges under Article 7, and bulk sales under Article 6.

**Credit Hour:** 1-3

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#### **LAW 5890: Securities Regulation**

Financing of business through the sale of securities. Emphasis on federal securities acts, with some consideration of state statutes. Consideration of the registration process; exemptions from registration; the special antifraud rules; liabilities and criminal penalties; reporting; insider trading; and, proxy solicitation problems.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5395 Business Organizations

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#### **LAW 5905: Sports Law**

Substantive areas of concentration include sports litigation, labor law, NCAA regulations, legal relationships in professional sports, anti-trust aspects of sports activities, and collective bargaining.

**Credit Hour:** 1-3

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#### **LAW 5914: Tax Planning**

This course will examine the application of corporate and partnership tax planning principles to accomplish common business objectives. Students will interview hypothetical clients, prepare written planning documents, present their tax plans to the class, and analyze associated substantive tax and business issues in a seminar format. The grade in this course will be based on written planning documents, a class presentation, and class participation. There will be no final exam.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

**Recommended:** Students are strongly encouraged to have taken or be concurrently enrolled in LAW 5465 Corporate Taxation or LAW 5815 Partnership Taxation

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#### **LAW 5915: Tax Research**

This course provides students with an in-depth exploration of methods and sources for researching tax issues. The course provides students an opportunity to gain experience in using tax research tools. While primarily applicable to tax research, the knowledge gained by students will be helpful in future practice, regardless of practice area. Grades will be based on written assignments to be completed throughout the semester and one final project.

**Credit Hour:** 1-2

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#### **LAW 5916: Taxation of Property Transactions**

This course will examine tax laws and policies fundamental to real estate investment. Topics include depreciation and recapture, cash and accrual methods of accounting, installment sales, non-recognition transactions, including like-kind exchanges and bad involuntary conversions, and discharge of indebtedness issues arising out of real estate transactions. This course is designed to provide a detailed analysis of complex tax provisions necessary for advanced tax planning and will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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#### **LAW 5917: Topics in Law**

Various topics in law are explored in depth. Topics change each semester.

**Credit Hour:** 1-5

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#### **LAW 5918: Tax Policy**

This seminar examines issues of federal tax policy and theory made critically important by the budget deficit and projected shortfalls. We will discuss the major features of the U.S. tax system, identify significant problems, and analyze current reform proposals. Topics will include income distribution, tax treatment of the family, corporate tax reform, capital gains taxation, the alternative minimum tax, the estate tax, taxation of health benefits, consumption or value-added taxes, and tax expenditures.

**Credit Hour:** 1-3

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#### **LAW 5919: Title Insurance Practice**

This course will examine the application of corporate and partnership tax planning principles to accomplish common business objectives. Students will interview hypothetical clients, prepare written planning documents,

present their tax plans to the class, and analyze associated substantive tax and business issues in a seminar format. The grade in this course will be based on written planning documents, a class presentation, and class participation. There will be no final exam. Title Insurance is integral to the real estate market in the United States. Students will be exposed to the development and need for title insurance. They will learn what is necessary to become a title insurance producer and how to run a practice that incorporates both title insurance issuance and how to work within an agency and an underwriter.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5855 Real Estate Transactions and Finance, or LAW 5856 Real Estate Finance, or LAW 5858 Real Estate Transactions

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#### **LAW 5920: Trademark Law**

Nature of trademark law; common law and statutory trademarks and trade-names; Lanham Act of 1946; distinctiveness; types of marks; qualification of marks for registration (use in commerce, intent-to-use certification, secondary meaning, abandonment); registration procedures; exclusive rights of trademark owner; scope of protection; concurrent use; infringement (including "gray market" use); international protection; remedies; state trademark acts; related common law doctrines; trademark usage on the Internet; domain name issues.

**Credit Hour:** 1-3

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#### **LAW 5923: Transnational Litigation**

This course addresses common areas of concern in private transnational litigation and provides students with an understanding of litigation tactics in this growing area of law. Topics include jurisdictional issues, forum selection, international service of process, international discovery, international choice of law, proving foreign law in U.S. courts, multiple proceedings (including parallel proceedings and interim/interlocutory assistance) and enforcement of foreign judgments. Although international in nature, the course covers many of the same sorts of concerns that arise in other sorts of complex civil litigation and emphasizes practical strategy points and transactional considerations.

**Credit Hour:** 1-3

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#### **LAW 5925: Trial Practice**

Skills based course that focuses on the techniques of pleading, discovery, jury selection, opening statements, direct/cross examination of witnesses, preparing jury instructions, closing arguments. Each student participates in classroom problems selected from various phases of litigation, and in one complete trial. Some sections of this course may be offered as a graded section or graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence

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#### **LAW 5927: Veterans Clinic**

In this clinical program, students will help veterans in need and/or their dependents secure disability related benefits after an initial denial from the Regional VA office. This work will be done at the board of Veterans' Appeals level or before the Court of Appeals for Veterans' Claims, both located in Washington D.C. The BVA and CAVC are federal tribunals, specially created to handle veterans' claims. Students will have the opportunity to work with the client, in a law firm type atmosphere, and prepare and argue appeals relating to the denial of benefits.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** LAW 5280 Professional Responsibility

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#### **LAW 5930: Voir Dire**

This course is designed to provide the students with hands-on experience in selecting a jury. Students will act as lawyers, jurors and one student presiding as judge in the concluding 2-1/2 hour courtroom simulation where a jury is selected after making challenges for cause and end exercising preemptory strikes. An actual case involving a badly injured young plaintiff and a large corporate defendant--where liability is questionable--will be the basis for this exercise. The course will outline the purpose of voir dire and the law pertaining to jury selection. Students will learn active listening skills and how to interpret non-verbal behavior. Examples from prominent, practicing lawyers will be presented. The ultimate purpose of the course is to bring recognition that jury selection is an art--not a science-- and should be tailored to the facts of the case and the witnesses the attorney expects to present. Graded on S/U basis only.

**Credit Hour:** 1-2

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#### **LAW 5940: White Collar Crime**

Study of what are generally considered to be business or organizational crimes. General topics to be explored may include: mail and wire fraud, conspiracy, securities fraud, tax fraud, government contracting fraud (with particular emphasis on the False Claims Act), the Hobbs Act and the Racketeer Influenced and Corrupt Organizations Acts.

**Credit Hour:** 1-3

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#### **LAW 5945: Will and Trust Drafting**

Building on Estates and Trusts, applies substantive law of wills and trusts to actual drafting of documents typical of those used in law practice. Grade based entirely on student projects.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trust

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#### **LAW 5946: Wrongful Convictions**

This course offers students an insider's look into the operation of the criminal justice system. It should be of particular interest to any student interested in working in a prosecutor's office, public defender's office or for a firm doing defense work. It is a prerequisite for any student wishing to enroll in the Innocence Project clinic. The course is designed to help students gain insight into features of the criminal justice system that have a tendency to produce wrongful convictions. In addition to examining the causes of wrongful convictions, the course will consider systemic reforms that might minimize convicting the innocent. We will also work with the Midwestern Innocence Project on cases of possible actual innocence. Finally, the class will also focus on recurring ethical issues that confront prosecutors and criminal defense lawyers.

**Credit Hour:** 1-4

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#### **LAW 5947: Workers' Compensation Law and Practice**

This course will cover the law and practice of Workers' Compensation Law both in general and in Missouri. About two-thirds of the class time will be spent studying and discussing the doctrinal basis of workers' compensation. In the balance of the time students will work on a simulation in which they will have the opportunity to work through difference steps of a workers' compensation claim.

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**Credit Hour:** 1-3

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**LAW 6500: London Program**

Students enrolled in classes in London. Credit will count toward graduation requirements. Zero billing hours.

**Credit Hour:** 1-16

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**LAW 6710: Comparative Dispute Resolution**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6720: Comparative Constitutional Law**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6730: Comparative Criminal Justice**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6905: LLM Arbitration Seminar**

(same as LAW 6805). This course would cover law, policy, and practices relating to the arbitration in the U.S. under modern arbitration statutes as well as arbitration of international commercial disputes under international conventions and arbitral rules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6920: LL.M. Externship**

Student will be placed (or secure placement) with attorney, professional mediator or arbitrator, or dispute resolution agency (government-based or private) for an externship ranging three to nine weeks. Students will observe and, to the extent possible, participate in dispute resolution activities of mentor. Journal entries form basis for credit. Externship placements will be local, national or international. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** LL.M. students only

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**LAW 6925: LL.M. Independent Study**

Substantial research project on selected topic of choice.

**Credit Hour:** 1-3

**Prerequisites:** LL.M. students only

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**LAW 6930: LL.M. Major Research Project**

(same as LAW 6830). Development and presentation of substantial research paper on current topic in dispute resolution. Supervision of this work by appropriate faculty will be determined according to the topic selected.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6935: Dispute System Design**

(same as LAW 6835). Analysis of system design principles and the management of multi-party complex disputes. Course will include overview of statutes, regulations, court rules and general policy considerations for the development of systematic approaches to the resolution of disputes as well as the consultation process inherent in system design work. An underlying theme for this course will be issues of program quality. Students will review scholarly work evaluating the ADR field and study basic research/evaluation methodologies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6940: Negotiation and Mediation Perspectives and Skills**

Interactive training program that focuses on the role of the mediator in facilitating settlement. Topics include: theories of competitive and problem solving orientations to negotiation; strengths/weaknesses of mediation as a dispute resolution process; and overview of mediator tasks and responsibilities, such as framing issues, understanding party interest, generating options, and reaching agreement. This course is required for LL.M. students without mediation background and will be delivered in an intensive format during August before regularly scheduled courses begin. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**LAW 6945: Non-Binding Methods of Dispute Resolution**

(same as LAW 6845). Negotiation and mediation of disputes, focusing on the theory, strategy, and skills, and public policy issues involved in using non-binding methods of dispute resolution. The course addresses the role of attorneys in unassisted and mediated negotiation as well as the role of mediators. The course considers the professional responsibility of advocates negotiating for clients and of mediators.

**Credit Hour:** 3-4

**Prerequisites:** instructor's consent

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**LAW 6950: Practicum on Dispute Resolution Training and Education**

Structured training experience through participation in the first-year curriculum project; service as judges in J.D. student competitions, such as negotiation and client counseling; and assignments to appropriate upper division courses to assist with development of dispute resolution modules. Credit is earned for work over the entire academic year. Graded on a S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LL.M. students only

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**LAW 6955: Topics**

Special and emerging topics in dispute resolution. Subject, content and credit varies, depending on available faculty and student interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LAW 6960: Understanding Conflict**

(same as LAW 6860). Study of the origins, nature, and functions of conflict, using perspectives from a variety of disciplines and from literature and religion. The course will include special attention to the idea of conflict as opportunity and will draw on contemplative practices,

of the kind that have been developed in many religious traditions, to aid in understanding the relationship between inner and outer conflict. It will focus persistently on the connections between one's assumptions about conflict and one's attitudes and practices about dispute resolution and lawyering. Prerequisite: instructor's consent.

**Credit Hours:** 3

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**LAW 6970: Mediation Clinic**

(same as LAW 5770). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Limited to J.D. or LL.M. students in Designated semesters. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites or Corequisites:** LAW 5765 (or concurrent enrollment), or completion of an approved training

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## Learning, Teaching, & Curriculum (LTC)

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**LTC 1100: Orientation**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1110: Orientation: Art Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Art Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1115: Orientation: Social Studies**

The course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing Social Studies education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1120: Orientation: Math Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Math Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1130: Orientation: Middle School Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Middle School Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1150: Learning Strategies for College Students**

Students' learning strategies are assessed, and their needs are given greatest emphasis. Learning through reading and listening are given

major consideration as are the corollary skills of vocabulary expansion, studying and note taking.

**Credit Hours:** 3

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**LTC 1155: Orientation: Science Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Science Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1160: Orientation: Special Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Special Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1170: Orientation: English/Language Arts**

This course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing English/Language Arts education. Graded on S/U only.

**Credit Hour:** 1

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**LTC 1180: Orientation: Early Childhood Education**

The course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing Early Childhood education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1190: Orientation: Elementary Education**

The course familiarizes and orients students with MU resources, college of Education programs, expectations and career options, emphasizing Elementary Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1300: First Aid**

Study of the theory and practice of first aid procedures. Certification available.

**Credit Hours:** 2

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**LTC 1320: Scuba Theory**

The curriculum of the class includes bio-physics, hydrostatic pressures, physiology, fundamentals of compressed gases, environmental conditions, mechanics, first aid as it relates to diving, and planning speciality dives such as decompression, night, cave, ice, salvage and wreck diving.

**Credit Hours:** 3

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**LTC 2040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hours:** 3

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**LTC 2044: Inquiry into Schools, Community and Society: Field**

This field experience course supports the Inquiring into Schools, Community and Society (ISCS), component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 2200: School Health and Student Wellbeing**

This course will explore and analyze the critical role schools and teachers play to address students' physical, social, and emotional wellbeing. Research indicates that a healthy school environment can improve both academic and social outcomes. Focus areas include school safety, nutrition policy and health education.

**Credit Hours:** 3

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**LTC 3600: Aiding: Nursery/Day Care Programs**

Instructionally related duties in the preschool classroom during semesters and summer. Student works 30 hours with supervision for each credit.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3610: Aiding: Kindergarten**

Instructionally related activities in kindergarten classroom during semesters and summers. Student works 30 hours with supervision for each credit. Graded on an S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3620: Aiding: Primary Grades**

Instructionally related activities in primary grades. Student works 30 hours with supervision for each credit. Graded on an S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3630: Aiding: Intermediate Grades**

Instructionally related activities in intermediate grade classrooms. Student works 30 hours with supervision for each credit. Graded on an S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 3640: Aiding: Secondary Schools**

Instructionally related clinical/administrative and monitorial activities in the secondary classroom during semesters and summer. Student works 30 hours with supervision for each credit. Graded on a S/U basis only.

**Credit Hour:** 1-2

**Recommended:** instructor's consent

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**LTC 4010: Student Teaching**

Hours, credit must be arranged with director of student teaching. Must apply during February for following year.

**Credit Hour:** 1-99

**Recommended:** special methods courses in area of specialization

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**LTC 4085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4085W: Problems in Curriculum and Instruction - Writing Intensive**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 7091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 4110: Working with Infants and Toddlers**

Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hour:** 2-3

**Recommended:** Admittance to Phase II

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**LTC 4120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4120W: Early Childhood Education Literacy Methods & Assessment I - Writing Intensive**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4124: Emergent and Developing Literacy Early Childhood Field Experience**

This field experience supports the LTC 4120 component of Phase II. Field experience expectations are delineated in the LTC 4120 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4210

**Recommended:** Admittance to Phase II

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**LTC 4130: Teaching and Learning Math, Science and Social Studies w/ Young Children**

(cross-leveled with LTC 7130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Corequisites:** LTC 4134

**Recommended:** Admittance to Phase II

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**LTC 4134: Teaching & Learning Math, Sci & Soc Studies w/Young Children Field Experience**

This field experience supports the LTC 4130 component of Phase II. Field experience expectations are delineated in the LTC 4130 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4130

**Recommended:** Admittance to Phase II

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**LTC 4140: Curriculum, Theory and Classroom Management in Early Childhood Education**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

---

**LTC 4140W: Curriculum, Theory and Classroom Management in Early Childhood Education - Writing Intensive**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

---

**LTC 4150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 7150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field experience and admittance to the ECE certification program in Phase II of the College of Education required

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**LTC 4160: Motor Development in Young Children**

For Early Childhood majors. Study of young children's motor development.

**Credit Hours:** 2

**Recommended:** Admission to Phase II

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**LTC 4170: Program Management & Environmental Organization in PreKindergarten**

Strategies for working with children aged 2-6 and their families. Emphasis on planning and implementing developmentally appropriate practice, designing effective learning environments, and managing programs.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II, and completion of first 2 semesters of Phase II)

**Recommended:** Co-enrollment in LTC 4971 (Early Childhood section)

---

**LTC 4194: Elementary Education Field Experience I**

Seminars and diverse 1-5 grade classroom experience focus is on the learner and learning in the elementary school. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

---

**LTC 4200: Young Children's Emergent Language**

For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Corequisites:** LTC 4120, LTC 4124, and LTC 4210

**Recommended:** Admittance to Phase II

---

**LTC 4210: Children's Language and Literature**

(cross-leveled with LTC 7210). For Early Childhood Education majors. Examines children's oral language development and surveys the field of children's literature for children ages birth to eight. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4124

**Recommended:** Admittance to Phase II

---

**LTC 4211: Literacy Assessment and Development**

Focus is on the development, assessment, and instruction of reading and writing motivations, skills, and strategies of diverse learners with emphasis on data interpretation and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4220: Emergent Literacy**

Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4221: Contexts and Methods for Elementary Reading Instruction**

Students will closely explore the different contexts, methods, and materials for reading instruction in diverse settings. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231: Contexts and Methods for Writing Instruction**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231W: Contexts and Methods for Writing Instruction - Writing Intensive**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4240: Art for Children**

This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Recommended:** Admittance to Phase II

---

**LTC 4241: Diverse Literature for Children and Youth**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4241W: Diverse Literature for Children and Youth - Writing Intensive**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4250: Music for Children**

Preparation of early childhood and elementary education students with the skills, knowledge, and philosophical foundations necessary to integrate music into the early childhood and elementary curricula.

**Credit Hours:** 2

**Recommended:** MUSIC\_NM 1608, MUSIC\_NM 1612, MUSIC\_NM 1618 or competency test; Admittance to Phase II

---

**LTC 4260: Elementary Social Studies**

To develop knowledge of social studies and the skills to teach social studies in the elementary school. The course is designed to provide the student with the skills to plan, implement, and evaluate both the teaching and learning processes for the elementary social studies classroom.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4280: Teaching Science in Elementary Schools**

Concepts, materials, methods in the elementary school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4294: Elementary Education Field Experience II**

Seminars and diverse 1-5 grade classroom experiences focus is on the teacher and instruction in the elementary school. Graded on S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

---

**LTC 4300: Learning and Teaching Number and Operation in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of number and operation, (b) connect the mathematical knowledge of number as described in (a) to the learning and teaching of number in elementary school.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4310: Learning and Teaching Geometry in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of geometry and measurement, (b) critically examine content and issues of the complexities in teaching and learning fundamental concepts of geometry and measurement in elementary schools.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4320: Middle School Social Studies I**

Curriculum decision making, instructional planning, techniques and strategies, materials selection, approaches to assessment in middle level social studies, all based upon early adolescent growth and development principles.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4324: Middle School Social Studies Field I**

This field experience supports the Learning, Teaching and Curriculum 4320 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4320 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4334: Middle School Social Studies Field Experience II**

This field experience supports the LTC 4550 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4340: Middle School Science I**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4340W: Middle School Science I - Writing Intensive**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

---

**LTC 4344: Middle School Science Field I**

This field experience supports the Learning, Teaching and Curriculum 4340 component of Phase II. Field experience expectations are delineated in the LTC 4340 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4350: Middle School Science II**

Concepts, materials, methods in the middle school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4354: Middle School Science Field Experience**

This field experience supports the LTC 4350 component of Phase II. Field experience expectations are delineated in the LTC 4350 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4364: Intro. Teaching Math in Middle and Secondary School Field Experience**

This field experience supports the LTC 4360 component of Phase II. Field experience expectations are delineated in the LTC 4360 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4370: Teaching and Modeling Middle School Mathematics**

Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4370W: Teaching and Modeling Middle School Mathematics - Writing Intensive**

Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4374: Teaching and Modeling Middle School Mathematics Field Experience**

This field experience supports the LTC 4370 component of Phase II. Field experience expectations are delineated in the LTC 4370 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4380: Teaching Middle School Language Arts I**

Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4384: Teaching Middle School Language Arts I Field Experience**

This field experience supports the LTC 4380 component of Phase II. Field experience expectations are delineated in the LTC 4380 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4390: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4390W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4394: Teaching Middle School Language Arts II Field Experience**

This field experience supports the LTC 4390 component of Phase II. Field experience expectations are delineated in the LTC 4390 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4400: Teaching Middle and Secondary English/Language Arts III**

Prepare prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390

**Recommended:** Admittance to Phase II

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**LTC 4404: Teaching Middle School Language Arts III Field Experience**

This field experience supports the LTC 4400 component of Phase II. Field experience expectations are delineated in the LTC 4400 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4410: Teaching, Engaging and Assessing Middle-Level Students**

In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4410W: Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive**

In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4414: Teaching, Engaging & Assessing Mid-Level Students Field Experience**

This field experience supports the LTC 4410 component of Phase II. Field experience expectations are delineated in the LTC 4410 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4420: Adolescent Literacy**

(cross-leveled with LTC 7420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4424: Middle School Literacy Field Experience**

This field experience supports the LTC 4420 component of Phase II. Field experience expectations are delineated in the LTC 4420 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4460: Teaching English to Speakers of Other Languages**

(same as LINGST 4650; cross-leveled with LTC 7460, LINGST 7650). Linguistic and pedagogical principles of teaching English to speakers of other languages. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Consent required

---

**LTC 4470: Teaching Secondary English/Language Arts I**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, Primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4474: Teaching Secondary English/Language Arts I Field Experience**

This field experience supports the LTC 4470 component of Phase II. Field experience expectations are delineated in the LTC 4470 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4480: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4480W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4484: Teaching Secondary English/Language Arts II Field Experience**

This field experience supports the LTC 4480 component of Phase II. Field experience expectations are delineated in the LTC 4480 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4490: Teaching Middle and Secondary English/Language Arts III**

Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480

**Recommended:** Admittance to Phase II

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**LTC 4494: Teaching Secondary English/Language Arts III Field Experience**

This field experience supports the LTC 4490 component of Phase II. Field experience expectations are delineated in the LTC 4490 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4500: Emergent Language in Early Childhood**

Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 4510: Assessment in Early Childhood Education**

A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate curriculum for children in early childhood settings.

**Credit Hours:** 3

**Recommended:** H\_D\_FS 3420 or equivalent child development or child psychology course

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**LTC 4520: Literature in the Elementary School**

Surveys the field of literature for children and adolescents, with emphasis on selected readings of various types of literature.

**Credit Hours:** 3

**Recommended:** junior standing or instructor's consent

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**LTC 4530: Introduction to Social Studies**

Will introduce prospective teachers to the profession of social studies teaching; to the bases for making curriculum choices in social studies and the process of choosing content; and the process of planning curriculum and instruction in social studies classrooms.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4534: Secondary Social Studies I Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4530 component of Phase II. Field experience expectations are delineated in the LTC 4530 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4540: Teaching of Reading**

Materials, methods used in teaching reading in elementary grades.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

**Recommended:** Admittance to Phase II

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**LTC 4541: Reading and Writing in the Social Studies**

(cross-leveled with LTC 7541). Focuses on the teaching of reading and writing strategies for social studies teachers. Students review literacy interventions related to reading and writing historical texts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4544: Secondary Social Studies II Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4541 component of Phase II. Field experience expectations are delineated in the LTC 4541 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4550: Assessment in Social Studies**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4550W: Assessment in Social Studies - Writing Intensive**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4554: Secondary Social Studies III Field Experience**

This field experience supports the LTC 4550 component of Phase II. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4560: Reading and Writing in the Content Areas**

(cross-leveled with LTC 7560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Recommended:** Phase II admittance

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**LTC 4565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 7565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 4570: Organization of Public School Art**

Purposes, practices of art experiences in elementary and secondary schools. Designed for teachers, supervisors, administrators.

**Credit Hours:** 2

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**LTC 4571: Introduction to Teaching Mathematics in Middle and Secondary Schools**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding. Recommended: Admittance to Phase II

**Credit Hours:** 3

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**LTC 4574: Intro. Teaching Math in Middle and Secondary School Field Experience**

Field experience supporting the LTC 4571 component of Phase II. Field experience expectations are delineated in the LTC 4571 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4580: Social Studies in the Elementary School**

Problems in preparation, teaching of units with suitable materials, techniques.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

**Recommended:** Phase II admittance

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**LTC 4581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 7581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate use of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 or LTC 4360 or LTC 7360

**Recommended:** Admittance to Phase II

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**LTC 4584: Teaching Math in Middle and Secondary Schools: Algebra and Technology Field**

This field experience supports the Learning, Teaching and Curriculum 4581/7581 component of Phase II. Field experience expectations are

delineated in the LTC 4581/LTC 7581 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 4587: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction

**Credit Hour:** 1-3

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**LTC 4590: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics**

Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

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**LTC 4590W: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics - Writing Intensive**

Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

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**LTC 4594: Teach Math in Sec Sch: Focus on Geometry/Probability**

This field experience supports the LTC 4590 component of Phase II. Field experience expectations are delineated in the LTC 4590 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4600: Diagnosis and Remediation of Learning Problems in Math - Middle**

The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies.

**Credit Hours:** 3

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**LTC 4610: Teaching Techniques and Curriculum in Elementary School Math**

The mathematics program in the elementary school from viewpoint of goals, content, techniques and evaluation.

**Credit Hours:** 3

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**LTC 4620: Information Literacy in Teaching and Learning**

Discusses the nature, value, and power of information as product and process; organization, retrieval, and evaluation of information; explores

the Internet and information superhighway; develops skills for resource based learning for classroom instruction; policy issues.

**Credit Hours:** 3

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**LTC 4630: Health Education in the Elementary School**

Defines teacher's role in school health program; investigates health needs of school children; focuses on teaching strategies, health resources and development of elementary school health education curricula and materials.

**Credit Hours:** 3

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**LTC 4631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4631W: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4634: Teaching Middle and Secondary Science I Field**

This field experience supports the Learning, Teaching and Curriculum 4631 component of Phase II. Field experience expectations are delineated in the LTC 4631 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4640: Motor Development in Early Childhood**

Motor development of infants and children with emphasis on: study of interaction between biological and environmental factors affecting development, motor assessment techniques, and designing programs to enhance motor development.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC 4641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631

**Recommended:** Admittance to Phase II

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**LTC 4644: Teaching Middle and Secondary Science II Field**

This field experience supports the LTC 4641 component of Phase II. Field experience expectations are delineated in the LTC 4641 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4650: Education in Human Sexuality**

The biological, psychosocial and educational aspects of human sexuality with special emphasis on instructional activities related to interpersonal communication, decision-making ability and clarification of values, course is designed for both teachers and health-care personnel.

**Credit Hours:** 3

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**LTC 4651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech III**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631 and LTC 4641

**Recommended:** Admittance to Phase II

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**LTC 4654: Teach Sci Second Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld**

This field experience supports the LTC 4651 component of Phase II. Field experience expectations are delineated in the LTC 4651 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4660: Drug Education**

The psychosocial, legal and pharmacological aspects of the recreational use of over-the-counter and street drugs are investigated with emphasis being placed on personal decision making, principles of school and community drug education, rehabilitation and community health services.

**Credit Hours:** 3

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**LTC 4680: Teaching Legal Rights and Responsibilities of Citizenship**

An introductory course for teachers and undergraduate students dealing with the teaching of the basic legal concepts which underlie effective citizenship.

**Credit Hours:** 2

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**LTC 4730: Overview of Art Education**

This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4734: Overview of Art Education Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4730 component of Phase II. Field experience expectations are delineated in the LTC 4730 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4740: Inquiry into Art Education: Pre-School Through Middle School**

The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4740W: Inquiry into Art Education: Pre-School Through Middle School - Writing Intensive**

The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

---

**LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience**

This field experience supports the LTC 4740 component of Phase II. Field experience expectations are delineated in the LTC 4740 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4750: Inquiry into Art Education: Secondary**

The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** LTC 4740 or LTC 7740

**Recommended:** Admittance to Phase II

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**LTC 4754: Inquiry into Art Education: Secondary Field Experience**

This field experience supports the LTC 4750 component of Phase II. Field experience expectations are delineated in the LTC 4750 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4960: Special Readings in Curriculum and Instruction**

Directed study of literature and research reports in education.

**Credit Hour:** 1-3

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**LTC 4970: Standardized Assessments**

This non-credit course will provide resources to assist with standardized assessments required to become a Missouri certified teacher. Graded on S/U basis only.

**Credit Hours:** 0

**Recommended:** Admittance to Phase III

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**LTC 4971: Internship and Capstone Seminar**

Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects, reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 10-16 credit hours. Admittance to College of Education required.

**Credit Hour:** 1-16

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 4981: Internship I**

This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 7010: Student Teaching**

Hours, credit must be arranged with director of student teaching. Must apply during February for following year.

**Credit Hour:** 1-99

**Prerequisites:** special methods courses in area of specialization

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**LTC 7040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hour:** 2-3

**Prerequisites:** TDP 2020 and completion of Phase I or enrollment in a graduate level program in the College of Education

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**LTC 7085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC 7091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 4091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 7110: Working with Infants and Toddlers**

Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hours:** 3

**Prerequisites:** course in child development and admission to Phase II; admittance to College of Education required

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**LTC 7120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 4120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** Admittance to College of Education required and co enrollment in LTC 4200 and LTC 4210 and K-3 field experience

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**LTC 7124: Emergent & Developing Literacy Early Childhood Field Experience**

This field experience supports the LTC 7120 component of Phase II. Field experience expectations are delineated in the LTC 7120 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Phase II admittance required

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**LTC 7130: Teaching & Learning Math, Sci. & Social Studies w/Young Children**

(cross-leveled with LTC 4130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Prerequisites:** Consent required (enrollment is limited to students admitted to the College of Education and have completed of ECE Language/Literacy block)

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**LTC 7134: Teach & Learn Math, Sci & Soc Studies w/Young Children Fld Exp**

This field experience supports the LTC 7130 component of Phase II. Field experience expectations are delineated in the LTC 7130 course syllabi. . Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Phase II admittance required

---

**LTC 7140: Curriculum, Theory and Classroom Management in Early Childhood Education**

Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

---

**LTC 7150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 4150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field Experience and admittance to the ECE certification program in Phase II of the College of Education

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**LTC 7160: Motor Development in Young Children**

For Early Childhood majors. Study of young children's motor development. Must be taken as part of the TDP ECE Motor/Art/Music block. Prerequisites: Admission to Phase II

**Credit Hours:** 2

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**LTC 7200: Young Children's Emergent Language**

For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Prerequisites:** admittance to Phase II; admittance to College of Education required

**Corequisites:** LTC 4120, LTC 4210, and K-3 field experience

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**LTC 7210: Children's Language and Literature**

(cross-leveled with LTC 4210) For Early Childhood majors. Examines children's oral language development and surveys the field of children's literature for children ages birth to eight. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II; admittance to College of Education required

**Corequisites:** LTC 7120 and K-3 field experience

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**LTC 7220: Emergent Literacy**

Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3.

**Credit Hours:** 3

**Prerequisites:** completion of Phase I

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**LTC 7224: Emergent Literacy Field Experience**

This field experience supports the Learning, Teaching and Curriculum 7220 component of Phase II. Field experience expectations are delineated in the LTC 7220 course syllabi. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Phase II admittance required

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**LTC 7240: Art for Children**

This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Prerequisites:** admittance to College of Education

---

**LTC 7340: Middle School Science I**

(cross-leveled with LTC 4340). Concepts, materials, methods in middle school science.

**Credit Hours:** 4

**Prerequisites:** Consent required. (enrollment limited to Phase I admittance; admittance to the College of Education required)

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**LTC 7350: Middle School Science II**

Concepts, materials, methods in the middle school program.

**Credit Hours:** 3

**Prerequisites:** Phase I; admittance to College of Education required

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**LTC 7360: Intro. Teaching Mathematics in Middle & Secondary**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing, MATH 1360; admittance to College of Education required

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**LTC 7370: Teaching and Modeling Middle School Mathematics**

Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and at least 18 hours of required mathematics; admittance to College of Education required

---

**LTC 7380: Teaching Middle School Language Arts I**

Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

---

**LTC 7384: Middle School Language Arts I Field Experience**

This field experience supports the Learning, Teaching and Curriculum 7380 component of Phase II. Field experience expectations are delineated in the LTC 7380 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

---

**LTC 7390: Teaching Middle and Secondary English/Language Arts II**

Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7394: Middle School Language Arts II Field Experience**

This field experience supports the LTC 7390 component of Phase II. Field experience expectations are delineated in the LTC 7390 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7400: Teaching Middle and Secondary English/Language Arts III**

Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390; admittance to Phase II of College of Education

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**LTC 7404: Middle School Language Arts III Field Experience**

This field experience supports the LTC 7400 component of Phase II. Field experience expectations are delineated in the LTC 7400 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7410: Teaching, Engaging and Assessing Middle-Level Students**

In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7414: Teaching, Engaging & Assessing Mid-Level Students**

This field experience supports the LTC 7410 component of Phase II. Field experience expectations are delineated in the LTC 7410 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7420: Adolescent Literacy**

(cross-leveled with LTC 4420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7424: Middle School Literacy Field Experience**

This field experience supports the LTC 7420 component of Phase II. Field experience expectations are delineated in the LTC 7420 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7460: Teaching English to Speakers of Other Languages**  
(same as ENGLISH 7650). Linguistics and pedagogical principles of teaching English to speakers of other languages. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 7600 and ENGLISH 7610 or equivalent and acceptance into Phase II

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**LTC 7470: Teaching Secondary English/Language Arts I**  
Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ Language Arts, primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7474: Teaching English/Language Arts I Field Experience**  
This field experience supports the LTC 7470 component of Phase II. Field experience expectations are delineated in the LTC 7470 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

---

**LTC 7480: Teaching Middle and Secondary English/Language Arts II**  
Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7484: Teaching English/Language Arts II Field Experience**  
This field experience supports the Learning, Teaching and Curriculum 7480 component of Phase II. Field experience expectations are delineated in the LTC 7480 course syllabi. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

---

**LTC 7490: Teaching Middle and Secondary English/Language Arts III**  
Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480; admittance to Phase II of College of Education

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**LTC 7494: Language Arts III Field Experience**  
This field experience supports the LTC 7490 component of Phase II. Field experience expectations are delineated in the LTC 7490 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Phase II admittance required

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**LTC 7500: Emergent Language in Early Childhood**

Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 7510: Assessment in Early Childhood Education**

A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate curriculum for children in early childhood settings.

**Credit Hours:** 3

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**LTC 7520: Literature in the Elementary School**

Surveys the field of literature for children and adolescents, with emphasis on selected readings of various types of literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LTC 7540: Teaching of Reading**

Materials, methods used in teaching reading in elementary grades.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400 and professional standing

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**LTC 7541: Teaching Social Studies**

Is designed for the secondary social studies teachers to develop knowledge of social studies and the skills to teach social studies. The student will plan implement, and evaluate both the teaching and learning processes for secondary social studies classroom.

**Credit Hours:** 3

**Prerequisites:** acceptance into Phase II, admittance to College of Education required

---

**LTC 7550: Assessment in Social Studies**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Prerequisites:** acceptance into Phase II, admittance to College of Education required

---

**LTC 7560: Reading and Writing in Content Areas**

(cross-leveled with LTC 4560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment is limited to College of Education admitted to Phase II with 60+ credit hours)

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**LTC 7565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 4565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3



**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 7570: Organization of Public School Art**

Purposes, practices of art experiences in elementary and secondary schools. Designed for teachers, supervisors, administrators.

**Credit Hours:** 2

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**LTC 7571: Introduction Teaching Mathematics in Middle and Secondary**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing and MATH 2300

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**LTC 7580: Social Studies in the Elementary School**

Problems in preparation, teaching of units with suitable materials, techniques.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400, professional standing

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**LTC 7581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 4581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate uses of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 7571 or LTC 7360

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**LTC 7587: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction.

**Credit Hour:** 1-3

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**LTC 7590: Teach.Math in Sec.Schools: Focus on Geometry, Probability & Stat.**

Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4570 or LTC 7570; admittance to College of Education required

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**LTC 7600: Diagnosis and Remediation of Learning Problems in Math-Middle**

The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies.

**Credit Hours:** 3

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**LTC 7610: Teaching Techniques and Curriculum in Elementary School Math**

The mathematics program in the elementary school from viewpoint of goals, content, techniques and evaluation.

**Credit Hours:** 3

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**LTC 7620: Information Literacy in Teaching and Learning**

Discusses the nature, value, and power of information as product and process; organization, retrieval, and evaluation of information; explores the Internet and information superhighway; develops skills for resource based learning for classroom instruction; policy issues.

**Credit Hours:** 3

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**LTC 7630: Health Education in the Elementary School**

Defines teacher's role in school health program; investigates health needs of school children; focuses on teaching strategies, health resources and development of elementary school health education curricula and materials.

**Credit Hours:** 3

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**LTC 7631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr.,Assm., & Tech 3**

(cross-leveled with LTC 4631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required (professional standing; admittance to College of Education required)

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**LTC 7640: Motor Development in Early Childhood**

Motor development of infants and children with emphasis on: study of interaction between biological and environmental factors affecting development, motor assessment techniques, and designing programs to enhance motor development.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC 7641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** professional standing and Teaching Science in the Secondary School, Part I; admittance to College of Education required

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**LTC 7650: Education in Human Sexuality**

The biological, psychosocial and educational aspects of human sexuality with special emphasis on instructional activities related to interpersonal communication, decision-making ability and clarification of values, course is designed for both teachers and health-care personnel.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent

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**LTC 7651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech 2**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** professional standing and Teaching Science in the Secondary School, Parts 1 and II; admittance to College of Education required

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**LTC 7660: Drug Education**

The psychosocial, legal and pharmacological aspects of the recreational use of over-the-counter and street drugs are investigated with emphasis being placed on personal decision making, principles of school and community drug education, rehabilitation and community health services.

**Credit Hours:** 3

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**LTC 7680: Teaching Legal Rights and Responsibilities of Citizenship**

An introductory course for teachers and undergraduate students dealing with the teaching of the basic legal concepts which underlie effective citizenship.

**Credit Hours:** 2

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**LTC 7730: Overview of Art Education**

This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7740: Inquiry into Art Education: Pre-School Through Middle School**

The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7750: Inquiry into Art Education: Secondary**

The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7960: Special Readings in Curriculum and Instruction**

Directed study of literature and research reports in education.

**Credit Hour:** 1-3

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**LTC 7971: Internship and Capstone Seminar**

Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects,

reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 1-16 credit hours. Admittance to College of Education required.

**Credit Hour:** 1-16

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060 and admittance into Phase III

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**LTC 8085: Problems in Curriculum and Instruction**

Problems in Curriculum and Instruction.

**Credit Hour:** 1-99

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**LTC 8520: Tests and Measurements for Elementary and Secondary Schools**

Educational tests, measurements from points of view of teachers, supervisors, administrators.

**Credit Hours:** 3

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**LTC 8600: Home-School Partnerships: Working with Families**

Examination of theoretical and philosophical foundations of parent involvement, social and cultural influences on contemporary families, current research on parent involvement, and characteristics of effective home-school-community partnerships. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8610: Issues in Early Childhood Education and Curriculum Practices**

Focuses on historical and contemporary societal and educational issues affecting current curriculum decisions and practices in kindergarten and primary grades.

**Credit Hours:** 3

**Prerequisites:** Classroom teaching experience or instructor's consent

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**LTC 8612: Advanced Early Childhood Curriculum**

Study of early childhood curriculum in contemporary educational settings along with selection of appropriate materials and development of instructional strategies for children, prekindergarten through early primary grades.

**Credit Hour:** 2-3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8613: Advanced Assessment in Early Childhood**

(same as SPC\_ED 8490). Procedures and instruments used in assessment of young children, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8614: Language and Early Literacy Development**

Investigation of the language and early literacy development of young children from birth through age 8. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** Department consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8615: The Missouri Writing Project**

Focus on 1) current theory and research in teaching writing; 2) development of effective practice in teaching, writing and reading; and 3) experimentation with writing and response.

**Credit Hour:** 3-4

**Prerequisites:** successful application to MWP

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**LTC 8616: The Teaching of Journalism**

The course focuses on the learning and teaching of middle, secondary, and post-secondary journalism/mass media course. Major strands of study include the theory and practice of journalism instruction, curriculum, and assessment.

**Credit Hours:** 3

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**LTC 8617: Teaching Writing in Middle and Secondary Classroom**

This course will encourage the student as a writer and as a teacher of writing, especially in the middle and high school setting. We will explore various types of writing, with emphasis in English Education, including addressing national and state standards.

**Credit Hours:** 3

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**LTC 8618: Writing, Reading and Teaching Nonfiction**

Students will get more than their feet wet as they read and write a variety of nonfiction texts, explore nonfiction's value and relationship to other genres, and investigate its potential for learning.

**Credit Hours:** 3

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**LTC 8619: Media Literacy**

Teachers will learn how to incorporate visual images in the classroom while helping students "read" the images of our media-rich culture. Teachers will pair media with literature; analyzed and evaluate different media; and design several assignments.

**Credit Hours:** 3

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**LTC 8620: Whole Language Curriculum**

Whole Language Curriculum inquires into whole language theory, beliefs and practices. Students will explore and participate in classroom based inquiry projects, theme cycles, reflective practices, holistic assessment, and other learner-centered experiences such as literature study and writers workshop.

**Credit Hours:** 3

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**LTC 8621: Talk in the Curriculum**

This survey of oracy examines talk's essential role in learning and the connections among language, power and cultural identity.

**Credit Hours:** 3

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**LTC 8625: Language Acquisition and Development**

You will explore theories of language acquisition and development, and examine how language acquisition impacts reading and writing. Ideas for creating a language rich curriculum, second language learning, and cultural aspects of language will be addressed.

**Credit Hours:** 3

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**LTC 8630: Teaching Reading Through Literature Response**

Teaching Reading Through Literature Response focuses on 1) reading as a personal and social process and 2) multiple responses to literature. Students will examine, use and critique; personalized reading, text sets (conceptually related materials), literature groups and other reading instruction experiences.

**Credit Hours:** 3

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**LTC 8635: Literature for Children and Youth**

Systematic study of selected areas of particular importance to students of literature, teachers, librarians, supervisors, and school administrators.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LTC 8636: Teaching Literature**

This course involves exploration of theory, research, and practice in the teaching and learning of literature to students in Grades 9-12. It is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on an integrated approach to the teaching of literature and some nonfiction. Texts include novels, short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course promotes the use of various teaching and learning practices. The course is divided into the following major sections: 1) Introductions of Class Members; 2) Theories of Teaching Literature in the Classroom; and 3) Trying Out Theories on Selected Literature. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** This is a recommended course for early in a master's program

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**LTC 8637: Teaching Communication**

This course explores the theory, research, and practice in the teaching and learning of communication. This course is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on the teaching of speaking, listening, and language, as they occur within the best practices of English/Language Arts classrooms. The course involves variety of texts such as short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course encourages the use of various teaching and learning practices. The course is divided into the following major themes: 1) Introductions of Class Members; 2) Overview of Communication: Theory, Research, Practice; and 3) Teaching Communication in Context: Speaking, Listening, Reading, Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** We recommended, but do not require, that you take this course early in your program

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**LTC 8640: Studies in English Education**

Exploration of the theory, research, and application of topics in the teaching of English, such as Writing/Thinking, Media, Literature, Language, and Creative Nonfiction. Topics announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**LTC 8641: Foundations of English Education**

This course focuses on foundational readings in the teaching and learning of English/Language Arts. The course requires intensive reading, writing, and discussion focusing on four subcategories of English Education: writing, literature, language and critical thinking. In addition, the course situates these topics within a historical perspective of the field. An additional focus of this course is on professional networking and development. It is expected that as students develop a greater understanding of the foundations of English Studies in Language Arts, they will see where their areas of expertise and knowledge join them to the profession as a leader. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8642: Teaching Writing and Reading in Content Areas**

Theory and practice of teaching reading and writing. Specific ways teachers can help students use writing to communicate about the course content, as well as to learn course concepts. Class also focuses on how to teach reading in reading classes, how to help students improve reading skills in content areas, and how reading and writing skills can reinforce each other.

**Credit Hours:** 3

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**LTC 8643: Teaching ESL/EFL to Adult Learners**

This course explores the characteristics of adult learners, theories of adult learning, and the contexts in which adults learn English as a second or foreign language. Students apply this knowledge in the design of language learning curricula and activities for adult learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8644: Teaching English Grammar and Pronunciation**

This course develops teachers' knowledge of the structure of the English language (its grammar and its sound system) and provides them with pedagogical skills in teaching grammar and pronunciation to second/foreign language learners. Graded on A-F basis only. Prerequisites: LTC 8645 and LTC 8648

**Credit Hours:** 3

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**LTC 8645: Second Language Acquisition**

This course examines theories of how humans develop first and second languages in childhood and adulthood and how this knowledge can be used to educate language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8646: Materials for and Assessment of English Language Learners**

This course will examine the appropriate classroom materials, methods, reasons, and tools for the formal and informal assessment of English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8647: Language and Culture for Educators**

This course will examine how to prepare educators to effectively educate students from a range of linguistic and cultural backgrounds by developing a broad understanding of the definition and nature of culture and appropriate teaching strategies and materials for diverse students. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8648: Linguistics for Educators**

This course focuses on the form, meaning, and use of language in context and applying knowledge of linguistics to the teaching of English language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8649: Methods of Teaching English Language Learners**

This course will examine how to prepare teachers to develop the investigative, decision-making, and reflective teaching skills needed to work with English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8650: English to Speakers of Other Languages Practicum**

This culminating course will allow students to apply the theory and practice of teaching English to non-native speakers in an educational setting. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8651: Working with English Language Learners with Special Needs**

The course will assist educators with the decision to refer or not to refer an English language learner to special education services while helping identify the general framework for considering their special needs and preparing a comprehensive continuum of services. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8652: Seminar: English: Its Grammar and Place in the World**

The course will familiarize learners with the grammatical features of English that have contributed to its global proliferation, explore the varieties of English used around the world, and delve into the concept of English as a global means of communication. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as ED\_LPA 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/

multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**LTC 8660: Reading Miscue Analysis**

The process in which readers construct meaning by relating their socio-psycholinguistic backgrounds to discourse. 15 studied miscues (text deviations) are analyzed at several linguistic levels. A comprehension centered reading program is developed.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 and LTC 7560, or equivalent

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**LTC 8664: Practicum in Child Study I**

Practicum experiences in diagnosing educational problems of school children.

**Credit Hour:** 3-5

**Prerequisites:** LTC 7540 or LTC 7560 or LTC 8670

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**LTC 8665: Practicum in Child Study II**

Practicum experiences in applying remedial procedures to children with educational problems.

**Credit Hour:** 3-5

**Prerequisites:** LTC 8664

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**LTC 8670: Analysis & Correction of Reading Disabilities**

Diagnostic and corrective procedures in reading instruction that may be used for clinical study.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 or instructor's consent

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**LTC 8675: Foundations of Reading Instruction**

This online course examines principles and practices of teaching reading to PK-12 students; the nature of reading and literacy learning, the foundations of reading acquisition and development; and reading instructional across grade levels. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8680: Issues and Trends in Reading Instruction**

Provides intensive study of significant issues and current trends in reading on all instructional levels.

**Credit Hours:** 3

**Prerequisites:** LTC 7540, LTC 7560 or equivalents or instructor's consent

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**LTC 8681: Making a Difference for the Struggling Reader**

Will help explore ways to help readers who have been unable to achieve success in reading--will learn how to access and evaluate strategies students are currently using.

**Credit Hours:** 3

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**LTC 8682: Focus on Writing in the Classroom**

The course focuses on theory, research and practices in teaching writing in the elementary classroom (K-6) while developing a critical understanding of process methods to teach writing.

**Credit Hours:** 3

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**LTC 8683: Celebrating Reading Through Good Books**

Many people can read but do not. This course will explore ways to make reading a joyful, exciting experience. Assignments will include reading journal articles that will help students meet self determined goals. Sharing books will be an important part of this course.

**Credit Hours:** 3

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**LTC 8684: Integrating Literacy and Technology**

This will be a seminar course in which the students explore definitions of literacy, theoretical frameworks of educational technology, and literature that investigates the effectiveness of integrating literacy and technology. The students will also examine and evaluate a range of software used to integrate literacy and technology.

**Credit Hours:** 3

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**LTC 8685: Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom**

This class examines genres in children's and young adult literature (grades 1-9). In-depth look at the work of children's authors and illustrators; explore issues of censorship, gender, and culture.

**Credit Hours:** 3

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**LTC 8686: Theory of Instructional Strategies**

The course investigates instructional strategies in K-12 and higher education classrooms and the theories behind those strategies. Content includes large and small group strategies, inquiry-based learning, student-centered and direct instruction, and differentiated instruction.

**Credit Hours:** 3

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**LTC 8687: Literacy and the Internet (Grades K-12)**

The internet offers a myriad of opportunities to engage K-12 students in meaningful, purpose-driven reading and writing. Students examine their own literacy programs, examine ways they can incorporate the internet, and create a classroom web site.

**Credit Hours:** 3

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**LTC 8688: Nature of Literacy in a Digital World**

New literacies are required to successfully engage in professional, civic, and personal lives that are imbued with technology. Students examine the literacy skills required to proficiently read and write with text messages, blogs, wikis, social networks, and virtual worlds.

**Credit Hours:** 3

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**LTC 8710: Nature of Science and Science Teaching**

Examines philosophical, historical and sociological views of the nature of science and implications for science education policy and science instruction.

**Credit Hours:** 3

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**LTC 8712: Inquiry and the Science Curriculum**

Examines inquiry as the foundation of the science curriculum. Includes study of exemplary programs and curriculum materials, and provides models for curriculum development in science education.

**Credit Hours:** 3

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**LTC 8714: Research in Science Education**

Studies appropriate research methodologies and reviews research and selected readings in science education. Allows option for elementary or secondary emphasis for specific areas: life, physical or earth sciences.

**Credit Hours:** 3

**Prerequisites:** undergraduate course in Science Education

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**LTC 8716: Trends and Issues in Science Education**

Provides intensive study of current trends and significant issues of science affecting both the elementary and secondary levels of science education.

**Credit Hours:** 3

**Prerequisites:** undergraduate course in Science Education

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**LTC 8717: Teaching, Learning, & Research in Middle & Secondary School Sci.I**

Course I is for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8718: Teaching, Learning & Research Middle & Secondary School Sci.: II**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8719: Teaching, Learning, & Research Middle & Secondary**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8720: Advanced Teaching of Elementary Science**

A study of science curriculum and teaching in elementary school from viewpoint of research teaching strategies, evaluation, and developing trends.

**Credit Hours:** 3

**Prerequisites:** teaching experience and science methods course

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**LTC 8722: Advanced Teaching of Secondary Science**

Studies secondary science curriculum and teaching from viewpoint of research strategies, teaching strategies, conceptual formats.

**Credit Hours:** 3

**Prerequisites:** secondary science methods course

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**LTC 8724: College Science Teaching**

(same as BIO\_SC 8724, PHYSICS 8310 and ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**LTC 8725: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**LTC 8726: Integrating Science with Outreach**

(same as BIO\_SC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**LTC 8730: Survey of Art Education**

Provides survey of the development of art education and problems in the field by means of a critical inquiry.

**Credit Hours:** 3

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**LTC 8735: Visual Literacy and Visual Culture**

This course will investigate the intersection between art and language, exploring the connections between visual media and the written word—how these two areas inform and enrich each other.

**Credit Hours:** 3

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**LTC 8740: Curriculum in Art Education**

Advanced study of art education curricula, with option for elementary or secondary emphasis. Study of exemplary art programs, standards of quality, curriculum models, curriculum design and construction, concomitant instructional methods and evaluation.

**Credit Hours:** 3

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**LTC 8745: Visual Thinking Strategies I**

This course will introduce regular classroom and art educators to Visual Thinking Strategies theory and methodology, building practical VTS facilitation skills through structured guidance and feedback as each participant implements VTS lessons within his/her own teaching context.

**Credit Hours:** 3

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**LTC 8746: Visual Thinking Strategies II**

Visual Thinking Strategies II students will build upon the basic facilitation skills acquired during VTS I as they design an image-based studio curriculum tailored to their own students and classrooms. Action research and peer coaching are key features of the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8745

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**LTC 8750: Review of Research in Art Education**

Studies appropriate research methodologies and reviews research and selected readings in art education.

**Credit Hours:** 3

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**LTC 8760: The Secondary School Curriculum**

For secondary school principals, teachers, superintendents. Presents trends in curricular change, methods of curricular investigation.

**Credit Hours:** 3

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**LTC 8765: Artistic Thinking: Multimedia Applications for Teaching Art**

This course is designed to keep pace with contemporary trends in technology and digital media literacies. Students will deeply explore current applications and develop curriculum implementation strategies for K-12 instruction in visual arts classrooms.

**Credit Hours:** 3

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**LTC 8766: Illuminating Process and Product: Making Learning Visible**

This course focuses on the evaluative processes that surround and are embedded in art education. Due to the subtle, nuanced, and product based nature of visual arts, evaluative practices should be studied, understood, and implemented in an effective and encouraging manner. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8767: The Art of Teacher Reflection**

This course investigates reflective practices making deep inquiries into theoretical teaching practices. Students will examine their educational heritage, cultural beliefs and the implications these beliefs have on their current and future classrooms. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8770: Curriculum Construction for Secondary Schools**

Designed for those engaged in curriculum revision work and construction of new secondary school courses.

**Credit Hours:** 3

**Prerequisites:** LTC 8760 or instructor's consent

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**LTC 8780: Managing Classrooms for Learning**

Theoretical assumptions, goals, and research that inform various approaches to classroom management advocated for practitioners. Includes strategies for conducting action research on classroom management.

**Credit Hour:** 1-3

**Prerequisites:** An educational psychology course or instructor's consent

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**LTC 8790: Patterns for Instruction in Social Studies**

Presents and evaluates strategies for planning, teaching, and evaluating social studies in elementary and secondary schools.

**Credit Hours:** 3

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**LTC 8800: Secondary Social Studies Curriculum**

Examines current theory, trends and practices in secondary social studies curriculum with a practicum in curriculum development.

**Credit Hours:** 3

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**LTC 8805: Inquiry into K-12 History and Social Science**

this course is designed as a directed study on a topic in social studies content for the K-12 classroom. The focus of the course is on what is taught in social studies. Graded on A-F basis only

**Credit Hours:** 3

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**LTC 8806: Issues in the Social Studies Classroom**

This course is designed to provide an intensive study of current trends and significant issues in social studies that affect the social studies classroom.

**Credit Hours:** 3

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**LTC 8810: Elementary Social Studies Curriculum**

An in-depth study of objectives, goals, patterns and practices in elementary social studies curriculum. Focus will be upon instructional strategies and materials and current trends influencing curriculum development.

**Credit Hours:** 3

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**LTC 8860: Mathematics Curriculum**

Evolution of the mathematics curriculum during the 20th century will be studied. Emphasis will be given to examining major factors influencing the changing mathematics curriculum and their impact.

**Credit Hours:** 3

**Prerequisites:** teaching experience or the instructor's consent

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**LTC 8861: Teaching, Learning & Research in Middle & Secondary School Math I**

Course I for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8862: Teaching, Learning & Research Middle & Secondary School Math: II**

Course II for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8861

**Corequisites:** LTC 8942

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**LTC 8863: Teaching, Learning, and Research Middle and Secondary Math III**

Course III for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only. Prerequisites: LTC 8861, and LTC 8862; Co-Requisites: LTC 8942.

**Credit Hours:** 3

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**LTC 8865: Assessment in Mathematics Education**

Examination of assessment practices and the accountability movement. Emphasis is placed on significant research findings in assessment and implications for planning, implementing, and evaluating mathematics instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7100 and teaching experience

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**LTC 8866: Contemporary Curriculum Issues in Mathematics Education**

Mathematics curriculum is a concern to students, parents, school districts, business leaders, and government officials. This course examines current trends in mathematics curriculum from the perspective of mathematics educators, policymakers, and the public. Factors influencing changes in mathematics curriculum are examined. Graded on an A-F basis only.

**Credit Hours:** 2

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**LTC 8870: Mathematics Teaching and Teacher Education**

Recent developments and research findings in mathematics teaching and mathematics teacher education will be studied.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8871: Teaching and Learning Number/Operations Advanced**

Course will develop understanding of learning and teaching pre-number concepts, counting and cardinality, numbers and operations in base ten. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8881

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**LTC 8872: Teaching and Learning Rational Number Advanced**

The course is designed to develop an understanding of the learning and teaching of rational numbers and the ratio and proportional relationships. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only. Corequisites: LTC 8882

**Credit Hours:** 3

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**LTC 8873: Teaching and Learning Geometry and Measurement Advanced**

This course is designed to develop and understanding of the teaching and learning of geometry and measurement. Emphasis will be given to how children think about and learn these concepts and how they fit into an elementary mathematics curriculum. Graded on an A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8883

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**LTC 8874: Teaching and Learning Algebraic Reasoning Advanced**

Course focuses on the content and complexities of teaching and assessing algebraic reasoning in grades 1-6. Includes examinations of representation, analysis of mathematical structures, patterns, functions,

and the transition from arithmetic to algebra. Graded on A-F basis only.

**Corequisites:** LTC 8884

**Credit Hours:** 3

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**LTC 8875: Technology and Mathematics Education**

This course will focus on effective uses of technology in mathematics teaching and learning. Participants will experience different electronic technologies including computers, graphing calculators, and calculator based laboratories.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8876: Teaching Data Analysis and Mathematical Modeling**

The course will develop understanding of data analysis and mathematical modeling. Emphasis will be given to how children think and learn about these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8877: Foundations of Mathematics Leadership in Elem Schools**

This course provides opportunities for participants to develop knowledge and understanding of leadership principles and the process of continuous improvement as it related to the roles and responsibilities of elementary mathematics specialists. Graded on A-F basis only.

**Credit Hours:** 2

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**LTC 8878: Mathematical Leadership for Elementary Schools Advanced**

This advanced leadership course focuses on research and practice related to teamwork, interaction, communication, conflict resolution, and leadership in K-5 schools. Candidates will examine effective strategies for influencing and facilitating school/district improvement. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8880: Advanced Survey of Theories of Learning Mathematics**

This course is designed for students to explore historical and current cognitive theories that frame research in teaching and learning of mathematics.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7350 or instructor's consent

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**LTC 8881: Internship - Number and Operations in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (parents and teachers) on number and operations concepts. Graded on A-F basis only. Corequisites: LTC 8871

**Credit Hour:** 1

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**LTC 8882: Internship - Rational Numbers in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on rational number



and proportional thinking concepts. Graded A-F basis only. Corequisites: LTC 8872

**Credit Hour:** 1

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**LTC 8883: Internship - Geometry/Measurement in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with students and adult learners (teachers and parents) on geometry and measurement concepts appropriate for K-5 students. Graded on A-F basis only.

**Credit Hour:** 1

**Corequisites:** LTC 8873

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**LTC 8884: Internship - Algebraic Reasoning in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on concepts related to algebraic reasoning appropriate for K-5 students. Course graded on A-F basis only. Corequisites: LTC 8874

**Credit Hour:** 1

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**LTC 8885: Using Manipulative Materials in Teaching Mathematics III**

Mathematics laboratory is developed and integrated with experiences in setting. Emphasis on materials for primary and intermediate grades.

**Credit Hour:** 2-3

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**LTC 8886: Contemporary Equity Issues in Mathematics Education**

Certain student populations (e.g., socioeconomically disadvantaged, racial minorities, English Language Learners, students with disabilities) have been traditionally underserved by the U.S. mathematics education system. This course explores the fundamental issues underlying this situation and explores mathematics teaching techniques that can be used to make students' learning opportunities more equitable. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8890: Mathematics Education Research**

Examination of major research efforts and significant findings on learning and teaching mathematics. Emphasis will be placed on becoming knowledgeable of research and on developing wise consumers of research in mathematics education.

**Credit Hours:** 3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8893: Integrating Instruction in Science and Mathematics, Grades 5-12**

This course is designed to help middle and secondary mathematics and science teachers enhance student understanding of mathematics and science through integration of the disciplines.

**Credit Hours:** 2

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**LTC 8895: Advanced Methods of Teaching Secondary School Mathematics**

Discussion and application of theories of learning, strategies of instruction, curriculum development, evaluation techniques and research to secondary mathematics programs.

**Credit Hours:** 3

**Prerequisites:** Mathematics Secondary School Teaching Experience or equivalent

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**LTC 8896: Secondary Mathematics from an Advanced Perspective**

This course deepens understanding of the mathematics underlying the secondary school curriculum. It addresses high school content from the viewpoint of advanced mathematics. Connections are explored within high school content and between high school and college content. Content strands include analysis, algebra, and Euclidean and non-Euclidean geometry. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8900: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction

**Credit Hour:** 1-3

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**LTC 8910: Individual Research**

Independent research not leading to thesis.

**Credit Hour:** 1-3

**Prerequisites:** consent required

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**LTC 8915: Classroom Research-Learning, Teaching and Curriculum**

Study of original classroom research and theories of instruction leading to plans for personal research and theory development.

**Credit Hour:** 1-3

**Prerequisites:** advanced graduate standing

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**LTC 8920: Classroom Research-Early Childhood and Elementary**

Study of original classroom research and theories of instruction leading to plans for personal research and theory development.

**Credit Hours:** 3

**Prerequisites:** advanced graduate standing

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**LTC 8930: Ethnographic Research in Education**

Investigate practical aspects, nature, and assumptions of ethnographic research in education. Pilot study required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or equivalent

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**LTC 8940: In-Service Course in Curriculum and Instruction**

Course work adapted to current vocational needs.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LTC 8941: Internship in Curriculum and Instruction**

Provides internship experience under supervision in advanced levels of curriculum and instruction.

**Credit Hour:** 1-99

**Prerequisites:** departmental chairman's consent

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**LTC 8942: Advanced Internship in Curriculum and Instruction**

This internship is for students enrolled in MU COE Post-Baccalaureate Certification Programs. Graded on A-F basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**LTC 8950: Case Study Research Methods**

This course introduces graduate students to the advanced qualitative techniques related to case study research, within and across case coding strategies, and theoretical/philosophical underpinnings of case study research methodology.

**Credit Hours:** 3

**Prerequisites:** Previous introductory course in qualitative research methods is required

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**LTC 8951: Grounded Theory and Situated Inquiry**

For qualitative researchers attempting to understand social processes, Grounded Theory (GT) offers a way of developing theory empirically, 'from the bottom up.' In fact, this is what most distinguishes GT from other methods. It is explicitly emergent. It does not test a hypothesis. It provides useful tools to learn about participants' understandings and experiences of a social issue, process, or phenomena and to discover and construct theory to account for the social processes being studied. In this course, we will consider the theoretical underpinnings and practices of classic and contemporary GT methodologies. Importantly, we will conduct research and a GT analysis of data.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8952: Narrative Inquiry Theory and Research Methods**

Narrative inquiry has gained popularity amongst researchers specifically in education and other social science fields with various theoretical and analytical approaches. In this advanced qualitative course, students will learn about these approaches and develop critical perspectives toward narrative inquiry. The purpose of this course is to expose students, in various disciplines, to the theoretical underpinnings of narrative inquiry and provide space to "have a try" at several analytical methods for narrative research (i.e. thematic, structural, dialogic/performative, and image analysis). This course will equip students with narrative research method experiences that could be used for dissertation research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8953: Poststructural Theory and Research Methods**

Poststructural perspectives call into question the universals and/or structures of society. The purpose of this course is to expose students, in various disciplines, to poststructural theory and provide space to "have a try" at thinking with theory for data analysis. This course provides space for students to read poststructural scholars' original writings. Readings for the course also allow students to read secondary sources and research studies that apply poststructural ideas. Students are encouraged to think of ways that poststructural theory can become a methodology and/or method for research in their discipline.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8954: Multimodal Analysis**

Multimodal analysis examines how multiple modes such as language, images, sound, symbols, gestures, body posture/position, space, and architecture are deployed for communication purposes in social science research. Students will learn about multimodal theoretical frameworks, key concepts, and procedures in order to critically engage with semiotic resources in a variety of research contexts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8955: Discourse Analysis in Education**

(same as ED\_LPA 8955). This course introduces the theories and methods of discourse analysis, including conversation, critical discourse, and multimodal. Students will analyze the role of context and ethics, as they transcribe and analyze discourse, especially from educational settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8956: Collaborative Inquiry Through Photovoice**

Photovoice is a participatory action research method that invites participants to explore and document their lived experiences in order to spark dialogue with others to bring about change. In this course, students experience the process of Photovoice in order to learn how to use this process in future research.

**Credit Hours:** 3

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**LTC 8957: Qualitative Methods in Educational Research I**

(same as ESC\_PS 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8970: The Supervision of Student Teaching-Masters**

Theory, knowledge and practices involved in supervision of student teaching and other professional lab experiences. Offers assistance in all major aspects of supervision of student teaching.

**Credit Hours:** 3

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**LTC 9050: Curriculum Theories**

Examines key ideological orientations in curriculum theory, explores the notion of curriculum as more than "a course of study" or "structured knowledge," and asserts that curriculum is embedded within historical discourses and practices of race, class, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9060: Theories of Learning and Implications for Education**

The course will familiarize students with the learning theories most widely drawn upon in educational research. Students will examine how theories

are used and the range of interpretations of these theories. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9070: Philosophical Perspectives in Education Research**

An examination of the history and philosophy of social science research, including perspectives on ontology, epistemology, and axiology. Students will consider how various philosophical assumptions shape research paradigms, purposes, interests, and methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9080: Teacher Education Research**

This course is designed to prepare doctoral students as researchers who understand current trends and challenges for teacher education across the professional continuum, and who have the ability to formulate, compare, and problematize relevant research in the field.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9090: Research in Curriculum and Instruction**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LTC 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and ESC\_PS 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 9750: Doctoral Research Seminar in Art Education**

This course focuses on art education research and is designed to offer doctoral students an opportunity to investigate, through readings, reflective thinking, writing, and discussion, the issues that impact art education research. Graded on A-F basis only.

**Credit Hour:** 1

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**LTC 9970: The Supervision of Student Teaching-Doctoral**

Theory, knowledge and practices involved in supervision of student teaching and other professional lab experiences. Offers assistance in all major aspects of supervision of student teaching.

**Credit Hours:** 3

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## Learning, Teaching, & Curriculum - Vocational (LTC\_V)

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**LTC\_V 1050: Principles of Sales**

Provide the student with the concepts, tools and skills to become a professional salesperson. Emphasis is placed upon participation and performance of sales skills.

**Credit Hours:** 3

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**LTC\_V 1070: Word Processing and Presentation Concepts**

Instruction on preparing written documents and creating presentations for business, legal, medical, and social service career areas using word processing and presentation software; Special emphasis on the use of advanced features of computer business application software. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 1110: Principles of Retailing**

Examines problems, opportunities and trends in retailing. Problems and cases deal with store organization, budgeting, control, personnel and operation.

**Credit Hours:** 3

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**LTC\_V 1210: Introduction to Microcomputers**

An overview of the hardware and software components of a microcomputer system.

**Credit Hour:** 1

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**LTC\_V 2050: Merchandising**

Develop basic competencies essential to successful merchandising. Studies skills essential in merchandising, and analysis of merchandising functions and activities.

**Credit Hours:** 3

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**LTC\_V 2110: Business and Interpersonal Communications**

Study of communication theory and principles as applied to business situations and practices; development of communications skills in the area of communication such as speaking, writing, listening, and nonverbal communication.

**Credit Hours:** 3

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**LTC\_V 2150: The Virtual Workplace**

Encompasses the management of alternative work environments and the unique situations that arise by addressing the use of email, computerized meetings, virtual office design, web page issues for business, and other technology for virtual work.

**Credit Hours:** 3

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**LTC\_V 3110: Field Experiences in PAVTE**

Supervised observational and instructionally related activities within one of the PAVTE program areas at the secondary or postsecondary level. Student participates 30 clock hours for each semester hour of credit. Graded on S/U basis only.

**Credit Hour:** 1-4

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**LTC\_V 3150: Directed Occupational Experience**

Reports based on employment experience in selected occupations combined with related conferences and/or seminars. May repeat until four semester hours accumulated.

**Credit Hour:** 1-4

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**LTC\_V 3510: Human Relations in Organizations**

Principles, theory, processes and problems of effective human relations in marketing organizations

**Credit Hours:** 3

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**LTC\_V 4085: Problems in Curriculum and Instruction - CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 4210: Foundations of Adult Workforce Education**

Study of workforce education and human resource development; emphasis on the foundational concepts of adult learning theory and its application to the development and use of instructional methods, curriculum design, and procedures for adult workforce and professional education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 4350: Curriculum Development for Workforce and Professional Education**

Curriculum development course focused on competencies, curriculum selection, organization, development, and assessment for instructors of workforce and professional education courses and human resource training programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 4387: Seminar in Workforce Education**

Seminar experiences for students in any workforce education discipline area; meets the capstone requirement for students in the Bachelor of Educational Studies program (minimum 2.0 credit hours).

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC\_V 4510: Coordination of Cooperative Occupational Education**

Problems and procedures in the operation of cooperative occupational education programs. Especially designed for those who can qualify as coordinators of occupational education programs of a cooperative nature.

**Credit Hours:** 3

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**LTC\_V 4550: Utility Software for Microcomputers**

An introduction to major types of microcomputer utility programs, including desktop publishing, presentation, spreadsheet, and data base.

**Credit Hours:** 2

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**LTC\_V 4570: Career Guidance**

Problems, methods, and procedures involved in assisting individuals in choosing, preparing for, entering upon, and progressing in their

career. For workforce development and human resource professionals, employment counselors, and teachers, counselors, and school administrators.

**Credit Hour:** 2-3

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**LTC\_V 4610: Field Study in Occupational Education**

Directed observation in a cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

**Credit Hour:** 1-4

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**LTC\_V 4650: Document Planning and Design**

Using the hands-on approach, students will develop skills in the planning, design layout, and creation of various business documents, as well as the ability to evaluate various types of documents.

**Credit Hours:** 3

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**LTC\_V 4710: Business Software Applications**

Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications.

**Credit Hours:** 3

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**LTC\_V 4750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

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**LTC\_V 4770: Methods in Vocational Education for the Disabled and Disadvantaged**

(same as SPC\_ED 4390). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hours:** 3

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**LTC\_V 4790: Laboratory Planning and Management**

This course is designed to acquaint the student with the procedures, techniques and skills necessary for proper organization, management, care, and utilization of career and technical education facilities, programs, equipment, and materials.

**Credit Hours:** 3

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**LTC\_V 4801: Topics in Career and Technical Education**

Topics in the field of career and technical education and the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 4805: Principles of Leadership in the Workplace**

Course explores the foundational concepts of leadership and its impact on the organizational behavior of individuals in the workplace. Theories of leadership will be examined, and concepts will be applied to workplace situations based on differing organizational factors. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 4811: Workforce Education Teaching Methods**

Develops specialized organization and administration capabilities for workforce education subjects. Topics include managing activities, individualized instruction, nontraditional students, students with disabilities, and emerging technologies.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**LTC\_V 4830: Curriculum Content in Marketing Education**

Curricular development process, knowledge of core area and competencies of Marketing Education Program. Selection of instructional material.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 4840: Methods of Teaching Marketing Education**

Instructional materials, methods and techniques used to teach the marketing education curriculum. Includes evaluating delivery of instruction.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 4780 and LTC\_V 4830

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**LTC\_V 4910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 7910). Course introduces students to the foundational concepts of adult learning theory, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4115; junior standing

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**LTC\_V 4920: Workforce Education and the Community College**

(cross-leveled with LTC\_V 7920). This course provides an overview of the philosophy, history, and development of the community college in America, and reviews the social, economic, and political forces affecting these institutions. It also explores the rationale and techniques for keeping instructional and organizational functions responsive to the changing educational and workforce needs of the community, with an emphasis on collaboration with public-sector economic development and workforce training programs and customized training services for private sector organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or instructor approval

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**LTC\_V 7083: Teaching Personal Finance Literacy**

(same as FINPLN 7083) Principles and practices of teaching personal finance with particular emphasis on income, money management, spending and credit, and savings and investing. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 7085: Problems in Curriculum and Instruction-CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 7387: Seminar in Career and Technical Education**

Seminar experiences for students within one of the career and technical education areas.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC\_V 7510: Coordination of Cooperative Occupational Education**

Problems and procedures in the operation of cooperative occupational education programs. Especially designed for those who can qualify as coordinators of occupational education programs of a cooperative nature.

**Credit Hours:** 3

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**LTC\_V 7550: Utility Software for Microcomputers**

An introduction to major types of microcomputer utility programs, including desktop publishing, presentation, spreadsheet, and data base.

**Credit Hours:** 2

**Prerequisites:** LTC\_V 1210 or equivalent

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**LTC\_V 7570: Career Guidance**

(cross-leveled with LTC\_V 4570). Problems, methods, procedures involved in assisting individuals in choosing, preparing for, entering upon, progressing in their vocation. For teachers, counselors, school administrators. Graded on A-F basis only.

**Credit Hour:** 2-3

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**LTC\_V 7610: Field Study in Occupational Education**

Directed observation in a cross section of business and industry combined with reports, weekly seminars and/or conferences. May repeat until four semester hours accumulated.

**Credit Hour:** 1-4

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**LTC\_V 7650: Document Planning and Design**

Using the hands-on approach, students will develop skills in the planning, design layout, and creation of various business documents, as well as the ability to evaluate various types of documents.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7550 or equivalent

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**LTC\_V 7710: Business Software Applications**

Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7550 or equivalent

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**LTC\_V 7750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

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**LTC\_V 7770: Methods in Vocational Education for the Disabled & Disadvantaged**

(same as SPC\_ED 4390). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hours:** 3

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**LTC\_V 7780: Development & Assessment of Vocational-Technical Curriculum**

Curriculum development/assessment course focused on competencies, curriculum selection, organization, development, and assessment in the context of the Missouri Vocational Instructional Management System.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 7790: Laboratory Planning and Management**

This course is designed to acquaint the student with the procedures, techniques and skills necessary for proper organization, management, care, and utilization of career and technical education facilities, programs, equipment, and materials.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 1210 and LTC\_V 7550

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**LTC\_V 7801: Topics in Career and Technical Education**

Topics in the field of career and technical education and the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 7810: Technology and Industry Education Methods**

Develops specialized organization and administration capabilities for Industrial and Technology Education. Topics include managing activities, individualized instruction, nontraditional students, students with disabilities, and emerging technologies.

**Credit Hours:** 3

**Prerequisites:** professional standing

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**LTC\_V 7830: Curriculum Content in Marketing Education**

Curricular development process, knowledge of core area and competencies of Marketing Education Program. Selection of instructional material.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2400

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**LTC\_V 7840: Methods of Teaching Marketing Education**

Instructional materials, methods and techniques used to teach the marketing education curriculum. Includes evaluating delivery of instruction.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7780 and LTC\_V 7830

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**LTC\_V 7910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 4910). Course introduces students to the foundational concepts of adult learning theories, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8085: Problems in Workforce and Professional Education**

Independent, directed study on a topic in the areas of workforce, professional, or technology education.

**Credit Hour:** 1-99

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**LTC\_V 8190: Research Applications for Career and Technical Education**

Interpretation, evaluation, and application of research methodologies and findings in career and technical education.

**Credit Hours:** 3

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**LTC\_V 8210: Program Development in Adult Workforce Education**

The adult workforce and professional education movement; characteristics of and learning principles applied to adult students; instructional materials, methods and procedures in organizing and operating adult vocational education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8250: Methods of Business and Marketing Education**

Organization, curriculum, problems, and trends of business and marketing education in secondary and post-secondary adult education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8287: Seminar in Career and Technical Education**

Seminar in Career and Technical Education

**Credit Hour:** 1-3

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**LTC\_V 8310: Foundations of Career and Technical Education**

Philosophy, background, nature, purpose, and role of career and technical education programs in secondary and post-secondary education and workforce development. For teachers and administrators working with career and technical education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8350: Curriculum Development for Workforce and Professional Education**

In-depth investigation of curriculum development theory, research, issues, and procedures for workforce and professional education in the public and private sectors.

**Credit Hours:** 3

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**LTC\_V 8410: Improvement of Instruction in Using Technology**

Incorporates recent development in application of technology to methods, techniques, and materials of instruction in career and technical education classrooms and laboratories.

**Credit Hours:** 3

**Prerequisites:** LTC\_V 7550 or instructor's consent

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**LTC\_V 8420: Improvement of Instruction in Business Skills Subjects**

Developments and trends in the instructional program of business skills courses.

**Credit Hours:** 3

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**LTC\_V 8501: Topics in Workforce and Professional Education**

Topics in the field of workforce, professional, or technology education in the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 8510: Evaluation in Workforce and Professional Education**

Development of evaluation procedures and the construction of evaluation devices for workforce and professional education. Emphasizes performance evaluation, improvement of instruction, and program review.

**Credit Hours:** 3

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**LTC\_V 8520: Implementation of Career and Technical Education Programs**

Types of organization, approved administrative and supervisory practices, and state and federal guidelines for programs of career and technical education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8940: In-Service Course in Vocational-Technical Education**

In-Service Course in Vocational-Technical Education

**Credit Hour:** 1-99

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**LTC\_V 9090: Research in Practical Arts and Vocational Technology Education**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Linguistics (LINGST)

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**LINGST 1060: Human Language**

(same as ANTHRO 1060, C\_S\_D 1060, ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**LINGST 2001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

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**Prerequisites:** consent of chair

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**LINGST 2040: Anthropological Linguistics**

(same as ANTHRO 2040). Language in relation to other aspects of human behavior. Introduction to description and analysis of the basic units of language. Emphasis on non-Indo-European and preliterate languages.

**Credit Hours:** 3

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**LINGST 2601: Languages of Africa**

(same as BL\_STU 2601 and ENGLSH 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**LINGST 2700: Elementary Logic**

(same as PHIL 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations.

**Credit Hours:** 3

**Prerequisites:** grade of C or higher in MATH 1100 or MATH 1120

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**LINGST 2820: Introduction to Cognitive Science**

(same as PSYCH 2820 and PHIL 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

**Recommended:** PSYCH 1000

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**LINGST 3001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 3010: American Phonetics**

(same as C\_S\_D 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

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**LINGST 3210: Anatomy and Physiology of the Speech Mechanism**

(same as C\_S\_D 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

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**LINGST 3220: Speech Acoustics**

(same as C\_S\_D 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

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**LINGST 3470: Culture as Communication**

(same as ANTHRO 3470, COMMUN 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and FRENCH 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in context of ethnic, cultural, and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3721: Spanish Phonetics**

(same as SPAN 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160

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**LINGST 4001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4001W: Topics in Linguistics-General - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4100: Philosophy of Language**

(same as PHIL 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700 or instructor's consent

**Recommended:** one other course in Philosophy

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**LINGST 4110: Advanced Logic**

(same as PHIL 4110; cross-leveled with LINGST 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700; or instructor's consent

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**LINGST 4200: Introduction to Old English**

(same as ENGLSH 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4400: Language and Culture**

(same as ANTHRO 4400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis.

**Credit Hours:** 3

**Recommended:** ANTHRO 2040 or LINGST 2040

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**LINGST 4412: Gender, Language and Communication**

(same as COMMUN 4412 and ANTHRO 4412). Relationships among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**LINGST 4415: Language and Discourse**

(same as COMMUN 4415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

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**LINGST 4420: Historical Linguistics**

(same as ANTHRO 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior/senior standing

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**LINGST 4600: Structure of American English**

(same as ENGLSH 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**LINGST 4610: History of the English Language**

(same as ENGLSH 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3



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**LINGST 4620: Regional and Social Dialects of American English**  
(same as ENGLISH 4620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Recommended:** LINGST 4600 and LINGST 4610 or equivalent

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**LINGST 4630: Phonology**

(same as ENGLISH 4630). Survey of the sound patterns of English, with some comparison to other languages. Prerequisites: ENGLISH 4600 or equivalent

**Credit Hours:** 3

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**LINGST 4640: Syntax**

(same as ENGLISH 4640). Study of the properties of phrase and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600

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**LINGST 4650: Principles of Teaching English as a Second Language**

(same as LTC 4460). Linguistic and pedagogical principles of teaching English to speakers of other languages.

**Credit Hours:** 3

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**LINGST 4710: History of the French Language**

(same as FRENCH 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external, social, political, and historical factors that have affected the development of French, followed by diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**LINGST 4711: History of the Spanish Language**

(same as SPAN 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**LINGST 4720: Structure of Modern French**

(same as FRENCH 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**LINGST 4721: Structure of Modern Spanish**

(same as SPAN 4721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4722: Spanish Across the Continents**

(same as SPAN 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4723: Language and Society: Spanish in the U.S.**

(same as SPAN 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in Education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4730: Linguistic Theory and Language Acquisition**

The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4720, LINGST 4721, or LINGST 4600

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**LINGST 4740: Interdisciplinary Introduction to NLP**

(same as CMP\_SC 4740; cross-leveled with LINGST 7740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**LINGST 4810: Psycholinguistics**

(same as C\_S\_D 4810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 4820: Speech Perception**

(same as C\_S\_D 4820). Selected topics in the perceptual processing of spoken language.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**LINGST 4850: Practical Phonetics for Fieldwork**

(same as ANTHRO 4850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4860: Techniques in Linguistic Analysis**

(same as ANTHRO 4860). Problems in analyzing data from various languages.

**Credit Hours:** 3

**Recommended:** introductory course in Linguistics

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**LINGST 4870: Field Methods in Linguistics**

(same as ANTHRO 4870 and ENGLSH 4670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**LINGST 4870W: Field Methods in Linguistics - Writing Intensive**

(same as ANTHRO 4870 and ENGLSH 4670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**LINGST 4960: Special Readings in Linguistics**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LINGST 4970: Studies in Linguistics**

Topic varies according to instructor.

**Credit Hours:** 3

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**LINGST 4991: Honors Thesis in Linguistics**

Based on an original research project in theoretical or applied linguistics. Topic, director, and second reader approved by Linguistics Committee, College of Arts and Science.

**Credit Hours:** 3

**Prerequisites:** qualification for Honors degree

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**LINGST 7100: Philosophy of Language**

(same as PHIL 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**LINGST 7110: Advanced Logic**

(same as PHIL 7110; cross-leveled with LINGST 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness for formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**LINGST 7200: Introduction to Old English**

(same as ENGLSH 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**LINGST 7400: Language and Culture**

(same as ANTHRO 7400). Interrelations between language, thought, culture, and society; role of language in cognition; methods and concepts of linguistics in cultural analysis. Prerequisites: ANTHRO 2040 or LINGST 2040 or equivalent

**Credit Hours:** 3

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**LINGST 7412: Gender, Language, and Communication**

(same as COMMUN 7412 and ANTHRO 7412). Relationships among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**LINGST 7415: Language and Discourse**

(same as COMMUN 7415). Analysis of the rules of social interaction and the functions of language in discourse.

**Credit Hours:** 3

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**LINGST 7420: Historical Linguistics**

(same as ANTHRO 7420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**LINGST 7600: Structure of American English**

(same as ENGLSH 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**LINGST 7610: History of the English Language**

(same as ENGLSH 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**LINGST 7620: Regional and Social Dialects of American English**

(same as ENGLSH 7620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600 or LINGST 7600 and LINGST 7610 or equivalent

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**LINGST 7630: Phonology**

(same as ENGLSH 7630). Survey of the sound patterns of English, with some comparison to other languages.

**Credit Hours:** 3

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**Prerequisites:** LINGST 7600 or another introductory course in linguistics or phonetics

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**LINGST 7640: Syntax**

(same as ENGLSH 7640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600 or another comparable linguistics course

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**LINGST 7650: Principles of Teaching English as a Second Language**

(cross-leveled with LINGST 4650). Linguistic and pedagogical principles of teaching English to speakers of other languages.

**Credit Hours:** 3

**Prerequisites:** LINGST 7600 and LINGST 7610 or equivalent

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**LINGST 7710: History of the French Language**

(same as FRENCH 7710).

**Credit Hours:** 3

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**LINGST 7711: History of the Spanish Language**

(same as SPAN 7711). Diachronic analysis of Spanish phonology, morphology, and syntax from Vulgar Latin to modern period.

**Credit Hours:** 3

**Prerequisites:** completed with passing grade any Linguistics course 3000 or above or by instructor's consent

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**LINGST 7720: Structure of Modern French**

(same as FRENCH 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

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**LINGST 7721: Structure of Modern Spanish**

(same as SPAN 7721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

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**LINGST 7730: Linguistic Theory and Language Acquisition**

(same as RM\_LAN 7730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** LINGST 7720, LINGST 7721, LINGST 7600 or LINGST 7860

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**LINGST 7740: Interdisciplinary Introduction to Natural Language Processing**

(same as CMP\_SC 7740; cross-leveled with LINGST 4740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of text.

**Credit Hours:** 3

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**LINGST 7810: Psycholinguistics**

(same as C\_S\_D 7810). Examines the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 7820: Speech Perception**

(same as C\_S\_D 7820). Selected topics in the perceptual processing of speech sounds and spoken language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 7850: Practical Phonetics for Fieldwork**

(same as ANTHRO 7850). Self-paced course using computer and tape recorded lessons from world's languages. Teaches practical articulatory and transcription phonetics. Weekly meeting with instructor to monitor progress, resolve questions.

**Credit Hours:** 3

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**LINGST 7860: Techniques in Linguistic Analysis**

(same as ANTHRO 7860). Problems in analyzing data from various languages. Prerequisites: introductory course in Linguistics or instructor's consent

**Credit Hours:** 3

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**LINGST 7870: Field Methods in Linguistics**

(same as ANTHRO 7870 and ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of non-Indo-European language.

**Credit Hours:** 4

**Prerequisites:** 9 hours in Linguistics

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**LINGST 8000: Problems**

Independent study through readings, analysis of special linguistic problems, reports.

**Credit Hours:** 3

**Prerequisites:** one Advanced Linguistics course and instructor's consent

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**LINGST 8100: Speech Science**

(same as C\_S\_D 8100). Introduction to the physiological and acoustic aspects of speech production; instrumentation for speech analysis including computer-based speech processing techniques.

**Credit Hours:** 4

**Prerequisites:** C\_S\_D 3010, C\_S\_D 3210, and C\_S\_D 3230 or equivalents

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**LINGST 8110: Speech Physiology**

(same as C\_S\_D 8110). Analysis of physiological features associated with speech subsystems; theories of encoding with special emphasis on speech motor control mechanisms.

**Credit Hours:** 3

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**LINGST 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and FRENCH 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in Eng.).

**Credit Hours:** 3

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**LINGST 8487: Seminar in Anthropological Linguistics**

(same as ANTHRO 8487). Topics: Ethnolinguistics, linguistic prehistory, pidgin and Creole languages, linguistic theories and cultural and cultural analysis. French structural anthropology. May be repeated for 9 hours maximum.

**Credit Hours:** 3

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**LINGST 8600: Seminar in the English Language**

(same as ENGLSH 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May be repeated up to twelve hours with departmental approval.

**Credit Hours:** 3

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**LINGST 8615: History of the German Language**

(same as GERMAN 8615).

**Credit Hours:** 3

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**LINGST 8625: Middle High German**

(same as GERMAN 8625).

**Credit Hours:** 3

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## MU Informatics Institute (INFOINST)

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**INFOINST 7001: Topics in Informatics**

This course provides the overview to the informatics foundations as well as introduces topics regarding the current informatics-driven areas of science. Graded on A-F basis only.

**Credit Hours:** 3

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**INFOINST 7002: Introduction to Informatics**

This course provides an overview to informatics foundations in addition to introducing topics regarding the current informatics-driven areas of science. Topics to include: recent trends in informatics; database management and Big Data analytics; data visualization, bioinformatics, health informatics, geoinformatics, nursing informatics, social informatics, and legal informatics. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**INFOINST 7010: Computational Methods in Bioinformatics**

(same as CMP\_SC 7010). Fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis placed on computational aspect of bioinformatics including

formulation of a biological problem, design of algorithms, confidence assessment of software development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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**INFOINST 7430: Introduction to Health Informatics**

(same as HMI 7430). Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**INFOINST 8001: Topics in Informatics**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department. Graded A-F basis only.

**Credit Hours:** 3

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**INFOINST 8005: Applications of Bioinformatics Tools in Biological Research**

This service course is designed for bioinformatics non-major students from life sciences, biological sciences, plant sciences, animal sciences, biochemistry, medicine fields and others. This course will provide an introduction to the current state of the art topics in bioinformatics and the computational tools available to the research community for application to biological research questions. Students will learn how to effectively utilize the tools and software packages to analyze data and visualize the results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** Graduate students are expected to have basic knowledge in algorithms, databases, and molecular biology

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**INFOINST 8010: Problem Solving in Bioinformatics**

(same as CMP\_SC 8110). The course covers a variety of bioinformatics research topics such as biological sequence comparison, protein structure prediction, protein and gene function prediction, and inference and modeling of biological networks. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8085: Problems in Informatics**

Independent, directed study on a topic in the area of informatics. Some sections may be graded A-F or S/U.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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**INFOINST 8087: Seminar in Informatics**

Students attend and/or present at informatics seminars approved by the institute. Graded on S/U basis only.

**Credit Hour:** 0.5-1

**Prerequisites:** instructor's consent required

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**INFOINST 8088: Lab Rotations in Informatics**

This course is designed to train students in both computational/informatics and life science/hospital laboratories to foster critical research collaborations in biomedical informatics. Students are expected to write reports with their advisors and the mentor of the rotation. Graded on S/U basis only.

**Credit Hour:** 1-3

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**INFOINST 8090: Dissertation (pre-candidacy) Research in Informatics**

Research leading to dissertation before comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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**INFOINST 8150: Integrative Methods in Bioinformatics**

(same as CMP\_SC 8150). With biology entering the Big Data era, scientists are overwhelmed with the amount and the diversity of the experimental, statistical, and omics data about the biological objects they study. As a result, the frontier bioinformatics and computational genomics methods have started to utilize a so-called integrative approach, where the computational and informatics methods are used to combine the high-throughput and low-throughput data. The main objective of this course is to teach students how to utilize bioinformatics and programming techniques for such multi-omics data integration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 or instructor's permission

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**INFOINST 8180: Machine Learning Methods for Biomedical Informatics**

(same as CMP\_SC 8180). Teaches statistical machine learning methods and applications in biomedical informatics. Covers theories of advanced statistical machine learning methods and how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 7005

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**INFOINST 8190: Computational Systems Biology**

(same as CMP\_SC 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**INFOINST 8210: Structural Bioinformatics of Proteins, Complexes, System**

(same as CMP\_SC 8120). Main course objective is to provide an introduction to the state-of-the-art methods in structural bioinformatics. The course will cover the methods that are applied to a wide range of biomolecular objects from protein domains and small proteins to large biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

**Recommended:** CMP\_SC 4050 or CMP\_SC 7050

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**INFOINST 8310: Computational Genomics**

(same as CMP\_SC 8130). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8350: Integrative Methods in Bioinformatics**

Course objective is to introduce the most popular experimental methods from the point of view of the information sources that can be used in. Students will learn to use data obtained directly from biological experiments and how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8390: Computational Systems Biology**

This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010 or instructors consent

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**INFOINST 8450: Precision Medicine Informatics**

(same as PTH\_AS 7450). This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**INFOINST 8810: Research Methods in Informatics**

(same as HMI 8810). Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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**INFOINST 8860: Content Management in Biomedical Informatics**

(same as CMP\_SC 8160). This course introduces theory and techniques for content extraction, indexing, and retrieval of biomedical media databases. Topics include biomedical media databases, feature extraction methods, advanced database indexing structures, query methods, and result visualization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380 and INFOINST 7010

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**INFOINST 8870: Knowledge Representation in Biology and Medicine**

(same as HMI 8870) The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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**INFOINST 8880: Machine Learning Methods for Biomedical Informatics**

(same as CMP\_SC 8180) This course teaches statistical machine learning methods and their applications in biomedical informatics. The course covers theories of advanced statistical machine learning methods and teaches how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 7005

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**INFOINST 9090: Dissertation (post-candidacy) Research in Informatics**

Research leading to Ph.D. dissertation after comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Management (MANGMT)

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**MANGMT 1010: Contemporary Business Practices**

Course coverage includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields as well as the integrated nature of business. Graded on A-F basis only.

**Credit Hour:** 1

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**MANGMT 1030: Vasey Academy on Leadership Issues**

Business seminar course restricted to Vasey Academy scholars. Focus on leadership issues and on career opportunity exploration in key areas of business. Graded on A-F basis only.

**Credit Hour:** 1

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**MANGMT 1050: Contemporary Leadership Issues in Business**

Course focuses on contemporary business leadership practices and includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MANGMT 3000: Principles of Management**

Introduction to the basic concepts of management and organization; their application to operations and personnel management.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours

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**MANGMT 3000H: Principles of Management - Honors**

Introduction to the basic concepts of management and organization; their application to operations and personnel management.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours. Honors eligibility required

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**MANGMT 3100: Job Search Strategies**

Provides relevant information and skills to help students interested in careers in business conduct an effective job search. Topics covered include self-assessment, company research, preparing a resume, interview skills, networking skills, and negotiation skills.

**Credit Hour:** 1

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**MANGMT 3200: Business and Society**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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**MANGMT 3200H: Business and Society - Honors**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program; Honors eligibility required

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**MANGMT 3200HW: Business and Society - Honors/Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program; Honors eligibility required

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**MANGMT 3200W: Business and Society - Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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**MANGMT 3300: Introduction to Business Processes and Technologies**

Introduces students to cross-functional business processes including both transactional and decision making forms. Current and emerging technologies used to facilitate efficient and effective action in these processes are explored.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

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**MANGMT 3540: Introduction to Business Law**

The legal aspects of business related to society--introduction to the legal system; constitutional, criminal, tort law; contracts and sales law cases and problems; administrative regulation of business and consumer issues.

**Credit Hours:** 3

**Prerequisites:** completion of 30 semester hours

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**MANGMT 3700: Diversity and Inclusion in Management**

Discuss elements of diversity including race, gender, ethnicity, religion, sexual orientation, socioeconomic status, and age, among others, as these impact effective management in the workplace through a variety of workplace performance-related outcomes. Explore ways to contribute to, learn from, and benefit from a more diverse and inclusive work environment. Examine methods of optimizing human performance and potential in organizations. Create personal action plan to increase awareness, knowledge, skills and global perspective relative to diversity and inclusion. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3901: Special Topics in Management**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MANGMT 3901H: Special Topics in Management - Honors**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent. Honors eligibility required

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**MANGMT 3910: Managing Across Cultures**

Applying cultural dimensions to developing cross-cultural behavioral competencies utilizing code-switching training methods. For all persons interested in improving international person-to-person interactions.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3920: Managing People in the Global Enterprise**

Focuses on management of people in global organizations- especially for-profit enterprises. Topics include differences across countries in

recruitment and selection, training and development, leadership and motivation, compensation, cross-cultural negotiation, and employment relations. The use of expatriates and host country nationals as managers is contrasted. Challenges involved in repatriating expatriates and their families after lengthy terms of service in foreign countries are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3975: Current Issues in International Management**

Study of current issues and practices in international management taken as part of an organized short term study abroad program. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MANGMT 4010: Operations Management**

(cross-leveled with MANGMT 7010). Managerial analysis of operating problems, with emphasis on planning and control systems. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4020: Human Resource Management**

(cross-leveled with MANGMT 7020) Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4030: Organizational Behavior**

(cross-leveled with MANGMT 7030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4050: Management of Service Operations**

Managing services, especially the operation's activity in service firms. Includes determining the service package, forecasting service demand, managing demand, capacity analysis and management, scheduling, cost control, service quality, and human resource management. Standardization, franchising, and service automation addressed.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4060: Project Management Fundamentals**

Practical methods and techniques for managing projects with selective attention to human resource issues. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4110: Total Quality Management**

Introductory, comprehensive approach to quality planning, analysis, and control. Applications orientation. Integrates customer needs, product and service design and delivery, and continuous improvement into all organizational activities. Examines full range of behavioral, technical, and organizational aspects relating to quality.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4120: Human Resource Management Law**

Analysis and evaluation of legal and administrative regulations of terms of employment; Fair Labor Standards, discriminatory practices, safety and health regulations, other regulations.

**Credit Hours:** 3

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**MANGMT 4130: Advanced Organizational Behavior**

Based upon behavioral science concepts and research findings directed toward understanding and explaining human behavior within organizations. Case studies, individual or team projects.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4030

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**MANGMT 4140: Business Communication**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a methods to communicate with important stockholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to upper level

**Corequisites:** MANGMT 3000

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**MANGMT 4140W: Business Communication - Writing Intensive**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a methods to communicate with important stockholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to upper level

**Corequisites:** MANGMT 3000

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**MANGMT 4185: Problems in Management**

Undergraduate students may select topics for study and investigation. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**MANGMT 4201: Topics in Management**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4201H: Topics in Management**

Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites:** will vary with different topics. Honors eligibility required

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**MANGMT 4201W: Topics in Management - Writing Intensive**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4220: Compensation Theory and Practice**

Examines the empirical research and theory relating to the effect of compensation administration systems upon employee satisfaction and performance. Analysis of financial compensation systems and benefit programs in use in modern organizations.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4020

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**MANGMT 4310: Modern Manufacturing**

Contemporary qualitative and quantitative analysis of automation systems for production and inventory; robotics, digital data matrix and Q/R coding, PLC overview; uncertainty, risk, and policy considerations; analysis of networks; management problems in application.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4010

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**MANGMT 4320: Selected Problems in Human Resource Management**

Advanced studies in selected administrative and technical policies, practices in employee relations, with individual and group project work, research. Focuses on policy issues, research findings, advanced techniques.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4020

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**MANGMT 4330: Organizational Theory**

(cross-leveled with MANGMT 7330). Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4330H: Organizational Theory - Honors**

Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Corequisites:** MANGMT 3000

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**MANGMT 4340: Crisis Management**

Management strategies for media relations, image and identify building, internal communication, government relations, and crisis communication are explored through case studies, film, literature, and current popular culture.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4350: Leadership Development**

Provides a comprehensive understanding of leadership development within the corporate environment. Examines causes and outcomes of different styles of leadership that are designed to fit the needs of individuals and/or specific situations.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4420: Collective Bargaining**

Content, negotiation, administration of collective labor agreements and settlement of disputes.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4450: Management of Electronic Commerce**

An introduction to electronic commerce. Topics covered include definition and scope of e-commerce, tools and technologies used, strategies, and understanding of this dynamic field.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4460: Electronic Commerce Security**

Comprehensive introduction to the concepts, technologies, and applications of security in electronic commerce. Topics include security policy, privacy, cryptography, types of attacks, protection, detection and response strategies.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

---

**MANGMT 4480: Business Data Communication and Networking**

Introduction to fundamental principles of technical and managerial aspects of business data communications and networks. Basic concepts and principles, protocol layers, content distribution, routing, LAN, wireless, security, network management, multimedia networking, and new developments.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

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**MANGMT 4520: Change Management in Business**

Provides a comprehensive understanding of the processes of change in the corporate environment. Examines antecedents of change such as acquisitions, mergers, technology and new leadership as well as approaches to managing change using tools from organization development (OD).

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4540: Legal Aspects of Business Organization and Operation**

Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540

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**MANGMT 4560: The Law of Commercial Credit Transactions**

Purchase and sale of goods, services and real property-discussion includes drafts, notes, security agreements under the Uniform Commercial Code, and credit financing of real estate.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540

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**MANGMT 4610: Database Management**

This is an introductory course on database (DB) technology. It introduces such technology and provides hands-on experience in designing and developing DBs to meet organizational goals. Topics include database concepts such as entity-relationship modeling, data modeling, relational database development, SQL, application of popular database systems software, data warehousing, and selected advanced topics in business use of DBs. Students work in groups to develop a database system project for an organization of their choice. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4620: Web Development Fundamentals**

An introduction to the fundamentals of design, technology and project management aspects of developing websites. Some web based programming languages including HTML, CSS, JavaScript and ASP/VBScript and an introduction to Adobe Photoshop and Macromedia Dreamweaver.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

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**MANGMT 4700: Principles of Entrepreneurship**

An introductory course designed to provide a solid foundation of the role of entrepreneurship. The focus is on the creation of new ventures, the decisions leading to their development, and the factors that lead to their success.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4710: The Entrepreneurial Process**

This course deals with critical thinking, logic, emotional intelligence, ethics and a problem solving/decision making frame in the context of the entrepreneurial business phases: opportunity identification; launch after gathering resources; managing growth and harvesting rewards.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4720: Experiential Entrepreneurship**

The course will engage students in experiences that develop entrepreneurial characteristics such as a passion for business, tenacity despite failure, self-determination, management of risk, self-confidence, creating opportunities, creativity, initiative, and detail orientation.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4730: New Business Planning and Management**

Analysis of the major functional areas of the start-up firm including accounting, finance, human resources, information systems, logistics, management, marketing, production/operations, purchasing and sales. Focus is also placed on generating ideas, scanning for environmental trends, and critically evaluating opportunities.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4750: Entrepreneurial Innovation Management: Enterprise Conception**

(same as IMSE 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**MANGMT 4760: Entrepreneurial Innovation Management: Enterprise Design**

(same as IMSE 4760). Expand on Management 4750 business/technology plan into an operations plan; advertising facilities layout, selling and distribution channels, product designs, accounting procedures, manufacturing processes, and prototypes.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4750; sophomore standing or instructor's consent

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**MANGMT 4770: Entrepreneurial Innovation Management: Enterprise Operation**

(same as IMSE 4770). Perform the day-to-day operations for an enterprise by managing all business processes including finance, manufacturing, sales and delivery. Prerequisites: Junior Standing

**Credit Hours:** 3

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**MANGMT 4940: Professional Management Internship**

Provides experience with management activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and to complete written assignments detailed in the plan. Course only satisfies a professional elective requirement of the program. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** COB student with a management concentration, and Internship Coordinator's consent

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**MANGMT 4970: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 4970W: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 7010: Operations Management**

(cross-leveled with MANGMT 4010). Managerial analysis of operating problems, with emphasis on planning and control systems.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7020: Human Resource Management**

(cross-leveled with MANGMT 4020) Introduction to strategies and best practices in attracting, selecting, retaining developing, and compensating employees.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7030: Organizational Behavior**

(cross-leveled with MANGMT 4030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7201: Topics in Management**

(cross-leveled with MANGMT 4201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7330: Organizational Theory**

(cross-leveled with MANGMT 4330). Elements of the managerial process; emphasis on theory of organization structure and design and the impact of technology and culture on organization systems.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 7380: Organizational Behavior and Management: The Individual**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on the individual within the organizational context.

**Credit Hour:** 1.5

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**MANGMT 7390: Organizational Behavior and Management: Dyadic, Group and Organizational Processes**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on dyadic, group and system-wide processes. Prerequisites: MANGMT 7380

**Credit Hour:** 1.5

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**MANGMT 7410: Management Information Systems**

A managerially-oriented, case-based introduction to information systems. Emphasizes how information systems technology can aid managers in improving organizational performance, group work, and personal productivity, thus providing competitive advantage.

**Credit Hour:** 1.5

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**MANGMT 7420: Managerial Statistics**

Overview of statistics as an aid in decision making. Emphasis on summarizing data, statistical inference, sampling techniques, and regression based forecasting as applied to problems in business.

**Credit Hour:** 1.5

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**MANGMT 7430: Operations Strategy**

Introduction to Operations Management function within an organization—the function which controls key resources necessary to produce and deliver a firm's goods or services to customers. Surveys strategic problems common to operations within complex organization. Emphasizes planning, control, and decision making to gain competitive advantage through operations-related activities. Stresses concepts, models, and behaviors across technologies, sectors, and industries, rather than emphasizing a few specific conversion technologies.

**Credit Hour:** 1-3

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**MANGMT 7450: Business Analytics**

This course focuses on two areas of knowledge. One focus is on developing relevant statistical thinking skills, including an awareness and management of risk, and recognizing the type of statistical analysis that is appropriate for a given managerial problem. The other is on developing an understanding of the role of business analytics in the organization, at the managerial, tactical and strategic level. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7470: Data Analysis for Managers**

Statistical thinking approaches to address common business data and problems. Analysis of real-world cases and unstructured data using statistical features of spreadsheet software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students ONLY

**Corequisites:** MANGMT 7420

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**MANGMT 7480: Managerial Analytics**

Spreadsheet modeling procedures to address common business problems. Analysis of real-world cases and unstructured problems using basic and advanced features software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420 and MANGMT 7470. Open to Crosby MBA students ONLY

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**MANGMT 7540: Legal Aspects of Business Organization and Operation**

Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540. Restricted to COB students

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**MANGMT 7970: Introduction to Strategic Management**

Examines through case analysis and simulation how business-level managers overseeing a profit center in a specific industry set direction for a firm's activities in that industry and develop policies to implement that direction. Emphasis is on aligning business strategy with overarching corporate strategy (in diversified firms) and integrating functional perspectives (marketing, operations, finance, R&D, purchasing, human resources, etc.) by effectively resolving conflicts in these perspectives when formulating effective strategy. Focus is also placed on balancing short-term efficiency in a business unit with long-term effectiveness through cultivating continuous innovation processes that redefine the business unit over time.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students only

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**MANGMT 8001: Topics in Management**

Selected current topics in management.

**Credit Hour:** 1-6

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**MANGMT 8054: Entrepreneurship and Media of the Future**

(same as JOURN 8054). This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Ups and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Journalism or MBA program

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**MANGMT 8085: Problems in Management**

Graduate students may select topics for study and investigation. Selected sections of the course may be offered either on A-F or S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 8100: Exploring the Digital Globe**

Impacts of technological change and globalization are explored from the perspective of business, law and journalism. The first course required for the "CDiG certificate". Issues involving electronic commerce, digitization and globalization will be analyzed through online and in-class projects, class discussion and guest lectures.

**Credit Hours:** 3

**Prerequisites:** enrollment in CDiG Graduate Certificate Program or instructor's consent

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**MANGMT 8200: Commercialization of Life Science Innovations**

This course will provide educational content and experiences that equip course participants to navigate the main pathways for commercialization of biomedical innovations. Students will also learn how to access sources of capital for R&D and develop an understanding of the role of FDA approval and the processes for approval of different types of biomedical products. Students will become familiar with quality assurance programs required in the biomedical industry. Students will also become familiar with the most common business models for biomedical companies and the importance of product development and commercialization alliances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** admitted to certificate program; director approval

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**MANGMT 8300: Business and Society**

Interdependence of the business firm and its social, political, and legal environment; interrelationships with governments, interest groups, and the larger society; role of business in formulation of community, regional, national, and foreign policy.

**Credit Hours:** 3

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**MANGMT 8310: Strategic Human Resource Management**

Analysis of research and practice in planning for attracting, selecting, developing, and disciplining of employees at work.

**Credit Hours:** 3

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**MANGMT 8320: Management of Labor Relations**

Managerial approaches to collective bargaining. Negotiation, grievances, agreement administration; emphasis on recent developments.

**Credit Hours:** 3

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**MANGMT 8330: Current Issues in Human Resource Management**

Exploration of current trends, issues, and controversies involving the managing of human resources in organizations, with an emphasis on how human resources can provide competitive advantage. Considers multiple perspectives, including that of employers, employees, and other stakeholders.

**Credit Hours:** 3

**Prerequisites:** MANGMT 8310 or MANGMT 7380 and MANGMT 7390

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**MANGMT 8335: Human Resource Law**

The study of best HR practices from a legal point of view, including avoiding employer liability related to recruiting, interviewing, hiring, classifying, supervising and terminating employees.

**Credit Hours:** 3

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**MANGMT 8340: Organizational Design**

Principles of effective organizational design contingent upon contextual factors such as an organization's size, technology, and environment; dimensions of organizational structure; overall forms of organizational design.

**Credit Hour:** 1.5

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**MANGMT 8345: Organizational Culture**

Concept of culture in an organizational context; models of organizational culture; culture's relationships with individual behavior, organizational effectiveness, and organizational change, especially change related to strategy implementation and to mergers and acquisitions.

**Credit Hour:** 1.5

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**MANGMT 8350: Organizational Analysis and Change in the Public Sector**

Investigates the social and psychological dynamics of organizational diagnosis, feedback and learning, intervention, planned change. Students study organizational life from the viewpoint of experienced organizational analysts and consultants. The predominant theoretical approach offered in this course is clinical and psychodynamic.

**Credit Hours:** 3

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**MANGMT 8360: Negotiations**

A structured overview of negotiations; includes the development of improved negotiation skills. Topics include power, distributive negotiations, integrative negotiations, maneuvers, tactics, strategies, conflict, complex negotiations, mediation, and negotiation ethics.

**Credit Hours:** 3

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**MANGMT 8370: Managerial Leadership**

An examination of the historical conceptions, definitions, theories, and research findings in the managerial leadership literature. The application of this literature to the development of analytical and leadership skills.

**Credit Hours:** 3

**Prerequisites:** MANGMT 7380 and MANGMT 7390

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**MANGMT 8400: Management Science Modeling**

Application of management science modeling procedures to organizational decision making. Topics include mathematical programming, queuing, and network models. Stresses managerial point of view with analysis of problems and interpretation of computer solutions.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420

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**MANGMT 8410: Decision Making and Risk**

Managerial approaches to decision making under risk and uncertainty with emphasis on decision analysis, spreadsheet simulation, and computer solutions via other management science models. Discussion of rational and behavioral decision making and procedures for assessing risk and uncertainty.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7400 or equivalent

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**MANGMT 8420: Decision Support Systems**

The theory, methodology and implementation of Decision Support Systems (DSS). Topics include the DSS concept, applications, organizational issues, hardware and software technology, developmental methodology, data-model-user relationships, user interfaces, implementation strategies, and evaluation procedures. Includes hands-on building of a DSS.

**Credit Hours:** 3

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**MANGMT 8430: Database Management**

Data management, including database development, access, and administration. A focus on key issues and principles of managing organizational data, such as developing data models, creating relational databases, and formulating and executing queries.

**Credit Hours:** 3

**Prerequisites:** completion of or concurrent enrollment in MANGMT 7410

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**MANGMT 8440: Topics in Electronic Commerce**

Fundamental principles of the technical and managerial aspects of business telecommunications. Basic concepts of telecommunication technology, TCP/IP architecture, LAN, WAN ZoS, client/server, security, wireless, issues related to the operational and strategic use of the technology, networked applications, and new developments in the area.

**Credit Hours:** 3

**Prerequisites:** MANGMT 7410 and one other MIS course; departmental consent

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**MANGMT 8450: Information Resource Management**

Management issues and techniques involving information system/resource activities, with a focus on computer-based resources and IS development activities. Includes management of IS professionals and project teams, user relationships, emerging technologies, and planning processes. Prerequisites: completion of one required E-Commerce (MANGMT 8440, MANGMT 8430) or IT (MANGMT 8460, MANGMT 8001: Web Programming) MBA concentration course.

**Credit Hours:** 3

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**MANGMT 8460: Systems Approach to Business Application Development**

Design and implementation of transaction-based business applications systems, utilizing structured analysis and design concepts. Course will emphasize database development and implementation and computer programming.

**Credit Hours:** 3

**Prerequisites:** completion of or concurrent enrollment in MANGMT 7410

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**MANGMT 8470: Business Telecommunications**

Fundamental principles of the technical and managerial aspects of business telecommunication. Basic concepts of telecommunication technology, TCP/IP architecture, LAN, WAN, QoS, client/server, security, wireless, issues related to the operational and strategic use of the technology, networked applications, and new developments in the area.

**Credit Hours:** 3

**Prerequisites:** MANGMT 7410 and one other MIS course; departmental consent

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**MANGMT 8480: Web Development**

An advanced introduction to the fundamentals of design, technology and project management aspects of developing websites. Several programming languages including HTML, CSS, JavaScript, CGI/Perl, PHP and ASP/VBScript and on introduction to Adobe Photoshop and Macromedia Dreamweaver. Requires Visual Basic knowledge.

**Credit Hours:** 3

**Prerequisites:** Visual Basic knowledge; departmental consent

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**MANGMT 8510: Project Management**

An advanced introduction to methods and techniques for managing projects, with selective attention to human resource issues as required. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**MANGMT 8540: Entrepreneurial Ventures**

Analysis of management challenges facing entrepreneurial startups and alternative strategic responses to those challenges. Views issues from multiple functional perspectives to design cross-functional solutions to entrepreneurial problems.

**Credit Hours:** 3

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**MANGMT 8550: Launching a High-Growth Venture**

An experiential learning course using a business plan competition to simulate planning and securing capital for high-growth ventures. Participants with management, marketing or finance interests learn skills for preparing and presenting business plans to investors.

**Credit Hours:** 3

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**MANGMT 8560: Legal Strategies for Entrepreneurs**

The study of how legal decisions affect a business organization of various transitional states of development, from start up to going public. Designed for both MBA and Law students, who work together planning legal transitions of a business.

**Credit Hours:** 3

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**MANGMT 8900: Corporate Governance and Professional Accountability**

Corporate governance (CG) is the set of processes, customs, policies, laws, and institutions affecting how a company is directed, administered or controlled. CG includes the relationships among the many stakeholders involved and the goals by which the corporation is governed. In contemporary business corporations, the main external stakeholder groups are shareholders, debtholders, trade creditors, suppliers, customers and communities affected by the corporation's activities. Internal stakeholders are the board of directors, executives, and other employees. This course will illustrate some of these key relationships, including how they can go wrong and the trade-offs managers have to make to manage all of these relationships. This course can be seen as a course on the professional responsibilities of business

leaders. It is based on the assumption that business, like law and medicine, is a profession whose practitioners carry out essential functions in society. When individuals enter the profession, they undertake to fulfill a distinctive set of responsibilities that go with their chosen role. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 8970: Strategy and Global Competitiveness**

Investigates alternative goals of business enterprises relative to internal resources and external environment; development and implementation of policies and strategies to achieve objectives. Cases, computer simulations, and/or field research may supplement published materials.

**Credit Hour:** 1-3

**Prerequisites:** MANGMT 7970 for the 1.5 credit hour version of the course. Open to MBA Students only

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**MANGMT 9010: Research Methods in the Organization Sciences**

Identifying research questions, critiquing research ideas, planning, conducting, and communicating research using experimental, cross-sectional, survey and qualitative methods.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9020: Seminar in Micro Organizational Behavior**

Examination of theory and research on individuals within an organizational context, including individual perceptions, personality, attitudes, motivation, affect and behavior, and influences on outcomes such as job satisfaction and performance.

**Credit Hours:** 3

**Prerequisites:** PhD students and instructor's consent

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**MANGMT 9030: Seminar in Macro Organizational Behavior**

This course is designated to introduce students to content areas within the organizational behavior literature. Topics in "macro" organizational behavior will be covered, including groups and teams, organizational culture, and national culture. We will also cover a number of topics outside of traditional organizational behavior topics, including negotiation and social conflict, creativity, empowerment, and other topics as the instructor sees fit. Readings will consist of a combination of recent and classic journal articles on the topics.

**Credit Hours:** 3

**Prerequisites:** PhD Students and instructor's consent

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**MANGMT 9040: Seminar in Human Resource Management**

Intensive study of current research, issues and methodology of the applied science of human resource management. Topics include recruitment and selection, training, job performance and performance feedback, and career success.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9050: Seminar in Organization Theory**

Focuses on the organization as the subject of analysis with coverage of the effectiveness structure, environment, culture, and development of organizations.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9060: Seminar in Corporate Strategy**

The doctoral seminar in strategy focuses on the topics of strategy content research (what strategies are used by firms, and what is their effect on performance, corporate and competitive strategy, etc.) but also considering important related research streams of strategy process and implementation.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9080: Seminar in Entrepreneurship**

The doctoral seminar in Entrepreneurship is intended to provide students with a broad coverage of the literature. It focuses on the foundations and "cutting edge" research in entrepreneurship content research. Topics covered in the course include: a theoretical overview of entrepreneurship, identification of opportunities, the decision to exploit opportunities, resource assembly and new markets, founders and entrepreneurial teams, venture capital and venture capitalists, entrepreneurship and efficient governance, initial public offerings (IPOs), new ventures (strategy, growth, performance), entrepreneurial networks and alliances, and international entrepreneurship.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9087: Seminar in Management**

Intensive studies of current research and issues. Readings, independent investigations, reports.

**Credit Hour:** 1-99

**Prerequisites:** open to Ph.D. students, or instructor's consent

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**MANGMT 9090: Research in Management**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 9101: Topics Seminar in Management**

Reading and critical evaluation of selected current management literature and research. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## Marketing (MRKTNG)

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**MRKTNG 3000: Principles of Marketing**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 1014, ECONOM 1024, ECONOM 1051, or AG\_EC 1041

**Prerequisites:** 45 semester hours

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**MRKTNG 3000H: Principles of Marketing - Honors**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites:** 45 semester hours; ECONOM 1014, ECONOM 1024, ECONOM 1051, or AG\_EC 1041; Honors eligibility required

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**MRKTNG 3901: Special Topics in Marketing**

Study of a selected topic in Marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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**MRKTNG 3942: International Business Internship**

Internship in an international setting; Marketing Independent Study Coordinator must approve internship plan. Student and mentor reports required. See Marketing website for request form, internship requirements and details. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent; MRKTNG 3000

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**MRKTNG 3975: Current Issues in International Marketing**

Study of current issues and practices in international marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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**MRKTNG 3985: Problems in International Business**

Independent study associated with a course taken for credit as part of an organized study abroad program. See Marketing website for request form. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent; MRKTNG 3000

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**MRKTNG 4000: Marketing Management**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, and ACCTCY 2010 or ACCTCY 2026, or ACCTCY 2036 or ACCTCY 2136H. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4000H: Marketing Management - Honors**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000; ACCTCY 2010 or ACCTCY 2026 or ACCTCY 2036 or ACCTCY 2136H; Honors eligibility required

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**MRKTNG 4050: Marketing Research**

Procedures for defining marketing research problems; specifying information requirements; collecting, analyzing, interpreting, and presenting data for use in marketing decision making. Utilizes student projects and research-related computer assignments.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, STAT 3500. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4185: Problems in Marketing**

In-depth independent study of marketing topic(s). Student must have course plan (assignments, evaluation criteria, etc.) approved by faculty sponsor. Contact Marketing Department office for details and enrollment permission. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent, MRKTNG 3000

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**MRKTNG 4201: Topics in Marketing**

Selected marketing-related topics. Subjects may vary across semesters. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000

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**MRKTNG 4220: Consumer Behavior**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4220H: Consumer Behavior - Honors**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4250: Retail Marketing**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4250H: Retail Marketing - Honors**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4350: Business-to-Business Relationships**

Strategies, tactics, and challenges involved in developing, organizing, and managing interfirm relationships in business/ industrial markets. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and junior standing

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**MRKTNG 4380: Buying and Supply Chain Management**

Strategies, tactics, challenges, and issues involved in buying, industrial purchasing, and supply chain management. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and junior standing

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**MRKTNG 4410: Personal Selling**

Modern selling methods that focus on solving customer problems rather than using manipulative techniques. Principles underlying the sale process. Practical methods for building long-term customer relationships in business-to-business contexts are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4420: Sales Management**

Methods and tools employed by salespeople and field sales managers; emphasis on underlying behavioral and quantitative theory.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4440: Services Marketing**

Challenges, problems, and strategies specific to marketing in service industries. Topics include the unique characteristics of services and managing service-oriented businesses; service design and service recovery; service quality and customer satisfaction service pricing issues and demand management; and management of service customers and employees. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4450: Marketing Channels**

Development and management of the interorganizational or internal networks through which goods and services are provided to consumer and business markets. Particular emphasis on the relationship between

channel activities and the implementation of market strategy. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and junior standing

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**MRKTNG 4550: Integrated Marketing Communications**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4550H: Integrated Marketing Communications - Honors**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4650: e-Marketing**

Strategic and managerial challenges and issues related to use of the Internet and other electronic channels as marketing tools.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4720: Global Marketing**

Strategic and managerial issues associated with international trade and international marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some section may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4720H: Global Marketing - Honors**

Strategic and managerial issues associated with international trade and international marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and honors eligibility required

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**MRKTNG 4880: Contemporary Issues in Marketing**

Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis.

**Credit Hours:** 3



**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis on marketing

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**MRKTNG 4880H: Contemporary Issues in Marketing - Honors**

Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and honors eligibility required

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**MRKTNG 4940: Marketing Practicum**

Course providing experience within ongoing business. Study plan, meeting, and written assignments required. See Marketing website for application, qualifications, requirements and details. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Marketing and international business-marketing majors only; MRKTNG 3000 and junior standing

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**MRKTNG 7201: Topics in Marketing**

The study of selected topics in Marketing. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** MRKTNG 3000 or instructor's consent; departmental consent for repetition

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**MRKTNG 7460: Managerial Marketing**

Introduces concepts and theories for marketing decision making. Provides an overview of principles and tools to analyze and understand marketing situations in order to develop and execute appropriate marketing initiatives.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required

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**MRKTNG 7470: Advanced Marketing Management**

Develops knowledge and skills to manage marketing activities at the strategic and tactical levels. Course utilizes case studies, interactive class exercises, and advanced marketing readings. Students will learn to apply relevant concepts for effective marketing strategy development, marketing planning, and implementation of marketing mix decisions.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required; MRKTNG 7460

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**MRKTNG 8001: MBA Topics in Marketing**

Advanced study of selected marketing-related topics. Subjects vary across semesters.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8050: Marketing Strategy**

Builds on the foundations of Marketing 7460. This course focuses on how a firm can formulate a market-driven business strategy in a competitive

environment and the planning and implementation of marketing programs based on this strategy.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8060: Competitive Marketing Strategy**

Builds on the foundations of Marketing 7460 and 7470. Focuses on quantitative market intelligence-based design, execution, and adaptation of a market-drive business strategy to improve a firm's financial performance over time in a competitive environment. Uses a competitive, multi-period, marketing simulation game in which students are assigned to manage one of several firms competing in an industry. Prerequisites: MBA Program consent required: MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8060.

**Credit Hour:** 1-3

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**MRKTNG 8070: Marketing Business Models**

Builds on the foundations of Marketing 4760 and 7470. Focuses on the formulation and analysis of marketing strategy and contemporary business models for creating and capturing value in different industries such as consumer goods, services, retailing, media, sports, entertainment, and online businesses. Business revenue and profit models will be evaluated in conjunction with marketing performance.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8070

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**MRKTNG 8085: MBA Independent Study in Marketing**

Advanced independent study of marketing topics(s). Student must have a course plan (assignments, evaluation criteria, etc.) approved by a marketing faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental and MBA Program consent required; MRKTNG 7460, MRKTNG 7470

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**MRKTNG 8180: Applied Statistics in Marketing Analytics**

This course is designed to increase students' understanding of essential statistical methods, focusing primarily on interpretation and application in marketing contexts. During the course, students will apply statistical concepts and analyses in diverse marketing settings with a variety of data sets. By the end of the course, students will know when and how to apply fundamental statistical techniques in marketing situations, how to interpret the results of statistical analysis, and how to present results in a managerially useful manner. Graded on A-F basis only.

**Credit Hour:** 1.5

**Prerequisites:** Consent of Instructor Required

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**MRKTNG 8220: Customer Analysis**

Concepts and approaches for understanding customer needs and wants. Emphasis is on analyzing and predicting customer responses to marketing actions.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8280: Research for Marketing Decisions**

Methods for generating and using information related to marketing decisions. The course is aimed at the manager who designs, conducts, and/or uses the research. Emphasizes the design of research studies to inform managers' decisions and techniques for gathering and analyzing primary and secondary data.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8350: Business-to-Business Marketing**

Advanced study of the marketing of goods and services to business customers; customer relationship management, and functionally integrated approaches to solving business problems.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8420: Sales Force Management**

Basic tasks of sales management as well as the application of theories and concepts to effectively manage that function. Topics covered include salesperson effectiveness, deployment, motivation, organizational design, compensation and evaluation.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8480: Relationship Marketing**

Focuses on the development of relationship marketing strategies and programs. The course examines relevant business models, the concept of customer lifetime value and financial as well as behavioral aspects of managing customer relationships. Database marketing methods and interactive tools for profitably managing customer relationships are also discussed.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8520: Services Marketing**

Focuses on service marketing problems and strategies of goods and service organizations. Subjects covered include the nature of services, organizing for service delivery, managing demand, tailoring the customer mix and managing supply.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8580: Product Management**

Focus is on new product/service decisions and development processes. Discussion emphasized analytical approaches to new product portfolio decisions and the research needed as input to such decisions. Program strategy, opportunity creation, concept development, product testing, demand estimation, and results evaluation are stressed.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8620: Marketing Decision Models**

Quantitative tools and models used to analyze and solve marketing problems.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8650: Digital Marketing**

The use of the Internet and other electronic channels as marketing tools. Emphasis on integration of digital interactions and communication into the overall marketing strategy.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8680: Database Marketing**

A quantitatively-oriented, hands-on course regarding the use of customer data for making decisions about marketing campaigns and targeting of individual customers. Concepts and applications in this course emphasize statistical analysis of large datasets involving customer records. The analytical and statistical programming skills learned in the course should be useful in any data-oriented business environment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460, MRKTNG 7470, MANGMT 7400, MANGMT 7420, and MANGMT 7470

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**MRKTNG 8720: International Marketing**

Strategic and managerial issues associated with international trade and international marketing. The course focuses on managerial decision making in the differing and complex environments across foreign markets, alternative methods by which firms enter foreign markets and the development and implementation of international marketing strategies.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8750: Brand Management**

Focuses on the creation and execution of profitable brand strategies. Examines the practice of branding, the key components of brand equity, and how firms can build and sustain successful brands in competitive markets.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8760: Marketing Engineering**

A systematic, analytical approach to marketing decision-making. Students will be able to build their analytical skills through a combination of lectures, Excel-based software tools, and business case studies. Emphasis is on hands-on approaches for solving real-world marketing problems in domains such as segmentation, targeting, positioning,

and resource allocation. The course will help students understand the financial impact of marketing expenditures including ROI assessment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460, MRKTNG 7470 and MANGMT 7400

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#### **MRKTNG 8770: Marketing Databases and SQL**

A user/analyst perspective to relational databases used in marketing applications. Fundamentals of relational databases, including database concepts, table design, views, normalization, and security. Hands-on training in SQL (Structured Query Language) on database tables and views to retrieve, change, join, filter, sort, group, and summarize data. Data analysis with SQL and Excel combined. Presentation of SQL results sets. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required, MANGMT 7410

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#### **MRKTNG 8780: Advanced Marketing Analytics**

Analytical methods for solving marketing problems. Emphasis on use of multivariate statistical techniques (e.g. regression models, time series models, principal components analysis, cluster analysis, discriminant analysis, ANOVA, survival/duration models, etc.) to aid marketing tasks and decisions in areas such as customer classification, segmentation, profiling, and targeting; prospecting with archival data; customer response to marketing interventions; customer acquisition/retention tactics; customer relationship management (CRM); sales forecasting; media allocation decisions; market basket analysis; etc. Graded on an A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required, MRKTNG 8680

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#### **MRKTNG 8880: Markets in Transition**

Analysis of selected industries with emphasis on marketing activities and environments. Particular emphasis given to forecasting major trends or changes anticipated in markets over the next decade.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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#### **MRKTNG 9010: Introduction to Research Methods in Marketing**

Introduces students to the research process. Examines philosophy of science, constructs and measurement issues regarding validity, and hypothesis-testing. Provides an overview of experimental and survey research methods, with introduction to qualitative research, model-building, and research using secondary data.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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#### **MRKTNG 9020: Seminar in Advanced Research Methods in Marketing**

Familiarizes students with advanced research methods in marketing, emphasizing problem developmental and conceptualization, operationalization of research questions, measurement, and survey research.

**Credit Hour:** 1-3

**Prerequisites:** MRKTNG 9010 or equivalent; Ph.D. students only; instructor's consent

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#### **MRKTNG 9030: Seminar in Applied Multivariate Analysis in Marketing**

Familiarizes students with multivariate analysis of data used for research in marketing. Emphasizes application of multivariate methods, presentation of set, performing preliminary assessment of data quality and distribution, assessing measurement quality, and conducting a variety of multivariate and structural equation models, regression, logistic regression, discriminate analysis, cluster analysis, multi-way frequency analysis, and ANOVA.

**Credit Hour:** 1-3

**Prerequisites:** basic course in multivariate statistical methods; Ph.D. students only; instructor's consent

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#### **MRKTNG 9090: Research in Marketing**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Ph.D. students only

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#### **MRKTNG 9101: Current Topics Seminar in Marketing**

Reading and critical evaluation of selected current marketing literature and research. Graded on S/U basis only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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#### **MRKTNG 9185: Doctoral Independent Study in Marketing**

Independent study of a marketing topic or research project. Arranged in consultation with a graduate faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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#### **MRKTNG 9210: Seminar in Marketing Strategy**

Focuses on research topics that pertain to strategic marketing programs and decisions, such as marketing productivity, services marketing, product innovation management, and pricing, among others. Coverage is also given to defining the domain of research in marketing and to the development and use of related theories.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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#### **MRKTNG 9220: Seminar Marketing Models**

Familiarizes students with quantitative modeling approaches to address a variety of marketing problems. The focus is on the nature, relevance, and properties of mathematical models and analytical methods that are employed to address various types of marketing decisions. Students will gain an understanding of the process of model-building, testing and implementation.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D students only; instructor's consent

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#### **MRKTNG 9230: Seminar in Consumer Behavior**

Exposes doctoral students to perspectives on consumer behavior that draw from a variety of disciplines, including marketing, psychology,

decision theory, sociology, and cultural anthropology. Students also learn about the different methods researchers employ to study consumers. Covers both classic and contemporary literature. Students are encouraged to evaluate and synthesize existing literature in the pursuit of new research ideas.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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#### **MRKTNG 9600: Seminar in Marketing**

Readings, independent investigations and reports. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## **Mathematics (MATH)**

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#### **MATH \_0110: Intermediate Algebra**

MATH \_0110 is a preparatory course for college algebra that carries no credit towards any baccalaureate degree. However, the grade received in MATH \_0110 does count towards a student's overall GPA. The course covers operations with real numbers, graphs of functions, domain and range of functions, linear equations and inequalities, quadratic equations; operations with polynomials, rational expressions, exponents and radicals; equations of lines. Emphasis is also put on problem-solving.

**Credit Hours:** 3

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#### **MATH 1050: Quantitative Reasoning**

Promotes mathematical literacy among students. This course will cover important mathematical ideas and problem solving skills in the context of science, technology, and/or society. Topics may include: logic and critical thinking, Venn Diagrams, problem solving, sets, units of measure, percentages and ratios, counting and probability, exponential growth and decay, linear and exponential models. Quantitative Reasoning is designed to stimulate interest in and appreciation of mathematics and quantitative reasoning as valuable tools for comprehending the world in which we live. This course does not satisfy the prerequisite of any other math course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the ALEKS (or MMT) exam

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#### **MATH 1100: College Algebra**

A review of exponents, order of operations, factoring, and simplifying polynomial, rational, and radical expressions. Topics include: linear, quadratic, polynomial, rational, inverse, exponential, and logarithmic functions and their applications. Students will solve equations involving these functions, and systems of linear equations in two variables, as well as inequalities. See the Math website for specific requirements. A student may receive at most 5.0 credit hours among MATH 1100, MATH 1120, MATH 1140, MATH 1160.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the ALEKS exam or MyMathTest Intermediate Algebra score of 70% or higher

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#### **MATH 1140: Trigonometry**

A student may receive only 5 credits from among MATH 1100, MATH 1140, and MATH 1160. A Student may receive at most 5.0 credit hours from MATH 1100, MATH 1120, MATH 1140, and MATH 1160.

**Credit Hours:** 2

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS score or MyMathTest College Algebra score of 70% or higher

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#### **MATH 1160: Precalculus Mathematics**

Review of elementary algebra. Background material for MATH 1500, including algebraic, trigonometric, logarithmic, exponential functions. A student may receive at most 5 credits from among MATH 1100, MATH 1140, and MATH 1160.

**Credit Hours:** 5

**Prerequisites:** B+ or higher in MATH \_0110 (at MU), or C- or higher in MATH 1100, or sufficient ALEKS score or MyMathTest College Algebra score of 60% or higher

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#### **MATH 1300: Finite Mathematics**

A selections of topics in finite mathematics such as: basic financial mathematics, counting methods and basic probability and statistics, systems of linear equations and matrices. Warning: without a College Algebra exemption, a sufficient ALEKS score will not suffice unless it is a proctored exam (for MATH 1100 credit).

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1100, or MATH 1160, or both a College Algebra exemption and sufficient ALEKS score

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#### **MATH 1320: Elements of Calculus**

Introductory analytic geometry, derivatives, definite integrals. Primarily for Computer Science BA candidates, Economics majors, and students preparing to enter the College of BUS. No credit for students who have completed a calculus course. A student may receive credit for MATH 1320, or MATH 1400 but not both. A student may receive at most 5 credit hours among MATH 1320 or MATH 1400 or MATH 1500.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, or MATH 1160, or sufficient ALEKS score

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#### **MATH 1360: Geometric Concepts**

This course is primarily for education majors. This course covers topics of Euclidean geometry such as the study of points, lines, angles, polygons, circles, congruence, similarity, transformations, symmetry, area, surface area, arc length, and volume. Polyhedra, spheres, cones, and other solids are discussed. The course includes constructions and proofs, and uses inductive and deductive reasoning throughout. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS exam score or MATH 1160 or equivalent

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#### **MATH 1400: Calculus for Social and Life Sciences I**

The real number system, functions, analytic geometry, derivatives, integrals, maximum-minimum problems. No credit for students who have completed a calculus course. A student may receive credit for MATH 1320 or MATH 1400 but not both. A student may receive at most 5 units

of credit among the MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or higher in MATH 1100, or MATH 1160, or sufficient ALEKS score

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**MATH 1500: Analytic Geometry and Calculus I**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. A student may receive at most 5 units of credit among the Mathematics courses MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** grade of C- or higher in MATH 1160 or C- or higher in both MATH 1100 and MATH 1140 or sufficient ALEKS score or MyMathTest PreCalculus score of 70% or higher

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**MATH 1500H: Analytic Geometry and Calculus I - Honors**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Honors eligibility required. A student may receive at most 5 units of credit among MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** C- or higher in MATH 1160 or C- in both MATH 1100 and MATH 1140 and sufficient ALEKS score. Honors Eligibility required

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**MATH 1601: Selected Topics in Mathematics-General**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MATH 1602: Selected Topics in Mathematics-Biological/Physical/Math**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MATH 1700: Calculus II**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Proficiency Reasoning course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500

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**MATH 1700H: Calculus II - Honors**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500. Honors eligibility required

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**MATH 1800: Introduction to Analysis I**

This course will cover the material taught in a traditional first semester calculus course at a more rigorous level. The focus of this course will be on proofs of basic theorems of differential and integral calculus. The topics to be covered include axioms of arithmetic, mathematical induction, functions, graphs, limits, continuous functions, derivatives and their applications, integrals, the fundamental theorem of calculus and trigonometric functions. Students in this class will be expected to learn to write clear proofs of mathematical assertions. Some previous exposure to calculus is helpful but not required. No credit for MATH 1800 and MATH 1320, MATH 1400 or MATH 1500. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** ACT mathematics score of at least 31 and ACT composite of at least 30 or instructor's consent

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**MATH 1900: Introduction to Analysis II**

This course is a continuation of MATH 1800. In this course we shall cover uniform convergence and uniform continuity, integration, and sequences and series. The topics will be covered in a mathematically rigorous manner. No credit for MATH 1900 and MATH 1700 or MATH 2100. Graded on A/F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1800 or instructor's consent

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**MATH 2100: Calculus for Social and Life Sciences II**

Riemann integral, transcendental functions, techniques of integration, improper integrals and functions of several variables. No credit for students who have completed two calculus courses. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1320 or MATH 1400 or MATH 1500

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**MATH 2140: Geometric Axioms and Structures**

Euclidean Geometry, Axiom systems, spherical geometry, finite geometries, and explorations with technology.

**Credit Hours:** 3

**Prerequisites:** MATH 1340 or MATH 1360

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**MATH 2300: Calculus III**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1700

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**MATH 2300H: Calculus III - Honors**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in MATH 1700. Honors eligibility required

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**MATH 2320: Discrete Mathematical Structures**

Sets, functions, logic, relations, induction, recursion, counting techniques, graphs, trees, algorithms. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1700

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**MATH 2340: Algebraic Structures**

Introduction to axiomatic mathematics with emphasis on rings and groups. Applications to elementary number theory.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 and MATH 1320 or instructor's consent

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**MATH 3000: Introduction to Advanced Mathematics**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 3000W: Introduction to Advanced Mathematics - Writing Intensive**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 4001: Topics in Mathematics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Grade of C- of higher in MATH 2300

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**MATH 4002: Topics in Mathematics-Biological/Physical/Math**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 7060). Euclidean foundations, logic, Euler Characteristic, congruence, area, Pick's Theorem, volume, Cavalieri's Principle, surface area, similarity, symmetry, transformations, matrices, introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required

**Recommended:** MATH 1360 or MATH 1500

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**MATH 4070: Connecting Algebra to Middle and Secondary Schools**

A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1320, enrollment is restricted to Math Education majors

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**MATH 4080: Calculus Connections**

Course topics include: sequences, series, functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, areas of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids.

**Credit Hours:** 3

**Prerequisites:** MATH 1160, enrollment is restricted to Math Education majors

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**MATH 4100: Differential Equations**

Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or above in MATH 2300

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**MATH 4110: Advanced Calculus With Applications**

Linear mappings, Jacobi matrices and determinants, change of variables, vector fields, line and surface integrals, theorems of Green, Gauss and Stokes, sequences and series of functions, uniform convergence, special functions.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4120: Combinatorics**

Study of a variety of topics from combinatorial mathematics, especially graph theory and enumerative combinatorics. Topics include graph coloring, matchings and coverings, generating functions, recurrence relations, Polya's Enumeration Theorem, introduction to Ramsey theory.

**Credit Hours:** 3

**Prerequisites:** MATH 2320, or instructor's consent

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**MATH 4140: Matrix Theory**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320.

Writing intensive sections require ENGLISH 1000

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**MATH 4140W: Matrix Theory - Writing Intensive**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLISH 1000

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#### **MATH 4150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLISH 1000.

**Credit Hours:** 3

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#### **MATH 4150W: History of Mathematics - Writing Intensive**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLISH 1000.

**Credit Hours:** 3

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#### **MATH 4300: Numerical Analysis**

Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 and MATH 4100

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#### **MATH 4310: Numerical Linear Algebra**

Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and familiarity with software such as Mathematica, MatLab, Maple, etc

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#### **MATH 4315: Introduction to Mathematical Statistics**

(same as STAT 4710). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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#### **MATH 4320: Introduction to Probability Theory**

(same as STAT 4750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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#### **MATH 4325: Linear Programming**

Linear dependence and rank in vector spaces in  $R^n$ , Farkas' Lemma, Polyhedral Decomposition. Strong duality and complementary theorems. The simplex method, revised simplex, and sensitivity analysis. Primal

Dual simplex method and network simplex methods. Computational Complexity and Karmarkar's Algorithm.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 or instructor's consent

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#### **MATH 4330: Theory of Numbers**

Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300. Recommended MATH 2320

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#### **MATH 4335: College Geometry**

Euclidean geometry from an advanced viewpoint. Synthetic and coordinate methods will be used. The Euclidean group of transformations will be studied.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 4340: Projective Geometry**

Basic ideas and methods of projective geometry built around the concept of geometry as the study of invariants of a group. Extensive treatment of collineations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 4345: Foundations of Geometry**

Coordination of affine, projective planes by means of various kinds of algebraic structures: planar ternary rings, Veblen-Wedderburn systems, divisions rings, skew fields, and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 4350: Introduction to Non-Euclidean Geometry**

Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 4355: Introduction to Financial Derivatives and Options**

(cross-leveled with MATH 7355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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#### **MATH 4360: Actuarial Mathematics**

(cross-leveled with MATH 7360). Basic actuarial methods, mathematical population studies and models of population growth. Compound interest

and annuities certain. Values of endowment and annuities, calculation of premiums, surrender values. Stochastic models of populations growth.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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#### **MATH 4370: Actuarial Modeling I**

This course covers the concepts underlying the theory of interest and their applications to valuation of various cash flows, annuities certain, bonds, and loan repayment. This course is designed to help students prepare for Society of Actuaries exam FM (Financial Mathematics). It is oriented towards problem solving techniques applied to real-life situations and illustrated with previous exam problems.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MATH 2300

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#### **MATH 4371: Actuarial Modeling II**

(cross-leveled with MATH 7371). The goal of this course is to teach the basic theory of life contingent actuarial models and the application of those models to insurance and other financial risks. The topics covered are part of the readings for the Society of Actuaries exam MLC (Models for Life Contingencies) and are illustrated with past exam questions.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or STAT 4750, and MATH 4370

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#### **MATH 4400: Introduction to Topology**

Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 4500: Applied Analysis**

Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4100

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#### **MATH 4510: Higher Algebra**

Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 or MATH 2320

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#### **MATH 4520: Statistical Inference I**

(same as STAT 4760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** MATH 4320

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#### **MATH 4540: Mathematical Modeling I**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and MATH 4100

**Recommended:** Familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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#### **MATH 4560: Nonlinear Dynamics, Fractals and Chaos**

Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100, MATH 4140 or MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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#### **MATH 4570: Fluid Dynamics**

Mathematical theory of fluid dynamics and applications. Prerequisites: MATH 2300

**Credit Hours:** 3

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#### **MATH 4580: Mathematical Modeling II**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models. More general classes of problems than in Mathematics 4540 will be considered.

**Credit Hours:** 3

**Prerequisites:** 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent. MATH 4540 is not a prerequisite

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#### **MATH 4590: Mathematics of Financial Derivatives**

Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility. Recommended: MATH 4355

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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#### **MATH 4700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 7700). Basic topology of the real line, numerical sequences and series, continuity, differentiability, Riemann integration, uniform convergence, power series.

**Credit Hours:** 3

**Prerequisites:** Grade of C - or higher in MATH 3000

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#### **MATH 4720: Introduction to Abstract Algebra I**

Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 3000

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#### **MATH 4800: Advanced Calculus for One Real Variable II**

(cross-leveled with MATH 7800). Continuation of Advanced Calculus for functions of a single real variable. Topics include sequences and series of functions, power series and real analytic functions, Fourier series.



**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or permission of the instructor

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**MATH 4900: Advanced Multivariable Calculus**

(cross-leveled with MATH 7900). This is a course in calculus in several variables. The following is core material: Basic topology of  $n$ -dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700

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**MATH 4920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 7920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4720

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**MATH 4940: Introduction to Complex Variables**

Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110 or MATH 4700

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**MATH 4960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** Consent of Department required

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**MATH 4970: Senior Seminar in Mathematics**

Seminar with student presentations, written projects, and problem solving. May be used for the capstone requirement.

**Credit Hours:** 3

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**MATH 4980: Mathematics Problem Solving**

Creative advanced problem solving bringing together methods such as integration, probability and Euclidean geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 and another 4000 level Mathematics course, or instructor's consent

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**MATH 4996: Honors in Mathematics**

Special work for senior B.A. Honors and B.S. Honors candidates.

**Credit Hours:** 2

**Prerequisites:** Consent of Department required

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**MATH 7001: Topics in Mathematics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing and MATH 2300 and instructor's consent. Departmental consent for repetition

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**MATH 7060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 4060). Euclidian foundations, basic concepts of symbolic logic, polyhedra, Euler Characteristic, congruence, area, Picks Theorem, volume, Cavalier's Principles, surface area, similarity, reflections, translations, rotations, symmetry, vectors, general transformations, determinants, matrices, transformations using matrices, brief introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 1360 or MATH 1500, enrollment is restricted to Math Education majors

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**MATH 7070: Connecting Algebra to Middle and Secondary Schools**

A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures. Prerequisites: MATH 1320, enrollment is restricted to Math Education majors

**Credit Hours:** 3

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**MATH 7080: Connect Calculus to Middle and Secondary Schools**

Course topics include: sequences, series functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, area of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids,

**Credit Hours:** 3

**Prerequisites:** MATH 1160, enrollment is restricted to Math Education majors

---

**MATH 7100: Differential Equations**

Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7110: Advanced Calculus With Applications**

Linear mappings, Jacobi matrices and determinants, change of variables, vector fields, line and surface integrals, theorems of Green, Gauss and Stokes, sequences and series of functions, uniform convergence, special functions.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7140: Matrix Theory**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** graduate standing and one of MATH 2300, MATH 2320, MATH 2120 or MATH 2340

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**MATH 7150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Pre- or Co-requisite: MATH 2300 or MATH 2340 and graduate standing.

**Credit Hours:** 3

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**MATH 7300: Numerical Analysis**

Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300 and MATH 4100 or equivalent

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**MATH 7310: Numerical Linear Algebra**

Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and prior experience writing programs in Mathematica and /or in a computer language such as Fortran, Pascal, or C

**Recommended:** MATH 4140

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**MATH 7315: Introduction to Mathematical Statistics**

(same as STAT 7710). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300 or instructor's consent

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**MATH 7320: Introduction to Probability Theory**

(same as STAT 7750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 7330: Theory of Numbers**

Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** MATH 2300; recommended MATH 2320 or MATH 2340, and MATH 4940 or MATH 7940

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**MATH 7335: College Geometry**

Euclidean geometry from an advanced viewpoint. Synthetic and coordinate methods will be used. The Euclidean group of transformations will be studied.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7340: Projective Geometry**

Basic ideas and methods of projective geometry built around the concept of geometry as the study of invariants of a group. Extensive treatment of collineations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7345: Foundations of Geometry**

Coordination of affine, projective planes by means of various kinds of algebraic structures: planar ternary rings, Veblen-Wedderburn systems, divisions rings, skew fields, and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7350: Introduction to Non-Euclidean Geometry**

Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7355: Introduction to Financial Derivatives and Options**

(cross-leveled with MATH 4355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and STAT 2500 or STAT 4710/ MATH 4315, or instructor's consent

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**MATH 7360: Actuarial Mathematics**

(cross-leveled with MATH 4360). Basic actuarial methods, mathematical population studies and models of population growth. Compound interest and annuities certain. Values of endowment and annuities, calculation of premiums, surrender values. Stochastic models of populations growth.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710/ MATH 4315, or instructor's consent

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**MATH 7370: Actuarial Modeling I**

This course covers the main probability tools applied to financial risk modeling, and the financial mathematics concepts used in calculating present and accumulated values for various cash flows. It is a helpful tool in preparing for the Society of Actuaries exams P (Probability) and FM (Financial Mathematics), and it is oriented towards problem solving techniques illustrated with previous exam problems. Students are encouraged to take MATH 4355 prior to this course.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, MATH 4320/ STAT 4750

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**MATH 7371: Actuarial Modeling II**

(cross-leveled with MATH 4371). The goal of this course is to teach the basic theory of life contingent actuarial models and the application of those models to insurance and other financial risks. The topics covered are part of the readings for the Society of Actuaries exam MLC (Models for Life Contingencies) and are illustrated with past exam questions.

**Credit Hours:** 3**Prerequisites:** MATH 4320 or STAT 4750, and MATH 4370**MATH 7400: Introduction to Topology**

Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3**Prerequisites:** MATH 2300**MATH 7500: Applied Analysis**

Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3**Prerequisites:** MATH 4100/ MATH 7100**MATH 7510: Higher Algebra**

Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3**Prerequisites:** MATH 2300 OR MATH 2320**MATH 7520: Statistical Inference I**

(same as STAT 7760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3**Prerequisites:** MATH 4320/ MATH 7320**MATH 7540: Mathematical Modeling I**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3**Prerequisites:** graduate standing and 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent**MATH 7560: Nonlinear Dynamics, Chaos and Fractals**

Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3**Prerequisites:** graduate standing and MATH 4100/ MATH 7100, MATH 4140/ MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE**MATH 7570: Fluid Dynamics and Geophysical Applications**

Mathematical theory of fluid dynamics and applications to meteorology and oceanography.

**Credit Hours:** 3**Prerequisites:** MATH 2300 and instructor's consent**MATH 7580: Mathematical Modeling II**

Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models. More general classes of problems than in MATH 7540 will be considered.

**Credit Hours:** 3**Prerequisites:** 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent. MATH 7540 is not a prerequisite**MATH 7590: Mathematics of Financial Derivatives**

Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound, gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility.

**Credit Hours:** 3**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315**Recommended:** MATH 4355**MATH 7620: Differential Geometry I**

Metric properties of restricted portions of curves and surfaces in three-dimensional Euclidean space.

**Credit Hours:** 3**Prerequisites:** MATH 2300**MATH 7700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 4700). Series of real numbers, limits of functions, continuity and uniform continuity, differentiability, and Riemann integration.

**Credit Hours:** 3**Prerequisites:** MATH 2300**Recommended:** MATH 4140 and one other mathematics course number above MATH 2300**MATH 7720: Introduction to Abstract Algebra I**

Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3**Prerequisites:** MATH 2300**Recommended:** MATH 4140 and one other Mathematics course numbered above 2300**MATH 7800: Advanced Calculus of One Real Variable II**

(cross-leveled with MATH 4800). Continuation of Advanced Calculus for functions of a single real variable. Topics include sequences and series of functions, power series and real analytic functions, Fourier series.

**Credit Hours:** 3**Prerequisites:** MATH 4700 or MATH 7700 or permission of the instructor

**MATH 7900: Advanced Multivariable Calculus**

(cross-leveled with MATH 4900). This is a course in calculus in several variables. The following is core material: Basic topology of  $n$ -dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3**Prerequisites:** MATH 4700/ MATH 7700**MATH 7920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 4920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3**Prerequisites:** MATH 2300**MATH 7940: Introduction to Complex Variables**

Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3**Prerequisites:** MATH 4110/ MATH 7110 OR MATH 4700/ MATH 7700**MATH 7960: Special Readings in Mathematics****Credit Hour:** 1-3**Prerequisites:** MATH 2300 and instructor's consent**MATH 7970: Senior Seminar in Mathematics**

Seminar with student presentations, written projects, and problem solving. May be used for the capstone requirement.

**Credit Hours:** 3**Prerequisites:** 12 hours of mathematics courses numbered 4000 or above**MATH 7980: Mathematics Problem Solving**

Creative advanced problem solving bringing together methods such as integration, probability and Euclidean geometry.

**Credit Hours:** 3**Prerequisites:** MATH 4140 and another 4000 level Mathematics course, or instructor's consent**MATH 8085: Problems in Mathematics**

Problems in Mathematics

**Credit Hours:** 3**MATH 8090: Master's Thesis Research in Mathematics**

Students will be required to complete an independent project. Topics are chosen in consultation with a faculty advisor and are subject to departmental consent. Graded on S/U basis only.

**Credit Hours:** 3**MATH 8102: Topics in Algebra**

Advanced topics in algebra.

**Credit Hours:** 3**Prerequisites:** MATH 8410**MATH 8190: Masters Project in Mathematics**

Masters Project in Mathematics

**Credit Hours:** 3**MATH 8202: Topics in Functional Analysis**

Topics in Functional Analysis

**Credit Hours:** 3**MATH 8210: Basic Algebra**

Accelerated problem solving course in linear and abstract algebra. Will prepare students for the algebra qualifying exam.

**Credit Hours:** 3**Prerequisites:** MATH 4720, MATH 4920, or instructor's consent, or equivalent**Corequisites:** MATH 8220 and MATH 8250**MATH 8220: Basic Analysis**

Accelerated problem-solving course in advanced calculus and complex analysis. Will prepare students for the analysis qualifying exam.

**Credit Hours:** 6**Prerequisites:** MATH 4700, MATH 4900, MATH 4940, instructor's consent or equivalent**MATH 8250: Basic Topology and Geometry**

Topological spaces, differential manifolds, differential forms, integration of vector fields.

**Credit Hours:** 3**Prerequisites:** MATH 4700, MATH 4900, MATH 4140, or instructor's consent, or equivalent**Corequisites:** MATH 8210 and MATH 8220**MATH 8302: Topics in Harmonic Analysis**

Topics in Harmonic Analysis

**Credit Hours:** 3**MATH 8402: Topics in Mathematical Physics**

Topics in Mathematical Physics

**Credit Hours:** 3**MATH 8410: Algebra I**

Theory of algebraic structures--groups, rings, fields, algebraic and transcendental extensions of fields.

**Credit Hours:** 3**Prerequisites:** MATH 4720 and MATH 4920, or equivalent**MATH 8411: Algebra II**

Theory of modules, Galois theory and additional topics to be selected by the instructor.

**Credit Hours:** 3

**Prerequisites:** MATH 8410 or equivalent

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**MATH 8420: Theory of Functions of Real Variables I**

Properties of functions of one real variable. Lebesgue measure and integration on the line.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 and MATH 4900 or MATH 7900, or equivalent

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**MATH 8421: Theory of Functions of Real Variables II**

Continuation of MATH 8420. General measure and integration theory. Elements of the theory of Hilbert and Banach spaces, linear functions and linear operators.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8425: Complex Analysis I**

Rigorous introduction to the theory of functions of a complex variable.

**Credit Hours:** 3

**Prerequisites:** MATH 4940 or MATH 7940 or equivalent

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**MATH 8426: Complex Analysis II**

Analytic continuation, Riemann surfaces, entire and meromorphic functions, selected topics.

**Credit Hours:** 3

**Prerequisites:** MATH 8425

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**MATH 8440: Advanced Ordinary Differential Equations I**

Topics from existence and uniqueness theorems, plane autonomous systems, periodicity and boundedness of solutions of second order nonlinear equations, perturbation theory, Sturm-Liouville systems, behavior of solutions at singularities.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or equivalent

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**MATH 8441: Advanced Ordinary Differential Equations II**

Continuation of MATH 8440.

**Credit Hours:** 3

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**MATH 8442: Calculus of Variations I**

Development of necessary conditions and of sufficient conditions for nonparametric and parametric problems. Hamilton's principle, related topics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MATH 8445: Partial Differential Equations I**

Fourier and integral transforms, first and second order partial differential equations, methods of characteristics, Laplace's equation, Dirichlet and Neumann problems, Green's functions and maximum principles.

**Credit Hours:** 3

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**Prerequisites:** MATH 4700 or MATH 7700 or instructor's consent required

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**MATH 8446: Partial Differential Equations II**

The Cauchy-Kovalevski theorem, the Lewy example, the heat operator, the wave operator, Sobolev spaces, local regularity of elliptic boundary value problems.

**Credit Hours:** 3

**Prerequisites:** MATH 8445

**Recommended:** MATH 8420

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**MATH 8450: Differential Geometry for Scientists and Engineers**

Tensors and multilinear forms. Connections, covariant differentiation, geodesics and curvature on Riemannian and pseudo Riemannian manifolds. Applications to special relativity and general relativity.

**Credit Hours:** 3

**Prerequisites:** MATH 4110 and some knowledge of Matrix Theory

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**MATH 8460: Mathematical Finance I**

(same as FINANC 8340). Financial instruments and derivative: stocks, bonds, futures option prices on interest rates, swaps, etc. Mathematical models of stock price fluctuations. Interest rates and options on interest rates. Swaps. Open markets and properties of stock option prices. Stochastic models. Binomial trees. Continuous time stochastic modeling. No arbitrage modeling. European and American options. BlackScholes model and differential equation, for the price of European option. Exotic options. Interest rate models.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Mathematics. Knowledge of elementary probability or instructor's consent

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**MATH 8461: Mathematical Finance II**

Diffusion Processes as models for stock price fluctuations. Contingent claims and arbitrage. Mathematical analysis of risk neutral valuation of contingent claims. Self-financing portfolios and hedging. Hedging contingent claims. Partial differential equations for valuation of derivative securities. Completeness of the markets and hedging. Parity relations and delta hedging. Several underlying assets.

**Credit Hours:** 3

**Prerequisites:** knowledge of advance probability/stochastic processes or instructor's consent

**Recommended:** MATH 8460

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**MATH 8465: Mathematical Methods of Risk Theory**

Probability aspects of Risk. Claim number processes. Accumulated claim number processes. Retentions and Reserves. Mathematics of reinsurance. Ruin probability calculations. Stability and dividends policy. Utility as criterion of stability. The problem of risk exchange.

**Credit Hours:** 3

**Prerequisites:** knowledge of elementary probability or instructor's consent

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**MATH 8470: Advanced Numerical Analysis**

Analysis and implementation of numerical algorithms selected from approximation theory, splines, quadrature, nonlinear systems, ordinary differential equations, and optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 4700, MATH 4300 or equivalent, and MATH 4140

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**MATH 8480: Advanced Probability**

(same as STAT 9810). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or MATH 8220; or instructor's consent

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**MATH 8502: Topics of Geometry**

Topics of Geometry.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MATH 8587: Topology Seminar**

Topology Seminar

**Credit Hours:** 3

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**MATH 8602: Topics in Financial Mathematics and Insurance**

Topics in Financial Mathematics and Insurance

**Credit Hours:** 3

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**MATH 8615: Algebraic Geometry I**

Affine and projective varieties and schemes; nullstellensatz; Zariski topology, morphisms and rational maps; divisors and linear systems; topics from curves, surfaces, Grassmann varieties; commutative algebra and homological algebra as needed.

**Credit Hours:** 3

**Prerequisites:** MATH 8410

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**MATH 8616: Algebraic Geometry II**

Continuation of MATH 8615.

**Credit Hours:** 3

**Prerequisites:** MATH 8615

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**MATH 8618: Introduction to Algebraic Topology**

Development of singular homology theory; reference to other homology and cohomology theories. Introduction to homological algebra.

**Credit Hours:** 3

**Prerequisites:** MATH 8250

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**MATH 8628: Functional Analysis I**

Linear topological spaces, Banach spaces, Hilbert spaces. Operator theory, including the Hahn-Banach, uniform boundedness and closed graph theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 4900 and instructor's consent or MATH 8420

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**MATH 8629: Functional Analysis II**

Topological vector spaces, duality theory, Banach algebras.

**Credit Hours:** 3

**Prerequisites:** MATH 8628

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**MATH 8630: Harmonic Analysis I**

An introduction to Fourier Analysis in one and higher Dimensions. Topics include Fourier Series, conjugate functions, Fourier transforms, distributions, interpolation, and maximal functions.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8631: Harmonic Analysis II**

Singular integrals, Littlewood-Paley theory, Hardy spaces, bounded mean oscillation, weighted norm inequalities, boundary value problems, and analysis on groups.

**Credit Hours:** 3

**Prerequisites:** MATH 8630

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**MATH 8642: Nonlinear Differential Equations**

Existence theorems; criteria for periodic solutions; boundedness of solutions; perturbation theory. Emphasizes second order equations.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 and MATH 4110 or MATH 4700

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**MATH 8648: Advanced Mathematics for the Physical Sciences**

Study of selected topics in quantum and statistical mechanics. Schrodinger operators and their self-adjointness. Semi-classical methods and their application to estimation of eigenvalues. Partition functions in many body problems and methods of estimation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** MATH 4110, MATH 4700, PHYSCS 8660

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**MATH 8650: Differentiable Manifolds and Riemannian Geometry**

Tensor product spaces and tensor fields on manifolds. Differentiation and integration of differential forms. Riemannian geometry and applications.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 4400

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**MATH 8655: General Topology I**

Introduction to axiomatic theory of general topology. Continuous functions and homeomorphisms. Convergence in abstract topological spaces. Compact and locally compact spaces. Connectedness. Metrizable spaces.

**Credit Hours:** 3

**Prerequisites:** MATH 4900, MATH 4400 or instructor's consent

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**MATH 8680: Stochastic Processes**

(same as STAT 9820). Markov processes, martingales, orthogonal sequences, processes with independent and orthogonal increments, stationary, linear prediction.

**Credit Hours:** 3

**Prerequisites:** MATH 8480

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**MATH 8702: Topics in Applied Mathematics**

Selected topics in applied mathematics drawn from variety of areas: partial differential equations, tensor analysis, calculus of variations, asymptotic methods, integral equations, advanced theory of transforms and distributions, numerical analysis.

**Credit Hours:** 3**MATH 8787: Numerical Mathematics Seminar**

Numerical Mathematics Seminar

**Credit Hours:** 3**MATH 9090: Doctoral Dissertation Research in Mathematics**

Doctoral Dissertation Research in Mathematics. Graded on a S/U basis only.

**Credit Hour:** 1-9**MATH 9187: Algebra Seminar**

Algebra Seminar

**Credit Hours:** 3**MATH 9287: Functional Analysis Seminar**

Functional Analysis Seminar

**Credit Hours:** 3**MATH 9387: Harmonic Analysis Seminar**

Harmonic Analysis Seminar

**Credit Hours:** 3**MATH 9487: Mathematical Physics Seminar**

Mathematical Physics Seminar

**Credit Hours:** 3**MATH 9502: Topics in Topology**

Advanced topics in topology or topological algebra.

**Credit Hours:** 3**MATH 9587: Geometry Seminar**

Geometry Seminar

**Credit Hours:** 3**MATH 9687: Financial Mathematics Seminar**

Financial Mathematics Seminar

**Credit Hours:** 3**MATH 9702: Topics in Numerical Mathematics**

Topics in Numerical Mathematics.

**Credit Hours:** 3**Prerequisites:** instructor's consent**MATH 9787: Applied Mathematics Seminar**

Applied Mathematics Seminar

**Credit Hours:** 3**MATH 9887: Analysis Seminar**

Analysis Seminar

**Credit Hours:** 3

## Mechanical And Aerospace Engineering (MAE)

**MAE 1000: Introduction to Mechanical Engineering**

Introduction to the mechanical engineering profession, the Mechanical and Aerospace Engineering Department and curriculum, and the core disciplines of mechanical engineering. Introduction to engineering problem solving, ethics, and design.

**Credit Hour:** 1**Prerequisites:** Restricted to engineering students only**MAE 1001: Experimental Course**

Experimental course. For freshmen-level students. Content and credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99**MAE 2001: Experimental Course**

Experimental course. For sophomore-level students. Content and credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99**MAE 2100: Programming and Software Tools**

Introduction to the use of computers, programming, and software. Topics include MATLAB syntax and programming techniques, algorithm design, and programming with Excel spreadsheets.

**Credit Hours:** 2**Prerequisites:** grade of C- or better in MATH 1700. Restricted to Mechanical Aerospace Engineering students only**MAE 2300: Thermodynamics**

(same as ENGINR 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3**Prerequisites:** grade of C- or better in PHYSICS 2750**MAE 2600: Dynamics**

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3**Prerequisites:** grade of C- or better in ENGINR 1200. Restricted to Mechanical and Aerospace Engineering students only**MAE 3100: Computational Methods for Engineering Design**

Introduction to numerical methods for linear system analysis, curve-fitting, integration and differentiation, and optimization. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 4

**Prerequisites or Corequisites:** MATH 4100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2100; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3200: Engineering Materials**

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in ENGINR 2200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3200W: Engineering Materials - Writing Intensive**

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in ENGINR 2200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3400: Fluid Mechanics**

A basic course in fluid mechanics. Topics include: fluid properties, hydrostatics, conservation laws, infinitesimal and finite control volume analysis, Navier-Stokes equations, dimensional analysis, internal and external flows.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 2300 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3600: Dynamic Systems and Control**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3600H: Dynamic Systems and Control - Honors**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only. Honors eligibility required

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**MAE 3800: Instrumentation and Measurements Laboratory**

Design and reporting of experimental investigations. Topics include instrument design equations, sources of error, and calibration. Survey of instruments to measure: voltage, resistance, current, time, frequency, displacement, velocity, acceleration, strain, force, and torque.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 3600 grade of C- or better

**Prerequisites:** grade of C- or better in ENGINR 2100 and ENGINR 2200 and Physics 2760; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3900: Mechanism Design**

Analysis of kinematics and dynamics of machinery. Topics include design and selection of various mechanisms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100.

Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering. Enrollment limited to Mechanical and Aerospace Engineering students only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MAE 4085: Problems in Mechanical and Aerospace Engineering**

Special design, experimental and analytical problems in mechanical and aerospace engineering.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

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**MAE 4210: Aerospace Structures**

(cross-leveled with MAE 7210). Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200

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**MAE 4220: Materials Selection**

(cross-leveled with MAE 7220). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4230: Nanomaterials**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200 or equivalent



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**MAE 4230W: Nanomaterials - Writing Intensive**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200 or equivalent

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**MAE 4231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**MAE 4232: Ceramic Materials and Processing**

(cross-leveled with MAE 7232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200

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**MAE 4240: Diffraction Methods in Materials Science**

(cross-leveled with MAE 7240). Introduction to crystal structure and the use of x-rays and neutrons to study materials aspects including phase analysis, structure determination, residual stress and texture.

**Credit Hours:** 3

**Prerequisites:** Senior standing in Mechanical and Aerospace Engineering

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**MAE 4250: Composite Materials**

(cross-leveled with MAE 7250). A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4260: Experimental Stress Analysis**

(cross-leveled with MAE 7260). The course introduces basic concepts of stress and strain using elasticity theory. Single point and full-field experimental methods for stress and strain measurement, such as strain gages and photoelasticity, are discussed. Application of experimental methods in transducer development and design of structures will be covered.

**Credit Hours:** 3

**Prerequisites:** senior standing in MAE

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**MAE 4270: Nondestructive Evaluation of Materials**

(cross-leveled with MAE 7270). The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail.

Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3200, Mechanical and Aerospace Engineering students only

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**MAE 4280: Introduction to Finite Element Methods**

(cross-leveled with MAE 7280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3100, MAE students only

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**MAE 4290: Welding Engineering**

(cross-leveled with MAE 7290). Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure to welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing in Mechanical and Aerospace Engineering

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**MAE 4300: Heat Transfer**

Fundamentals of conduction, convection and radiation. Use of nondimensional parameters. Theory and design of simple heat exchangers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2300 and MAE 3400. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4310: Intermediate Heat Transfer**

(cross-leveled with MAE 7310). Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and Mechanical Engineering students only

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**MAE 4320: Design of Thermal Systems**

(cross-leveled with MAE 7320). Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300

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**MAE 4320W: Design of Thermal Systems - Writing Intensive**

Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Recommended:** MAE 4300

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**MAE 4325: Nanoscale Energy Transport**

(cross-leveled with MAE 7325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing in MAE

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**MAE 4340: Heating and Air Conditioning**

(cross-leveled with MAE 7340). General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and MAE students only

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**MAE 4350: Industrial Energy Analysis**

(cross-leveled with MAE 7355). Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

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**MAE 4380: Intermediate Thermodynamics**

(cross-leveled with MAE 7380). Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2300

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**MAE 4390: Aerospace Propulsion**

(cross-leveled with MAE 7390). Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4420: Intermediate Fluid Mechanics**

(cross-leveled with MAE 7420). Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4430: Introduction to Computational Fluid Dynamics and Heat Transfer**

(cross-leveled with MAE 7430). Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4440: Aerodynamics**

(cross-leveled with MAE 7440). Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4450: Gas Dynamics**

(cross-leveled with MAE 7450). One dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** C- or better MAE 3400

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**MAE 4460: Microfluidics**

(cross-leveled with MAE 7460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MAE 3400

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**MAE 4500: Manufacturing Methods**

Introduction to manufacturing processes with emphasis on those aspects most relevant to methods, problems in force analysis, and practicum and experimentation in machine tool applications.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 1110 and MAE 3200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4550: Integrated Production Systems**

(same as IMSE 4550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 3

**Prerequisites:** Junior Standing

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**MAE 4600: Advanced Mechanics of Materials**

(same as CV\_ENG 4600; cross-leveled with MAE 7600 and CV\_ENG 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Recommended:** ENGINR 2200

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**MAE 4620: Aircraft Flight Performance**

(cross-leveled with MAE 7620). Analysis of aircraft flight and aircraft performance metrics. Topics include airplane aerodynamics and propulsion, steady flight, range, endurance, take-off and landing, and aircraft maneuvers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, MAE 3400, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4630: Space Flight Mechanics**

(cross-leveled with MAE 7630). Analysis of spacecraft orbits and trajectories. Topics include orbital mechanics, orbital maneuvers, interplanetary missions, and entry flight mechanics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4650: Synthesis of Linkages**

(cross-leveled with MAE 7650). Type, number and dimensional synthesis of linkages to produce a given input-output motion and/or force.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3100, MAE 3900, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4660: Vibration Analysis**

(same as CV\_ENG 4660). Vibration theory and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems.

**Credit Hours:** 3

**Recommended:** MAE 2600 and MATH 4100

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**MAE 4670: Vehicle Dynamics**

(cross-leveled with MAE 7670). Analysis and prediction of the dynamic behavior of ground vehicles utilizing computer simulation. Mechanics of various suspension systems, tire-roadway interaction, vehicle aerodynamics, vehicle handling and steering characteristics. Special topics including nonholonomic constraint formulation and stability of motion.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4680: Introduction to MEMS**

(cross-leveled with MAE 7680). The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific process will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4710: Hydraulic Control System**

(cross-leveled with MAE 7710). Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400, MAE 3600, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4720: Modern Control**

(cross-leveled with MAE 7720). Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4730: Mechatronics**

(cross-leveled with MAE 7730). Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4740: Digital Control**

(cross-leveled with MAE 7740). Design and analysis of control systems using discrete-time methods. Topics include z-transforms, sampling and reconstruction, stability analysis, and digital controller design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4750: Classical Control**

(same as BIOL\_EN 4310, ECE 4310; cross-leveled with MAE 7750, BIOL\_EN 7310, ECE 7310). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100

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**MAE 4800: Applied Thermal/Fluids Laboratory**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in MAE 4300. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4800W: Applied Thermal/Fluids Laboratory - Writing Intensive**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts.

**Credit Hours:** 4

**Prerequisites:** Grade of C- or better in MAE 4300. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4820: Experimental Methods in Fluid Flow and Heat Transfer**  
(cross-leveled with MAE 7820). Laboratory experiments involving fundamental mechanisms and phenomena associated with fluid flow and heat transfer. Current experimental methods and techniques employed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4800

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**MAE 4900: Machine Element Design**

Application of stress and fatigue analyses to the design of machine elements such as fasteners, springs, shafts, and gears. Topics include selection of appropriate materials and machine elements.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 3200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4930: Applied Mechanical Optimization**

(cross-leveled with MAE 7930). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3100, Mechanical and Aerospace Engineering students only

---

**MAE 4940: Aircraft Design**

(cross-leveled with MAE 7940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization and trade studies. Fundamental theories for aircraft design including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGR 2200, MAE 3400, MAE 3600, and Junior standing in MAE

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**MAE 4980: Senior Capstone Design**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or greater in MAE 3600, MAE 3900, MAE 4500, MAE 4900 and STAT 4710 or IMSE 2110; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4980W: Senior Capstone Design - Writing Intensive**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or greater in MAE 3600, MAE 3900, MAE 4500, MAE 4900 and STAT 4710 or IMSE 2110; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4990: Undergraduate Research in Mechanical and Aerospace Engineering**

Independent investigation or project in Mechanical Engineering. Enrollment limited to senior Mechanical and Aerospace Engineering students only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**MAE 4995: Undergraduate Honors Research Mechanical & Aerospace Engineering**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 4995W: Undergraduate Honors Research Mechanical & Aerospace Engineering - Writing Intensive**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 7001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MAE 7210: Aerospace Structures**

Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in ENGINR 2200

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**MAE 7220: Materials Selection**

Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 7230: Nanomaterials**

The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or equivalent

---

**MAE 7231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 7231) Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing

with applications to metals, polymers, and ceramics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200, MAE 3400, MAE 4300 (or equivalent courses) and MATH 4100

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**MAE 7232: Ceramic Materials and Processing**

(cross-leveled with MAE 4232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or equivalent course

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**MAE 7240: Diffraction Methods in Materials Science**

Introduction to crystal structure and the use of x-rays and neutrons to study materials aspects including phase analysis, structure determination, residual stress and texture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MAE 7250: Composite Materials**

A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 7260: Experimental Stress Analysis**

(cross-leveled with MAE 7260).. The course introduces basic concepts of stress and strain using elasticity theory. Single point and full-field experimental methods for stress and strain measurement, such as strain gages and photoelasticity, are discussed. Application of experimental methods in transducer development and design of structures will be covered.

**Credit Hours:** 3

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**MAE 7270: Nondestructive Evaluation of Materials**

The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 7280: Introduction to Finite Element Methods**

(cross-leveled with MAE 4280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses. Prerequisites: ENGINR 2200, MAE 3100, MAE students only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Mechanical and Aerospace Engineering students only

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**MAE 7290: Welding Engineering**

Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure to welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate level

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**MAE 7310: Intermediate Heat Transfer**

Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7320: Design of Thermal Systems**

Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7325: Nanoscale Energy Transport**

(cross-leveled with MAE 4325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7330: Solar Energy Utilization**

Thermal aspects of solar radiation applied to human and industrial needs. Solar energy availability: hourly, daily, and seasonally. Space and water heating. Thermal storage. Passive and active solar design of buildings and homes.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7340: Heating and Air Conditioning**

General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7350: Power Plant System Design**

Preliminary component and system design. Optimum design of boilers, steam turbines, condensers and cooling towers and their integration into a system to minimize production costs and impact on the environment.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7355: Industrial Energy Analysis**

Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MAE 4300 or instructor's consent

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**MAE 7356: Renewable Energy**

Basic principles and technical details of various renewable energy technologies (solar, biomass, wind, hydroelectric, geothermal) for a sustainable energy supply. Process design, energy analysis, and environmental assessment of renewable energy systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent and Bachelor's in Engineering

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**MAE 7360: Internal Combustion Engines**

Gas and oil engines. Thermodynamics of ideal and actual cycles, fuels and combustion, carburetor and injection systems, performance, construction.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7370: Combustion Fundamentals**

Introduction to combustion principles.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7380: Intermediate Thermodynamics**

Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**MAE 7390: Aerospace Propulsion**

Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7420: Intermediate Fluid Mechanics**

Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7430: Introduction to Computational Fluid Dynamics and Heat Transfer**

Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 4300 and MAE 4420

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**MAE 7440: Aerodynamics**

Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 3400

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**MAE 7450: Gas Dynamics**

One-dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7460: Microfluidics**

(cross-leveled with MAE 4460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7600: Advanced Mechanics of Materials**

(same as CV\_ENG 7600; cross-leveled with MAE 4600 and CV\_ENG 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**MAE 7610: Experimental Stress Analysis**

(same as CV\_ENG 7610). Photo elastic, electric strain gage, brittle lacquer methods of experimental stress analysis for static loads. Strain gage work includes strain rosettes.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**MAE 7620: Aircraft Flight Performance**

(cross-leveled with MAE 4620). Analysis of aircraft flight dynamics and aircraft performance. Topics include airplane aerodynamics and propulsion, steady flight, flight performance, aircraft maneuvers, aircraft stability, and an introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7630: Space Flight Mechanics**

(cross-leveled with MAE 4630). Analysis of spacecraft motion. Topics include orbital dynamics, spacecraft attitude dynamics, satellite trajectory design, and spacecraft control system design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7640: Analysis of Mechanisms**

Kinematics and dynamic (bearing force, shaking force, and time response) design analysis of mechanisms: graphical, analytical and computer assisted techniques.

**Credit Hours:** 3

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**Prerequisites:** MAE 3100 and MAE 2600

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**MAE 7650: Synthesis of Linkages**

Type, number and dimensional synthesis of linkages to produce a given input-output motion and/or force.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 2600

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**MAE 7660: Vibration Analysis**

(same as CV\_ENG 7660). Vibration theory and its application to Mechanical systems. Topics include free and forced vibration analysis of single and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MAE 2600 and MATH 4100

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**MAE 7670: Vehicle Dynamics**

Analysis and prediction of the dynamic behavior of ground vehicles utilizing computer simulation. Mechanics of various suspension systems, tire-roadway interaction, vehicle aerodynamics, vehicle handling and steering characteristics. Special topics including nonholonomic constraint formulation and stability of motion.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7680: Introduction to MEMS**

The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific processes will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7710: Hydraulic Control Systems**

Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems.

**Credit Hour:** 1-3

**Prerequisites:** MAE 3400 and MAE 3600

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**MAE 7720: Modern Control**

Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7730: Mechatronics**

Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

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**Prerequisites:** MAE 3600

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**MAE 7740: Digital Control**

Design and analysis of control systems using discrete-time methods. Topics include Z-transformation, sampling and reconstruction, stability analysis, and digital controller design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7750: Classical Control**

(same as ECE 7310, BIOL\_EN 7310; cross-leveled with MAE 4750, ECE 4310, BIOL\_EN 4310). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

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**MAE 7820: Experimental Methods in Fluid Flow and Heat Transfer**

(cross-leveled with MAE 4820). Laboratory experiments involving fundamental mechanisms and phenomena associated with fluid flow and heat transfer. Current experimental methods and techniques employed.

**Credit Hours:** 3

**Prerequisites:** MAE 4800

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**MAE 7930: Applied Mechanical Optimization**

Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** MAE 3100

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**MAE 7940: Aircraft Design**

(cross-leveled with MAE 4940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization, and trade studies. Fundamental theories for aircraft design, including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout, payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 3600, MAE 3600

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**MAE 8001: Advanced Topics in Mechanical and Aerospace Engineering**

Advanced Topics in Mechanical and Aerospace Engineering.

**Credit Hours:** 3

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**MAE 8085: Problems in Mechanical and Aerospace Engineering**

Supervised investigation in mechanical and aerospace engineering to be presented in the form of a report.

**Credit Hour:** 1-99

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**MAE 8087: Graduate Seminar in Mechanical and Aerospace Engineering**

Reviews recent investigations, projects of major importance in mechanical and aerospace engineering. Graded on S/U basis only.

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**Credit Hour:** 1

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**MAE 8210: Physical Metallurgy**

Treatment of fundamentals of physical metallurgy, including metallurgical thermodynamics, macroscopic and atomic diffusion, interfaces, nucleation, solidification theory, and solid state transformations.

**Credit Hours:** 3

**Prerequisites:** MAE 3200

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**MAE 8220: Fracture Mechanics**

Mechanics of flawed structure. Concepts include Griffith theory, Barenblatt's theory, Irwin analysis, energy analysis of cracked bodies, fracture toughness testing, plane strain, plane stress, transition temperature concepts, subcritical flaw growth.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or instructor's consent

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**MAE 8230: Advanced Ceramic Materials**

(same as CH\_ENG 8230 and BIOL\_EN 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8240: Mechanical Behavior of Materials**

This course will cover the mechanical behavior of metallic, ceramic, polymeric, and composite materials and their relationships to the underlying microstructures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 and graduate standing in engineering, or instructor's consent

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**MAE 8270: Aeroelasticity**

Deformations of aerospace structures under static and dynamic loads, natural mode shapes and frequencies, aerodynamic and inertial loads, flutter analysis, dynamic response phenomena, and critical speeds and frequencies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MAE 8280: Finite Element Methods**

(same as CV\_ENG 8208). The concepts and fundamentals of the finite element method with applications to problems in solid and fluid mechanics.

**Credit Hours:** 3

**Prerequisites:** MAE 4280

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**MAE 8300: Microscale Heat Transfer**

Review of existing models. Concept of thermal lagging and the second-law admissibility. Applications to low temperatures, thermal processing of thin-film devices; amorphous materials; advanced composites.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8310: Thermal Management in Electronic Systems**

Advanced heat transfer course focusing on the problems of cooling electronic systems such as microprocessors and other electronic devices where thermal management is needed. The advanced cooling technologies are introduced.

**Credit Hours:** 3

**Prerequisites:** Mechanical and Aerospace Engineering [MAE] 4300. Graded on A/F basis only

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**MAE 8311: Heat Transfer-Convection**

Principles of heat transfer by convection, review of boundary layer theory, laminar and turbulent heat transfer, temperature-dependent fluid properties, high velocity heat transfer and an introduction to mass transfer.

**Credit Hours:** 3

**Prerequisites:** MAE 4300 and MAE 8410

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**MAE 8312: Heat Transfer-Radiation**

Advanced study of engineering radiation heat transfer. Concepts of electromagnetic theory. Development of thermal radiation laws from thermodynamic laws. Analysis of grey and non-grey systems with intervening gases. Study of recent literature.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8313: Heat Transfer-Conduction**

Distribution of temperature and temperature history within solids by the four essential methods of evaluation of these temperature fields.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8315: Multiphase Heat Transfer**

Fundamentals and application of heat and mass transfer and fluid flow with phase change; melting and solidification, sublimation and vapor deposition, condensation, evaporation, nucleate and film boiling, two-phase flow. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8320: Continuum Mechanics**

(same as CV\_ENG 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MATH 4100, ENGINR 2200

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**MAE 8330: Theory of Elasticity**

(same as CV\_ENG 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**MAE 8332: Thermal Stresses**

General equations of thermoelasticity, Constitutive equations of thermoelastoplasticity; Analytical and numerical analyses of thermal stresses in bars, beams, 3D media, 2D plane stress and strain media, cylinders, and spheres. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300, or instructor's consent

**Recommended:** MAE 8330

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**MAE 8340: Theory of Plates and Shells**

(same as CV\_ENG 8340). Rectangular and circular plates. Variational methods in the analysis of plates and shells. Plates of unusual shape. Shear deformation effects. Large deformation analysis. Analysis of cylindrical shells.

**Credit Hours:** 3

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**MAE 8350: Theory of Elastic Stability**

(same as CV\_ENG 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**MAE 8360: Theory of Plasticity**

(same as CV\_ENG 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** MAE 8330 or instructor's consent

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**MAE 8370: Advanced Combustion**

Numerical modeling of combustion systems and advanced diagnostic techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 4370

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**MAE 8380: Advanced Thermodynamics**

Advanced topics from classical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 4380

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**MAE 8390: Statistical Thermodynamics**

Statistical methods of evaluating thermodynamic properties. Elements of quantum mechanics, statistical mechanics and kinetic theory applied to topics of engineering thermodynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 4380 and STAT 4710

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**MAE 8392: Dynamics of Structures**

(same as CV\_ENG 8392). Study of the dynamic behavior of structures. Analysis of equivalent lumped parameter systems for the design of structures in a dynamic environment.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8390 or equivalent, proficiency in digital computer programming, or instructor's consent

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**MAE 8410: Boundary Layer Theory**

Fluid motion at high Reynolds Number. Derivation of Navier-Stokes equations and boundary layer equations. Methods of solution. Transition to turbulent flow. Completely developed turbulent flow.

**Credit Hours:** 3

**Prerequisites:** MAE 4420

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**MAE 8420: Computational Heat Transfer and Fluid Dynamics**

Introduction to numeric analysis techniques applied to heat transfer and fluid dynamics problems. Coverage will include, the development of discretization equations for the control volume approach and solution strategies of those equations. Results from numeric simulations will be compared with close form analytic solutions and commercial numeric code output.

**Credit Hours:** 3

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**MAE 8430: Introduction to Two Phase Flow**

An introduction to the analysis of the mechanics and transport processes in two phase flows.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 8440: Physical Gas Dynamics**

Study of the flow of chemically reacting gases of interest in mechanical and aerospace engineering.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8450: Introduction to Turbulence**

An introduction to the physical phenomena of turbulence, supported by mathematical and statistical descriptions. Especially appropriate for engineers involved in research of momentum, heat, and mass transport.

**Credit Hours:** 3

**Prerequisites:** MAE 4420

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**MAE 8510: Manufacturing Design**

Design for manufacture methods, their capabilities and applications. Design of intelligent manufacturing systems using sensory systems and artificial intelligence techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 4500

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**MAE 8520: Computer Integrated Manufacturing**

Modeling and simulation of manufacturing processes and advanced computer applications in manufacturing systems and machining processes, NC-programming.

**Credit Hours:** 3

**Prerequisites:** MAE 4500 and MAE 4750

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**MAE 8620: Advanced Dynamics**

(same as CV\_ENG 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** MAE 2600

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**MAE 8630: Vibrations of Distributed Parameter Systems**

(same as CV\_ENG 8630). Vibration analysis of strings, cables, bars, rods, shafts, beams, membranes, plates, circular rings, frames; free and forced oscillation; miscellaneous loading; various boundary conditions; effect of damping; energy methods; method of difference equations.

**Credit Hours:** 3

**Prerequisites:** MAE 4660

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**MAE 8660: Advanced Vibration Analysis**

Advanced topics in vibration theory and its application to Mechanical Systems. Topics include vibration analysis of multi-degree of freedom, distributed and nonlinear systems, random vibration analysis, and vibration control.

**Credit Hours:** 3

**Prerequisites:** MAE 4660 or instructor's consent

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**MAE 8670: Advanced Vehicle Dynamics**

Applications of advanced dynamics, sensitivity analysis, and stability methods to analysis of complex vehicle dynamic systems. Modeling of pneumatic tire behavior, development and experimental validation of advanced vehicle computer simulations.

**Credit Hours:** 3

**Prerequisites:** MAE 4670

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**MAE 8710: Advanced Hydraulic Control Systems**

The course will focus on the study of hydraulic systems and the design and analysis of controls for these systems. Multivariable as well as single input single output techniques will be considered. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Undergraduate system dynamics and controls course, experience or coursework in basic hydraulic control systems such as MAE 4710 or MAE 7710

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**MAE 8740: Robust Control**

Definition of the robust performance problem with the goal of achieving specified signal levels in the face of plant uncertainty; uncertainty and robustness, stabilization, design constraints, loopshaping, model matching and design for robust performance.

**Credit Hours:** 3

**Prerequisites:** MAE 4750, and MAE 8780 or instructor's consent

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**MAE 8750: Nonlinear Control**

Nonlinear systems analysis techniques including phase plane analysis, Lyapunov theory. Control design including feedback linearization, sliding control, and adaptive control.

**Credit Hours:** 3

**Prerequisites:** MAE 4750 and MAE 8780

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**MAE 8760: Optimal Control**

The course will study optimization under dynamic constraints and optimal control theory. Topics include calculus of variation, Pontryagin's minimum principle, dynamic programming, and linear quadratic optimal control. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8780: State Variable Methods in Automatic Control**

(same as CH\_ENG 8780, ECE 8780, NU\_ENG 8408). State variables for continuous and discrete-time dynamic control systems; controllability and observability; optimal control of linear systems.

**Credit Hours:** 3

**Prerequisites:** MAE 4700

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**MAE 8910: Modular Machine Tool Design**

This course introduces necessary concepts and tools for modular machine tool design. Students will learn how to apply mechanical design knowledge and commercially available subassemblies and parts to design modular machine tools for mass production application.

**Credit Hours:** 3

**Prerequisites:** MAE 4980 or instructor's consent

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**MAE 8920: Reliability-Based Design of Engineering Systems**

Introduction to the methods that identify the ability of a system to perform its required functions for a specified period of time. Topics include failure mode and effects analysis, reliability prediction, Weibull distribution analysis, reliability testing, and accelerated life testing.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Engineering

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**MAE 8930: Advanced Mechanical System Modeling and Optimization**

Calculus of variations is introduced as a basic tool. Hamilton's Principle is used for system modeling. Numerical solution methods are used for dynamic simulation. Genetic algorithm and other algorithms are applied for system optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 and MAE 4980. Seniors will require consent

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**MAE 8990: Research-Masters Thesis in Mechanical and Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MAE 9990: Research-Doctoral Dissertation Mechanical & Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Medical Pharmacology and Physiology (MPP)

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**MPP 2010: The Science of Sex, Drugs and Rock'n'Roll**

This course will examine the data and theories for how drugs affect the body, for the physiology of reproduction and, for how sound affects the body. These topics will be used to motivate an understanding, and provide training in applying, the key scientific principles. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 2015: Toxins, The Good, The Bad, and the Beautiful**

In this course, the students will explore toxins. We will discuss how toxins are formed, the "value" of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

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**MPP 2015W: Toxins, The Good, The Bad, and the Beautiful - Writing Intensive**

In this course, the students will explore toxins. We will discuss how toxins are formed, the "value" of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

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**MPP 2020: Bodily Fluids and Functions**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3

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**MPP 2020W: Bodily Fluids and Functions - Writing Intensive**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3

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**MPP 3202: Elements of Physiology**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body.

**Credit Hours:** 5

**Prerequisites:** sophomore standing

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**MPP 3290: Undergraduate Research**

Laboratory experience and opportunity to explore research in medical pharmacology and physiology.

**Credit Hour:** 1-3

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**MPP 3333: Fundamentals of Human Physiology**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed.

**Credit Hours:** 3

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**MPP 3337: Human Physiology Laboratory**

This lab course will involve experiments to illustrate basic physiology concepts.

**Credit Hours:** 2

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**MPP 3500: Introduction to Human Physiology**

This is an online course that will introduce students to basic concepts in human physiology, with a focus on the integrated function of organ system in homeostasis/human health. The final section of the course will expose students to important issues in exercise physiology, specifically the impact of exercise on cardiovascular and metabolic functions.

**Credit Hours:** 3

**Recommended:** Cell Biology, Biochemistry

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**MPP 4001: Undergraduate Topics in Medical Pharmacology and Physiology**

Selected topics not in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085: Undergraduate Problems in Medical Pharmacology and Physiology**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085W: Undergraduate Problems in Medical Pharmacology and Physiology - Writing Intensive**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4202: Medical Physiology**

Medical Physiology is intended for health scientists. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung

and endocrine systems with analysis for preventative medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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#### **MPP 4204: Medical Pharmacology**

(cross-leveled with MPP 7424). Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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#### **MPP 4204H: Medical Pharmacology-Honors**

Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology. Prerequisites or

**Credit Hours:** 5

**Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges; Honors eligibility required

**Recommended:** nutrition or biochemistry courses are recommended but not required

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#### **MPP 4310: Mammalian Cell Function**

An overview of the structure and function of mammalian cells including topics in membrane physiology and transport, cell signaling, compartmentalization and metabolism, cell proliferation and differentiation and the structure and function of certain specialized cells (e.g. muscle cells, epithelial cells and neurons). Laboratory and/or discussion sessions will be included as part of the course with laboratory topics to be determined. We will devote approximately 75% of the lecture to generalized cell functions, and 25% to deal with topics concerning specialized cells. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. For graduate credit, students will be required to participate in laboratory exercises

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#### **MPP 4417: Diagrams, Figures and Graphs**

(cross-leveled with MPP 7717). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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#### **MPP 6525: Pharmacology**

Pharmacology

**Credit Hours:** 5

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#### **MPP 7300: Physics in Cell and Developmental Biology**

(same as PHYSCS 7310 and BIO\_SC 7310). Introduction to physical mechanisms and their modeling in cellular processes and development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **MPP 7302: Drug Discovery and Action**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hour:** 1

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#### **MPP 7310: Mammalian Cell Function**

An integrated course covering the structure and function of mammalian cells as relevant to clinical translational research including topics in membrane physiology and transport, cell signaling, cell proliferation, differentiation, compartmentalization and metabolism. Graded on A-F basis only.

**Credit Hour:** 3-5

**Prerequisites:** instructor's consent

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#### **MPP 7422: Medical Physiology**

Medical Physiology is intended for health scientist. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventive medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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#### **MPP 7424: Pharmacology and Translational Medicine**

(cross-leveled with MPP 4204). Pharmacology teaches the science of drug actions in medicine today and principles of pharmacokinetics/dynamics. Future medical researchers will learn molecular probes for medical research and translational science to improve health care. An online laboratory will teach drug database information technology. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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#### **MPP 7717: Diagrams, Figures, and Graphs**

(cross-leveled with MPP 4417). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 8000: Scientific Discovery Leading to Life Science Innovations**

(same as BIOL\_EN 8000). This course explains the scientific discovery process from idea to product release, examining problem identification, need validation, and commercialization. Clinical, business and engineering perspectives are examined to understand translating innovation into clinical practice. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** must be enrolled in a graduate degree program

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**MPP 8001: Graduate Topics in Medical Pharmacology and Physiology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 8004: Regulatory Issues in Clinical Research and Clinical Trials**

The goal of the course is to highlight key FDA regulatory issues for conducting human clinical trials and clinical research. For clinical trials, FDA has set up several compliance programs and guidance documents as a part of human subject protection (HSP)/ Bioresearch Monitoring (BIMO) initiatives. The aim of the program was to strengthen FDA oversight and protection of subjects in clinical trials and to preserve confidentiality of data. The HSP/BIMO initiative comprehends all FDA regulated clinical trials including human drugs and biological drug products, devices, foods, and veterinary medicine. The course is designed for students in medical professions, management, biomedical engineering, and related areas. Adequate knowledge regarding FDA guidance in conducting human clinical trials and clinical research will help professionals steer drug/device development and commercialization in their respective field. This course will be offered online only. An introduction to essential disciplines for conducting clinical trials and clinical research will be provided. The basics of good clinical practices (GCPs), biostatistics and clinical epidemiology in relation to clinical trials will be presented. Several relevant case studies for conducting clinical trials, both nationally and internationally, will be discussed. The importance of data collection and data management while conducting clinical trials will be explained. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Knowledge in biomedical sciences, clinical sciences

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**MPP 8050: Non-Thesis Research in Medical Pharmacology and Physiology**

Opportunities for graduate research in physiology or pharmacology not leading to dissertation. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MPP 8085: Graduate Problems in Medical Pharmacology and Physiology**

Guided study to strengthen knowledge in physiology and pharmacology. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 8090: Thesis Research in Medical Pharmacology and Physiology**

Research for Master's Students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 8410: Neural Control**

An integrated course covering the physiology and pharmacology of the autonomic nervous system and the central nervous system. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MPP 8411: Mammalian Pharmacology and Physiology**

An integrated course covering the basic concepts in physiology and pharmacology of the cardiovascular, gastrointestinal, endocrine, renal, and respiratory systems with an emphasis of applying the key concepts to clinically relevant examples. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** instructor's consent

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**MPP 8412: Seminar in Medical Pharmacology and Physiology**

Instruction in critical evaluation, review, and summary of scientific data and practice in oral presentation of scientific research seminar. Taught in conjunction with weekly department seminar series.

**Credit Hour:** 1

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**MPP 8415: Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age**

The emphasis is on the scientific research ethics problems in interdisciplinary work. Student involvement can include designing mock misconduct trials or writing advocacy letters to change current policy.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8417: Scientific Communication**

A course to foster and improve students ability to communicate orally and in writing. Student enrolled in the course will be expected to write a report and present a seminar on a topic related to one of the lab rotation projects to the mentor of the rotation and other interested faculty members and students. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8420: Skills in Biomedical Research**

This course focuses on introducing graduate students to the basics of biomedical research. Course objectives are to provide new graduate students with a basic understanding of laboratory safety issues and fundamental skills that are integral to research including principles of experimental design, theory and practical application of modern research techniques, written and oral communication of research information, and scientific record keeping standards. Graded on S/U basis only.

**Credit Hours:** 2

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**MPP 9090: Thesis Research in Medical Pharmacology and Physiology**

Research for PhD students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 9421: Neural Pharmacology**

Biochemical and behavioral actions of drugs affecting the nervous system. Effects of drugs on synaptic mechanism including neurotransmitter metabolism and receptor interactions. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 9422: Medical Pharmacology and Physiology Journal Club**

On a weekly basis, individual students are assigned current high profile journal articles to present to their fellow students and faculty in a journal club setting. Each student in the course is required to read the paper in advance and participate in discussions of the figures and general topics that is being presented. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrolled in MPP PhD graduate program

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**MPP 9423: Oncological Pharmacology**

An in-depth study of the causes and treatments of cancers including discussions of mutagenesis and carcinogenesis, principles of cancer chemotherapy and recent developments with targeted therapeutics. The basis for genetic differences in cancer drug responsiveness including genetics predisposition's to disease and drug toxicity (pharmacogenetics) and genetic polymorphism's associated with disease susceptibility, adverse drug responses and drug resistance (pharmacogenomics) will also be discussed.

**Credit Hour:** 1-3

**Prerequisites:** MPP 8411

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**MPP 9425: Receptor Pharmacology**

The goal of this course is to facilitate the student's efforts to obtain a solid working knowledge of receptor pharmacology, physiology and molecular biology that can be of benefit in the future. The course will explore a variety of receptor issues, primarily in a discussion format organized by the faculty members involved in the course. The course is divided into two related components. The first component will cover general principles of quantifying ligand - receptor interactions and subsequent responses, summarize some of the methods of receptor identification and characterization and evaluate the various schemes of receptor typing and subtyping. The second component will explore specific characteristics of receptors from some of the major receptor families with an emphasis on understanding mechanisms of receptor activation and regulation as well as exploring concepts about the structural basis for discrete receptor functions. A typical list of receptors to be covered in the course may include the tyrosine kinase receptors, G protein-coupled receptors, cytokine receptors, ligand activated transcription factors (nuclear receptors), adhesion receptors such as integrins, and ligand activated ion channels.

**Credit Hour:** 1-2

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**MPP 9426: Transmembrane Signaling**

This course is for advanced level graduate students. The course is designed to develop state of the art knowledge and understanding of current research issues in the cell signaling. The major emphasis is on receptor and non-receptor mediated transmembrane signaling events underlying physiological and pharmacological responses of the cells. Students are also involved in class presentations, and the development and critical review of new research proposals, all focused on cellular signaling.

**Credit Hours:** 4

**Prerequisites:** basic courses in biochemistry and or cell and molecular biology or equivalent

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**MPP 9427: Drug Metabolism**

(same as V\_BSCI 9427). The course is concerned with the absorption, distribution, metabolism and elimination of drugs using a comparative approach. The pharmacokinetic aspects of elimination are stressed.

**Credit Hour:** 1-3

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**MPP 9428: Clinical Biodetection**

Interdisciplinary approach to clinical translational applications of physiology and pharmacology and related life, physical, chemical, and engineering sciences.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 9429: Principles and Frontiers of Molecular Pharmacology**

An in-depth examination of pharmacodynamics, structure-activity relationships, pharmacokinetics/drug metabolism, and toxicology, followed by a consideration of emerging concepts regarding membrane receptors and channels and their role in biology and medicine.

**Credit Hours:** 5

**Prerequisites:** Students must have completed a physiology, biochemistry or cell biology course

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**MPP 9430: Cardiovascular Physiology**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hours:** 3

**Prerequisites:** MPP 4310 and MPP 8411 or the equivalent (e.g., UM first year medical school curriculum, V\_BSCI 8421, or BIO\_SC 3700 with supporting courses)

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**MPP 9431: Control of Energy Metabolism**

(same as V\_BSCI 9431). This advanced elective is in a lecture/discussion format using primary literature to explore how cells organize and regulate metabolism to meet energy demands.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MPP 9432: Mammalian Membrane Physiology**

This course is designed to stimulate active learning of the concepts of modern membrane physiology. Throughout the course, a balance will be maintained between examining classic papers in the field and current literature, including not only theories that have held up over time, but areas in which there is current dispute as the best model that describes the observations.

**Credit Hour:** 1-3

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**MPP 9434: Microvascular Circulatory Function**

(same as V\_BSCI 9425). An in-depth study of microcirculatory structure and function in various tissues with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function and fluid balance.

**Credit Hours:** 4

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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**MPP 9435: Skeletal Muscle**

(same as V\_BSCI 9435). Skeletal muscle mechanics, contractions theories, transgenic models, development, gene expression regulation, adaptation to exercise, aging, metabolic functions, and inactivity induced chronic diseases.

**Credit Hour:** 1-3

**Prerequisites:** course director's consent required for enrollment

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**MPP 9436: Renal Physiology**

Mechanisms in mammalian renal physiology presented with particular emphasis on current techniques and concepts.

**Credit Hour:** 1-3

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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**MPP 9437: Neural Control of the Circulation**

(same as V\_BSCI 9467). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods used to study CNS cardiovascular regulation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Medicine-Interdisciplinary (MED\_ID)

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**MED\_ID 5041: Structure and Function of the Human Body I**

Biochemical principles, cell biology, human development, histology and gross anatomy with clinical correlates utilizing patient examples and non-invasive techniques.

**Credit Hours:** 6

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**MED\_ID 5042: Interviewing**

Development of skills needed to obtain a history of the patient's present illness, past medical history and other pertinent background information. Vitally important to medical practice, these skills are role modeled, practiced and evaluate with detailed feedback. Additional emphasis is placed on the doctor-patient relationship, ethics and the role of the physician as a therapeutic agent.

**Credit Hours:** 3

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**MED\_ID 5043: Structure and Function of the Human Body II**

Study of the structure and function of the body's metabolic, nervous and muscular systems.

**Credit Hours:** 6

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**MED\_ID 5044: Physical Examination**

Introduction to the doctor-patient relationship and systematic physical examination of the patient. Certification in basic life support is also included.

**Credit Hours:** 3

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**MED\_ID 5045: Structure and Function of the Human Body III**

Study of the structure and function of the body's cardiovascular, gastrointestinal, and urinary systems.

**Credit Hours:** 6

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**MED\_ID 5046: Psychosocial Aspects of Medicine**

A brief study of the history of medicine and the impact of key events on current medical practice. Study of the biopsychosocial model, biomedical ethics and specific psychosocial problems encountered by physicians such as compliance, problems based in human sexuality, substance abuse and death and dying.

**Credit Hours:** 3

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**MED\_ID 5047: Structure and Functions of the Human Body IV**

Study of the structure and function of the endocrine, reproductive, vascular systems. The classification of pathogenic and non-pathogenic organisms, mechanisms of infection, the immune response and the interaction between pharmacologic agents and exogenous organisms.

**Credit Hours:** 6

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**MED\_ID 5048: Clinical Epidemiology and Preventive Medicine**

Application of clinical epidemiology to understanding measurement of population characteristics and to the critical analysis of the literature through analysis of study designs and interpretation of the results and causal relationships. Study of prevention, screening and health maintenance as important aspects of health care.

**Credit Hours:** 3

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**MED\_ID 5051: Ambulatory Clinical Experience I**

Ambulatory Clinical Experience I

**Credit Hour: 1**

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**MED\_ID 5052: Ambulatory Clinical Experience II**

Ambulatory Clinical Experience II

**Credit Hour: 1**

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**MED\_ID 5053: Ambulatory Clinical Experience III**

Ambulatory Clinical Experience III

**Credit Hour: 1**

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**MED\_ID 5054: Ambulatory Clinical Experience IV**

Ambulatory Clinical Experience IV

**Credit Hour: 1**

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**MED\_ID 5180: FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS**

FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS

**Credit Hours: 18**

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**MED\_ID 5201: Summer Clinical Practicum Family Medicine**

Summer Clinical Practicum Family Medicine

**Credit Hours: 0**

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**MED\_ID 5205: Individualized Study**

Individualized Study

**Credit Hour: 1-5**

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**MED\_ID 5207: Summer Clinical Practicum Internal Medicine**

Summer Clinical Practicum Internal Medicine. 4 week course. Zero credit hours, 4 FA hours.

**Credit Hours: 0**

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**MED\_ID 5209: Summer Clinical Fellowship**

Summer Clinical Fellowship

**Credit Hours: 0**

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**MED\_ID 5213: Leadership Practicum**

Leadership Practicum

**Credit Hours: 0**

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**MED\_ID 5215: Summer Clinical Practicum - Medical Education**

Summer Clinical Practicum - Medical Education- Zero billing hours and 4 FA hours

**Credit Hours: 0**

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**MED\_ID 5217: Summer Clinical Practicum - Rural Track**

This represents non-credit clinical and research experiences that medical students may take during the summer following their first (M1) year of medical school. 8 weeks. Zero Credit.

**Credit Hours: 0**

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**MED\_ID 5253: Post-Sophomore Fellowship**

Post-Sophomore Fellowship

**Credit Hours: 3**

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**MED\_ID 5341: Structure/Function Human Body I - Remediation**

Structure/Function Human Body I - Remediation

**Credit Hours: 6**

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**MED\_ID 5342: Interviewing - Remediation**

Interviewing - Remediation

**Credit Hours: 3**

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**MED\_ID 5343: Structure/Function Human Body II - Remediation**

Structure/Function Human Body II - Remediation

**Credit Hours: 6**

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**MED\_ID 5344: Physical Exam - Remediation**

Physical Exam - Remediation

**Credit Hours: 3**

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**MED\_ID 5345: Structure/Function Human Body III**

Structure/Function Human Body III

**Credit Hours: 6**

---

**MED\_ID 5346: Psychosocial Aspects Med - Remediation**

Psychosocial Aspects Med - Remediation

**Credit Hours: 3**

---

**MED\_ID 5347: Structure/Function Human Body IV - Remediation**

Structure/Function Human Body IV - Remediation

**Credit Hours: 6**

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**MED\_ID 5348: Clinical Epidemiology and Preventive Medicine - Remediation**

Clinical Epidemiology and Preventive Medicine - Remediation

**Credit Hours: 3**

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**MED\_ID 5351: Ambulatory Clinical Experience I- Remediation**

Ambulatory Clinical Experience I- Remediation

**Credit Hour: 1**

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**MED\_ID 5352: Ambulatory Clinical Experience II- Remediation**

Ambulatory Clinical Experience II- Remediation

**Credit Hour: 1**

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**MED\_ID 5353: Ambulatory Clinical Experience III-Remediation**

Ambulatory Clinical Experience III-Remediation

**Credit Hour: 1**



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**MED\_ID 5354: Ambulatory Clinical Experience IV- Remediation**

Ambulatory Clinical Experience IV- Remediation

**Credit Hour: 1**

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**MED\_ID 5551: Pathophysiology I**

Pathophysiologic mechanisms of cell injury, inflammation and repair, hemodynamic disturbances, genetic disorders, autoimmune response, immune deficiency and hypersensitivity reactions.

**Credit Hours: 6**

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**MED\_ID 5552: Diagnostic Tests and Medical Decisions**

Assessment of the appropriate use and interpretation of common diagnostic tests and their contribution to medical decisions and the care of patients. Includes emphasis on the review of systems, interactive hypothesis testing, differential diagnosis probability, sensitivity and specificity, and cost benefit and cost effectiveness analysis.

**Credit Hours: 3**

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**MED\_ID 5553: Pathophysiology II**

Pathophysiologic mechanisms of cardiovascular disease, diseases of the respiratory system, disorders of the blood, and nutritional diseases.

**Credit Hours: 6**

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**MED\_ID 5554: Psychopathology and Behavioral Medicine**

Presentation and discussion of the U.S. health care system and health care reform, financing and resource allocation, and the impact of change on individuals, communities, employers and the government. Included are analyses of the ethical and legal implications of health care and health care reform.

**Credit Hours: 3**

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**MED\_ID 5555: Pathophysiology III**

Pathophysiologic mechanisms of the digestive, endocrine and urogenital systems.

**Credit Hours: 6**

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**MED\_ID 5556: Clinical Practicum**

A continuation of Block 6 objectives and a clinical practicum and review comprise this block.

**Credit Hours: 3**

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**MED\_ID 5557: Pathophysiology IV**

Pathophysiology of infectious diseases, reproductive disorders, musculoskeletal and soft tissues diseases, diseases affecting the nervous system and skin diseases.

**Credit Hours: 6**

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**MED\_ID 5558: Physician as a Person**

Exploration of the physician as a person, the balance between professional and personal demands, family life, membership in a community, the stresses and rewards of the medical profession,

professional ethics and the doctor-patient relationship. A four week clinical review completes this block.

**Credit Hours: 3**

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**MED\_ID 5561: Advanced Physical Diagnosis I**

Advanced Physical Diagnosis I

**Credit Hour: 1**

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**MED\_ID 5562: Advanced Physical Diagnosis II**

Advanced Physical Diagnosis II

**Credit Hour: 1**

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**MED\_ID 5563: Advanced Physical Diagnosis III**

Advanced Physical Diagnosis III

**Credit Hour: 1**

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**MED\_ID 5564: Advanced Physical Diagnosis IV**

Advanced Physical Diagnosis IV

**Credit Hour: 1**

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**MED\_ID 5570: Advanced Clinical Skill Practicum**

This course is designed for MD/PhD students and other medical students away on research or post-sophomore fellowship leave. Approval to enroll must be obtained from the Director of the MD/PhD program or the Faculty Director of Clinical curriculum. Graded on S/U basis only.

**Credit Hours: 0**

**Prerequisites:** Advanced Physical Diagnosis; must have satisfactorily completed the second year of medical school

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**MED\_ID 5751: Pathophysiology I - Remediation**

Pathophysiology I - Remediation

**Credit Hours: 6**

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**MED\_ID 5752: Diagnosis Test/Med Decision - Remediation**

Diagnosis Test/Med Decision - Remediation

**Credit Hours: 3**

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**MED\_ID 5753: Pathophysiology II - Remediation**

Pathophysiology II - Remediation

**Credit Hours: 6**

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**MED\_ID 5754: Psychopathology/Behavioral Med - Remediation**

Psychopathology/Behavioral Med - Remediation

**Credit Hours: 3**

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**MED\_ID 5755: Pathophysiology III - Remediation**

Pathophysiology III - Remediation

**Credit Hours: 6**

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**MED\_ID 5756: Clinical Practicum - Remediation**

Clinical Practicum - Remediation

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**Credit Hours:** 3

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**MED\_ID 5757: Pathophysiology IV - Remediation**

Pathophysiology IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5758: Physician as a Person - Remediation**

Physician as a Person - Remediation

**Credit Hours:** 3

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**MED\_ID 5761: Advanced Physical Diagnosis I- Remediation**

Advanced Physical Diagnosis I- Remediation

**Credit Hour:** 1

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**MED\_ID 5762: Advanced Physical Diagnosis II- Remediation**

Advanced Physical Diagnosis II- Remediation

**Credit Hour:** 1

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**MED\_ID 5763: Advanced Physical Diagnosis III- Remediation**

Advanced Physical Diagnosis III- Remediation

**Credit Hour:** 1

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**MED\_ID 5764: Advanced Physical Diagnosis IV- Remediation**

Advanced Physical Diagnosis IV- Remediation

**Credit Hour:** 1

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**MED\_ID 5850: Contemplating Medicine, Patients, Self and Society**

The purpose of the longitudinal COMPASS course is to foster the development of patient-centered physicians in relation to patients, self and society. This is accomplished through an innovative longitudinal small group experience using a variety of learning methods including group discussion, reflective writing, storytelling, reading and case problem solving. The small group membership includes students from each of the 4 medical school classes and 2 faculty Guides. Curricular themes and small group session titles for the 4 year course recur on a two year cycle. The content and focus of each session is unique. Students in the first, second and third years of medical school will receive a final course grade (satisfactory or unsatisfactory) at the end of their M4 year. The final course grade will reflect the student's performance in the small group sessions and performance on the capstone assignment.

**Credit Hour:** 1-5

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**MED\_ID 5950: Remediation of MED\_ID 5850**

Medical Students who receive an unsatisfactory grade in MED\_ID 5850 Contemplating Medicine, Patients, Self and Society will enroll for this course in order to remediate their grade.

**Credit Hours:** 3

**Prerequisites:** MED\_ID 5850

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**MED\_ID 6030: SCC Advanced Biomedical Sciences Elective**

Students will work under the supervision of an MU faculty member at MU's Springfield Clinical Campus in a pre-approved learning experience. Activities that fulfill this requirement may include, but are not limited to:

Anatomy dissection at Missouri State University (MSU), research project at a Springfield based clinical location or lab (Cox, Mercy, MSU), PBL case writing, and cross cultural medicine (global health study abroad). ABS elective content and requirements will be similar to those offered at MU's Columbia Clinical Campus.

**Credit Hours:** 5

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**MED\_ID 6031: SCC Advanced Clinical Selective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6032: SCC General Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6100: Advanced Elective**

Advanced Elective - 0 Credit

**Credit Hours:** 3

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**MED\_ID 6200: ABS Advanced Basic Science**

ABS Advanced Basic Science

**Credit Hours:** 5

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**MED\_ID 6235: ABS DERMATOLOGY RSCH&REV**

ABS Dermatology Research and Review

**Credit Hours:** 5

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**MED\_ID 6243: ABS EMERGENCY MED RSCH**

ABS Emergency Medicine Research

**Credit Hours:** 5

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**MED\_ID 6244: ABS Quality Improvement and Patient Safety Elective**

The 4th year student will work with leaders in the Office of Clinical Effectiveness to identify an improvement project to be conducted during the elective. Students will have self-paced readings/didactic expectations, and will be expected to review and report on medical literature relevant to the care process(es) targeted for improvement. To complete their project, the student will present the improvement work to patient safety and quality improvement leaders, as well as stakeholders in the care process(es) identified for improvement efforts.

**Credit Hours:** 5

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**MED\_ID 6390: ABS Individualized Study in Medicine-M1**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Review the literature appropriate to each case. Update one PBL case that is used in the course of the block OR update a problem solving exam OR write a new problem solving exam. Students must submit the case or exam electronically to the course coordinator. Evaluation: Student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During a four-week block, the fourth year student will tutor an M-1 PBL group (Monday, Wednesday, & Friday mornings) under the supervision of a senior faculty member. Contact course coordinator for case update details. Submission date for case update is set two weeks after the tutoring session ends. The student will attend all tutor preparation meetings and prepare for PBL through reading, self-directed study and discussions with faculty. Complete student mid-block and end-of-block evaluation as directed.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6391: ABS Individualized Study in Medicine-M2**

ABS Individualized Study in Medicine-M2

**Credit Hours:** 5

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**MED\_ID 6393: ABS Interdisciplinary Research**

ABS Interdisciplinary Research

**Credit Hour:** 5-10

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**MED\_ID 6394: ABS Cross-Cultural Medicine**

ABS Cross-Cultural Medicine

**Credit Hours:** 5

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**MED\_ID 6395: ABS Interdisciplinary Research and Review**

ABS Interdisciplinary Research and Review

**Credit Hour:** 5-10

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**MED\_ID 6396: ABS Medical Practice Organization**

ABS Medical Practice Organization

**Credit Hour:** 5-10

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**MED\_ID 6397: ABS Academic Tutoring for M1/M2 Students**

ABS Academic Tutoring for M1/M2 Students

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**Credit Hours:** 5

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**MED\_ID 6398: ABS County Public Health**

ABS County Public Health

**Credit Hours:** 5

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**MED\_ID 6399: ABS Case Writing**

ABS Case Writing

**Credit Hours:** 5

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**MED\_ID 6690: Elective Individual Study in Medicine - M1**

Elective Individual Study in Medicine - M1

**Credit Hours:** 5

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**MED\_ID 6691: Elective Individual Study in Medicine - M2**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Evaluations: the student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During the four-week block, the fourth year student will tutor a M-2 PBL group (Tuesday and Thursday afternoons) under the supervision of a senior faculty member.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6692: Case/Exam Writing Elective**

The fourth year medical student will work as part of a team in order to develop learning materials for the first and second year students. Students will work closely with faculty advisors and clinical mentors to develop educationally sound learning materials. Under the guidance of faculty preceptors, medical students will author one original PBL case including a comprehensive tutor guide and multiple choice examination questions covering the case objectives, AND one original Clinical Reasoning Exam including an annotated key.

**Credit Hours:** 5

**Prerequisites:** fourth year medical student in good standing

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**MED\_ID 6693: Simulation Preparation for Internship**

This course is meant to increase the medical students' knowledge and skillsbase in preparation for the first year of internship. In order to accomplish this, the students will be exposed to a variety situations common to first year residents through activities created with simulation. Throughout the course, students will demonstrate how to provide effective and efficient patient-centered care, while improving their communication skills and professionalism with patients and other healthcare providers. Students will understand the role of simulation in medical education and develop skills in debriefing of scenarios throughout the course. At the end of the course, students will be expected to complete a simulation capstone project. Prerequisites: Class level: 4th year medical student. Approval by Simulation Director and Completion of all Core Clerkship Requirements.

**Credit Hours:** 5

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**MED\_ID 6890: Computer Applications in Medicine**

Computer Applications in Medicine

**Credit Hours:** 5**MED\_ID 6924: Rural Track Clinical Elective**

Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school**MED\_ID 6925: Springfield Clinical Campus Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school**MED\_ID 6933: Joint Commission Tracers: Assessing Quality Patient Care Using Joint Commission Criteria**

Quality patient care is the core of the academic medical center's mission, accomplished through exemplary education, research, and clinical care. In order to assure that patients receive quality care, the Center for Medicare and Medicaid Services (CMS) requires that health care organizations demonstrate quality through a process of accreditation, which has been delegated to The Joint Commission (TJC), an independent, non-for-profit organization. TJC promotes the continuous improvement of health care by evaluating organizations and "inspiring them to excel in providing safe and effective care of the highest quality and value." Failure of a health system to meet TJC requirements can result in loss of an organization's ability to participate in Medicare/Medicaid programs, which has a crippling effect on delivering patient care. Tracers are the tool TJC utilizes to evaluate the quality of patient care in an organization. During the two-week course, the student will: 1) attend tracer orientation. 2) conduct ten tracers (approximately 1 hour each) in inpatient and invasive procedure areas. 3) conduct a literature search on tracers and quality care, and prepare 3 to 4 page synthesis. 4) complete a pre- and post- survey on the tracer process. 5) complete a one-page written reflection of the student's tracer experience at the end of each week.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school**MED\_ID 6934: Sexual and Gender Minority Health Issues Across the Lifecourse**

The purpose of this course is to increase student's familiarity with sexual and gender minority health issues likely to be seen in practice. Integral

to the course structure is improved cultural competency in not only appropriate language and terms used within the community but also a sense of the social-cultural issues each generation has faced growing up in America.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school

## Microbiology (MICROB)

**MICROB 2800: Microbiology for Nursing and Health Professions**

This course will provide basic principles for understanding microbial growth, function, and control. This includes a survey of microbial cellular structure/functions, immunology concepts, epidemiology, specimen handling, and causes of microbial disease (bacterial, viral, and parasitic). Material is presented in lecture and corresponding laboratory exercises that will allow students to explore the microbial world around them.

**Credit Hours:** 4**Prerequisites:** The overall content is "restricted to Freshman and sophomore Nursing and Health Related Professional students only". Other inquires contact department**MICROB 3200: Medical Microbiology and Immunology**

Focus on medically important viruses, bacteria, fungi and parasites with emphasis on their disease causing potential and mechanisms. Introduction to cells and molecules of the immune system with emphasis on their role in fighting infectious diseases. Discussion of treatment and prevention strategies. Lecture material will be reinforced with laboratory demonstrations and hands-on exercises. The course is intended for preprofessional students.

**Credit Hours:** 4**MICROB 3800: Case-Based Microbiology: Assembling Systemic Health Connections**

Detailed infectious diseases across organ systems. The biological characteristics and pathologic mechanisms of infectious diseases caused by bacteria, viruses, fungi and parasites are explored in a case-based learning. Student-driven learning objectives for each case (to include microbiology, anatomy, physiology, pharmacology, technology and clinical LO's each case) help groups connect scientific information across disciplines.

**Credit Hours:** 3**Prerequisites:** Instructor's consent**Recommended:** MICROB 2800 or MICROB 3200, MPP 3202, and PTH \_AS 2201**MICROB 4300: Bacterial Pathogenesis**

(cross-leveled with MICROB 7404). This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic diseases. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 2**Prerequisites:** MICROB 3200 or equivalent. Consent from Course Director is required to insure academic readiness

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**MICROB 4303: Fundamental Virology**

Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 4304: Immunology**

This is a comprehensive team-taught, basic immunology course covering cells and organs of the immune system, lymphocyte development, innate immunity, antibody production, antibody-antigen presentation, CD4+ and CD8+ T lymphocyte responses, cytokines, autoimmunity and immunodeficiency among other immunologically relevant topics. Completion of a biochemistry, genetics, or molecular biology course would be helpful.

**Credit Hours:** 2

**Recommended:** MICROB 3200 or BIOCHM 4270

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**MICROB 4305H: Honors Bacterial Pathogenesis**

This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic diseases. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 2

**Prerequisites:** MICROB 3200 or equivalent; Honors eligibility required. Consent from Course Director required to insure academic readiness

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**MICROB 6291: ABS Microbiology Mechanism of Disease**

ABS Microbiology Mechanism of Disease

**Credit Hour:** 5-10

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**MICROB 6293: ABS Microbiology Research**

ABS Microbiology Research

**Credit Hour:** 5-10

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**MICROB 6295: ABS Microbiology Research and Review**

ABS Microbiology Research and Review

**Credit Hour:** 5-10

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**MICROB 7101: Structure and Synthesis of Macro Molecules**

This multiple-instructor course is designed to provide students with a detailed understanding of the structure, function, and biophysical properties of bio-molecules. Principles and techniques of molecular biology related to the study of recombinant DNA and genetic analysis, protein structure, function and basic immunological principles will be covered. Admission is dependent on approval by course director.

**Credit Hours:** 2

**Prerequisites:** consent required

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**MICROB 7303: Fundamental Virology**

Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** Undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 7304: Immunology**

Covers innate immunity, antibodies, antigens, MHC, antigen presentation, lymphocyte development, antigen specific receptors, lymphocyte activation and differentiation, immune effector mechanisms, hypersensitivities, tolerance, autoimmunity, immunodeficiencies.

**Credit Hours:** 2

**Recommended:** MICROB 3200 or BIOCHM 4270 or BIOCHM 4272 or instructor's consent

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**MICROB 7404: Foundations in Bacteriology and Pathogenesis**

This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic disease. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 3

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**MICROB 8050: Graduate Student Survival Skills**

This course is an introduction to inform new graduate students about the Microbiology program and provide them with the knowledge to access resources and information needed for a successful transition into their course work and research. The course will also focus on guidelines in selecting mentors and their relationships, time management, good notebook practices, presentation and posters, comprehensive exams, and computer skills needed. Graded on S/U basis only.

**Credit Hour:** 1

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**MICROB 9001: Topics in Microbiology**

Current topics, highly specialized topics taught infrequently, or courses taught by visiting professors.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9085: Problems in Microbiology**

Students assigned individual problems in microbiology for library or lab investigation. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9087: Seminar in Microbiology**

Presentation and critical discussion of student and faculty research, current literature, and guest lectures on subjects in various areas of microbiology. Graded on A-F basis only.

**Credit Hour:** 1

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**MICROB 9090: Research in Microbiology**

Original investigations in various areas of microbiology related to bacteria, fungi, rickettsia, viruses, and animal parasites, or immunology relating to antigens and antibodies of infectious and noninfectious nature designed for graduate thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9403: Advanced Medical Microbiology**

Similar to MICROB 4300 but treats medical microbiology and immunology in a more advanced manner. Methods of preparation and instruction stressed. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MICROB 9404: Advanced Bacterial Pathogenesis**

Literature based lectures and discussions covering current issues in bacterial pathogenesis. Focus is on understanding host-pathogen interactions that lead to disease. Topics include bacterial toxins and secreted virulence factors, intracellular bacterial growth and survival, host cell death and inflammatory pathways. Course will focus on a few model pathogens and discuss the molecular mechanisms of the pathogen and host that contribute to virulence. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MICROB 7404

**Recommended:** MICROB 4304 or MICROB 7304

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**MICROB 9407: Advanced Immunology**

Literature based lectures and discussions covering current issues in molecular and cellular immunology. Topics include innate immunity; lymphocyte development; inflammation; tolerance, infection, and autoimmunity; mucosal immunity; asthma and allergy and tumor immunology.

**Credit Hours:** 4

**Prerequisites:** MICROB 4304 or MICROB 7304, or instructor's consent

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**MICROB 9411: Responsible Conduct of Research**

Ethical, legal and sociological ramifications of research including data management, authorship, human and animal use, conflict of interest and misconduct. Round table discussions and interactive forums. Grading based on participation in discussions and assignments. Graded on S/U basis only.

**Credit Hour:** 1

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**MICROB 9430: Molecular Biology I**

(same as BIOCHM 9430). Detailed examination of current fundamental concepts of molecular genetics of bacteria, bacteriophages and yeast. Experimental approaches to analysis of the physical structures of genomic nucleic acids, the biochemistry and genetics of mutations, replications, gene transfer and gene expression will be examined in depth from reports in the current literature.

**Credit Hours:** 4

**Prerequisites:** Biochemistry, genetics

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**MICROB 9432: Molecular Biology II**

(same as BIOCHM 9432 and BIO\_SC 9432). Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**MICROB 9449: Infection and Immunity**

Writing, discussion, literature driven course, covering topics that focus on the interface between infectious diseases, cancer and the immune system. May be repeated for credit. Graded A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 2nd year Graduate student with bacteriology, virology, microbial pathogenesis and immunology background only. 1st year graduate students require instructor approval

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**Military Science (MIL\_SC)**

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**MIL\_SC 1100: Foundations of Officership**

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establish framework for understanding officership, leadership, and Army values followed and "life skills" such as physical fitness and time management.

**Credit Hour:** 1

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**MIL\_SC 1110: Introductory Military Science Laboratory I**

Field application of skills taught in MIL\_SC 1100, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1100

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**MIL\_SC 1120: Basic Leadership**

Establishes foundation of basic leadership fundamentals such as problem solving, communication, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling.

**Credit Hour:** 1

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**MIL\_SC 1130: Introductory Military Science Laboratory II**

Field application of skills taught in MIL\_SC 1120, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1120

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**MIL\_SC 2200: Individual Leadership Studies**

Students identify successful leadership characteristics through observation of others and self through experimental learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

**Credit Hours:** 2

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**MIL\_SC 2210: Intermediate Military Science Laboratory I**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as squad-level offensive and defensive operations. First aid topics and drill and ceremony are also taught.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2200

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**MIL\_SC 2220: Leadership and Teamwork**

Study examines how to build successful teams, various methods for influencing action, effective communication in selling and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

**Credit Hours:** 2

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**MIL\_SC 2230: Intermediate Military Science Laboratory II**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as platoon-level offensive and defensive operations. Practical application of night land navigation.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2220

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**MIL\_SC 3160: Death by a Thousand Cuts: Counterinsurgency/Insurgency the American Experience**

This course explores the problem of insurgency and counterinsurgency in terms of what we can learn from these conflicts. It examines counterinsurgency theory and practice, the Philippine Insurrection, Banana Wars, Vietnam War, Afghanistan, and Iraq.

**Credit Hours:** 3

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**MIL\_SC 3161: The American Experience in Vietnam**

This course was developed to provide students the opportunity to examine the American experience in the Vietnam War, to search for meanings in this experience, and to arrive at their own conclusions concerning the impact of the war upon the nation. Moreover, it challenges the students to think critically about war and the use of military power to settle differences between nations. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3162: Counterinsurgency in Asia**

This course explores the problem of insurgency and counterinsurgency in Asia in terms of what we can learn from these conflicts. The course examines the insurgency in the Philippine Insurrection 1899-1902, the Vietnam War, the Soviet-Afghan War, in Thailand, Sri Lanka and Malayan Emergency. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3163: U.S. Military History in the Western Tradition**

Analysis of United States military history from the Colonial period to the present, (1609-2012). It is a comprehensive look into the evolution of warfare in America, military traditions and heritage, and technology. This course analyzes the following: American Revolution, War of 1812, Mexican American War, Civil War, Indian Wars, Spanish American War, World War I, Inter War Period, World War II, Korean War, Vietnam

War, Gulf War, Afghanistan and Iraq. All cadets are required to take this course for commissioning. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3164: Nation Building through a Barrel of a Gun**

(same as POL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**MIL\_SC 3165: "Chasing Ghost", The History of Irregular Warfare**

(same as POL\_SC 3165). This course explores the history of Irregular Warfare from the guerrilla perspective. The course examines the works of Mao Tse-Tung, Che Guevara, T.E. Lawrence and several other Guerrilla Leaders. You will analyze the evolution of Irregular Warfare through history and understand the complexities associated with the difficulties of countering and defeating Irregular Warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**MIL\_SC 3230: Leadership and Problem Solving**

Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities.

**Credit Hours:** 3

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**MIL\_SC 3240: Leadership and Ethics**

Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, considerations of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication ability.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3230

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**MIL\_SC 3250: Leadership and Management**

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3240

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**MIL\_SC 3250W: Leadership and Management**

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3240

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**MIL\_SC 3260: Officership**

Study includes case study analysis of military law and practical exercises on establishing an ethical command climate, service as an officer; capstone exercise. Leadership lab Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills.

**Credit Hours:** 3**Recommended:** MIL\_SC 3250**MIL\_SC 3270: Advanced Transition to Lieutenant I**

Independent research, analysis and monthly discussion on related military topics. Personal, academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3**Prerequisites:** MIL\_SC 1100, MIL\_SC 2200, MIL\_SC 3230, and MIL\_SC 3250**Recommended:** department head permission**MIL\_SC 3280: Advanced Transition to Lieutenant II**

Independent research, analysis and monthly discussion on related military topics. Personal academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3**Prerequisites:** MIL\_SC 1100, MIL\_SC 2200, MIL\_SC 3230, and MIL\_SC 3250**Recommended:** department head permission

## Music-Applied Music (MUS\_APMS)

**MUS\_APMS 1435: Studio Instruction for Majors**

Acceptable as a secondary applied subject on B.S. in music education and B.M. degrees. Materials varies according to educational purpose. May be repeated for credit.

**Credit Hour:** 1**Prerequisites:** instructor's consent**MUS\_APMS 2455: Studio Instruction**

Credit accepted toward all undergraduate music and music education degrees. May be repeated for credit.

**Credit Hour:** 1-5**Prerequisites:** instructor's consent**MUS\_APMS 3455: Studio Instruction**

Accepted as upperclass credit only in Music Education, music theory, history, or composition. May be repeated for credit.

**Credit Hour:** 1-3**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455 or equivalent; audition by committee, and instructor's consent**MUS\_APMS 3970: Junior Recital**

Preparation and presentation of Junior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1**MUS\_APMS 4455: Studio Instruction**

For B.M. degrees in performance. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455; audition; instructor's consent**MUS\_APMS 4970: Senior Recital**

Preparation and presentation of Senior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1**MUS\_APMS 7435: Studio Instruction**

For music teachers needing instruction in secondary instruments or voice. May be repeated for credit.

**Credit Hour:** 1**MUS\_APMS 7455: Studio Instruction**

For graduate credit on M.A., M.Ed., and Ph.D. degrees. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5**Prerequisites:** audition; instructor's consent**MUS\_APMS 8455: Studio Instruction**

Required for graduate credit as major applied study on M.M. degree. Acceptable for graduate credit on M.A., M.Ed., Ed.D., and Ph.D. degrees. May be repeated for credit.

**Credit Hour:** 1-5**Prerequisites:** audition by committee and instructor's consent**MUS\_APMS 8970: Graduate Recital**

Preparation and presentation of Graduate Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

## Music-Courses for Non-Majors (MUSIC\_NM)

**MUSIC\_NM 1005: Topics in Music-Humanities**

Organized study of selected topics. Subjects vary from semester to semester. May be repeated once for additional credit with departmental consent.

**Credit Hour:** 1-3



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**MUSIC\_NM 1029: Music Travel Course**

Study tour designed to broaden perspective of persons interested in music. Stresses relationship of music to art and ideas in a variety of social and cultural contexts. Participant bears cost of course.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**MUSIC\_NM 1085: Problems in Music**

Independent investigation leading to a paper project. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUSIC\_NM 1211: Fundamentals of Music I**

Introduction to rhythmic, melodic, harmonic, and structural elements of music. Designed for non-music majors. No credit for music majors or minors.

**Credit Hours:** 2

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**MUSIC\_NM 1212: Fundamentals of Music II**

Continuation of MUSIC\_NM 1211. No credit for music majors or minors.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUSIC\_NM 1211

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**MUSIC\_NM 1300: Experiencing Music Through Concert Attendance**

Development of music listening skills through concert attendance, reading and class attendance.

**Credit Hour:** 1

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**MUSIC\_NM 1310: Masterpieces of Western Music**

Introduction to the Western fine-art tradition through the study of representative masterworks, emphasis on developing listening skills; directed to non-majors.

**Credit Hours:** 3

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**MUSIC\_NM 1311: Jazz, Pop, and Rock**

Historical introduction to jazz (to approximately 1970) and the American popular song, including rock and roll (to approximately 1980); directed to non-majors.

**Credit Hours:** 3

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**MUSIC\_NM 1312: History of Jazz**

Historical survey of American jazz from its origin to the present. No credit for students who have taken MUSIC\_NM 1311.

**Credit Hours:** 2

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**MUSIC\_NM 1313: Introduction to World Music**

Introduction to the musical traditions of selected non-Western societies; emphasis on developing listening skills; directed to non-majors, but music majors may enroll.

**Credit Hours:** 3

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**MUSIC\_NM 1314: Orchestral Masterpieces**

In-depth study of selected symphonic works of masters from Joseph Haydn to Aaron Copland. Students develop critical listening skills to identify orchestral instruments and perceive the structure and character of selected orchestral works. Directed to non-music majors. Graded on A-F basis only.

**Credit Hours:** 3

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**MUSIC\_NM 1315: Musical Profile-Bach**

Systematic study of the music of J.S. Bach directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1316: Music Profile--Wolfgang A. Mozart**

A systematic introduction to the music of Wolfgang Amadeus Mozart. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1317: Musical Profile-Beethoven**

Systematic study of the music of Ludwig van Beethoven directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1318: Music Profile--Claude Debussy**

A systematic introduction to the music of Claude Debussy. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1319: Music Profile--Igor Stravinsky**

A systematic introduction to the music of Igor Stravinsky. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1320: Musical Profile-Copland**

Systematic study of the music of Aaron Copland directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1330: Introduction to African-American Music**

Introduction to the history and scholarship of African American music from eighteenth through twentieth centuries. Focus on African legacies and retentions, slave culture, the black church, minstrelsy, folk traditions, spirituals, ragtime, blues, jazz, soul, R&B, and hip hop.

**Credit Hours:** 3

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**MUSIC\_NM 1335: Introduction to Soul and Country**

(same as BL\_STU 1335). Examination of musical cultures signified by "soul" and "country". Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**MUSIC\_NM 1340: Music of Love and Death**

Exploration of musical expression surrounding love and death in specific works of diverse styles and sociological contexts. Students will learn to listen to and appreciate music with informed ears and minds, develop strong perceptual skills, and cultivate a musical vocabulary.

**Credit Hours:** 3

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**MUSIC\_NM 1341: Drama Through Western Music**

Introduction to the musical culture of the theater through the ages by examining specific works of diverse styles and sociological contexts. Students learn to listen to and appreciate music with informed ears and minds, develop perceptual skills, and cultivate musical vocabulary.

**Credit Hours:** 3

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**MUSIC\_NM 1445: Studio Instruction**

Acceptable for non-majors and majors requiring a half-hour lesson with instructor's consent. May be repeated for credit.

**Credit Hour:** 1

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**MUSIC\_NM 1608: Beginning Piano Class**

For non-music majors only.

**Credit Hour:** 1

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**MUSIC\_NM 1609: Intermediate Piano Class**

For non-music majors only. Continuation of MUSIC\_NM 1608.

**Credit Hour:** 1

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**MUSIC\_NM 1612: Elementary Folk Guitar Class**

Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and folk songs.

**Credit Hour:** 1

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**MUSIC\_NM 1615: Beginning Classical Guitar Class**

Beginning Classical Guitar Class

**Credit Hour:** 1

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**MUSIC\_NM 1617: Beginning Drumset**

Fundamentals of the drumset, including an historical survey and biographical sketch of several performers. Also can be used as a pedagogical outline for future music teachers.

**Credit Hour:** 1

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**MUSIC\_NM 1618: Basic Musicianship**

Development of musicianship through music reading, playing, creating, and perceptive listening, including study of pitch, rhythm, structure, style, expressive and interpretive elements, and related vocabulary. No credit for music majors or minors or students who have completed MUSIC\_NM 1211 or MUSIC\_NM 1212.

**Credit Hours:** 3

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**MUSIC\_NM 1651: Voice Class I**

Fundamentals of singing: posture, breath support, control, vocalization, concepts of tone quality, placement and resonance. Literature selected for students with no previous vocal training. Adapted to needs of drama and other interdisciplinary students.

**Credit Hour:** 1

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**MUSIC\_NM 1652: Voice Class II**

Continuation of MUSIC\_NM 1651.

**Credit Hour:** 1

**Prerequisites:** MUSIC\_NM 1651

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**MUSIC\_NM 2306: Perceiving Musical Traditions and Styles**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** open only to Journalism majors with sophomore standing or higher

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**MUSIC\_NM 2306H: Perceiving Musical Traditions and Styles - Honors**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** open only to Journalism majors with sophomore standing or higher. Honors eligibility required

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**MUSIC\_NM 2310: Live Music: Up Close and Personal**

Study of classical chamber music from 1770-present through live performances. Artistic, cultural and historical contexts; development of listening skills and basic music vocabulary. No credit for music majors and music minors.

**Credit Hour:** 1

**Recommended:** Humanities credit for non-music students

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**MUSIC\_NM 2320: History of the Classical Guitar**

Historical development of the classical guitar and guitar music from 1400 to today.

**Credit Hours:** 2

**Recommended:** Humanities credit for any and all non-music majors

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**MUSIC\_NM 2445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 4445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

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**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 7029: Travel Seminar**

Selected topics for directed study in music undertaken in context of the tour. Emphasis on subjects with cross-disciplinary implications. Participant bears cost of course.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**MUSIC\_NM 7445: Studio Instruction for Non-Majors**

Acceptable for graduate s credit for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent

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## Music-Ensemble Courses (MUS\_ENS)

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**MUS\_ENS 1841: Instrumental Ensemble**

Provides experience in instrumental performance and repertory. Open to all MU students by audition. May be repeated for credit. Enrollment in Marching Band is limited to a maximum of five semesters. Sections are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Varsity Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** Audition

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**MUS\_ENS 1842: Choral Ensemble**

Provides experience in choral performance and repertory. Open to all MU students. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Chorale, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition required for all but Choral Union

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**MUS\_ENS 1846: Chamber Music**

Preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble, Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 1865: Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre work in staged or concert versions. Open to all MU students by audition. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 2843: Piano Ensemble**

Study, preparation, and performance of ensemble literature for piano. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_ENS 4866: Musical Theatre Performance**

(same as THEATR 4460). A practical study for the actor of theatrical songs through character analysis, lyric interpretation, and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_ENS 8841: Instrumental Ensemble**

Research, preparation and performance of instrumental compositions. May be repeated for credit. Sections and credit hours are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8842: Choral Ensemble**

Research, preparation and performance of choral compositions. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Choral, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8843: Advanced Piano Ensemble**

Study, preparation and performance of standard piano literature for four hands. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_ENS 8846: Advanced Chamber Ensemble**

Study, preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble, Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8865: Advanced Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre works in staged or concert versions. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-2

**Prerequisites:** audition and instructor's consent

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## Music-General (MUS\_GENL)

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**MUS\_GENL 1091: Recital Attendance for Undergraduate Music Majors**

Required attendance of eleven music events from the Music Department listing. 0 credit, and may be repeated until the total degree requirement is satisfactorily met. No tuition charged. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Undergraduate music or music education majors only

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**MUS\_GENL 3005: Topics in Music-Humanities**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

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**MUS\_GENL 3005H: Topics in Music-Humanities - Honors**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent. Honors eligibility required

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**MUS\_GENL 3085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 3085W: Problems in Music - Writing Intensive**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 4005: Topics in Music-Humanities**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

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**MUS\_GENL 4005H: Topics in Music-Humanities - Honors**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent. Honors eligibility required

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**MUS\_GENL 4005W: Topics in Music-Humanities - Writing Intensive**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

---

**MUS\_GENL 4029: Music Travel Course**

(cross-leveled with MUS\_GENL 7029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 4510: Career Development for Musicians**

Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** sophomore standing and instructor's consent

---

**MUS\_GENL 4512: Principles of Entrepreneurship for Musicians**

Provisions of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

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**MUS\_GENL 4514: Arts Marketing for Musicians**

Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; Sophomore standing or instructor's consent

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**MUS\_GENL 4516: Grant Writing for Musicians**

(cross-leveled with MUS\_GENL 7516). Exploration of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

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**MUS\_GENL 4518: Music Industry Survey**

In-depth survey of the commercial Music industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

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**MUS\_GENL 4520: Non-Profit Management in the Arts**

Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

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**MUS\_GENL 4522: Community Engagement in the Arts**

Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing, or instructor's consent

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**MUS\_GENL 4530: Entrepreneurship, Leadership and Advocacy in the Arts**

Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

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**MUS\_GENL 4540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 7540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

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**MUS\_GENL 4550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 7550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 7005: Topics in Music**

Organized study of selected topics in music. Subjects and credit variable. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**MUS\_GENL 7029: Music Travel Course**

(cross-leveled with MUS\_GENL 4029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7510: Career Development for Musicians**

Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7512: Principles of Entrepreneurship for Musicians**

Provision of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

---

**MUS\_GENL 7514: Arts Marketing for Musicians**

Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

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**MUS\_GENL 7516: Grant Writing for Musicians**

(cross-leveled with MUS\_GENL 4516). Explorations of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510; instructor's consent

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**MUS\_GENL 7518: Music Industry Survey**

In-depth survey of the commercial music industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

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**MUS\_GENL 7520: Non-Profit Management in the Arts**

Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

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**MUS\_GENL 7522: Community Engagement in the Arts**

Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7530: Entrepreneurship, Leadership and Advocacy in the Arts**

Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 4540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

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**MUS\_GENL 7550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 4550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 8085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 8090: Research in Music**

Thesis course. May be repeated for additional credit. Sections are: Music Theory, Music Composition, Music History. Performance/Pedagogy. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Instrumental And Vocal Repertory (MUS\_I\_VR)

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**MUS\_I\_VR 3753: Piano Literature I**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3753W: Piano Literature I - Writing Intensive**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3754: Piano Literature II**

Survey of keyboard music from Beethoven's time to the present.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 3753 or instructor's consent

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**MUS\_I\_VR 4767: Vocal Literature I**

Introduction to and study of song literature with emphasis on style and interpretation. Prerequisites: junior standing

**Credit Hours:** 2

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**MUS\_I\_VR 4768: Vocal Literature II**

Continuation of MUS\_I\_VR 4767.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 4767 or instructor's consent

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**MUS\_I\_VR 4776: Orchestral Excerpts**

Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent required

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**MUS\_I\_VR 4780: Classical Guitar Repertory I**

Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VR 4781: Classical Guitar Repertory II**

Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 4780; instructor's consent

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**MUS\_I\_VR 7767: Advanced Vocal Literature I**

Study of specific aspects of vocal repertory. Individual projects in research, analysis and performance.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VR 7455 or instructor's consent

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**MUS\_I\_VR 7768: Advanced Vocal Literature II**

Continuation of MUS\_I\_VR 7767.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VR 7767 or instructor's consent

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**MUS\_I\_VR 7776: Orchestral Excerpts**

Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7780: Graduate Classical Guitar Repertory I**

Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7781: Graduate Classical Guitar Repertory II**

Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 7780. Instructor's consent required

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**MUS\_I\_VR 8753: Piano Repertory I**

Study of specific aspects of Baroque and Classical keyboard music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 7455 or instructor's consent

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**MUS\_I\_VR 8754: Piano Repertory II**

Study of specific aspects of nineteenth- and twentieth century piano music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 8753 or instructor's consent

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**MUS\_I\_VR 8765: Choral Repertory**

Survey of choral works from selected periods with an emphasis on various aspects of choral performance. May be repeated once for additional credit.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VR 8770: Band Repertory**

To survey band and wind ensemble repertoire with emphasis on various aspects of performance practice in order to prepare the student for a career which includes conducting advanced high school and college bands and wind ensembles.

**Credit Hours:** 3

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**MUS\_I\_VR 8773: String Instrument Repertory I**

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 7455 or instructor's consent

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**MUS\_I\_VR 8774: String Instrument Repertory II**

Continuation of MUS\_I\_VR 8773.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 8773

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**MUS\_I\_VR 8775: Orchestral Repertory**

A survey of orchestral repertory, emphasizing various aspects of performance practice. Appropriate for graduate music conducting majors who wish to pursue a career which includes conducting orchestras at the advanced high school, college, and professional levels. May be repeated.

**Credit Hours:** 2

**Prerequisites:** Conducting experience at the high school or college level and instructor's consent

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## Music-Instrumental And Vocal Techniques (MUS\_I\_VT)

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**MUS\_I\_VT 1610: Group Piano for Music Majors I**

Beginning piano for music majors and concentrations only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 1611: Group Piano for Music Majors II**

Continuation of MUS\_I\_VT 1610.

**Credit Hour:** 1

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**Prerequisites:** MUS\_I\_VT 1610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 1620: Jazz Piano Class**

Beginning piano technique and study of common jazz piano voicings for accompaniment and solo performance.

**Credit Hour:** 1

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_I\_VT 2610: Group Piano for Music Majors III**

Continuation of MUS\_I\_VT 1611.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1611 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2611: Group Piano for Music Majors IV**

Continuation of MUS\_I\_VT 2610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2631: Basic Conducting and Score Reading**

To develop the basic psychomotor and score reading skills prerequisite to the art of conducting.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 2220

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**MUS\_I\_VT 2632: Rehearsal Clinic: String Orchestra Conducting**

To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of string ensembles.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 and either MUS\_I\_VT 2640 or MUS\_I\_VT 2641

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**MUS\_I\_VT 2633: Rehearsal Clinic: Choral Conducting I**

To develop musical and interpersonal skills requisite for successful leadership of a choral ensemble, emphasizing rehearsal strategies and repertoire.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2634: Rehearsal Clinic: Band Conducting I**

To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of wind and percussion ensembles.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2635: Rehearsal Clinic: Choral Conducting II**

Continuation of MUS\_I\_VT 2633.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2633

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**MUS\_I\_VT 2636: Rehearsal Clinic: Band Conducting II**

Continuation of MUS\_I\_VT 2634.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2634

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**MUS\_I\_VT 2637: Woodwinds I**

Class instruction in clarinet and saxophone; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2638: Woodwinds II**

Class instruction in flute and double reeds; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2640: Strings I**

Class instruction in violin and viola; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2641: Strings II**

Class instruction in violoncello and string bass; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2645: Brass I**

Class instruction in trumpet and horn; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2646: Brass II**

Class instruction in trombone, euphonium, and tuba; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2648: Percussion**

Class instruction in percussion instruments; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music Education

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**MUS\_I\_VT 2649: Percussion II**

Extension of MUS\_I\_VT 2648. Topics include marching percussion, drumset, Latin accessory instruments, and percussion ensemble literature.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2648

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**MUS\_I\_VT 2661: Keyboard Skills for Piano Majors I**

Study of sightreading, harmonization, transposition, figured bass realization, and duet skills.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 1221 and MUS\_THRY 1231; instructor's consent

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**MUS\_I\_VT 2662: Keyboard Skills for Piano Majors II**

Study of score reading, duet performance, and collaborative experiences with voice and instruments.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_I\_VT 2661; instructor's consent

---

**MUS\_I\_VT 3640: Undergraduate Seminar in Vocal Techniques**

Discusses accepted techniques of singing, practical application to posture, breath support, tone placement, musicianship, diction, interpretation, stage deportment. Recognizing and solving specific vocal problems. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

---

**MUS\_I\_VT 3642: Seminar in String Techniques**

In-depth study of publications, philosophies, repertory, grading, specific problems for the string player. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2640 and MUS\_I\_VT 2641, or instructor's consent

---

**MUS\_I\_VT 3643: Symposium in Instrumental Music**

Study of procedures, techniques and literature for variable combinations of wind, string, and percussion classes and the administration of instrumental music programs.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education or instructor's consent

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**MUS\_I\_VT 3644: Jazz Methods and Materials**

Training and supervised practice in conducting Jazz Ensembles; study of administration, methods, and materials pertinent to teaching Jazz, Rock, and Commercial Music in high school and college.

**Credit Hour:** 1

**Prerequisites:** junior standing or instructor's consent

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**MUS\_I\_VT 3646: Marching Band Techniques**

Study of techniques and procedures used in the development of field and street marching.



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**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education

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**MUS\_I\_VT 3670: Diction in Singing: Italian**

Study of the correct principles and application of Italian diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3671: Diction in Singing: German**

Study of the correct principles and application of German diction in singing the solo vocal, operatic and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

---

**MUS\_I\_VT 3672: Diction in Singing: French**

Study of the correct principles and application of French diction in singing the solo vocal, operatic, and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature. Prerequisites: sophomore standing

**Credit Hour:** 1

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**MUS\_I\_VT 3673: Diction in Singing: English**

Study of the correct principles and application of English diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** Sophomore standing

---

**MUS\_I\_VT 4640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 7640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

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**MUS\_I\_VT 4645: Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220, instructor's consent

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**MUS\_I\_VT 4661: Piano Pedagogy Survey I**

Study of approaches for teaching young beginning and intermediate student; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4662: Piano Pedagogy Survey II**

Study of approaches for teaching older, more advanced and class piano students; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4663: Piano Pedagogy Laboratory**

Supervised instruction in private and class piano . May be repeated once for additional credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 4661 and MUS\_I\_VT 4662

---

**MUS\_I\_VT 4680: Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level, and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition required and instructor's consent

---

**MUS\_I\_VT 7640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 4640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

---

**MUS\_I\_VT 7645: Graduate Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_I\_VT 7680: Graduate Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition and approval of instructor

---

**MUS\_I\_VT 8646: Jazz Pedagogy I**

Study of historical and current trends in jazz education and pedagogy, including administration and curriculum, through assigned readings, supervised teaching, classroom discussion, survey of materials, and formation of an annotated bibliography. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

---

**MUS\_I\_VT 8647: Jazz Pedagogy II**

Continuation of MUS\_I\_VT 8646; formulation of an extensive philosophy of jazz education. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VT 8646 and instructor's consent

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**MUS\_I\_VT 8671: Principles of Singing I**

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8673: Advanced Choral Conducting**

Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2633 or instructor's consent

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**MUS\_I\_VT 8674: Advanced Instrumental Conducting**

Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2634 or instructor's consent

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**MUS\_I\_VT 8681: Advanced Piano Pedagogy I**

A survey of materials and techniques of instruction for teaching the young beginner and the intermediate piano student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8682: Advanced Piano Pedagogy II**

A survey of materials and techniques of instruction for teaching class piano, the older beginner, and the advanced student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8683: Piano Pedagogy Internship**

Supervised teaching of individual and group lessons. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 8681 and MUS\_I\_VT 8682 and instructor's consent

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**MUS\_I\_VT 8684: Group Piano Pedagogy**

Preparation of graduate students to teach group piano to both college level music majors and adult beginners.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8686: Choral Techniques**

Study of techniques for developing choral singing and musical interpretation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8689: Band Techniques**

To develop individual conducting techniques as well as instrumental ensemble techniques. Emphasis is placed on the learning process to give the student a perspective to improve the techniques of others.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Music-Music History And Literature (MUS\_H\_LI)

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**MUS\_H\_LI 1322: Introduction to Music in the United States**

Historical overview of American folk, popular, and fine-art music; emphasis on listening skills.

**Credit Hours:** 2

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**MUS\_H\_LI 2307: History of Western Music I**

Historical survey of selected European practices up to 1700 following a consideration of the major fine-art traditions of the world.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 1322

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**MUS\_H\_LI 2308: History of Western Music II**

Historical survey of Western fine-art music from approximately 1700 to the present.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307

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**MUS\_H\_LI 4311: Historical Studies in Art Song**

Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4311W: Historical Studies in Art Song - Writing Intensive**

Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312: Historical Studies in Choral Music**

Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312W: Historical Studies in Choral Music - Writing Intensive**

Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4313: Historical Studies in Opera**

(cross-leveled with MUS\_H\_LI 7313). Historical survey of opera.

**Credit Hours:** 3

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**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4313W: Historical Studies in Opera - Writing Intensive**  
Historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4314: Historical Studies in Large Ensemble Music**  
Historical survey of works for large instrumental ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4315: Historical Studies in Chamber Music**  
Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4315W: Historical Studies in Chamber Music - Writing Intensive**  
Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4316: Historical Studies in Keyboard Music**  
Historical survey of works for solo keyboard instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4317: Historical Studies in Jazz and Popular Music**  
Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4317W: Historical Studies in Jazz and Popular Music - Writing Intensive**  
Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4318: Studies in World Music**  
Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

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**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4318W: Studies in World Music - Writing Intensive**  
Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4320: Historical Studies in African-American Music**  
(cross-leveled with MUS\_H\_LI 7320). Exploration of history and current scholarship in African-American music from the eighteenth to twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and Instructor's consent

---

**MUS\_H\_LI 4320W: Historical Studies in African-American Music - Writing Intensive**  
Exploration of history and current scholarship in African-American music from the eighteenth to twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and Instructor's consent

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**MUS\_H\_LI 4330: Music of the Postmodern Era**  
(cross-leveled with MUS\_H\_LI 7330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

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**MUS\_H\_LI 4335: Music of the Middle Ages and the Renaissance**  
Systematic study of European musical practice before 1600.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4336: Music in the Baroque Era**  
Systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4337: Music of the Classic Era**  
Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4337W: Music of the Classic Era - Writing Intensive**

Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4338: Music of the Romantic Era**

Systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4339: Music of the Modern Era**

Systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

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**MUS\_H\_LI 4340: Focal Composers**

Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4340W: Focal Composers - Writing Intensive**

Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341: Advanced Studies in American Music**

(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341W: Advanced Studies in American Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4342: Contemporary Issues in Musicology**

Systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4350: Introduction to Ethnomusicology**

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

---

**MUS\_H\_LI 4350W: Introduction to Ethnomusicology - Writing Intensive**

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4352: Historical Studies in African Music**

(same as BL\_STU 4352) Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

---

**MUS\_H\_LI 4352W: Historical Studies in African Music - Writing Intensive**

(same as BL\_STU 4352) Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4376: American Musicals**

(same as THEATR 4720). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**MUS\_H\_LI 4397: Honors in Music History I**

Special readings, directed research for graduation with Honors in music history.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4398: Honors in Music History II**

Continuation of MUS\_H\_LI 4397 leading to Honors thesis in music history.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 4397

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**MUS\_H\_LI 4399: Graduate History Review**

Review of history for graduate students. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7307: Graduate Review of Music History I**

Survey of the history of Western music from ca. 600 A.D. to ca. 1750. Special readings; individual projects.

**Credit Hours:** 2

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**MUS\_H\_LI 7308: Graduate Review of Music History II**

Survey of the history of Western music from ca. 1750 to the present. Special readings; individual projects.

**Credit Hours:** 2

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**MUS\_H\_LI 7311: Historical Studies in Art Song**

Advanced historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7312: Historical Studies in Choral Music**

Advanced historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7313: Historical Studies in Opera**

Advanced historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7314: Historical Studies in Large Ensemble Music**

Advanced historical survey of works for large instrumental ensembles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7315: Historical Studies in Chamber Music**

Advanced historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7316: Historical Studies in Keyboard Music**

Advanced historical survey of works for solo keyboard instruments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7317: Historical Studies in Jazz and Popular Music**

Advanced historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7318: Studies in World Music**

Advanced systematic study of musical activities in selected world cultures, with emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7320: Historical Studies in African-American Music**

Exploration of history and current scholarship in African-American music from the eighteenth to the twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7330: Music of the PostModern Era**

(cross-leveled with MUS\_H\_LI 4330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**MUS\_H\_LI 7335: Music of the Middle Ages and the Renaissance**

Advanced systematic study of European musical practice before 1600.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7336: Music in the Baroque Era**

Advanced systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7337: Music of the Classic Era**

Advanced systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7338: Music of the Romantic Era**

Advanced systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7339: Music of the Modern Era**

Advanced systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7341: Advanced Studies in American Music**

(cross-leveled with MUS\_H\_LI 4341). Advanced systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7342: Contemporary Issues in Musicology**

Advanced systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7350: Introduction to Ethnomusicology**

Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7352: Historical Studies in African Music**

Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8313: Introduction to Graduate Study**

Introduction to library procedures, basic sources of information in music and techniques for research.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8314: Introduction to Graduate Studies in Music II**

The application of basic music bibliography, research techniques, and conventions of music scholarship.

**Credit Hour:** 1

**Prerequisites:** MUS\_H\_LI 8313 or instructor's consent

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**MUS\_H\_LI 8340: Focal Composers**

Advanced systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## **Music-Music Theory (MUS\_THRY)**

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**MUS\_THRY 1210: Introduction to Computer Technology and Music**

Introduces Finale, music engraving and playback software, and introduces sequencing and other software applications that may impact students while they are in school and as professional musicians.

**Credit Hours:** 2

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**MUS\_THRY 1213: Introduction to Music Theory**

Introduction to music notation and to rhythmic, melodic, harmonic, and structural elements of music. Emphasis on written skills, but ear training, sight singing, and keyboard components included as well. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** consent required. Placement by exam

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**MUS\_THRY 1220: Syntax, Structure and Style of Music I**

Review of fundamentals. Study of rhythm, melody, harmonic, structure and stylistic characteristics of various periods. Application through original composition projects. Prerequisites: none for Music majors; others: instructor's consent.

**Credit Hours:** 2

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**MUS\_THRY 1221: Syntax, Structure and Style of Music II**

Continuation of MUS\_THRY 1220. Study of smaller forms and introduction to chromatic harmony.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1220

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**MUS\_THRY 1230: Aural Training and Sight Singing I**

Development of aural and sight singing skills.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1220

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**MUS\_THRY 1231: Aural Training and Sight Singing II**

Continuation of MUS\_THRY 1230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1221

**Prerequisites:** Grade of C- or better in MUS\_THRY 1230

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**MUS\_THRY 2215: Composition I**

Fundamentals of composition and writing in small forms.

**Credit Hours:** 2

**Prerequisites:** grade of B- or better in MUS\_THRY 1220, MUS\_THRY 1221, MUS\_THRY 1230, MUS\_THRY 1231, and instructor's consent

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**MUS\_THRY 2216: Composition II**

Continuation of MUS\_THRY 2215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2215

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**MUS\_THRY 2220: Syntax, Structure and Style of Music III**

Chromatic harmony, variation techniques and contrapuntal genres. Study of traditional forms in instrumental, vocal and choral compositions. Applications through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1221

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**MUS\_THRY 2221: Syntax, Structure and Style of Music IV**

Continued study of chromatic harmony and compositions in larger forms. Application through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2220

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**MUS\_THRY 2230: Aural Training and Sight Singing III**

Continuation of MUS\_THRY 1231. Further development of aural and sight singing skills with an emphasis on chromatic harmony and decorative pitches. Introduction of structural perception.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1231 and MUS\_THRY 2220 or MUS\_THRY 2220 concurrently

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**MUS\_THRY 2231: Aural Training and Sight Singing IV**

Continuation MUS\_THRY 2230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 2221

**Prerequisites:** Grade of C- or better in MUS\_THRY 2230

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**MUS\_THRY 3215: Composition III**

Further development of creative writing in traditional forms.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216

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**MUS\_THRY 3216: Composition IV**

Continuation of MUS\_THRY 3215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3215

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**MUS\_THRY 4210: Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 7210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_THRY 4211: Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 7211). Continuation of MUS\_THRY 4210. Study of advanced melodic and harmonic materials commonly

used in jazz. Application through arranging projects for small and large jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 4210; instructor's consent

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**MUS\_THRY 4212: Jazz Theory I**

Comprehensive study of the grammar and syntax of jazz harmony.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUSIC\_NM 1211 or MUS\_THRY 1220

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**MUS\_THRY 4213: Jazz Theory 2**

Continuation of MUS\_THRY 4212.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_THRY 4212

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**MUS\_THRY 4215: Composition V**

Writing of works in larger forms for a solo instrument or chamber ensemble.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3216

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**MUS\_THRY 4216: Composition VI**

Continuation of MUS\_THRY 4215. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4215

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**MUS\_THRY 4220: 20th Century Composition Techniques**

(cross-leveled with MUS\_THRY 7220). The study and application of analytical procedures to 20th century music literature. Special readings; individual projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4221: Analysis of Music**

An analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221 or equivalent

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**MUS\_THRY 4222: Computer Technology and Music**

The introduction of music software for educational and professional use. Music notation software will be learned. Sequencing software will be studied in depth. Hands-on experience with Macintosh computers, multi-timbral synthesizers and various CD-ROMS.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4220

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**MUS\_THRY 4223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7223). Study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue.

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**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7225). Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4227: Orchestration**

(cross-leveled with MUS\_THRY 7227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4229: Band Arranging**

Transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4230: Choral Arranging**

Transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4231: Schenkerian Analysis**

Techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4232: Rhythmic Analysis of Tonal Music**

Introduction to rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4233: Acoustics of Music**

(cross-leveled with MUS\_THRY 7233). The study of tuning systems and the properties, production and reception of musical sound.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 4241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 7241). Continuation of MUS\_THRY 4231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231, or equivalent at another institution

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**MUS\_THRY 4245: Introduction to Electronic Music**

Techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4220

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**MUS\_THRY 4247: Introduction to Digital Synthesis**

Introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 4250: Analysis of Musical Styles**

Analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or MUS\_THRY 4221 or equivalent. May be repeated for credit with departmental consent.

**Credit Hours:** 2

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**MUS\_THRY 4252: Keyboard Harmony and Score Reading**

Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221; instructor's consent

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**MUS\_THRY 4267: Advanced Orchestration I**

(cross-leveled with MUS\_THRY 7267). Transcription for full orchestra of large works from different style periods. Scoring of original works for orchestra. Seminar, private lessons.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4227

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**MUS\_THRY 4268: Advanced Orchestration II**

(cross-leveled with MUS\_THRY 7268). Survey of original works for orchestra.

**Credit Hours:** 2

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**MUS\_THRY 4271: Pedagogy of Music Theory I**

Techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4272: Pedagogy of Music Theory II**

Techniques and materials for advanced college courses in music theory.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4271

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**MUS\_THRY 4284: Contemporary Analytical Techniques**

Study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4299: Graduate Theory Review**

Review of music theory for graduate students in music. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7210: Advanced Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 4210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7211: Advanced Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 4211). Continuation of MUS\_THRY 7210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7215: Composition I**

Fundamentals of Composition: Writing in small forms. For non-composition graduate students in music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7216: Composition II**

Continuation of MUS\_THRY 7215.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7215

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**MUS\_THRY 7220: 20th Century Composition Techniques**

(cross-leveled with MUS\_THRY 4220). Graduate review in the study and application of analytical procedures to 20th century music literature. Special readings; individual projects.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7221: Analysis of Music**

Graduate review in the analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7222: Computer Technology and Music**

Graduate-level introduction of music software for educational and professional use. Music notation software will be learned. Sequencing

software will be studied in depth. Hands-on experience with Macintosh computers, multi-timbral synthesizers and various CD-ROMS.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4223). Advanced study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue. Prerequisites: instructor's consent

**Credit Hours:** 3

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**MUS\_THRY 7225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4225). Advanced analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7227: Advanced Orchestration**

(cross-leveled with MUS\_THRY 4227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7229: Band Arranging**

Advanced transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7230: Choral Arranging**

Advanced transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7231: Schenkerian Analysis**

Advanced techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7232: Rhythmic Analysis of Tonal Music**

Advanced study of rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7233: Acoustics of Music**

(cross-leveled with MUS\_THRY 4233). Advanced study of tuning systems and the properties, production and reception of musical sound.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 4241). Continuation of MUS\_THRY 7231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231 or MUS\_THRY 7231, or equivalent at another institution

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**MUS\_THRY 7245: Introduction to Electronic Music**

Advanced techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7247: Introduction to Digital Synthesis**

Graduate-level introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7250: Analysis of Musical Styles**

Advanced analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7252: Keyboard Harmony and Score Reading**

Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

**Prerequisites:** demonstrable keyboard proficiency at level of Bach invention; instructor's consent

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**MUS\_THRY 7267: Advanced Orchestration I**

(cross-leveled with MUS\_THRY 4267). Advanced transcription for full orchestra of large works from different style periods. Scoring of original works for orchestra. Seminar, private lessons.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7227 or instructor's consent

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**MUS\_THRY 7268: Advanced Orchestration II**

(cross-leveled with MUS\_THRY 4268). Survey of original works for orchestra.

**Credit Hours:** 2

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**MUS\_THRY 7271: Pedagogy of Music Theory I**

Advanced techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7272: Pedagogy of Music Theory II**

Advance techniques and materials for advanced college courses in music theory.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7271

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**MUS\_THRY 7284: Contemporary Analytical Techniques**

Advanced study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 8215: Composition VII**

Intensive work in larger forms. Seminar, private lessons. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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## Natural Resources (NAT\_R)

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**NAT\_R 1040: Conservation Studies**

A one-week field experience in natural resource management issues—soil and water conservation, air pollution, fish and wildlife habitat requirements, importance of forest ecosystems. Limited to high school students who have completed their junior year and taken the PSAT or equivalent. Graded on S/U basis only.

**Credit Hour:** 1

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**NAT\_R 1060: Ecology and Conservation of Natural Resources**

Introduction to the principles of resource and conservation describing the foundation of the variety of natural resources and conservation practices used to protect and maintain these resources.

**Credit Hours:** 3

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**NAT\_R 1070: Ecology and Renewable Resource Management**

Introduction to ecological principles and their relationship to resource use and management.

**Credit Hours:** 3

**Prerequisites:** restricted to Natural Resources majors

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**NAT\_R 2002: Topics in Natural Resources - Biological/Physical/Mathematical**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 2004: Topics in Natural Resources - Social Science**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 2080: Outdoor Recreation Consortium**

Outdoor Recreation Consortium is a collaborative course taught by MU, North Carolina State University, Penn State University, East Carolina University, Texas A&M University and Western Illinois University. The course uses Great Smoky Mountains National Park as a case study for understanding the relationship between ecosystem management, natural resource management, tourism, and outdoor recreation. This course is based around a one week trip to the Smokies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NAT\_R 1070 or P\_R\_TR 2111 or ENV\_SC 1100 and permission of instructor

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**NAT\_R 2160: Issues in Natural Resources and the Environment**

This course provides an introduction to ecological and environmental challenges in natural resource management in our rapidly changing world. Topical discussions will provide students with informed perspectives of several contemporary issues that affect the sustainability of our natural resources.

**Credit Hours:** 3

**Recommended:** This course is recommended as an introductory course for non-science majors

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**NAT\_R 3001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 3110: Natural Resource Biometrics**

Sampling methods and analysis as applied to a variety of natural resources, including fisheries, range, recreation, forests, water and wildlife.

**Credit Hours:** 3

**Recommended:** a course in Statistics

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**NAT\_R 3220: Public Relations for Natural Resource Managers**

Introduction to the practical nature of public relations for those entering natural resources careers, emphasis on communication with target audiences through news media, publications and exhibits.

**Credit Hours:** 3

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**NAT\_R 3290: Hydrologic Measurement Techniques**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 3290W: Hydrologic Measurement Techniques - Writing Intensive**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 4000: Problems in Natural Resources**

Problems in Natural Resources

**Credit Hour:** 1-99

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**NAT\_R 4001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 4024: Foundations of Environmental Education**

(same as ENV\_SC 4024; cross-leveled with NAT\_R 7024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**NAT\_R 4320: Hydrologic and Water Quality Modeling**

(same as ENV\_SC 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100

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**NAT\_R 4325: Introduction to Geographic Information Systems**

(cross-leveled with NAT\_R 7325). The course will cover basic theoretical and technical issues in GIS, discuss processing geographic information for research and application, emphasis on the nature of spatial information, data models, input, manipulation and storage, and spatial analytic techniques.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1070 or GEOG 2840; NAT\_R 1080 and NAT\_R 1090; instructor's consent

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**NAT\_R 4353: Natural Resource Policy/Administration**

Principles of policy formation and analysis; relationship of organizational goals to structure, planning and budgeting. Historical background of present natural resource policies; examines current policy issues.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NAT\_R 4365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Covers general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, NAT\_R 1080 and NAT\_R 1090

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**NAT\_R 4385: Landscape Ecology and GIS Analysis I**

(same as GEOG 4810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040

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**NAT\_R 4940: Natural Resources Internship**

Supervised professional experience with an approved public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** School of Natural Resources majors only, instructor's consent

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**NAT\_R 4970: Resource Practicum in Natural Resources**

Multidisciplinary planning of a natural resource management program.

**Credit Hours:** 3

**Prerequisites:** School of Natural Resources majors only and senior standing

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**NAT\_R 7001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 7024: Foundations of Environmental Education**

(cross-leveled with NAT\_R 4024, ENV\_SC 4024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

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**NAT\_R 7320: Hydrologic and Water Quality Modeling**

(same as ENV\_SC 7320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on Missouri watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1080 and NAT\_R 1090 and SOIL 2100 or equivalent

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**NAT\_R 7325: Introduction to Geographic Information Systems**

(cross-leveled with NAT\_R 4325). The course will cover basic theoretical and technical issues in GIS, discuss processing geographic information for research and application, emphasis on the nature of spatial information, data models, input, manipulation and storage, and spatial analytic techniques.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1070 or GEOG 2840; NAT\_R 1080 and NAT\_R 1090; instructor's consent

---

**NAT\_R 7353: Natural Resource Policy/Administration**

Principles of policy formation and analysis; relationship of organizational goals to structure, planning and budgeting. Historical background of present natural resource policies; examines current policy issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**NAT\_R 7365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Cover general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, NAT\_R 1080 and NAT\_R 1090, or instructor's consent

---

**NAT\_R 7385: Landscape Ecology and GIS Analysis I**

(same as GEOG 7810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, or instructor's consent

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**NAT\_R 8001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 8050: Masters Non-Thesis Research in Natural Resources**

Research credits associated with a non-thesis M.S. project. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** restricted to Masters students in the School of Natural Resources

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**NAT\_R 8090: Master Thesis Research in Natural Resources**

Research credits leading to M.Sc. thesis. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to Masters students in the School of Natural Resources

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**NAT\_R 8290: Hydrologic Measurement and Synthesis**

Students are introduced to methods fundamental to measuring hydrologic processes, and assessing physical data, including field measurement, and data logging and acquisition information systems. Students will gain experience analyzing and synthesizing hydrologic data using tools commonly used by water resource professionals. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MATH 1100, STAT 2530, PHYSCS 1210. If deficient in prerequisite courses, or unsure of qualification, contact instructor for consent

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**NAT\_R 8395: Landscape Ecology and GIS Analysis II**

(same as GEOG 8815). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4365; FOREST 4320 or equivalent; basic statistics; instructor's consent

**Recommended:** GEOG 4810 or GEOG 7810

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**NAT\_R 8416: Applied Research Methodology**

Interrelated roles or logic, observation experiment in scientific method, research components, ethical aspects, scientific publication and communication, and research direction.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**NAT\_R 8448: Society and Ecosystems Research Seminar**

(same as AG\_EC 8448 and RU\_SOC 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**NAT\_R 9001: Topics in Natural Resources**

Organized study of selected topics. Subjects and topics may vary from semester to semester. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent. Restricted to School of Natural Resources Graduate Students

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**NAT\_R 9087: Graduate Seminar in Natural Resources**

Graduate seminar in Natural Resources. May be repeated for credit. Graded on S/U basis only. Prerequisites: restricted to PhD students in the School of Natural Resources

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**Credit Hour:** 1-10

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**NAT\_R 9090: Dissertation Research in Natural Resources**

Research leading to a dissertation and Ph.D. in the School of Natural Resources. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to PhD students in the School of Natural Resources

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**NAT\_R 9490: Ecohydrology: Contemporary Topics**

A series of discussions centered on primary literature within disciplines relevant to the participants. All Natural Resources disciplines are encouraged to participate (e.g., ecology, wildlife, fisheries, recreation/tourism, hydrology, atmospheric sciences, soils, etc.) with emphasis on interdisciplinary research (i.e. integrated natural, social and/or physical scientific research). May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

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## Naval Science (NAVY)

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**NAVY 1100: Introduction to Naval Science**

This course serves as an introduction to the organization of the Naval Service, the varied career opportunities available, the long held customs and traditions of the service, and the duties of a Junior Officer.

**Credit Hours:** 3

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**NAVY 1200: Seapower and Maritime Affairs**

Seminars examine the application of seapower as an instrument of foreign policy by the major nations of the world. Emphasis placed on role of the Navy.

**Credit Hours:** 3

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**NAVY 2110: Naval Ship Systems I**

Ship construction, stability and damage control, basic thermodynamics, the steam cycle and engineering plant, including introduction to gas turbine, diesel and nuclear powered systems.

**Credit Hours:** 3

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**NAVY 2130: Evolution of Warfare**

Evolution of strategy, tactics, weapons and leadership from earliest beginning through the Vietnam period. Development of military policy, the impact of warfare on the political, social and economic structure of nations.

**Credit Hours:** 3

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**NAVY 2210: Naval Ship Systems II**

Naval weapons systems, their employment and control, including the basic fire control problem, with emphasis on new systems.

**Credit Hours:** 3

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**NAVY 3120: Marine Navigation**

Theoretical and practical application of the principles of marine navigation. Includes fundamentals of dead reckoning, piloting, tides and current, celestial navigation, electronic navigation.

**Credit Hours:** 3

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**NAVY 3130: Amphibious Warfare**

History and development of amphibious warfare, principles of amphibious warfare techniques; their application in selected examples from modern.

**Credit Hours:** 3

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**NAVY 3140: Leadership and Management**

This course will provide a basic understanding of the interrelationship between authority, responsibility and accountability within a task oriented organization. Students will learn to apply leadership and management skills to prioritize competing demands and to attain mission objectives; the importance of planning and follow-up; and develop a basic understanding of communication and counseling as it pertains to personnel management.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or by consent of Professor of Naval Science

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**NAVY 3220: Naval Operations**

Principles and concepts of naval operations: rules of the road, command and control in naval operations, communications, ASW warfare, international maritime law, and practical solution of relative motion problems.

**Credit Hours:** 3

**Prerequisites:** NAVY 3120

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**NAVY 4940: Leadership and Ethics**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**NAVY 4940W: Leadership and Ethics - Writing Intensive**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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## Neurology (NEUROL)

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**NEUROL 6003: Neurology Clerkship**

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

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**NEUROL 6013: Rural Neurology Clerkship**

Rural Neurology Clerkship

**Credit Hours:** 4

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**NEUROL 6023: Springfield Neurology Clerkship**

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

**Prerequisites:** successful completion of the first two years of medical school

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**NEUROL 6103: Remediation Neurology Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 4

**Prerequisites:** NEUROL 6003 Neurology Clerkship, received unsatisfactory grade

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**NEUROL 6301: ABS Neurology Mech of Disease**

ABS Neurology Mech of Disease

**Credit Hour:** 5-10

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**NEUROL 6303: ABS Neurology Research**

ABS Neurology Research

**Credit Hours:** 5

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**NEUROL 6305: ABS Neurology Research and Review**

ABS Neurology Research and Review

**Credit Hours:** 5

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**NEUROL 6755: Adult Neurology - Rural**

Adult Neurology - Rural

**Credit Hours:** 5

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**NEUROL 6756: Neurology - Rural**

Rural Neurology general elective.

**Credit Hours:** 5

**Prerequisites:** NEUROL 6003. Restricted to fourth year medical students

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**NEUROL 6829: PEDIATRIC NEUROLOGY**

Pediatric Neurology

**Credit Hours:** 5

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**NEUROL 6845: Neurology**

Neurology

**Credit Hours:** 5

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**NEUROL 6850: Advanced Neurology**

Advanced Neurology

**Credit Hours:** 5

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**NEUROL 6918: Epilepsy and Clinical Neurophysiology**

The medical student will work as part of the ambulatory and inpatient epilepsy team. One week will be spent in the outpatient unit and one inpatient. The inpatient rotation will consist of rounding on epilepsy patients and being an integral part of patient care. A significant portion of the inpatient week will be spent in the Epilepsy Monitoring Unit.

During the outpatient rotation, the student will rotate with one of two epileptologists and participate in their care.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**NEUROL 6921: Neurology Outpatient Experience**

The student will work as part of the ambulatory neurology team. During the outpatient rotation, the student will have an opportunity to participate in the care of patients with physicians specializing in the following: Epilepsy, Movement Disorders, Neuromuscular Disorders, Dementia and Behavioral Neurology, Multiple Sclerosis, Sleep Disorders, and Vascular Neurology.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**NEUROL 6922: Neurology/Stroke Inpatient Experience**

The student will work as part of the inpatient neurology team. During the rotation, the student will have an opportunity to participate in the care of patients on the general and stroke inpatient services. Students may elect to spend one week on each service or both weeks on either. Opportunities may be available to students in the following areas: Intensive/Critical Care Unit and Neuro-Interventional procedures.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**NEUROL 6923: Neuromuscular Disorders**

One week will be spent in the outpatient unit and one inpatient. The inpatient experience will consist of rounding on neuromuscular patients and being an integral part of patient care. A significant portion of the experience will be spent in Electromyography (EMG). During the outpatient experience, the student will rotate with one of three neuromuscular specialists and participate in patient care, and participate in MDA clinic.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Nuclear Engineering (NU\_ENG)

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**NU\_ENG 2201: Topics in Nuclear Engineering**

Current and new developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; PHYSCS 1210 and PHYSCS 1220 and MATH 1100 or MATH 1120 or instructor's consent

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**NU\_ENG 2303: Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream**

Introduction to applications of nuclear science and technology, utilizing web-based learning scenarios.

**Credit Hours:** 3

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**NU\_ENG 4001: Topics in Nuclear Engineering**

Current and new developments in nuclear engineering. May be repeated for credit.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**NU\_ENG 4302: Safe Handling of Radioisotopes**

Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**NU\_ENG 4303: Radiation Safety**

(same as RA\_SCI 4303) Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

---

**NU\_ENG 4305: Survey of Nuclear Engineering**

Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion.

**Credit Hours:** 3

**Prerequisites:** concurrent with MATH 4100

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**NU\_ENG 4306: Advanced Engineering Math**

(same as CH\_ENG 4306; cross-leveled with NU\_ENG 7306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**NU\_ENG 4315: Energy Systems and Resources**

(same as ECE 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

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**NU\_ENG 4315W: Energy Systems and Resources - Writing Intensive**

(same as ECE 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

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**NU\_ENG 4319: Physics and Chemistry of Materials**

(same as PHYSCS 4190, BIOL\_EN 4480 and CHEM 4490). Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid term and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

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**NU\_ENG 4320: Natural Resources and Nuclear Energy**

Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications.

**Credit Hours:** 3

**Prerequisites:** high school algebra

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**NU\_ENG 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, RADIOL 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NU\_ENG 4330: Science and Technology of Terrorism and Counter Terrorism**

(same as PEA\_ST 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**NU\_ENG 4331: Nonproliferation Issues for Weapons of Mass Destruction**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4341: Nuclear Chemical Engineering**

Principles and processes of importance in the field of nuclear technology.

**Credit Hours:** 3

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**NU\_ENG 4346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 4030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

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**NU\_ENG 4349: Nuclear Engineering Materials**

Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials.

**Credit Hours:** 3

**Prerequisites:** upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent

---

**NU\_ENG 4350: Nuclear Forensic Analysis**

Principles/applications of nuclear techniques in solution of bioenvironmental problems. Uses of nuclear methods in studies of water/air pollution, biology, medicine, pesticides, geochemistry, ecological transport. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NU\_ENG 4353: Introduction to Fusion**

Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices.

**Credit Hours:** 3

**Prerequisites:** senior standing in Engineering or Science or instructor's consent

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**NU\_ENG 4357: Nuclear Heat Transport**

Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer.

**Credit Hours:** 2

**Prerequisites:** NU\_ENG 4305, NU\_ENG 4346 or instructor's consent

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**NU\_ENG 4365: Nuclear Power Engineering**

Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**NU\_ENG 4369: Principles of Direct Energy Conversion**

Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

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**NU\_ENG 4375: Introduction to Plasmas**

(same as ECE 4550; cross-leveled with NU\_ENG 7375, ECE 7550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

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**NU\_ENG 4379: Particulate Systems Engineering**

An introduction to natural and engineered particulate systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or MAE 4300 or equivalent

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**NU\_ENG 4382: Lasers and Their Applications**

(same as ECE 4570; cross-leveled with NU\_ENG 7382, ECE 7570). Introduction to lasers, from both a conceptual viewpoint and from the application of Maxwell's equation, to develop the optical theory for lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, and MATH 4110

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**NU\_ENG 4391: Nuclear Radiation Detection**

(same as CHEM 4600). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NU\_ENG 7001: Topics in Nuclear Science and Engineering**

Current and new developments in nuclear engineering.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**NU\_ENG 7080: Medical Ethics for Medical Physics**

This course will start with an introduction into medical ethics then transitions into research procedures with humans and animals. This course will cover research ethics, professional conduct, authorship, publishing, and plagiarism.

**Credit Hour:** 1

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**NU\_ENG 7085: Special Problems in Nuclear Science and Engineering**

Special Problems in Nuclear Science and Engineering.

**Credit Hour:** 1-5

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**NU\_ENG 7087: Seminar in Nuclear Science and Engineering**

Reviews of investigations and projects of importance in nuclear engineering.

**Credit Hour:** 1

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**NU\_ENG 7302: Safe Handling of Radioisotopes**

Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

---

**NU\_ENG 7303: Radiation Safety**

(same as RA\_SCI 7303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

---

**NU\_ENG 7305: Survey of Nuclear Engineering**

Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion.

**Credit Hours:** 3

**Prerequisites:** concurrent with MATH 4100

---

**NU\_ENG 7306: Advanced Engineering Math**

(cross-leveled with NU\_ENG 7306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**NU\_ENG 7313: Nuclear Science for Engineering for Secondary Science Teachers**

This one-week course is for high school science and math teachers, and provides basic of nuclear science concepts and their applications, types of radiation (including radiation detection and protection), and industrial, medical and nuclear power generation application.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; actively engaged in STEM teaching at the secondary level

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**NU\_ENG 7315: Energy Systems and Resources**

(same as ECE 7020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

---

**NU\_ENG 7319: Physics and Chemistry of Materials**

(same as PHYSICS 7190, BIOL\_EN 7480 and CHEM 7490). Undergraduate/graduate level course offered every winter semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures or laboratory demonstrations, two midterm and one final exam. Graduate students will submit a term paper.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and CHEM 1320 or equivalent and instructor's consent

---

**NU\_ENG 7320: Natural Resources and Nuclear Energy**

Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications.

**Credit Hours:** 3

**Prerequisites:** high school algebra

---

**NU\_ENG 7328: Introductory Radiation Biology**

(same as BIO\_SC 7328, RADIOL 7328, and V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NU\_ENG 7330: Science and Technology of Terrorism and Counter Terrorism**

Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

---

**NU\_ENG 7331: Nonproliferation Issues for Weapons of Mass Destruction**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**NU\_ENG 7335: Nuclear Safeguards Science and Technology**

(same as ECE 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection

systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**NU\_ENG 7341: Nuclear Chemical Engineering**

Principles and processes of importance in the field of nuclear technology.

**Credit Hours:** 3

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**NU\_ENG 7346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 7030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

---

**NU\_ENG 7349: Nuclear Engineering Materials**

Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials.

**Credit Hours:** 3

**Prerequisites:** upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent

---

**NU\_ENG 7350: Nuclear Forensic Analysis**

Principles/applications of nuclear techniques in solution of bioenvironmental problems. Uses of nuclear methods in studies of water/air pollution, biology, medicine, pesticides, geochemistry, ecological transport. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 7303, instructor's consent

---

**NU\_ENG 7353: Introduction to Fusion**

Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Engineering or Science or instructor's consent

---

**NU\_ENG 7357: Nuclear Heat Transport**

Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer.

**Credit Hours:** 2

**Prerequisites:** NU\_ENG 4305, NU\_ENG 4346 or instructor's consent

---

**NU\_ENG 7365: Nuclear Power Engineering**

Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

---

**NU\_ENG 7369: Principles of Direct Energy Conversion**

Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

---

**NU\_ENG 7375: Introduction to Plasmas**

(same as ECE 7550; cross-leveled with NU\_ENG 4375, ECE 4550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

---

**NU\_ENG 7379: Particulate Systems Engineering**

An introduction to natural and engineered particulate systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or MAE 4300 or equivalent

---

**NU\_ENG 7382: Lasers and Their Applications**

(same as ECE 7570; cross-leveled with NU\_ENG 4382, ECE 4570). An introductory course in lasers. The course treats the subject from both a conceptual viewpoint and from the application of Maxwell's equations, to develop the optical theory for lasers. The course includes approximately 10 class-room hours of laboratory work with lasers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and MATH 4100

---

**NU\_ENG 7391: Nuclear Radiation Detection**

Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

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**NU\_ENG 7422: Radiation Shielding**

Fundamentals of radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multi-group transport shield design principles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or instructor's consent

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**NU\_ENG 7470: Fast Reactor Analysis**

Analytical methods for designing fast breeder reactor systems. Graded on a S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412, NU\_ENG 8432, NU\_ENG 8451 or instructor's consent

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**NU\_ENG 8001: Advanced Topics in Nuclear Science and Engineering**

Advanced developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NU\_ENG 8085: Problems in Nuclear Science and Engineering**

Supervised investigation in nuclear engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**NU\_ENG 8090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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**NU\_ENG 8402: Nuclear Fuel Cycle**

Covers the nuclear fuel cycle from mine through enrichment, fuel element burn-up reactor physics, chemical reprocessing, waste disposal, with special emphasis on the newer proliferation-resistant fuel cycles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 4305 and instructor's consent

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**NU\_ENG 8403: Applied Topics in Medical Physics and Health Physics**

Directed observations and experience in scientific aspects of daily operations in nuclear medicine, diagnostic radiology, radiotherapy and health physics.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**NU\_ENG 8404: Nuclear Reactor Laboratory I**

Application of reactor physics principals to operation of and experiments with the University of Missouri Research Reactor. Neutron activation analysis, instrumentation, reactivity evaluation.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 8411

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**NU\_ENG 8405: Nuclear Reactor Laboratory II**

Advanced experiments to measure diffusion length, Fermi age, material buckling, transfer function, neutron spectrum and other reactor characteristics. Reactor simulation with an analog computer.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or instructor's consent

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**NU\_ENG 8406: Clinical and Research Application in Medical and Health Physics**

To give students an understanding of the range of clinical practice and medical research involving the practice and nuclear physics/engineering.

**Credit Hour:** 1

**Prerequisites:** NU\_ENG 8409 and NU\_ENG 4303, college calculus or equivalent and calculus based physics

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**NU\_ENG 8408: State Variable Methods in Automatic Control**

(same as CH\_ENG 8780, ECE 8780, and MAE 8780). State variables for continuous and discrete-time dynamic control systems; controllability and observability; optimal control of linear systems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4370, ECE 4310, MAE 4730 or instructor's consent

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**NU\_ENG 8409: Interaction of Radiation with Matter**

Theory/applications of radiation interaction processes. Reviews nuclear physics concepts; radioactive decay; sources/ spectra of ionizing radiation; collision mechanisms for charged particles, electromagnetic radiation, neutrons for interaction with matter.

**Credit Hours:** 3

**Prerequisites:** Entrance requirements

---

**NU\_ENG 8411: Nuclear Reactor Theory I**

Nuclear reactions; nuclear fission; introduces neutron transport; diffusion and slowing down of neutrons; steady-state homogeneous and heterogeneous reactor theory.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NU\_ENG 8412: Nuclear Reactor Theory II**

Linear and non-linear reactor kinetics; perturbation theory; temperature and fission product effects; control rod theory; transport theory.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346

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**NU\_ENG 8421: Advanced Radiation Detection Electronics**

Principles of radiation pulse analysis with emphasis on applications. Radiation detection devices; amplifying, shaping and discrimination circuits; nuclear pulse analysis; automated data analysis systems. Lectures and lab.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346, NU\_ENG 4391 or instructor's consent

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**NU\_ENG 8422: Radiation Shielding**

Fundamentals of radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multi-group transport shield design principles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or instructor's consent

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**NU\_ENG 8429: Radiation Dosimetry**

Basis and applications of conventional and microscopic radiation dosimetry. Dose concepts and quantities; biological dose-response models; dose measurement principles; photon, charged particle, and neutron dosimetry.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409

**Recommended:** NU\_ENG 4328

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**NU\_ENG 8432: Nuclear Thermal Hydraulics and Safety**

Engineering topics from reactor heat transfer and thermal stresses, fuel cycle analysis, power plant thermodynamics, shielding, and reactor safety analysis.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346, or instructor's consent

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**NU\_ENG 8434: Fracture Mechanics I**

(same as MAE 8220). Mechanics of flawed structure. Concepts include Griffith theory, Barenblatt's theory, Irwin analysis, energy analysis of cracked bodies, fracture toughness testing, plane strain, plane stress, transition temperature concepts, subcritical flaw growth.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or instructor's consent

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**NU\_ENG 8435: Physics of Diagnostic Radiology**

Principles and applications of X-ray production and interactions. Images production concepts including X-ray film, intensifying screens, grids, fluoroscopy, image intensification and television monitors. Image quality analysis and assessment.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8439: Clinical Physics in Radiotherapy**

Principles and applications of radiation producing units, exposure and dose measurements, and calibration. External beam physics parameters and application to fixed field and rotational field treatment planning.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8444: Fracture and Fatigue Prevention in Engineering Practice**

Practical design problems. Introduction to retrofit design, maintenance, product improvement and new design from a fatigue and fracture prevention philosophy. Fail safe and safe life designs are presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8434

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**NU\_ENG 8450: Superconductivity and Its Applications**

(same as ECE 8020). Phenomenology and theory of superconductivity; cryogenic practice; metallurgy of superconducting elements, alloys and compounds. Applications, present and prospective. Graded on an S/U basis only.

**Credit Hours:** 3

---

**NU\_ENG 8451: Computational Methods of Reactor Analysis**

Applies numerical analysis and digital computation to topics from multi-group diffusion theory, transport theory, reactor kinetics, reactor thermal hydraulics, radiation shielding, reactor safety.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 and MATH 4300

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**NU\_ENG 8452: Ultrasound and Magnetic Resonance Imaging**

The physical principles of MRI and ultrasound including clinical instrumentation, artifacts in images, biological effects and quality control. Images obtained with both techniques will be presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4391, NU\_ENG 8409, NU\_ENG 4306 or equivalent

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**NU\_ENG 8453: Advanced Fusion Theory**

Plasma stability theory, charged particle diffusion, slowing down of charged particles, interaction of radiation with matter, direct energy conversion using charged particles, and engineering considerations.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4353 and NU\_ENG 4375 or PHYSICS 8450 or instructor's consent

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**NU\_ENG 8454: Clinical Physics of Nuclear Medicine**

Physical principles, statistics of radionuclide decay and highlights into the most current instrumentation to utilize in vivo radionuclides for both diagnostic imaging and therapy. Also includes brachy therapy.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4306, NU\_ENG 8409 or equivalent

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**NU\_ENG 8455: Growth, Characterization and Appl. of Diamond and Related Materials**

This course explores the development of diamond films. Discussion of other wide band-gap materials are covered. Topics include Chemistry of Diamond Growth, Thermodynamics, Nucleation, Methods of Growth, Methods of Impurity Control, Characterization and Modification, Doping, and Applications.

**Credit Hours:** 3

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**NU\_ENG 8461: Neutron Transport Theory**

The Boltzmann equation; general properties and solution; numerical methods of solving the transport equation; neutron thermalization and neutron spectra.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412; MATH 4940, MATH 4300, or instructor's consent

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**NU\_ENG 8470: Fast Reactor Analysis**

Analytical methods for designing fast breeder reactor systems. Graded on a S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412, NU\_ENG 8432, NU\_ENG 8451 or instructor's consent

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**NU\_ENG 8471: Radiation Protection**

Theory and applications of radiation protection and health physics. Radiation dosimetry methods and calculations, shielding evaluations, equipment surveys and inspection, environmental monitoring, radiation standards and regulations and administration presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 and NU\_ENG 4328

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**NU\_ENG 9090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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## Nuclear Medicine (NUCMED)

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**NUCMED 1000: Orientation to Nuclear Medicine**

An overview using a series of short rotations through local nuclear medicine departments and a self-directed review of a current text. Clinical rotations for this course are arranged on an individual basis. Graded on S/U basis only.

**Credit Hour:** 1

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**NUCMED 3255: Orientation to Clinical Practice**

This course provides an introductory experience to clinical practice. Must be accepted into Nuclear Medicine Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Nuclear Medicine students, junior standing required

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**NUCMED 3256: Clinical Nuclear Medicine I**

Introductory clinical course for senior level students. Introduces instrumentation, administration, procedures, and laboratory techniques. Includes supervised clinical participation.

**Credit Hours:** 2

**Prerequisites:** NUCMED 3263 and restricted to Nuclear Medicine students only

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**NUCMED 3263: Morphological Correlations in Nuclear Medicine I**

Anatomy, physiology, and pathology of the human body as assessed using medicine techniques. The first of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303; restricted to Nuclear Medicine students only

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**NUCMED 3328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NUCMED 4085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hour:** 1-3

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**NUCMED 4232: Clinical In Vitro**

Detailed review of current regulations and procedures governing the use of open sources of radioactivity in a nuclear medicine setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4268: Clinical Nuclear Medicine II**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4268W: Clinical Nuclear Medicine II - Writing Intensive**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4269: Clinical Nuclear Medicine III**

Final course in clinical series. Seminar discussion of the areas of professional ethics, current medical-legal considerations, and future nuclear medicine applications.

**Credit Hour:** 1

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4299: Morphological Correlations in Nuclear Medicine II**

Anatomy, physiology, and pathology of the human body as assessed using nuclear medicine techniques. The second of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3263, restricted to Nuclear Medicine students

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**NUCMED 4327: Nuclear Medicine Instrumentation**

Radionuclide imaging systems and the use of computers. Topics include Anger camera systems, emission tomography, ultrasound, nuclear magnetic resonance, and bone absorptionmetry.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 and MATH 1400, restricted to Nuclear Medicine students

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**NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine**

Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** CHEM 1320

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**NUCMED 4330: PET in Nuclear Medicine**

Overview of special isotope production techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1210 and NUCMED 4327 or instructor's consent. Restricted to Nuclear Medicine students only

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**NUCMED 4940: Clinical In Vivo I**

Practical experience in the clinical setting with imaging procedures performed in nuclear medicine.

**Credit Hours:** 6

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4941: Clinical In Vivo II**

Practical experience in clinical setting with advanced imaging techniques and instrument quality control.

**Credit Hours:** 7

**Prerequisites:** NUCMED 4940. Restricted to undergraduate Nuclear Medicine students

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**NUCMED 7085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hours:** 3

---

**NUCMED 7329: Radiopharmaceuticals in Nuclear Medicine**

Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and instructor's consent

---

**NUCMED 7330: PET in Nuclear Medicine**

Overview of special isotope production in techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1210 and NUCMED 4327 or instructor's consent

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## Nursing (NURSE)

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**NURSE 1000: Advisory Seminar for Nursing**

Orientation to the undergraduate nursing program, professional role development, and introduction to the professional milieu. Graded on an S/U basis only.

**Credit Hour:** 1

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**NURSE 2000: Nursing as a Profession**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational and social perspectives. Examines nursing as subsystem of the health care system.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Restricted to pre-nursing majors with a GPA of 2.8 or higher

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**NURSE 2000H: Nursing as a Profession**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational, and social perspectives. Examines nursing as subsystem of the health care system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing with undergraduate GPA of 2.8 or higher; honors eligibility required

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**NURSE 2100: Communication Issues in Nursing**

In this course students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, diversity issues in health care, health literacy and health disparities. Students will learn evidence-based communication techniques.

**Credit Hours:** 2

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only

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**NURSE 2100H: Psychosocial and Communication Issues in Nursing - Honors**

Reviews psychosocial and communication issues. Focuses on improving interpersonal communication skills and learning how to provide therapeutic interventions to people with selected mental health issues. An experiential model emphasizes personal skill development strategies.

**Credit Hour:** 2-3

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only. Honors eligibility required

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**NURSE 3002: Topics in Nursing - Biological, Physical, Mathematical**

Specialized topics in nursing not available through regularly offered courses. . Sections may be offered either on S/U or A-F basis.

**Credit Hour:** 1-4

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**NURSE 3006: Cultural Expeditions in Nursing**

Directed field experiences in varied settings exploring local customs and cultural/ethnic diversities influencing health care delivery. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**NURSE 3080: Communication and Computer Skills**

Introduces RN students to MU and MU Sinclair School of Nursing. Provides education in essential competencies needed for success in the RN-BSN Option including writing skills, computer literacy, library and Internet research.

**Credit Hours:** 2

**Prerequisites:** clinical major

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**NURSE 3080W: Communication and Computer Skills**

Introduces RN students to MU and MU Sinclair School of Nursing. Provides education in essential competencies needed for success in the RN-BSN Option including writing skills, computer literacy, library and Internet research.

**Credit Hours:** 2

**Prerequisites:** clinical major

---

**NURSE 3100: Pharmacology for Nursing**

This course will focus on pharmacological classification and the nurse's role in medication administration and patient education. Medication

issues with special populations will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3170: Nursing Skills, Technologies, and Simulation**

Provides laboratory experiences for fundamental to complex nursing skills and procedures. Focuses on application of therapeutic interventions and procedure to provide safe, patient-centered care.

**Credit Hours:** 4

**Recommended:** NURSE 3270

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**NURSE 3180: Role Transitions**

Explores returning-to-school issues important to adult learners. Links previous basic nursing courses with baccalaureate courses and begins building new knowledge on prior nursing education.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3080

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**NURSE 3200: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Enrollment requires admission to the clinical nursing major BSN option.

**Credit Hours:** 4

**Prerequisites:** MPP 3202 or equivalent course and PTH\_AS 2201 and PTH\_AS 2203 or equivalent courses

**Corequisites:** MICROB 2800 or MICROB 3200

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**NURSE 3260: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Course is designed for students applying to the accelerated BSN option.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MICROB 2800 or MICROB 3200

**Prerequisites:** MPP 3202; PTH\_AS 2201 and PTH\_AS 2203

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**NURSE 3270: Foundations of Nursing: Physical Assessment and the Nursing Process**

NURSE 3270 provides knowledge and skills in physical assessment and the application of the Nursing Process. Clinical application of foundational knowledge determines the health status of individuals.

**Credit Hours:** 5

**Prerequisites or Corequisites:** For Clinical BSN, students must have completed NURSE 2000 and NURSE 2100 and be concurrently enrolled in NURSE 3170, NURSE 3200, NURSE 3300; for Clinical BSN Accelerated students must have completed NURSE 3200 or NURSE 3260 and be concurrently enrolled NURSE 3170 and NURSE 3100 or NURSE 3300

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**NURSE 3300: Pharmacology and Nursing Implications**

This course will focus on pharmacological classifications and the nurse's role in medication administration and patient education. Medication

issues with special populations will be addressed. Graded on a A-F basis only.

**Credit Hours:** 4

**Recommended:** PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3350: Individual Study**

Independent study for qualified students in specific areas of interest in nursing under faculty guidance. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NURSE 3470: Mental Health Nursing**

Students discover behavioral, social, interpersonal, and neuro-biological aspects of mental health nursing. Therapeutic use of self in designing and implementing nursing care for clients throughout the life cycle is emphasized. Content on psychopathology is included.

**Credit Hours:** 5

**Prerequisites:** NURSE 3270

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**NURSE 3670: Nursing of Adults I**

Application of the nursing process to deliver care for hospitalized adults with health deviations. Evidence, technologies, professional standards and collaboration are used to enhance patient-centered, safe and effective care.

**Credit Hours:** 6

**Prerequisites:** NURSE 3170, NURSE 3270, NURSE 3100 or NURSE 3300, NURSE 3200 or NURSE 3260

**Corequisites:** NURSE 3900

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**NURSE 3750: Nursing of the Childbearing Family**

This course provides learning experiences with childbearing families. Students apply the nursing process to promote health and well-being for the childbearing family. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 3260 or NURSE 3200, and NURSE 3270, NURSE 3100, admission to accelerated BSN option

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**NURSE 3760: Pediatric Nursing**

Provides learning experiences with children and their families from newborn to adolescents. Examines health alterations that interfere with self-care in and for children.

**Credit Hours:** 3

**Prerequisites:** NURSE 3270, admission to accelerated option

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**NURSE 3870: Gerontological Nursing Care**

Emphasis on normal aging processes, health promotion, disease prevention, management of complex health conditions, and evaluation of care for older adults.

**Credit Hours:** 3

**Prerequisites:** NURSE 3270

**Corequisites:** NURSE 3300 or NURSE 3100 or equivalent

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**NURSE 3900: Introduction to Nursing Science**

Introduces nursing as a science from the perspective of knowledge development. Structures nursing knowledge from a theoretical perspective. Presents nursing research as a method of knowledge development and validation.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or ESC\_PS 4170 and Clinical Nursing Major

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**NURSE 4200: Nursing Ethics and Law**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3270 or NURSE 3080

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**NURSE 4200W: Nursing Ethics and Law - Writing Intensive**

Analyzes clinical nursing situations using ethical principles and decision-making models. Examines the basic doctrines and principles foundational for providing legally sound nursing practice.

**Credit Hour:** 3-4

**Prerequisites or Corequisites:** NURSE 3080 or NURSE 3670

**Prerequisites:** Senior Clinical Major

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**NURSE 4201: Legal Concepts in Nursing**

This course examines fundamental legal guidelines for professional nursing practice using content gleaned from nursing and medicine. The student will analyze and apply legal principles pertaining to nursing practice. Enrollment requires a prerequisite of a medical ethics, healthcare ethics or a bioethics course which is subject to instructor approval. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** PHIL 2440 or PHIL 1150 or HLTH\_SCI 4480

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**NURSE 4270: Nursing of Children**

Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants, children and adolescents.

**Credit Hours:** 5

**Prerequisites:** NURSE 3470, NURSE 3670

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**NURSE 4300: Nursing Issues/Leadership and Management**

Examines leadership and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal/political issues and trends related to nursing and contemporary health care.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 3670 or NURSE 3180

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**NURSE 4380: Health Assessment and Pathophysiology**

Examines biologic basis for selected commonly occurring diseases throughout the life-span. Study and performance of health assessments with application of findings to adults and children.



**Credit Hours:** 4

**Prerequisites:** NURSE 4950

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**NURSE 4400: Nursing Leadership and Management**

Examines leadership, management, and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal and political issues and trends related to nursing and contemporary health care. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 3180

**Prerequisites:** NURSE 3080, NURSE 3180, or NURSE 3670

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**NURSE 4470: Nursing of Women and Newborns**

This course examines newborn care, women's reproductive and post reproductive health, and health deviation concerns of women and newborns. This course emphasizes development, implementation, and evaluation of nursing systems for families and their members.

**Credit Hours:** 5

**Prerequisites:** NURSE 3170, NURSE 3270, NURSE 3300, NURSE 3200, NURSE 3900, NURSE 3670, and NURSE 3470

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**NURSE 4600: Women's Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**Credit Hours:** 3

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**NURSE 4870: Nursing of Adults II**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering care for sets of clients.

**Credit Hour:** 4-7

**Prerequisites or Corequisites:** NURSE 4970

**Prerequisites:** NURSE 3470, NURSE 3670, NURSE 3750 or 4470, and NURSE 3760 or NURSE 4270

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**NURSE 4870H: Nursing of Adults II Honors**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering patient care. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** NURSE 4970

**Prerequisites:** NURSE 3470, NURSE 3670, NURSE 3750 or 4470, and NURSE 3760 or NURSE 4270; Honors eligibility required

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**NURSE 4930: Evidence-Based Nursing Practice**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4930W: Evidence-Based Nursing Practice - Writing Intensive**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4950: Nursing Theory and Research**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory, primarily Self-Care Deficit Nursing Theory.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3080

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**NURSE 4950W: Nursing Theory and Research - Writing Intensive**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory, primarily Self-Care Deficit Nursing Theory.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3080

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**NURSE 4970: Nursing in Communities**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hour:** 4-5

**Prerequisites:** NURSE 4270 and NURSE 3470; or NURSE 3760 or NURSE 4930

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**NURSE 4970W: Nursing in Communities - Writing Intensive**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hour:** 4-5

**Prerequisites:** NURSE 4270 and NURSE 3470; or NURSE 3760 or NURSE 4930

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**NURSE 7001: Special Topics in Nursing**

Specialized topics in advanced nursing not available through regularly offered courses.

**Credit Hour:** 1-3

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**NURSE 7010: Biostatistical Foundations for Health Researchers**

Examines basic concepts of data management, study design, descriptive and inferential biostatistics using analytic software. Emphasizes statistical literacy and critical thinking for health researchers. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7085: Problems in Nursing**

Guided readings, special study, and/or a practicum in an area of the student's interest or an area which the student needs to strengthen.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**NURSE 7087: Leadership and Technology Institute**

Introduction to knowledge and skills essential to support research and practice doctorates. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Admission to DNP or PhD program

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**NURSE 7100: Theoretical Basis for Advanced Nursing**

Analysis, application and evaluation of a variety of nursing and non nursing theories used in advanced nursing practice and research.

**Credit Hours:** 3

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**NURSE 7110: Advanced Nursing Role Acquisition**

An overview of the advanced nursing practice role and professional issues. Provides foundational knowledge on which other advanced nursing courses will build.

**Credit Hours:** 3

**Prerequisites:** Admission to the graduate program or faculty consent

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**NURSE 7111: Trends and Issues in Nursing**

Issues and trends involving professional nursing practice are examined from socioeconomic, organizational, legal and ethical perspectives. Past, present and future roles and practice of nurses are examined.

**Credit Hours:** 3

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**NURSE 7120: Advanced Physiology and Pathophysiology**

Focus on the normal and altered physiological functioning of body systems. Provides essential knowledge of human health and disease across the lifespan necessary for advanced nursing practice.

**Credit Hours:** 3

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**NURSE 7130: Advanced Pharmacology and Pharmacotherapeutics**

Advanced practice nurse drug therapy management for health maintenance and treatment of acute episodic and chronic health problems in various populations over the life span.

**Credit Hours:** 3

**Prerequisites:** BSN or instructor's consent

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**NURSE 7140: Advanced Health Assessment and Promotion**

Expands history and physical assessment techniques across lifespan. Addresses diagnostic reasoning, differential diagnosis, selection of common diagnostic test, disease risk factors, and health promotion strategies.

**Credit Hours:** 3.5

**Prerequisites:** BSN or instructor's consent

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**NURSE 7150: Research Basis for Advanced Nursing**

Examines fundamentals of scientific inquiry. Addresses research design issues. Focuses on interpreting, critiquing, and synthesizing research findings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 7211: Stress Management**

Review of contemporary research on the causes, prevention, and treatment of stress. Examination of utility and validity of a variety of stress reduction methods. Development of selected self-management skills.

**Credit Hours:** 3

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**NURSE 7212: Legal Parameters of Nursing**

This course provides the basic doctrines and principles of the law foundational to legally sound nursing practice. Included among significant topics are tort law, nurse practice act, licensure, effect of contract law.

**Credit Hours:** 3

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**NURSE 7310: Advanced Health Assessment for Pediatric Nursing Practice**

Comprehensive assessment of children through adolescence including those with significant health and/or developmental deviations using advanced diagnostic reasoning process. Emphasis on health history, cultural diversity, differentiation, interpretation and documentation of findings.

**Credit Hours:** 3.5

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**NURSE 7330: Pediatric Pharmacology for Advanced Nursing Practice**

Clinical pharmacotherapeutics course that builds on prior pharmacology knowledge. Major focus is pharmacotherapeutics for primary care management of children to age eighteen. Emphasis on clinical critical thinking used to prescribe drugs.

**Credit Hours:** 3

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**NURSE 7600: Women's Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**Credit Hours:** 3

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**NURSE 7750: Physical Function and Older Adults**

(Same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, H\_D\_FS 7750, P\_HLTH 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded A-F only.

**Credit Hours:** 3

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**NURSE 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7854: Preparing Nurse Educators**

Explores the role of the nurse educator. Emphasis will be on the development, evaluation, differences and implementation of the nurse educator in the functional roles.

**Credit Hours:** 3

**Prerequisites:** Admission to the Master Science in Nursing Program or instructor's consent

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**NURSE 8001: Topics in Advanced Clinical Nursing**

Specialized topics in advanced clinical nursing not available through regularly offered courses.

**Credit Hours:** 3

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**NURSE 8002: Research Topics in Nursing and Health**

Topics courses are intended for special offerings, or as opportunities to experiment with a new course prior to seeking approval for it as a regular course. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8010: Family Dynamics and Intervention**

(same as H\_D\_FS 8012). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 (Nursing students)

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**NURSE 8020: Intermediate Statistical Methods for Health Researchers**

Examination of generalized linear models, multiple logistic regression, and multilevel modeling as applied to health sciences research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7010 or equivalent

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**NURSE 8030: Interpreting Statistical Evidence in the Health Sciences**

Students learn to critically evaluate statistical designs and data analysis methods used in health sciences research and scientific evidence for health care decision making. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Graduate level statistics course

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**NURSE 8085: Problems in Nursing**

Guided readings, special study and/or a practicum in an area of the student's interest or in an area which the student needs to strengthen. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**NURSE 8090: Research in Nursing**

Original investigation for presentation as thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate statistics, instructor's consent

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**NURSE 8100: Principles of Epidemiology**

Explores key concepts of epidemiology and epidemiologic methods for studying the distribution and determinants of health and disease in populations. Application to public health and population-based practice addressed.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 or faculty consent

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**NURSE 8110: Concepts for Specialization in Public Health Nursing**

Key concepts fundamental to specialization in public health nursing, including core public health functions. Emphasis upon integrating public health science, nursing theory, and methodological/leadership skills.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 7100

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**NURSE 8120: Community-Based Public Health Interventions**

Assessing and Diagnosing health-related needs of at-risk and vulnerable populations. Evaluating outcome-based research. Clinical practice implementing a public health intervention. Prerequisites: NURSE 8100, NURSE 8110, graduate level Statistics course;

**Credit Hour:** 3-4.5

**Prerequisites or Corequisites:** NURSE 7150

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**NURSE 8210: Special Health Care Needs of Children**

Perform developmental, neuro developmental, and psychosocial assessments of chronically ill children. Collaborate with families, schools; health care, community, family services to meet child's needs.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7100 or instructor's consent

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**NURSE 8300: Public Health and Sociocultural Issues**

Explores concepts of public health with a focus on the advanced practice nurse in population-based/primary care practice; core public health functions will be addressed at three service levels--the aggregate, the family, and the individual.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 8310: Health Disparities of Rural and Other Underserved Populations**

In-depth examination of rural and other vulnerable populations and their interactions with the health care system including access, utilization, and outcomes. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087, NURSE 8300 or faculty consent

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**NURSE 8400: Adult and Geriatric Primary Care I**

Advanced practice nursing clinical diagnosis and management of acute and chronic cardiovascular, respiratory, HEENT, renal, metabolic and musculoskeletal problems in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7120, NURSE 7130, NURSE 7140

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**NURSE 8410: Adult and Geriatric Primary Care II**

Advanced practice nursing clinical diagnosis and management of acute and chronic gastrointestinal, endocrine, hematological, neuropsychological problems and bioterrorism and CAM issues in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 8400

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**NURSE 8420: Newborn Through Adolescence Primary Care**

Advanced nursing practice of newborn through adolescence of health maintenance/promotion, clinical diagnosis and management of common childhood illness, behavioral, developmental problems. Advanced knowledge of human growth, development, family dynamics, community resources, collaborative relationships. Integrated clinical practicum.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140 or NURSE 7310

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**NURSE 8425: Participatory Approaches for Health and Health Systems**

(same as F\_C\_MD 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**NURSE 8430: Reproductive and Sexual Health Primary Care**

Reproductive, sexual issues, adolescence through aging. Design, delivery, evaluation of nursing management of women, reproductive health care of men. Stresses personal health promotion.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140, NURSE 8410 or instructor's consent

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**NURSE 8500: Primary Health Care Management of Aging I**

Health promotion, wellness, concepts of normal aging. Design, delivery, evaluation of primary health care management of aging adults from an advanced practice nursing perspective.

**Credit Hours:** 3

**Prerequisites:** NURSE 7130, NURSE 7140, NURSE 8400 or instructor's consent

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**NURSE 8510: Primary Health Care Management of Aging II**

Continuing emphasis on health promotion, wellness, concepts of aging. Primary health care management of complex health care problems in aging adults from advanced practice nursing perspective.

**Credit Hours:** 3

**Prerequisites:** NURSE 8410, NURSE 8500, instructor's consent

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**NURSE 8540: Advanced Diagnostics and Reasoning**

Expands upon knowledge of advanced assessment, diagnostic, and procedural skills; utilizes current technology in a cost-effective and patient-centered manner. Clinical increases specialty-specific knowledge. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** 4th clinical specialty course

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**NURSE 8610: Diagnostics and Psychopharmacology for Mental Health Nurses**

Emphasis is on the neurobiologic basis and diagnosis of mental health problems and advanced nursing management of psychiatric conditions using pharmaceutical agents.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 7120, NURSE 7130 and NURSE 7140

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**NURSE 8620: Brief Individual Psychotherapy for Mental Health Nurses**

Develops advanced skills in assessment, treatment, and follow-up evaluation of individuals experiencing acute mental health problems. Emphasizes brief psychotherapy based on frameworks from nursing and other disciplines.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8640: Group Therapy and Social Skills Training**

Application of group and behavioral methods in mental health prevention, promotion, maintenance, and restoration. Designing, implementing, and evaluating mental health promotion groups and social skills training programs.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8660: Mental Health Nursing Interventions for Families**

Application of nursing and family theories in advanced nursing management of families experiencing a variety of problems. Emphasis on designing, implementing, and evaluating advanced nursing interventions for families.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8620 or consent of instructor

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**NURSE 8680: Pediatric Mental Health Assessment and Treatment**

Develops advanced skills in psychiatric assessment and follow-up evaluation of children and adolescents experiencing mental health problems. Explores diagnosis, treatment, and management of child and adolescent mental health disorders. Graded on A-F basis only.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610 or faculty consent

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**NURSE 8710: Clinical Management of Acute and Critical Care Problems**

Advanced practice nurse management of selected clinical problems across the lifespan commonly encountered in the acute and/or critical care settings. Patient safety, technology, and product selection

addressed. Integrated clinical practicum with selected population and setting. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140

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**NURSE 8720: Symptom Management in Acute and Chronic Illness**

Clinical management of symptoms of acute and chronic illness across the lifespan. Preparation for teaching patient self-management strategies. Integrated clinical practicum with selected population and setting.

**Credit Hour:** 3-5

**Prerequisites:** NURSE 7140 and NURSE 7150 or faculty consent

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**NURSE 8800: Leadership and Management in Healthcare Systems**

Prepares nurse leaders who facilitate and integrate complex structures and processes in health care systems. Understanding of partnerships, accountability, continuum-defined health care systems, self-managed teams, and value-based organizations.

**Credit Hours:** 4

**Prerequisites:** NURSE 7100

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**NURSE 8810: Management of Patient Care Services**

Prepares nurses to effectively manage personnel, clinical operations, and quality improvement initiatives. Emphasizes techniques that facilitate sound nursing management across the care continuum. Multiple dimensions of managing patient care operations are considered.

**Credit Hours:** 4

**Prerequisites:** NURSE 7100

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**NURSE 8820: Health Care Financial Management**

Prepares nurses to use the techniques that facilitate financial analysis and decision-making for patient care programs across the healthcare continuum. Focuses on efficient, effective management of resources for delivery of quality healthcare services. Prerequisites: NURSE 7100

**Credit Hours:** 4

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**NURSE 8830: Informatics Applications and Innovations in Health Care Systems**

This course explores informatics from the perspective of health related fields through technology assessment and evaluation, and research and development in technological innovations. The impact of technology on patient privacy will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructor's consent

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**NURSE 8840: Nursing Leadership, Innovation, and Entrepreneurship**

This course will provide an overview of leadership theories and strategies for managing individuals, groups, or systems within rapidly changing healthcare environments. Innovative and cutting edge phenomena in healthcare will be explored as well as entrepreneurship. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructor's consent

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**NURSE 8850: Teaching Nursing**

Principles and methods of teaching, evaluation, and curriculum construction in undergraduate nursing education.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent

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**NURSE 8854: Teaching Strategies in Nursing**

Examines principles, issues, techniques, and evaluation methods in teaching nursing. Focuses on the development of a variety of teaching strategies and evaluation methods for didactic and clinical settings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8860: Organizations & Human Resource Management in Nursing**

This course will examine various organizational theories, organizational behavior, and the impact of change within organizations. Participants will apply and analyze workforce management principles in regard to employee rights, resources, and responsibilities. May be repeated for credit. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructor's consent

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**NURSE 8864: Curriculum Development in Nursing**

Examines theoretical foundations, principles, and issues in curriculum design. Explores systematic evaluation of curriculum at all levels.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8890: Clinical/Scholarly Project**

Design, implement and evaluate nursing projects derived from theory, including written report with explanation or justification to support the empirical and/or theoretical basis for the project. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7100, NURSE 7150, graduate statistics

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**NURSE 8900: Research Practicum in Nursing**

Selected independent research activities in conjunction with ongoing research programs of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7150, graduate statistics, instructor's consent

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**NURSE 8910: Translational Evidence-Based Nursing Practice**

Provides essential skills for utilizing research to support practice change: assessing practice based problems, analyzing current evidence, proposing practice changes, and developing plans for implementing evidence-based practice concepts.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or faculty consent

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**NURSE 8920: Quality, Safety, and Performance Outcomes**

Uses information systems to identify and analyze patient safety and other clinical issues and recommend system-wide actions and measurement

plans that result in safe, effective, efficient, equitable, patient-centered outcomes.

**Credit Hours:** 3

**Prerequisites:** NURSE 8910

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**NURSE 8930: Health Program Design and Management**

Designing, implementing and evaluating effective health programs. Addresses leadership and organizational change issues.

**Credit Hours:** 3

**Prerequisites:** NURSE 8920 or instructor's consent

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**NURSE 8940: Nursing and Health Policy**

Designed to explore and critically evaluate the role of nursing and nurse leaders/scholars in health policy development and the organization and financing of health care in response to the health and social needs of the public.

**Credit Hours:** 3

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**NURSE 8950: Teaching Nursing Practicum**

Participation in application of principles and methods of teaching, learning, and evaluation to the education of nursing students. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864

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**NURSE 8954: Distance-Mediated Teaching Nursing Practicum**

Faculty-guided application of distance mediated teaching, learning, and evaluation methods with graduate &/or undergraduate nursing students. Course graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864 or equivalents

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**NURSE 8960: Leadership in Nursing and Healthcare Systems Practicum**

Participation in application of principles and methods of leadership, management, and evaluation to facilitate patient care operations in various settings. Graded on an S/U basis only.

**Credit Hours:** 5

**Prerequisites:** NURSE 8800, NURSE 8810, NURSE 8820

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**NURSE 8970: APN Role Transition Course**

Focus on refinement of knowledge and skills required for successful transition into an Advanced Practice Nursing career. Corequisites: NURSE 8980

**Credit Hour:** 1

**Prerequisites:** NURSE 7100, NURSE 7150, NURSE 7110, and instructor's consent

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**NURSE 8980: Advanced Clinical Nursing Practicum**

Intensive preceptor or faculty-guided clinical experience that synthesizes previous theory and clinical coursework. Refines knowledge and skills required to transition to an autonomous advanced nursing practice role. Graded on S/U basis only.

**Credit Hour:** 2-7

**Prerequisites:** NURSE 7110, NURSE 8910 or faculty consent

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**NURSE 9070: DNP Clinical Residency**

Intensive clinical experience. Prepare experts in advanced nursing practice and leadership to effectively evaluate practice problems, translate evidence into practice, monitor outcomes, and implement innovative models of care. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-5

**Prerequisites:** NURSE 8930 and NURSE 8450 or NURSE 8610

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**NURSE 9080: DNP Residency Project**

Final synthesis of DNP coursework culminating in an in-depth practice change project or case analysis impacting a rural or other underserved population or critical healthcare system need. May be repeated for credit. Some sections may be offered on an A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** NURSE 8930 and NURSE 9070

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**NURSE 9087: Leadership and Transformational Role Institute**

Synthesis of advanced nursing practice knowledge and leadership skills. Prepares DNP graduate to implement an advanced nursing practice role that will result in practice and/or policy change at the local, state, or national levels. May be repeated for credit.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 9080 and NURSE 9070

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**NURSE 9090: Research in Nursing and Health**

Original research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**NURSE 9100: State of the Science**

The existing body of research literature is the foundation upon which new scientific knowledge is built. This course will guide the student through the purpose and processes of scholarly writing. Students will conduct a systematic review of the scientific literature on a selected focus area in the health sciences. Students will work with course faculty, with input from the student's advisor, to develop and implement strategies to search, evaluate, and synthesize the literature in the selected area. Scholarly writing will be emphasized in this course. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to a doctoral program or permission of instructor

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**NURSE 9110: Conceptual Structure of Nursing**

Conceptualization and theoretical analysis of nursing phenomena; critical evaluation of nursing theories.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 9120: Philosophical and Theoretical Basis for Research**

Based on an understanding of the philosophy of science, critically appraise and adapt conceptual models and theoretical frameworks for use in research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 or faculty consent

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**NURSE 9130: Philosophy of Science in Nursing**

Overview of foundational concepts of philosophy-history of science; development and evolution of science and philosophical perspectives of nature of science including logical, empiricism, historicism, post-structuralism as related to nursing science/nursing research.

**Credit Hours:** 3

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**NURSE 9131: Responsible Conduct of Research in the Health and Social Sciences**

(same as H\_D\_FS 9131) This course examines professional research ethics including the rights of human subjects. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's permission required

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**NURSE 9132: Writing Research Proposals: Skill Building**

(same as H\_D\_FS 9130) This course teaches the components of writing a research proposal for external funding. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's permission required

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**NURSE 9400: Macro Social Theory**

(Same as SOC\_WK 9400) Building on the foundation laid in Social Work 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with formal organizations, interorganizational combinations, communities and larger political entities. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**NURSE 9410: Advanced Quantitative Methods**

(same as H\_D\_FS 9200). Study of explanatory and predictive quantitative designs in health-related research, including nested, double-blind, time series, casual models, retrospective cohort; secondary database use will be explored.

**Credit Hours:** 3

**Prerequisites:** NURSE 9131, Advanced Statistics Course

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**NURSE 9420: Qualitative Methods**

(same as H\_D\_FS 9420) Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**NURSE 9430: Measurement Issues**

Examines techniques used to estimate the various types reliability and validity of psychological and biological measures of nursing phenomena as well as the appropriate use of existing measures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150, NURSE 9420

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**NURSE 9450: Doctoral Seminar: Social Determinants of Health**

Doctoral seminar on defining, measuring and conducting research on social determinants of health. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 9120 and NURSE 9410

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**NURSE 9460: Theories and Interventions in Health Behavior Science**

Focuses on health behavior science theories, linking theories to measurement, and designing health behavior interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9100, NURSE 9120 or faculty consent

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**NURSE 9470: Technology Evaluation in Health Care Systems Research**

(same as HMI 9440). Examines technology applications and evaluation methods used to determine outcomes, efficiencies, effectiveness, satisfaction, and cost of using technology. Prerequisites: 6 credit hours of graduate statistics;

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410 or faculty consent

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**NURSE 9510: Advances in Health Care Systems**

Guided in-depth exploration, analysis, and evaluation of selected nursing and other current literature in health care systems.

**Credit Hours:** 3

**Prerequisites:** NURSE 9110, doctoral standing or instructor's consent

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**NURSE 9520: Advances in Health Restoration and Support**

Guided in-depth exploration, analysis, and evaluation of selected nursing and other current literature in health restoration and support.

**Credit Hours:** 3

**Prerequisites:** NURSE 9110, doctoral standing or instructor's consent

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**NURSE 9530: Advances in Health Promotion and Protection**

Guided in-depth exploration, analysis, and evaluation of selected nursing and other current literature in health promotion and protection.

**Credit Hours:** 3

**Prerequisites:** NURSE 9110, doctoral standing or instructor's consent

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**NURSE 9540: Seminar in Nursing**

Course content varies. May be repeated to a maximum of six hours.

**Credit Hour:** 1-99

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**NURSE 9550: Meta-Analysis Research**

(Same as H\_D\_FS 9550). Examines quantitative synthesis including research questions, search strategies, coding issues, meta-analysis statistical procedures, and interpretation of findings. Emphasizes conceptual understanding and practical methods.

**Credit Hours:** 3

**Prerequisites:** 6 credit hours of graduate statistics courses, NURSE 9410 or graduate level quantitative methods course

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**NURSE 9560: Qualitative Systematic Reviews**

(Same as SOC\_WK 9560 and H\_D\_FS 9560) Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** NURSE 9420 or equivalent

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**NURSE 9700: Social Welfare Policy Seminar**

(Same as SOC\_WK 9700) Critical examination of comparative models of social policy development.; preparation of a professional social work policy analysis in the student's area of interest/specialization that is suitable for submission to an appropriate referred journal. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NURSE 9710: Advanced Research Practicum**

Mentored research experience designed by student, mentor, and program committee based on student's substantive areas of interest and program of research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites or Corequisites:** NURSE 9120; advisor consent

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## Nutrition (NUTRIT)

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**NUTRIT 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NEP 7020; cross-leveled with AN\_SCI 4312 and NEP 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3212 and BIOCHM 3630

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**NUTRIT 7085: Problems in Nutrition**

Problems in Nutrition.

**Credit Hour:** 1-6

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**NUTRIT 7087: Masters Seminar in Nutrition**

Masters Seminar in Nutrition.

**Credit Hour:** 1

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**NUTRIT 7150: Readings in Nutrition**

Readings in current nutrition research. Graded on S/U basis only.

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**Credit Hour:** 1

**Prerequisites:** 15 hours work in field and instructor's consent

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**NUTRIT 7350: Nutrition During the Life Cycle**

Nutritional, physiological and environmental influences on the aging process of man from conception through senescence.

**Credit Hours:** 3

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**NUTRIT 7390: Medical Dietetics**

Medical dietetics.

**Credit Hour:** 3-12

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**NUTRIT 7650: Amino Acid and Protein Metabolism**

Amino acid and protein metabolism.

**Credit Hours:** 2

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**NUTRIT 8060: Comparative Nutrition and Metabolism**

Comparative Nutrition and Metabolism..

**Credit Hours:** 2

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**NUTRIT 8090: Masters Research in Nutrition**

Investigation in any area of experimental nutrition. Thesis required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**NUTRIT 8310: Nutritional Biochemistry of Lipids**

(same as NEP 8310 and AN\_SCI 8431). Current concepts in the nutritional regulations of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**NUTRIT 8320: Ruminant Nutrition**

(same as AN\_SCI 9432). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, metabolism, utilization of nutrients. Lecture, laboratory, assigned readings.

**Credit Hours:** 3

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**NUTRIT 8340: Nutrition in Human Health**

(same as NEP 8340.) Nutritional aspects of maintaining human health with emphasis on chronic disease prevention. Grades based on classroom participation and four exams.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NUTRIT 8360: Nutritional Biochemistry of Carbohydrates**

(same as BIOCHM 8360 and NEP 8360). Current concepts with in-depth coverage of selected examples of key regulatory steps controlling carbohydrate metabolism; emphasizing molecular mechanisms. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3



**Prerequisites:** BIOCHM 4270 and BIOCHM 4272 and 4000-level nutrition course and departmental consent

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**NUTRIT 8390: Molecular Biology of Mineral Nutrition**

(same as BIOCHM 8390 and NEP 8390). Current concepts of metal ion transport, intracellular metal trafficking and metal-dependent regulation of gene expression. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NUTRIT 8400: Bioenergetics**

(same as AN\_SCI 9441) . Bioenergetics.

**Credit Hours:** 3

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**NUTRIT 8438: Nutrient Regulation of Gene Expression**

(same as AN\_SCI 8438, BIOCHM 8438 and NEP 8438). Current concepts with in-depth coverage of several minerals that illustrate themes in molecular mineral nutrition. Based entirely on research literature and taught in a tutorial format.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course

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**NUTRIT 8500: Investigations in Experimental Nutrition**

Written report required.

**Credit Hour:** 1-6

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**NUTRIT 9087: Doctorate Seminar in Nutrition**

Doctorate seminar in nutrition.

**Credit Hour:** 1

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**NUTRIT 9090: Doctorate Research in Nutrition**

Investigation in any area of experimental nutrition. Thesis required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Obstetrics And Gynecology (OB\_GYN)

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**OB\_GYN 6004: Obstetrics/Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

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**OB\_GYN 6014: Rural Obstetrics/Gynecology Clerkship**

Rural Obstetrics/Gynecology Clerkship

**Credit Hours:** 8

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**OB\_GYN 6024: Springfield Obstetrics and Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**OB\_GYN 6104: Remediation OB/GYN Clerkship**

Enrolled students are those who received an unsatisfactory grade in a OB/GYN Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** OB\_GYN 6004 Clerkship, received unsatisfactory grade

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**OB\_GYN 6311: ABS OB/Gynecology Mechanism of Disease**

ABS OB/Gynecology Mechanism of Disease

**Credit Hour:** 5-10

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**OB\_GYN 6313: ABS OB/Gynecology Research**

ABS OB/Gynecology Research

**Credit Hours:** 5

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**OB\_GYN 6315: ABS OB/Gynecology Research and Review**

ABS OB/Gynecology Research and Review

**Credit Hour:** 5-10

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**OB\_GYN 6563: OB/GYN Clinical Reproductive Endocrinology**

OB/GYN Clinical Reproductive Endocrinology

**Credit Hours:** 5

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**OB\_GYN 6564: OB/GYN Reproductive Endocrinology Research**

OB/GYN Reproductive Endocrinology Research

**Credit Hours:** 5

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**OB\_GYN 6565: Reproductive Medicine and Infertility Offsite**

The 4th year student will work as a member of the Reproductive Endocrinology and Infertility team, providing hands-on clinical and surgical services in the inpatient, outpatient and consultative settings. The medical student will participate in daily outpatient clinic and any observe surgical services related to care of those patients. Students will learn using a variety of evidence-based resources, on-line resources and from clinical dialogue with the members of the care team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school and the OB/GYN Clerkship

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**OB\_GYN 6570: Gynecologic Endoscopy - St. Luke's**

Gynecologic Endoscopy - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6571: Clinical Reproductive Endocrinology and Infertility - St. Luke's**

Clinical Reproductive Endocrinology and Infertility - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6572: OB/GYN Ultrasonography - St. Luke's**

OB/GYN Ultrasonography - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6573: Maternal-Fetal Medicine and Ultrasound - St. Luke's**

Maternal-Fetal Medicine and Ultrasound - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6574: Clinical GYN Oncology/Pathology - St. Luke's**

Clinical GYN Oncology/Pathology - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6575: Obstetrics/Gynecology - St. Luke's**

Obstetrics/Gynecology - St. Luke's

**Credit Hours:** 5

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**OB\_GYN 6580: Obstetrics/Gynecology-Moberly Regional**

Obstetrics/Gynecology-Moberly Regional

**Credit Hours:** 5

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**OB\_GYN 6583: Obstetrics/Gynecology Offsite Advanced Elective**

Obstetrics/Gynecology Offsite Advanced Elective

**Credit Hours:** 5

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**OB\_GYN 6765: OB/GYN - Rural**

OB/GYN - Rural

**Credit Hours:** 5

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**OB\_GYN 6766: Gynecology Rural Elective**

Students will build upon their gynecologic examinations skills and their knowledge of both the common and more unusual gynecologic conditions that they obtain during other clerkships.

**Credit Hours:** 5

**Prerequisites:** OB\_GYN 6004, SURGRY 6006

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**OB\_GYN 6865: Maternal-Fetal Medicine Selective**

Goals/Objectives: To expose the student to high-risk obstetrical experiences in the Maternal Fetal Medicine division. All obstetrical selectives are done at Women's and Children's Hospital.

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship

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**OB\_GYN 6866: Obstetrical**

Goals/Objectives: To provide the student with additional obstetrical experience in the Labor and delivery suite. All obstetrical electives are done at the Missouri Ob/Gyn Associates Clinic and Women's and Children's Hospital. Evaluations: The student will be graded on their ward

performance. An evaluation for this rotation will be completed by the appropriate faculty and resident physicians. Notes: While on this rotation students will have exposure to various faculty members, residents, and fellow medical students. Students will participate in the evaluation of patients on labor and delivery including those presenting for evaluation of first trimester problems and labor evaluations. Some participation in operative procedures and labor management is expected. Students will have exposure to antenatal testing and ultrasonography including the interpretation of ultrasounds and limited participation in genetic counseling and invasive ante-partum diagnostic procedures is expected. Night call will be required and can be worked into the core rotation's student call schedule. Teaching will be on an ongoing bases with Dr. Floyd keeping daily routine with the students expected to participate in management decisions.

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship. Core reading for this rotation will include Obstetrics, Normal and Problem Pregnancies, latest edition, edited by Gabbe, Niebyl and Simpson

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**OB\_GYN 6867: Obstetrical/Gynecological Outpatient**

Obstetrical/Gynecological Outpatient

**Credit Hours:** 5

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**OB\_GYN 6868: Urogynecology Selective**

The 4th year medical student will work as part of a team providing hands-on clinical services in an inpatient, outpatient, and consultative setting. Students will participate in daily morning report, weekly didactic sessions, weekly surgical procedures and Friday afternoon seminars. Students will learn using a variety of evidence-based resources and direct faculty interaction. Successful completion of one of the core Obstetrics and Gynecology Clerkship courses: OB\_GYN 6004 or OB\_GYN 6014, and/or OB\_GYN 6104.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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**OB\_GYN 6930: Obstetrics/Gynecology Outpatient Two-Week Elective**

The 3rd or 4th year medical student will work as part of a team providing hands-on clinical services in an outpatient setting. Students will participate in daily clinic evaluations of patients. Students will learn using a variety of evidence-based resources and direct faculty teaching. Students will also participate in weekly teaching didactics within the OB/GYN department such as Grand Rounds.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**OB\_GYN 6937: Ultrasound Two Week Elective**

To provide additional clinical ultrasound experience in the outpatient setting. Students will learn how to integrate acquired knowledge and concepts; then apply them in the management of patients in an outpatient OB/GYN setting.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two year of medical school

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**OB\_GYN 6960: Gynecologic/Oncology Surgery**

Goals/Objectives: To provide the student with additional surgical and gynecological clinical experience. All gynecologic surgical electives are performed at Ellis Fischel Cancer Center and the University Hospital. Evaluations: An evaluation for this rotation will be completed by the elective chairmen and appropriate resident physicians. The students will be graded on their clinic, ward, and operating room performance. Notes: While on this rotation, students will have exposure to faculty members, three residents, and other fellow medical students. They will have the opportunity to assist in gynecologic oncology surgical cases, attend tumor clinics where they will encounter various procedures such as colposcopies, cryotherapy, and cervical and endometrial biopsies. A copy of a representative weekly schedule is available from the department student coordinator. In addition, students will be required to make two ten minute presentations with audio-visual aids on assigned topics. The students will not take night call, but are expected to attend patient rounds on weekdays and weekends with the residents. The department also holds conferences on Tuesdays and Thursdays which are to be attended. Core reading for this rotation will include Clinical Gynecologic Oncology by DiSaia and Creasman."

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship

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**OB\_GYN 6964: Obstetrics/Gynecology Offsite Advanced Selective**  
Obstetrics/Gynecology Offsite Advanced Selective

**Credit Hours:** 5

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## Occupational Therapy (OC\_THR)

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**OC\_THR 1000: Introduction to Occupational Therapy**

Introductory course to provide students information about the occupational therapy profession. Registered therapists lecture on clinical aspects. Students participate in discussions on program requirements, placement, and trends in the profession.

**Credit Hour:** 1

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**OC\_THR 2001: Topics in Occupational Therapy**

Organized study of selective topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** freshman or sophomore standing

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**OC\_THR 2085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** freshman or sophomore standing

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**OC\_THR 4001: Topics in Occupational Therapy**

Organized study of selective topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**OC\_THR 4085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

**Recommended:** Junior standing

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**OC\_THR 4220: Clinical Kinesiology**

(same as PH\_THR 4250). This course for occupational therapy students examines the musculoskeletal system with special emphasis in body movements and the application of laws and biomechanical principles that govern movement in order to select and perform effective occupation-based treatment. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Acceptance into the occupational therapy program

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**OC\_THR 4240: Applied Neurophysiology for Allied Health Students**

(same as PH\_THR 4240; cross-leveled with OC\_THR 7240, PHY\_THR 7240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system. Graded on A-F basis only.

**Credit Hours:** 3

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**OC\_THR 4270: Clinical Pathophysiology**

(same as PH\_THR 4270; cross-leveled with PH\_THR 7270, OC\_THR 7270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** successful completion of prior professional coursework

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**OC\_THR 4310: Foundations and Theory in Occupational Therapy**

(cross-leveled with OC\_THR 7310). History, contemporary practice, conceptual foundations, professional organizations and official documents of the OT profession are presented. Activity analysis, adaptation, and assistive technology are introduced in the context of promoting health and occupational participation. Graded on A-F only basis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 4350: Adult Practice**

(cross-leveled with OC\_THR 7350). Analysis of major disability areas from an occupational perspective. Administration and interpretation of assessments and application of treatment theories and approaches for deficits in movement, sensation, cognition and perception. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 4390: Principles of Assessment**

(cross-leveled with OC\_THR 7390). This course provides foundational knowledge of the occupational therapy evaluation process, including an understanding and application of practice theories and framework, an introduction and overview of psychometric properties of assessments and various types of assessments used throughout occupational therapy practice, and developing and using clinical reasoning to select assessments to determine limitations in occupational performance with individuals throughout the lifespan. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** Restricted to Occupational Therapy students only**OC\_THR 4420: Human Development and Occupations I**

(cross-leveled with OC\_THR 7420). Overview of typical development from infancy through adolescence from an occupational perspective. Emphasis on the impact of personal and contextual factors on occupational development in children and adolescents. Graded on A-F basis only.

**Credit Hours:** 2**Recommended:** Occupational Therapy students only**OC\_THR 4422: Fieldwork I - Occupations I**

(cross-leveled with OC\_THR 7422). Development of clinical observation skills via on-site observation of children with typical and atypical development. Opportunities to develop professional behaviors, gather and organize data, plan and implement activities, and develop therapeutic relationships with children, care providers, and other team members. Graded on S/U basis only.

**Credit Hour:** 1**Recommended:** Occupational Therapy students only**OC\_THR 4450: Pediatric Practice**

Lecture and laboratory course designed which addresses Occupational Therapypediatric frames of reference and theories. Common conditions seen in Occupational Therapy practice as well as interventions such as feeding, positioning, facilitation of movement and sensory strategies are also addressed. Graded on A-F basis only.

**Credit Hours:** 4**Recommended:** Admission to the Occupational Therapy professional program**OC\_THR 4620: Human Development and Occupations II**

(cross-leveled with OC\_THR 7620). Overview of biopsychosocial development and the aging process from young adulthood through older adulthood from an occupational perspective. Emphasis on the impact of client and contextual factors on occupational development and loss of occupations throughout the adult lifespan. Graded on A-F basis only.

**Credit Hours:** 2**Prerequisites:** Restricted to Occupational Therapy students only**OC\_THR 4622: Fieldwork I - Occupations II**

(cross-leveled with OC\_THR 7622). Development of evaluation and intervention skills via on-site interaction with older adults in a residential facility. Opportunities to gather data, plan/implement activities, document client performance, and develop therapeutic relationships with older adults and care providers. Graded on S/U basis only.

**Credit Hour:** 1**Recommended:** Restricted to Occupational Therapy students only**OC\_THR 4650: Principles of Intervention**

(cross-leveled with OC\_THR 7650). This course provides a foundation to understanding common frames of reference and theory utilized in occupational therapy. Application of these frames of reference and theories will be utilized to assist students in the program to understand common conditions, their influence on health and wellness, and systematic ways to begin provision of intervention for future clinical practice. Principles of intervention will be discussed across a variety of ages and conditions as a frame to understanding human occupation and ways to support meaningful participation. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** OC\_THR 4310 and OC\_THR 4520**Recommended:** Occupational Therapy students only**OC\_THR 4670: Musculoskeletal Intervention**

(cross-leveled with OC\_THR 7670). To gain entry level skills needed to evaluate and treat common upper extremity conditions, including acute injuries and cumulative trauma disorders. Graded on A-F basis only.

**Credit Hours:** 2**Prerequisites:** Restricted to Occupational Therapy Students only**OC\_THR 4750: Functional Cognition**

(cross-leveled with OC\_THR 7750). This course provides an overview of theoretical models of cognitive function, an overview of an occupational therapy cognitive assessment framework and assessment tools, and an introduction to models of intervention for working with individuals with cognitive disabilities across the lifespan. Graded on A-F basis only.

**Credit Hours:** 2**Prerequisites:** Restricted to Occupational Therapy Majors**OC\_THR 4770: Community-Based Practice**

Focus on role of occupational therapy in prevention, health and wellness. Program development and evaluation completed through community needs assessment and completion of health promotion project. Graded on A-F only basis.

**Credit Hours:** 3**Recommended:** acceptance into major and completion of program year 1**OC\_THR 4920: Clinical Reasoning and Documentation**

(cross-leveled with OC\_THR 7921). Development of observation and assessment skills related to effective documentation of occupational therapy services. Emphasizes exposure to various clinical settings, and third party payers, and legislative policies impacting documentation. Graded on A-F basis only.

**Credit Hours:** 2**Prerequisites:** Restricted to Occupational Therapy students only**OC\_THR 4943: Fieldwork: Clinical**

Clinical experience in occupational therapy settings. Emphasis on classroom to clinical transition. Exposure to the occupational therapy process; assessment, planning, implementation. Emphasis on

professional communication and observational skills. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** completion of 1st semester in major in professional curriculum; junior standing

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**OC\_THR 4960: Readings in Occupational Therapy**

Directed readings of the literature and research in occupational therapy. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**OC\_THR 4970: Research Methods**

This course will use writing to explore basic concepts in research design and analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Restricted to Occupational Therapy Majors

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**OC\_THR 4970W: Research Methods - Writing Intensive**

This course will use writing to explore basic concepts in research design and analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Restricted to Occupational Therapy Majors

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**OC\_THR 7000: Research Project**

Supervised experience in scientific investigation. In this course students will develop hypotheses, establish protocols/procedures, collect/analyze data, and interpret results.

**Credit Hours:** 2

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**OC\_THR 7001: Topics in Occupational Therapy**

Organized study of selected topics in occupational therapy. Particular topics and credit hours may vary from semester to semester. Repeatable upon consent of department. Course may be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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**OC\_THR 7005: Research Project-Mentor Hours**

Hours spent working with research mentor on research proposal. Emphasis on understanding project, designing project and collecting data for project. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** OC\_THR 7000

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**OC\_THR 7060: Professional Issues**

Introduction to the structures of the profession including professional associations, philosophical and ethical perspectives, the meaning of occupation and preparation for client contact. Includes experiential instruction in surface anatomy and infection control. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Acceptance into the occupational therapy program

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**OC\_THR 7085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department. May be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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**OC\_THR 7220: Clinical Kinesiology**

(same as PH\_THR 7250). This course for occupational therapy students examines the musculoskeletal system with special emphasis in body movement and the application of laws and biomechanical principles that govern movement in order to select and perform effective occupation-based treatment. Acceptance into the occupational therapy program. Graded on A-F basis only.

**Credit Hours:** 3

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**OC\_THR 7240: Applied Neurophysiology for the Allied Health Student**

(same as PH\_THR 7240; cross-leveled with OC\_THR 4240, PH\_THR 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system. Graded on A-F basis only

**Credit Hours:** 3

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**OC\_THR 7270: Clinical Pathophysiology**

(same as PH\_THR 7270; cross-leveled with OC\_THR 4270, PH\_THR 4270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the Occupational Therapy Professional Program required

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**OC\_THR 7310: Foundations and Theory in Occupational Therapy**

(cross-leveled with OC\_THR 4310). History, contemporary practice, conceptual foundations, professional organizations and official documents of the OT profession are presented. Activity analysis, adaptation, and assistive technology are introduced in the context of promoting health and occupational participation. Graded on A-F only basis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7350: Adult Practice**

(cross-leveled with OC\_THR 4350). Analysis of major disability areas from an occupational perspective. Administration and interpretation of assessments and application of treatment theories and approached for deficits in movement, sensation, cognition, and perception. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 7390: Lifespan Assessment**

(cross-leveled with OC\_THR 4390). Basic evaluation skills in occupational therapy practice across the lifespan are introduced. This course provides an introduction of the essentials of occupational therapy

evaluation: interviewing, screening, assessment, and report writing in general contexts across the lifespan. Enrollees will also receive an introduction to basic clinical reasoning skills required for instrument selection, interpretation of findings, and application to treatment planning. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students only

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**OC\_THR 7420: Human Development and Occupations I**

(cross-leveled with OC\_THR 4420). Overview of typical development from infancy through adolescence from an occupational perspective. Emphasis on the impact of personal and contextual factors on occupational development in children and adolescents. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7422: Fieldwork I - Occupations I**

(cross-leveled with OC\_THR 4422). Development of clinical observation skills via on-site observation of children with typical and atypical development. Opportunities to develop professional behaviors, gather and organize data, plan and implement activities, and develop therapeutic relationships with children, care providers, and other team members. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students only

---

**OC\_THR 7450: Pediatric Practice**

Lecture and laboratory course designed which addresses Occupational Therapy pediatric frames of reference and theories. Common conditions seen in Occupational Therapy practice as well as interventions such as feeding, positioning, facilitation of movement and sensory strategies are also addressed. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Admission to the Occupational Therapy professional program required

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**OC\_THR 7520: Fundamentals of Occupational Therapy**

This course will provide an overview of disability across the lifespan, including personal and professional interactions. Professional values, ethics and advocacy are also emphasized. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to students who are currently enrolled in to the Occupational Therapy program

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**OC\_THR 7620: Human Development and Occupations II**

(cross-leveled with OC\_THR 4620). Overview of biopsychosocial development and the aging process from young adulthood through older adulthood from an occupational perspective. Emphasis on the impact of client and contextual factors on occupational development and loss of occupations throughout the adult lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7622: Fieldwork I - Occupations II**

(cross-leveled with OC\_THR 4622). Development of evaluation and intervention skills via on-site interaction with older adults in a residential facility. Opportunities to gather data, plan/implement activities, document client performance, and develop therapeutic relationships with older adults and care providers. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Restricted to Occupational Therapy students only

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**OC\_THR 7650: Principles of Intervention**

(cross-leveled with OC\_THR 4650). This course provides a foundation to understanding common frames of reference and theory utilized in occupational therapy. Application of these frames of reference and theories will be utilized to assist students in the program to understand common conditions, their influence on health and wellness, and systematic ways to begin provision of intervention for future clinical practice. Principles of intervention will be discussed across a variety of ages and conditions as a frame to understanding human occupation and ways to support meaningful participation. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** OC\_THR 4310 or OC\_THR 7310 and OC\_THR 4520 or OC\_THR 7520. Restricted to Occupational Therapy students only

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**OC\_THR 7670: Musculoskeletal Intervention**

(cross-leveled with OC\_THR 4670). To gain entry level skills needed to evaluate and treat common upper extremity conditions, including acute injuries and cumulative trauma disorders. Graded on A-F basis only .

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 7750: Functional Cognition**

(cross-leveled with OC\_THR 4750). This course provides an overview of theoretical models of cognitive function, an overview of an occupational therapy cognitive assessment framework and assessment tools, and an introduction to models of intervention for working with individuals with cognitive disabilities across the lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 7770: Community-Based Practice**

Focus on role of occupational therapy in prevention, health and wellness. Program development and evaluation completed through community needs assessment and completion of health promotion project. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites:** Admission to the Occupational Therapy Professional Program

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**OC\_THR 7920: Fieldwork I Application of Clinical Skills**

Application of clinical reasoning. Integration of theory into clinical practice. Emphasis on treatment planning and implementation, outcome based intervention and professional communication. Includes lecture, seminar, and field experience. Graded on S/U basis only.

**Credit Hours:** 2

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**OC\_THR 7921: Clinical Reasoning and Documentation**

(cross-leveled with OC\_THR 4920). Development of observation and assessment skills related to effective documentation of occupational therapy services. Emphasizes exposure to various clinical settings, third party payers, and legislative policies impacting documentation. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 7960: Readings in Occupational Therapy**

Directed readings and critical evaluation of the literature and research in occupational therapy. Repeatable upon consent of department. May be offered on A-F or S/U basis.

**Credit Hour:** 1-99

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**OC\_THR 7970: Research Methods**

This course will use writing to explore basic concepts in research design and analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 7983: Fieldwork Level II-A**

Advanced practicum in various community settings such as the school system, hospitals, rehabilitation centers and residential facilities. Emphasis on hands-on experiences and translation of theory into practice. Graded on S/U basis only.

**Credit Hour:** 3-9

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**OC\_THR 7993: Fieldwork Level II-B**

Advanced practicum in rehabilitation and various community settings for application of more specialized practice in community based settings. Emphasis on critical analysis of human occupation, clinical reasoning, synthesis, and evidence based practice. Graded on S/U basis only.

**Credit Hour:** 3-9

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**OC\_THR 8000: Field Work 1 - Psychosocial Occupational Therapy Practice**

Fieldwork experience in a setting focused on psychosocial aspects of occupational therapy, students to experience intervention in individual and group psychosocial treatments. Course may be repeated. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students only

**Corequisites:** OC\_THR 8003

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**OC\_THR 8002: Leadership, Management and Policy**

Management perspectives and organizational structure of occupational therapy services programs and the profession. Includes inter- and intra departmental relationships, management and supervision, standards, regulations, and ethical guidelines are emphasized.

**Credit Hour:** 2-3

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**OC\_THR 8003: Psychosocial Aspects of Occupational Therapy**

This graduate course will examine the practice of occupational therapy in treating emotional and mental illnesses and related psychosocial dysfunction in the context of a variety of mental health treatment settings. The course will cover advanced frames of reference, treatment strategies, assessments, service delivery, program planning and group facilitation. In conjunction with didactic content students will actively explore these areas through hands on and practical learning experiences such as planning and leading groups, selecting and administering assessments, and developing a service delivery plan. The student will be required to complete an assigned field experience and write a reflection paper to insight and new perspectives on mental illness.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 8005: Advanced Adult Strategies**

Analysis of major disability areas from an occupational perspective, focusing on advanced rehabilitative practice techniques. Facilitates critical thinking and clinical reasoning skills utilizing a student-centered model.

**Credit Hours:** 3

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**OC\_THR 8006: Advanced Pediatric Strategies**

Explore topics related to occupational therapy pediatric practice in medical and educational settings and advanced topics such as assistive technology, working with special populations and evidence based practice. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** OC\_THR 4420 or OC\_THR 7420 and OC\_THR 4450 or OC\_THR 7450; Restricted to students in the Department of Occupational Therapy

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**OC\_THR 8087: Problem-Based Cases**

Synthesizes occupational therapy approaches to clinical scenarios across the lifespan and practice domains. Integrates clinical reasoning, patient values and evidence-based decision making into the occupational therapy process. Problem-based methodology emphasizes small group learning, problem solving, self/peer evaluation, and self-directed learning.

**Credit Hours:** 4

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**OC\_THR 8090: Synthesis Project**

Write up scholarly manuscript for publication based on research conducted with research mentor. Emphasis on writing: introduction, literature review, analysis and interpretation of findings, and implication for field. Presentation and dissemination of acquired information through poster session and manuscript. Graded on A-F basis only.

**Credit Hours:** 2

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**OC\_THR 8095: Synthesis Project - Mentor Hours**

Hours spent working with research mentor. Emphasis on data collection and analysis to complete synthesis project. Must be taken in conjunction with Synthesis Project course.

**Credit Hour:** 1

**Corequisites:** OC\_THR 8090. Graded on S/U basis only

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**OC\_THR 8950: OT Clinical Practice I**

Clinical course providing students with the occupational therapy process from assessment through discharge in a supervised setting. Course may be repeated. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 8999: OT Clinical Practice II**

This clinical course is designed to provide students an opportunity to advance skills in implementation of the occupational therapy process with individuals experiencing limitations in occupational performance. Through this hands-on experience, students will gain additional opportunities for application of theory, a deepened understanding of occupational therapy practice, and increase independence by identifying strengths and limitations during the evaluation process, developing and measuring client-centered goals, planning and executing interventions, implementing home programs, and preparing and performing discharge procedures.

**Credit Hour:** 1

**Prerequisites:** Restricted to occupational therapy students only

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## Ophthalmology (OPHTH)

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**OPHTH 6321: ABS Age-Related Mechanism of Degeneration**

ABS Age-Related Mechanism of Degeneration

**Credit Hour:** 5-10

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**OPHTH 6323: ABS Ophthalmology Research**

ABS Ophthalmology Research

**Credit Hour:** 5-10

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**OPHTH 6325: ABS Ophthalmology Research and Review**

ABS Ophthalmology Research and Review

**Credit Hours:** 5

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**OPHTH 6585: Ophthalmology**

Ophthalmology

**Credit Hours:** 5

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**OPHTH 6936: Introduction to Ophthalmology**

Welcome to the Ophthalmology Elective. This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work in the outpatient setting seeing patients at the University Eye Institute. Students will participate in didactic sessions each week. During this 2 week elective, students will become familiar with the screening eye examination, learn to perform a more comprehensive ocular examination, learn about common ocular abnormalities and treatments, and become familiar with the common ophthalmic instruments.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Parks, Recreation, and Tourism (P\_R\_TR)

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**P\_R\_TR 1010: Introduction to Leisure Studies**

History of recreation and leisure movement; theories and philosophies of play, recreation and leisure. Developmental stages of leisure services to contemporary status.

**Credit Hours:** 3

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**P\_R\_TR 1011: Academic Planning and Career Orientation in Parks, Recreation and Tourism**

Orientation to the field and analysis of career opportunities in leisure services. Academic planning leading to B.S. in parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Parks, Recreation and Tourism major

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**P\_R\_TR 1080: Introduction to Sport Management**

This course will examine the meaning of sport management in terms of its history, scope, principles, issues and future trends. In addition, this course examines the job responsibilities and competencies required of sport managers in a variety of sport organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 1081: Sport Facility Design**

This course will investigate the functions of management in terms of design, implementation, operating and financing public assembly facilities in order to help sell the sport product. Venues such as public and private arenas, coliseums and stadiums will be studied. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1080

**Prerequisites:** May be restricted to Parks, Recreation, and Tourism majors

**Corequisites:** P\_R\_TR 2082, P\_R\_TR 2083

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**P\_R\_TR 1084: Recreational Shooting Sports**

This course provides introductory instruction and hands-on shooting with an introduction to shooting range management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 1085: The Sports Page**

This course is offered to introduce students to Sport Management by discussing the variety of sports, issues, perspectives and people that make the daily sport page worth reading. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** P\_R\_TR 1080

**Corequisites:** Instructor consent required if P\_R\_TR 1080 is taken concurrently



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**P\_R\_TR 1091: Research and Descriptive Statistics for Parks, Recreation and Tourism**

An introduction to research methods and techniques and descriptive statistics and their application in the field of recreation and park administration. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2080: Global Sport Environments**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. professional sports. The course will also look into facility design and technology used in sports environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 2082: Domestic and International Sports Environment**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. profession sports. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1080

**Corequisites:** P\_R\_TR 1081, P\_R\_TR 2083

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**P\_R\_TR 2083: Technological Advancement in Sport**

This course will teach students how to solve sports technology problems they will face in their future career, plus develop computer aided design and manufacturing skills. They will also gain skills in team work, communication and presentation, IT, research and project management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1080

**Corequisites:** P\_R\_TR 1081, P\_R\_TR 2082

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**P\_R\_TR 2101: Topics in Park, Recreation and Tourism**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2101W: Topics in Park, Recreation and Tourism - Writing Intensive**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2103: Topics in Park, Recreation and Tourism - Behavioral Science**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2104: Topics in Park, Recreation and Tourism - Social Science**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2107: Aquatics Science**

A scientific perspective on water chemistry, preventive maintenance of aquatic facilities with an emphasis on the newest safety and engineering design information and construction techniques.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2111: Introduction to Planning and Evaluating Leisure Environments**

Presentation of basic planning principles. Evaluation of existing areas and facilities based upon planning guidelines. Consideration of park plans, standards, terminology, map preparation and evaluation.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2115: Consortium Field Experience**

An organized undergraduate experiential learning opportunity.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 2140: Camp Leadership and Management**

Organization and administration of camps; program planning; selection and training of staff; camp site selection and development; health and safety; camp history, standards, trends; practical application of camp craft skills.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 2142: Leadership of Social Recreation**

Study and practice in techniques of leading social activities suitable for various social settings. Offered periodically.

**Credit Hours:** 2

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2143: Organization and Conduct of Recreation Centers**

Problems of operation, management of playgrounds, recreation centers.

**Credit Hours:** 2

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 2182: Ethics and Current Issues in Sports**

Ethical strategies of sport management will be emphasized in all management decisions and current issues that today's sport business professional faces will be studied. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** P\_R\_TR 1011

**Prerequisites:** instructor's consent

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**P\_R\_TR 2206: Introduction to Leisure Service Management**

An introduction to public recreation in local government.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1010, P\_R\_TR 1011, P\_R\_TR 2111 or instructor's consent

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**P\_R\_TR 2281: The Business of Sport**

This course focuses on the business side of sport management, considering issues of marketing, sponsorship, and sales. Students will also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Some sections may require P\_R\_TR 1011

**Prerequisites:** some sections may be restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent

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**P\_R\_TR 2355: Private and Commercial Recreation Principles and Practice**

Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 2711: Experience Internship**

This course is designed as an independent study for students to gain professional experience. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** P\_R\_TR 1011 and P\_R\_TR 1010

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**P\_R\_TR 2750: Methods in Research and Evaluation**

An overview of social research methods, including terms, human and scientific inquiry, ethical behavior, literature review, sampling questionnaire construction, types of data collection, statistical analysis, and reporting of results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_R\_TR 1011

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**P\_R\_TR 3185: Sports Economics and Finance**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent

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**P\_R\_TR 3185H: Sports Economics and Finance - Honors**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Honors eligibility required

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**P\_R\_TR 3189: Pre-Internship Seminar in Parks, Recreation and Tourism**

The course is designed to prepare students for P\_R\_TR 4940. Emphasis is placed on students' responsibilities prior to enrollment in P\_R\_TR 4940, selecting internship sites and completing internship requirements.

**Credit Hour:** 1

**Prerequisites:** P\_R\_TR 1011; restricted to Parks, Recreation and Tourism students only

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**P\_R\_TR 3210: Personnel Management and Leadership in Leisure Services**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 3210W: Personnel Management and Leadership in Leisure Services - Writing Intensive**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 3215: Program Development in Leisure Services**

Fundamental principles and techniques of program development; seasonal, year round, specialty areas and total agency program planning.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011, or instructor's consent; restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 3220: Introduction to Recreation for Individuals with Disabilities**

Principles, concepts and historical development of recreation for individuals with disabilities. Explanation of attitudes, issues, practice and barriers related to recreation participation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 3227: Introduction to Therapeutic Recreation**

An investigation of therapeutic recreation service delivery models of the P\_R\_TR 2111 and disabled in both institutional and community settings. Particular emphasis will be placed on advanced leadership and therapeutic interactional skills and dynamics.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 3230: Introduction to Parks and Outdoor Recreation Services**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 3230W: Introduction to Parks and Outdoor Recreation Services - Writing Intensive**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 3231: Principles of Interpretive Outdoor Recreation**

Interpretive principles and techniques employed to communicate values, natural history and cultural features to the recreation user.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 3282: Governance and Policy in Sport and Leisure**

This course serves as a comprehensive study in examining how leisure organizations address fundamental issues of governance and policy. Through careful use of policy and understanding of governance, organizations often form strategies in their attempts to gain an advantage. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis

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**P\_R\_TR 4208: Administration of Leisure Services**

(cross-leveled with P\_R\_TR 7208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 4312: Planning Recreation and Leisure Environments**

Practical application of basic planning principles and design. Layout and design of various leisure-oriented areas and facilities. Site planning and analysis.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4315: Senior Seminar in Leisure Services**

Presentation of professional principles and issues in leisure services. Seminar study resulting in presentations and discussions.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism majors

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**P\_R\_TR 4327: Operation of Therapeutic Recreation: Procedures and Principles**

Theories and principles of leadership and programming as they apply to recreation services for the ill, handicapped, and aged.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4328: Leisure and Aging**

Basic understanding of problems/needs of later maturity in relation to recreation. Characteristics/capabilities of aged, program settings, financial support, planning guidelines emphasized. Objectives: provide fundamentals for recreation planning with aged individuals/groups. Offered periodically.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4329: Therapeutic Recreation Education/Counseling Techniques**

Techniques and models of leisure facilitation for use within a variety of clinical, residential and Institutional models. Theories of positive/negative leisure engagement reviewed.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4330: Therapeutic Recreation Assessment/Evaluation Procedures**

Reviews accepted clinical protocols for determining a client's physical, emotional, social and cognitive levels of functioning. Competencies in administering, scoring and interpreting multiple tools included.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4331: Administration of Outdoor Recreation - Education Programs**

(cross-leveled with P\_R\_TR 7331). Philosophies, essential principles, methods, techniques, resources, administrative and program practices for outdoor recreation and education. Offered periodically.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4333: Park Management**

Basic principles, practices and problems involved in managing public park systems. Consideration given to local, district, county, state, federal and foreign park systems.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation and Tourism majors

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**P\_R\_TR 4340: Advanced Recreation Land Management**

(cross-leveled with P\_R\_TR 7340). Advanced study of problems facing forest recreation managers. Topics include rivers recreation, wilderness management and citizen participation in decision making. Offered periodically.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** P\_R\_TR 1011

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**P\_R\_TR 4350: Problems in Parks, Recreation and Tourism**

**Credit Hour:** 1-3

**Prerequisites:** P\_R\_TR 1011; departmental consent

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**P\_R\_TR 4356: Tourism Management**

Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development, political system, and the economic, social and environmental effects of tourism.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011

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**P\_R\_TR 4357: Tourism Planning and Development**

Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011 and P\_R\_TR 4356

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**P\_R\_TR 4385: Legal Aspects of Sport**

This course studies the U. S. legal system, its structure and terminology. Legal aspects of contract law, statutory law, constitutional law, intellectual property, torts, negligence, and risk management in sport will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; Restricted to Parks, Recreation, and Tourism majors with Sports Management emphasis or instructor consent

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**P\_R\_TR 4940: Parks, Recreation and Tourism Internship**

Supervised professional experience with an approved organization. Course entails weekly reports, case studies, agency evaluations and a

special project related to the student's curricular emphasis. Graded on A-F basis only.

**Credit Hours:** 12

**Prerequisites:** P\_R\_TR 1011 and P\_R\_TR 3189, P\_R\_TR majors only, instructor's consent

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**P\_R\_TR 4949: Western Canada Study Abroad**

This course provides students an educational opportunity to explore Western Canada. Students analyze natural resource management, customer and visitor relations, community relations, cultural entrepreneurship, and transportation networks with US and Canadian Management methods.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 1011; instructor's consent

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**P\_R\_TR 4950: Independent Research in Parks, Recreation and Tourism**

Independent research project in parks, recreation and tourism. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** P\_R\_TR 1011; instructor's consent

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**P\_R\_TR 7208: Administration of Leisure Services**

(cross-leveled with P\_R\_TR 4208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator.

**Credit Hours:** 3

---

**P\_R\_TR 7312: Planning Recreation and Leisure Environments**

Practical application of basic planning principles and design. Layout and design of various leisure-oriented areas and facilities. Site planning and analysis.

**Credit Hours:** 3

---

**P\_R\_TR 7328: Leisure and Aging**

Basic understanding of problems/needs of later maturity in relation to recreation. Characteristics/capabilities of aged, program settings, financial support, planning guidelines emphasized. Objectives: provide fundamentals for recreation planning with aged individuals/groups. Offered periodically. .

**Credit Hours:** 3

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**P\_R\_TR 7331: Administration of Outdoor Recreation - Education Programs**

(cross-leveled with P\_R\_TR 4331). Philosophies, essential principles, methods, techniques, resources, administrative and program practices for outdoor recreation and education. Offered periodically.

**Credit Hours:** 3

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**P\_R\_TR 7333: Park Management**

Basic principles, practices and problems involved in managing public park systems. Consideration given to local, district, county, state, federal and foreign park systems.

**Credit Hours:** 3

---

**P\_R\_TR 7340: Advanced Recreation Land Management**

(cross-leveled with P\_R\_TR 4340). Advanced study of problems facing forest recreation managers. Topics include rivers recreation, wilderness management and citizen participation in decision making. Offered periodically.

**Credit Hours:** 3

---

**P\_R\_TR 7355: Private and Commercial Recreation Principles and Practice**

Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services.

**Credit Hours:** 3

---

**P\_R\_TR 7356: Tourism Management**

Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development, political system, and the economic, social and environmental effects of tourism.

**Credit Hours:** 3

---

**P\_R\_TR 7357: Tourism Planning and Development**

Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry.

**Credit Hours:** 3

**Prerequisites:** P\_R\_TR 7356

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**P\_R\_TR 7960: Guided Reading in Parks, Recreation and Tourism**

Selected reading in parks, recreation and tourism identified to fulfill a graduate student's academic needs or specialized interests.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**P\_R\_TR 8080: Foundations of Sport**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_R\_TR 8085: Problems in Parks, Recreation and Tourism**

Independent research on special projects.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**P\_R\_TR 8087: Masters Level Graduate Seminar in Parks, Recreation and Tourism**

In this course, students and faculty will discuss and critically analyze contemporary issues on social concerns relating to leisure services. Graded on S/U basis only.

**Credit Hours:** 2

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**P\_R\_TR 8088: Sport and Leisure Economics**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_R\_TR 8089: Research Project**

Individual research on approved project. Involves creativity and scholarly inquiry where product does not adhere to the traditional thesis format. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Parks, Recreation and Tourism graduate major

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**P\_R\_TR 8090: Thesis Research in Parks, Recreation and Tourism**

Research leading to thesis in field of parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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**P\_R\_TR 8400: Constructs of Leisure**

Review analysis and implications of fundamental psycho-social determinants of leisure behavior. Application theories of determinants to existing and proposed leisure service systems.

**Credit Hours:** 3

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**P\_R\_TR 8401: Topics in Recreation and Park Administration**

Specialized topics in recreation and park administration dynamics. Subjects and credits vary by semester based on available faculty resources and expertise. Course content announced in advance.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**P\_R\_TR 8411: Independent Work in Parks, Recreation and Tourism**

Independent research or special projects in parks, recreation and tourism.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**P\_R\_TR 8420: Leisure, Technology and Human Values**

Study of the developmental patterns of leisure services in society with emphasis to the dynamics of technology and leisure on individual and social values.

**Credit Hours:** 3

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**P\_R\_TR 8427: Contemporary Issues in Therapeutic Recreation**

The course will include new issues and ideas in the field of therapeutic recreation, such as registration, insurance, liability, licensure, assessment, etc., and how they relate to practitioners and services to clients.

**Credit Hours:** 3

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**P\_R\_TR 8430: Research Methods in Parks, Recreation and Tourism**

Analysis of basic research methodology. Review and analysis of research work completed in recreation, park and leisure field.

**Credit Hours:** 3

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**P\_R\_TR 8436: Visitor Behavior and Policy**

Course presents issues, concerns and policies dealing with multi-management/planning/operations of outdoor resource based recreation. Such issues as energy, economics, social/ political, pollution and user characteristics will be studied.

**Credit Hours:** 3

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**P\_R\_TR 8440: Philosophical Perspectives of Leisure**

Study of the theoretical and philosophical perspective of leisure in society with emphasis on integration and development of the student's personal and professional viewpoint.

**Credit Hours:** 3

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**P\_R\_TR 8450: Administration in Leisure Service Delivery**

Review, analysis and synthesis of administrative functions as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**P\_R\_TR 8460: Financial Operations in Leisure Service Delivery**

Review and critical analysis of financial functions, strategies and methodology as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**P\_R\_TR 8940: Internship in Parks, Recreation and Tourism**

Supervised student practice in recreation, park or related settings under qualified instructor.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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## **Pathology & Anatomical Science (PTH\_AS)**

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**PTH\_AS 2000: Basic Pathology**

Provides nonmedical students with a general understanding of the essential nature of disease, including mechanisms of its development and cause/effect relationships.

**Credit Hours:** 2

**Prerequisites:** 5 hours Biological Science or equivalent and 5 hours Chemistry or PTH\_AS 2201

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**PTH\_AS 2201: Human Anatomy Lecture**

A systems-based survey of human gross anatomy including structure, function and history. Internet access required: lectures and assignments will be online. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Minimum cumulative MU GPA of 2.5 required

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**PTH\_AS 2203: Human Anatomy Laboratory**

A systems-based survey of human gross anatomy. Internet access required: most materials will be online. One on-campus laboratory meeting per week. Graded A-F only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PTH\_AS 2201

**Prerequisites:** Minimum cumulative MU GPA of 2.5

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**PTH\_AS 2600: Cytology Female Genital Tract**

A definitive study of normal and abnormal cellular changes occurring within the organ system by means of light microscopy with histologic correlation.

**Credit Hours:** 10

**Prerequisites:** instructor's consent

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**PTH\_AS 2610: Respiratory Cytology**

A definitive study of the normal and abnormal cellular changes occurring within the system by means of light microscopy, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2615: Cytology of Body Fluids**

Normal and abnormal cellular changes within pleural, peritoneal, pericardial and cerebrospinal fluids by means of light microscopy, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2620: Gastrointestinal Cytology**

A definitive study of the normal and abnormal cellular changes occurring within the system by means of light microscopy, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2625: Oral Cytology**

Studies normal and abnormal cellular changes within the oral cavity and oropharynx by means of light microscopy, with histologic correlation.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**PTH\_AS 2630: Urinary Cytology**

Studies normal and abnormal cellular morphology from kidney, ureter and bladder samples, with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PTH\_AS 2685: Special Problems in Cytology**

Relating hematologic morphologic findings in conventional body fluid cytology; also review of techniques used in chromosome cultures and karyotyping, with emphasis on sex-related abnormalities.

**Credit Hours:** 2

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**PTH\_AS 3400: Fundamentals of Medical Technology I**

Emphasizes diseases and basic laboratory methods used in clinical laboratory areas: microbiology, hematology, immunology, virology, tissue typing, blood banking and chemistry.

**Credit Hours:** 3

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**PTH\_AS 3410: Fundamentals of Medical Technology II**

Continuation of PTH\_AS 3400.

**Credit Hours:** 3

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**PTH\_AS 3415: Fundamentals of Medical Technology III**

Continuation of PTH\_AS 3400 and PTH\_AS 3410.

**Credit Hours:** 3

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**PTH\_AS 3420: Clinical Practicum**

Presentation and application of concepts and laboratory method used in areas of immunochemistry, toxicology, mycology, uranalysis and cytogenetics.

**Credit Hours:** 3

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**PTH\_AS 3425: Hemostasis**

Lectures and laboratory exercises in basic theory and techniques of hemostasis including platelet function and disorders, plasma coagulation system, acquired and inherited themostatic disorders.

**Credit Hours:** 2

**Prerequisites:** PTH\_AS 3400, PTH\_AS 3410, PTH\_AS 3415

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**PTH\_AS 3430: Clinical Immunology**

Antigen-antibody reactions and their role in determining infectious, auto-allergic and inflammatory disease states.

**Credit Hours:** 3

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**PTH\_AS 3435: Blood Banking**

Principles and techniques of transfusion practices related through lectures and experience in the blood bank laboratory.

**Credit Hours:** 3

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**PTH\_AS 3440: Clinical Hematology**

Lectures and laboratory regarding procedures for diagnosing hematologic disorders. Experience in collection of specimens from patients; staining, counting and identifying blood and bone marrow cells.

**Credit Hours:** 6

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**PTH\_AS 3445: Clinical Microbiology**

Diagnostic procedures related to the isolation and identification to infectious microorganisms; bacteria and parasites. Emphasis on human pathogens and their sensitivity patterns with commonly used antibiotics.

**Credit Hours:** 6

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**PTH\_AS 3450: Clinical Chemistry**

Principles of quantitative analysis applied to the measurement of substances in biological fluids. Significance of these findings in the diagnosis and treatment of disease.

**Credit Hours:** 6

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**PTH\_AS 3455: Principles of Management and Education**

Lectures and discussion of management techniques and theories used in supervising laboratory personnel. Analysis of educational objectives and exam questions.

**Credit Hour:** 1

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**PTH\_AS 3460: Research and Instructional Techniques**

Involves library and laboratory research. Includes development of oral and written communications skills.

**Credit Hours:** 3

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**PTH\_AS 3485: Problems in Medical Technology**

Individual supervised work in a area of interest in medical technology.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PTH\_AS 3500: Cytology of the Female Genital Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the female genital tract along with histologic correlation.

**Credit Hours:** 8

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3510: Cytology of Respiratory Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring with the respiratory tract along with immunohistologic correlation. Prerequisitez: senior standing and instructor's consent.

**Credit Hours:** 4

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**PTH\_AS 3515: Cytology of Urinary Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the urinary tract along with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3520: Cytology of Gastrointestinal Tract**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the gastrointestinal tract along with histologic correlation.

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**Credit Hours:** 5

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3525: Cytology of Body Fluids**

A definitive study of light microscopy of normal and abnormal cellular changes occurring within body fluid along with histologic correlation.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3530: Cytology of Breast**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the breast with histologic correlation.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3535: Fine Needle Aspiration Cytology**

A definitive study by means of light microscopy of normal and abnormal cellular changes occurring within the fine needle aspirations from various body sites along with histologic correlation.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3540: Special Procedures in Cytology**

Study of hematologic findings in body fluid cytology: chromosome cultures and karyotyping. Emphasizing sex-related abnormalities; hormonal evaluation of smears from the female genital tract and their clinical significance.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3545: Clinical Management**

Procedures and processes helpful in operating in cytology laboratory, especially at the supervisory level.

**Credit Hour:** 1

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3550: Technical Application with Research in Cytotechnology**

Research is an area of interest in cytology resulting in a written and oral presentation.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3555: Cytologic Preparation**

Independent applications of techniques used to prepare cytologic material.

**Credit Hours:** 2

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3560: Practical Cytotechnology**

Independent application of techniques used to examine cytology material and manage a cytology laboratory.

**Credit Hours:** 6

**Prerequisites:** senior standing and instructor's consent

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**PTH\_AS 3585: Problems in Cytotechnology**

Individual supervised work in an area of interest in cytology.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PTH\_AS 3600: Elementary Histology**

Simplified gross and microscopic anatomy of normal organs and tissues commonly found in the routine histopathology laboratory.

**Credit Hours:** 3

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**PTH\_AS 3610: Basic Histotechnology**

Theories and technical application of procedures used in the preparation of tissue sections and slides of microscopic examination; including instrumentation, fixation, dehydration, clearing infiltration, embedding, microtomy, H&E staining and coverslipping.

**Credit Hours:** 6

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**PTH\_AS 3615: Special Staining Techniques**

Principles and procedures for special staining techniques for carbohydrates, connective tissues, blood, fat and lipids, pigments and minerals, bacteria and fungi, nerve, and other special cell stains.

**Credit Hours:** 6

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**PTH\_AS 3620: Applied Histotechnology**

Application of basic histological techniques in the preparation of histologic sections and slides in a clinical setting.

**Credit Hours:** 9

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**PTH\_AS 3625: Research and Instructional Techniques**

Involves library and laboratory search. Includes development of oral and written communications skills.

**Credit Hours:** 3

**Prerequisites:** senior students admitted to Histotechnology Curriculum

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**PTH\_AS 3630: Clinical Management**

Supervisory techniques and procedures helpful in operating a histopathology laboratory: including laboratory safety, workload recording, and personnel management in a laboratory situation.

**Credit Hours:** 2

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**PTH\_AS 3635: Basic Disease Processes**

Special readings and discussions of basic disease processes of interest to the anatomic pathology laboratory.

**Credit Hours:** 2

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**PTH\_AS 3680: Advances Histotechnology**

Advanced and specialized techniques used in the preparation and processing of muscle, nerve and rectal biopsies; special techniques in cytology; electron microscopy; enzyme and immunohistochemistry; plastic embedding and neuropathologic techniques.

**Credit Hours:** 6



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**PTH\_AS 3685: Problems in Histotechnology**

Individual supervised work in a specialized area of histotechnology.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PTH\_AS 4200: General Pathology**

Basic pathological mechanisms of human disease. Introductory principles of clinical laboratory measurements of altered organ system function studied.

**Credit Hours:** 5

**Prerequisites:** PTH\_AS 7200, PTH\_AS 7220, PTH\_AS 7310; and instructor's consent

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**PTH\_AS 4205: General Pathology Laboratory**

Gross and microscopic applied study of basic pathological disease mechanisms. Laboratory assessment of these basic disease mechanisms.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 7200, PTH\_AS 7220, PTH\_AS 7310; or the equivalents; and instructor's consent

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**PTH\_AS 4210: Seminar in Pathology and Anatomical Sciences**

Presentation and discussion of original investigations and current literature.

**Credit Hour:** 1

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**PTH\_AS 4220: Forensic Pathology and Death Investigation**

Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4220W: Forensic Pathology and Death Investigation - Writing Intensive**

Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4222: Gross Human Anatomy (The Health Professions)**

Gross structure and neuroanatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax.

**Credit Hours:** 7

**Prerequisites:** instructor's consent

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**PTH\_AS 4250: Interpretations of Lab Procedures in Primary Health Care**

Discussion and analysis of selected laboratory test procedures used in office and clinic settings involved with primary health care.

**Credit Hour:** 1

**Prerequisites:** graduate level Physiology course and departmental consent

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**PTH\_AS 6331: ABS Advanced Medical Neurosciences**

ABS Advanced Medical Neurosciences

**Credit Hour:** 5-10

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**PTH\_AS 6333: ABS Pathology/Anatomical Science Research**

ABS Pathology/Anatomical Science Research

**Credit Hours:** 5

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**PTH\_AS 6335: ABS Pathology/Anatomical Science Research and Review**

ABS Pathology/Anatomical Science Research and Review

**Credit Hours:** 5

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**PTH\_AS 6341: ABS Science Anatomical Science Teaching**

ABS Science Anatomical Science Teaching

**Credit Hours:** 5

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**PTH\_AS 6343: ABS Surgical Anatomy**

ABS Surgical Anatomy

**Credit Hours:** 5

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**PTH\_AS 6345: ABS Surgical Anatomy of the Head and Neck**

ABS Surgical Anatomy of the Head and Neck

**Credit Hours:** 5

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**PTH\_AS 6347: ABS Surgical Anatomy of the Back and Limbs**

ABS Surgical Anatomy of the Back and Limbs

**Credit Hours:** 5

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**PTH\_AS 6349: ABS Surgical Anatomy of the Pelvis and Perinium**

ABS Surgical Anatomy of the Pelvis and Perinium

**Credit Hour:** 5-10

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**PTH\_AS 6600: Anatomic Pathology**

Anatomic Pathology

**Credit Hours:** 5

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**PTH\_AS 6602: Clinical Pathology**

Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6604: Forensic Pathology**

Forensic Pathology

**Credit Hours:** 5

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**PTH\_AS 6606: Anatomic/Clinical Pathology**

Anatomic/Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6608: Anatomy Elective**

Anatomy Elective

**Credit Hours:** 5

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**PTH\_AS 6916: Anatomic Pathology Two-Week**

This is a two week rotation. Students will learn how to integrate information and apply previously acquired knowledge and concepts to the assessment and interpretation of surgical pathology, cytopathology, and/or autopsy cases. Students will learn about the procedures necessary to arrive at anatomic pathology diagnoses and the work that goes into specimen processing and examination so as to produce diagnoses.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PTH\_AS 6917: Clinical Pathology - Laboratory Medicine**

Students will learn how to integrate information and apply previously acquired knowledge and concepts to the assessment and interpretation of clinical laboratory tests. Students will learn about the procedures necessary to arrive at clinical pathology diagnoses and the work that goes into specimen processing and examination so as to produce diagnoses.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PTH\_AS 7020: Forensic Pathology and Death Investigation**

Summary of Forensic Death Investigation from beginning to end. Will include some of the current laboratory techniques seen on "CSI" Team taught by experts in the fields including medical examiners, death investigators, forensic anthropologists, police CSI teams, lawyers and others.

**Credit Hours:** 2

**Prerequisites:** Basic Biology

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**PTH\_AS 7220: Human Histology and Organology**

Detailed study of cytology, histology and microscopic anatomy.

**Credit Hours:** 4

**Prerequisites:** 10 hours of Biological Sciences and instructor's consent

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**PTH\_AS 7222: Gross Human Anatomy (The Health Professions)**

Gross/human structure through dissection. Graded on A-F basis only.

**Credit Hours:** 7

**Prerequisites:** Acceptance into Physical Therapy Programs or instructor's consent

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**PTH\_AS 7230: Mammalian Reproduction**

Reproduction in mammals, with emphasis on the neuroendocrine control of the hormones involved in reproductive process: biosyntheses, biologic actions, role.

**Credit Hours:** 3

**Prerequisites:** graduate standing in one of Animal, Biologic, Medical, or Veterinary Sciences, instructor's consent

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**PTH\_AS 7300: Advanced Pathology**

Demonstration and simulation study of gross, microscopic and clinical laboratory pathology of major human organ systems.

**Credit Hours:** 5

**Prerequisites:** PTH\_AS 4200 and PTH\_AS 4205 or equivalent and instructor's consent

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**PTH\_AS 7320: Autonomic Nervous System**

A comprehensive consideration of the autonomic nervous system in man, with emphasis on morphology.

**Credit Hours:** 2

**Prerequisites:** PTH\_AS 2201, Comparative Anatomy or equivalent, and instructor's consent

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**PTH\_AS 7330: Hematopoietic Organs**

Morphological and functional relationships of the blood-forming organs.

**Credit Hours:** 2

**Prerequisites:** Basic Histology and instructor's consent

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**PTH\_AS 7350: Advanced Pathology Laboratory**

Demonstration and simulation and character of work depend upon needs, qualifications, and of major human organ systems.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 4200 and PTH\_AS 4205 or equivalent and instructor's consent

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**PTH\_AS 7400: Seminars in Translational Medicine**

Students participate in regular seminars and discussion groups with other students interested in clinical and translational sciences. Students, working together with faculty in biomedical sciences and those working in clinical and translational fields, identify seminar topics. Learning objectives and written assignments are arranged on an individual basis. The course is open to all graduate level students and students enrolled in professional schools, for 0-5 credit hours, with instructor's approval. Graded on S/U basis only.

**Credit Hour:** 0-5

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**PTH\_AS 7450: Precision Medicine Informatics**

This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**PTH\_AS 8000: Comparative Pathology**

(same as V\_PBio 8430). Biochemical and morphologic lesions related to the mechanism of disease expression in plants and animals.

**Credit Hours:** 3

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**PTH\_AS 8010: Current Issues in Anatomical Sciences**

Survey of the recent literature in integrative anatomy, including functional, evolutionary, developmental and translational anatomy, conducted

through readings and discussion. Grade determined by participation and presentation of weekly readings. May be repeated for a maximum of 10 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8090: Advanced Pathology**

Open only to properly qualified graduate students, with counsel of faculty. Focus of MS-related research in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 8100: Fundamentals of Evolutionary Biology**

Principles of modern evolutionary biology. Topics include: phylogeny, paleobiology, developmental processes, genetic and phenotypic variation, form and function, speculation, macroevolution, and molecular mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PTH\_AS 8150: Fundamentals of Evolutionary Morphology**

This course is a survey of the fundamentals of modern evolutionary morphology. Topics will include: patterns of vertebrate evolution, comparative methods, development and ontogeny, constraint, functional morphology, evolutionary innovations, and experimental methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PTH\_AS 8201: Human Anatomy: Back and Upper Limb**

Developmental, gross, and clinical anatomy of the human back and upper limb, including skeletal, muscular, nervous, and vascular tissues. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8202: Human Anatomy: Thorax and Abdomen**

Developmental, gross, and clinical anatomy of the human thorax and abdomen. Graded on an A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8203: Human Anatomy: Head, Neck and Neuroanatomy**

Developmental, gross and clinical anatomy of the human head, neck and neuroanatomy. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8204: Human Anatomy: Pelvis and Lower Limb**

Developmental, gross and clinical anatomy of the human pelvis and lower limb. Graded A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8285: Problems in Pathology and Anatomical Sciences**

Regions or systems which may include developmental, microscopic, and gross anatomy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8290: Research in Pathology and Anatomical Sciences**

Research unrelated to thesis work in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8310: Anatomy of the Human Nervous System**

A comprehensive consideration of the morphology of the nervous system, emphasizing correlation of structure and function.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201, Comparative Anatomy or equivalent, and instructor's consent

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**PTH\_AS 8450: Human Anatomy Teaching Practicum**

Provides practical experience teaching clinically oriented human anatomy in lecture and laboratory settings. For students pursuing doctoral degrees in Pathobiology. Enrollement is limited to students who have completed PTH\_AS 8201, PTH\_AS 8202, PTH\_AS 8203, and PTH\_AS 8204. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8500: Seminar in Translational Neuroscience**

Students participate in seminars and discussion groups. Masters students identify seminar topics and present existing data with findings. PhD students identify seminar topics, conduct research and present findings. Learning objective and written assignments are arranged individually. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-5

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**PTH\_AS 9090: Research in Pathology and Anatomical Sciences**

Open only to properly qualified graduate students, with counsel of faculty. Focus of PhD-related research in evolutionary morphology, genomics, neuroscience or pathobiology. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 9290: Research in Pathology and Anatomical Sciences**

Open only with instructor's consent. Courses with specialized lectures in various topics such as evolutionary morphology, genomics, neuroscience and pathobiology, depending on faculty expertise and student demand. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Peace Studies (PEA\_ST)

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**PEA\_ST 1001: Topics in Peace Studies**

Underclass topics. Subjects may vary from semester to semester. May be repeated to 6 hours maximum. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 1003: Topics in Peace Studies - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

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**PEA\_ST 1004: Topics in Peace Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

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**PEA\_ST 1005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

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**PEA\_ST 1050: Introduction to Peace Studies**

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLISH 1000 or equivalent has already been taken

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**PEA\_ST 1050W: Introduction to Peace Studies - Writing Intensive**

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLISH 1000 or equivalent has already been taken

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**PEA\_ST 1051: International Conflict Resolution and Group Reconciliation**

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the "Truth and Reconciliation" committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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**PEA\_ST 1051W: International Conflict Resolution and Group Reconciliation - Writing Intensive**

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the "Truth and Reconciliation" committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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**PEA\_ST 1052: Global Warming, Climate Change, Catastrophic Climate Destabilization**

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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**PEA\_ST 1052W: Global Warming, Climate Change, Catastrophic Climate Destabilization - Writing Intensive**

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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**PEA\_ST 1053: Terror, Violence, and Guns**

An examination of gun violence focusing on international terrorist groups, state sanctioned violence, militias, gun violence and violence against women. Accounts of recruitment to violent actions and political groups, contrasted to the research on recruitment processes. Alternate public policies for the reduction of violence. Presentation of a diversity of viewpoints and concepts will be emphasized, especially in participatory formats such as panel discussions composed of students, and in formats that involve presentations in various media to the public outside the classroom.

**Credit Hours:** 3

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**PEA\_ST 1120: Population and Ecology**

(same as RU\_SOC 1120 and SOCIOL 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**PEA\_ST 1150: The Amish Community**

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include

cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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**PEA\_ST 1150W: The Amish Community - Writing Intensive**

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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**PEA\_ST 1195: Service Learning in Peace Studies**

Students will perform significant and long term community service while exploring issues central to peace studies.

**Credit Hour:** 1

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**PEA\_ST 1610: Russia in Modern Times**

(same as HIST 1610). Survey of Russian History from 1801 to present.

**Credit Hours:** 3

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**PEA\_ST 2000: Exploration in Social and Economic Justice**

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**PEA\_ST 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**PEA\_ST 2003: Topics in Peace Studies: Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2003W: Topics in Peace Studies: Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2004: Topics in Peace Studies - Social Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2100: The Vietnam and Iraq Wars: Lessons for the Future**

An interdisciplinary analysis of the Vietnam War and the American-led war with Iraq. Course focuses on the reasons that American lost in Vietnam, the reasons it won in Iraq, and the lessons these conflicts provided for America's future. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2110: Perspectives on Peace in the Middle East**

This course examines conflict theories, international relation theories and Middle Eastern politics. It is intended as a comprehensive applied study of these theories. The initial weeks will cover the major conflict theories including social learning theory, social identity theory, relative deprivation theory, human needs theory, and rational choice theory. The focus of this course will primarily be on conflicts and peace efforts of the Middle East including but not limited to: the Arab Spring, the Israeli-Palestinian conflict, Jordanian-Palestinian identity issue, peace efforts in the Middle East. Ultimately, students should explore ways to bridge the theories learned and apply them to conflicts, negotiation and peace efforts in the Middle East.

**Credit Hours:** 3

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**PEA\_ST 2180: Undergraduate Seminar I in Peace Studies**

Conflict Resolution in Theory and Practice. Conflicts are studied in the light of the social and behavioral sciences.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050

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**PEA\_ST 2181: Undergraduate Seminar II in Peace Studies**

Contemporary International Conflict: A readings and research seminar in which students will address such problems as global conflicts, the Arms Race and disarmament, global development.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050

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**PEA\_ST 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as

Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**PEA\_ST 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050 or instructor's consent

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**PEA\_ST 2183: Undergraduate Seminar IV in Peace Studies**

Images of War and Peace. Study of war and peace in philosophical and religious systems, film, poetry, art, fiction, and the media.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050

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**PEA\_ST 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2200W: Nuclear Weapons: Environmental, Health and Social Effects-Writing Intensive**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2201: Topics in Peace Studies-General**

Organized study of selected topics in Peace Studies. Subjects and credit hours may vary from semester to semester.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2220: America in the 1960's**

(same as HIST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2255: Youth, Islam, and Global Cultures**

(same as SOCIOL 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**PEA\_ST 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2284: Critical Dialogs: Global Environmental Policy Conflicts**

(same as SOCIOL 2284). Climate change, water supplies, food, sustainability, industrialization, and chemical, oil, radioactive pollution. Activity of transnational corporations, social harm, and formulation of international policies. Analysis of alternatives using criteria of justice: distribution, recognition, participation, legality.

**Credit Hours:** 3

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**PEA\_ST 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as SOCIOL 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2286: Technological Futures, National Security, and Civil Liberties**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2287: Conspiracies, Popular Imagination, Evidence**

In-depth and critical analysis of cases involving allegations of "conspiracy" in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours:** 3

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**PEA\_ST 2287W: Conspiracies, Popular Imagination, Evidence - Writing Intensive**

In-depth and critical analysis of cases involving allegations of "conspiracy" in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours:** 3

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**PEA\_ST 2288: Sports, Protest Movements, and Conflict Resolution**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and

sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours:** 3

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**PEA\_ST 2288W: Sports, Protest Movements, and Conflict Resolution - Writing Intensive**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours:** 3

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**PEA\_ST 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

Focusing on towns and communities and their regional history and cultural traditions, we will examine the issues and concerns of small town America in the context of recent hardships and adverse economic trends. Examples of topics to be covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by "middle America". The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that will draw on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**PEA\_ST 2289W: Towns in Missouri and the Midwest: Voices and Inequalities - Writing Intensive**

Focusing on towns and communities and their regional history and cultural traditions, we will examine the issues and concerns of small town America in the context of recent hardships and adverse economic trends. Examples of topics to be covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by middle America. The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that will draw on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**PEA\_ST 2290: Drugs, Violence and the Police in Latin America and Latina/o Communities in the United States**

A regional and global perspective on the "war on drugs" and violence in Latin American countries such as Mexico and Colombia, as well as the United States. The course may include units on such topics as: the recent history of gangs in US urban areas; political violence in Central America and such countries as Colombia and Venezuela; and attempts

to mediate and reconcile social conflicts and war in those areas. The interplay between gangs, drug policies, policing, and citizens' action and protests in major cities of the hemisphere, such as in Argentina and Brazil. Drugs, policing, gangs, and violence as a symbolic and hot button issue in domestic politics, and the consequences for public policy and the character of the discourse about public policy.

**Credit Hours:** 3

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**PEA\_ST 2291: Information Technology: Facilitation and Constraint for the Creative Mind**

This course will enable students to evaluate contrasting interpretations by leading thinkers about the development of information technologies, the internet, and robotics and artificial intelligence. Current debates will be covered; topics might include: views that social media are constraining the development of human relationships (Turkel); that commercialization of the internet reduces its function to attention getting (Wu); that automation degrades the humanity of work (Carr) and restricts the pay for producing creative content (Lanier). On the other hand, the course will consider arguments that human mind can be reverse reengineered to advance a new era of artificially intelligent machines (Kurzweil). Current theories of information technology and society will be grounded in the multidisciplinary thinking about mind, intelligence, art, and work.

**Credit Hours:** 3

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**PEA\_ST 2292: Internet Identities, and the Clash of Global Countercultures and Oppositional Cultures**

This course problematizes the development of individual and group identities on the internet and social media due to their multiple, global, shallow, shifting, segmented, and conflictual character. We emphasize a multidisciplinary examination of the internet presentation of diverse identities such as those of the 1960s counter-culture, the Christian right, militias, the alt-right, rural towns, terrorist cells, and life-style and sectarian political and religious groups. We will also examine the processes of publicity and celebrity in the creation of personal identities such as "entrepreneur" (Bill Gates and Steve Jobs), "geek", "hacker," and anonymous, and the development of internet technologies and personal identities in the context of commercialism and ideals such as freedom and rebellion. The intersection of personal, work, and professional identities will be considered. Sources will include autobiography, biography, and literature on such topics as diaspora, borders, Empire, and exile.

**Credit Hours:** 3

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**PEA\_ST 2320: Literature of Spanish Civil War**

(same as SPAN 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2321: Germany in War and Peace: Division and Unity 1945-89**

This course will compare notions of war and peace in East (German Democratic Republic) and West Germany (Federal Republic of Germany), 1945-1989. In particular, there are three main ways to think about war and peace: 1. Dealing with the Nazi past; 2. Dealing with the Cold War present; Negotiating violence and peace within various dissent and peace movements.

**Credit Hour:** 2-3

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**PEA\_ST 2410: Philosophies of War and Peace**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2490: Introduction to Native Studies**

(Same as ENGLSH 2490) Introduction to the field of Native Studies. Topics include indigenous knowledge, culture change and continuity, history and misrepresentation, politics and political history, and global indigenous relationships. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2550: Human Rights, Law, War and Peace**

Interdisciplinary exploration of how human rights, law, war and peace are connected through an analysis of various theories and contemporary examples, which may include issues regarding citizenship in the United States today, the regulation of economic markets in the U.S. today, state surveillance, the military industrial complex, the manner in which gender affects the experience of warfare and individuals

**Credit Hours:** 3

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**PEA\_ST 2600: CAFO: Concentrated Animals, Deep Ecology**

Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

**Credit Hours:** 3

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**PEA\_ST 2600W: CAFO: Concentrated Animals, Deep Ecology - Writing Intensive**

Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.



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**Credit Hours:** 3

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**PEA\_ST 2710: Politics and the Military**

(same as POL\_SC 2710). Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**Credit Hours:** 3

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**PEA\_ST 2810: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as JOURN 3510, T\_A\_M 2810, GERMAN 3510, DST 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 2810H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, T\_A\_M 2810H, JOURN 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required and 2.75 GPA. Honors eligibility required

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**PEA\_ST 2810HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors - Writing Intensive**

(same as GERMAN 3510HW, T\_A\_M 2810HW, JOURN 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required and 2.75 GPA. Honors eligibility required

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**PEA\_ST 2810W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as JOURN 3510W, T\_A\_M 2810W, GERMAN 3510W, DST 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 3003: Topics in Peace Studies - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 3005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PEA\_ST 3005H: Topics in Peace Studies - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing. Honors eligibility required

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**PEA\_ST 3130: Foreigners and Dangerous Women in Greek and Latin Literature**

(same as CL\_HUM 3000). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed both their own values and prejudices.

**Credit Hours:** 3

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**PEA\_ST 3140: Art of War and Peace**

Exploration of selected visual art pieces and consideration of humanistic concerns during times of war and peace from various perspectives including a peace studies perspective. Viewing and discussing art within varied selected historical and cultural contexts that generated the imagery. Includes visits to studios and galleries. May be repeated for credit.

**Credit Hour:** 2-3

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**PEA\_ST 3230H: Terrorism and Conflict Resolution - Honors**

Religious, ethnic, ideological movements; state and international reactions. Case studies from South America, Europe, Africa, Asia. Identifying problems, possible resolution. Dramatized thru discussions, documentaries, role-playing; short term paper, exams.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PEA\_ST 3280: Internship in Peace Studies**

Students work in a peace-related agency or institution for 1 to 3 credit hours. Repeatable for maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**PEA\_ST 3330: Environmental Justice**

(same as SOCIOL 3330). Environmental justice refers to the ways in which the "cost and benefits" of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3350: Readings in Peace Studies**

Students may receive 1 to 3 credit hours for doing readings and research in a particular area of peace studies. At least one paper will be required. Repeatable for a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PEA\_ST 3400: Politics of the Media**

(same as SOCIOL 3400). We look at the history and viability of the public sphere in the United States and the integral role of the media to its vitality. We analyze the impact of current trends toward media concentration and debate related issues of bias, censorship, and social control.

**Credit Hours:** 3

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**PEA\_ST 3400W: Politics of the Media - Writing Intensive**

(same as SOCIOL 3400). We look at the history and viability of the public sphere in the United States and the integral role of the media to its vitality. We analyze the impact of current trends toward media concentration and debate related issues of bias, censorship, and social control.

**Credit Hours:** 3

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**PEA\_ST 3401: Global Public Health and Health Care Systems**

(Same as HLTH\_SCI 3400). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3420: America's Environmental Experience**

(same as HIST 3420). Team-taught analysis of American thought and action on physical environment during 19th-20th centuries. Relation between politics, economics, technological change, environmental quality; roles of science, law, regulatory agencies, grassroots action.

**Credit Hours:** 3

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**PEA\_ST 3440: After the Fact: Holocaust in Contemporary History, Art & Literature**

(same as GERMAN 3440). Explores responses to the Holocaust from numerous perspectives. Considers how the Holocaust is remembered, memorialized, and debated in a variety of national contexts. Touches on historical, philosophical, and aesthetic points of view.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3490: Native Writing and Representation**

(same as ENGLSH 3490). Survey of native writing and representation from the late eighteenth century to the present, encompassing a diverse range of tribes and forms. Material will be drawn from tribes inhabiting the North American continent, but global indigenous relationships will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3496: Digital Indigenous Studies**

(same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3496H: Digital Indigenous Studies - Honors**

(same as GEOG 3496H). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community

outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**PEA\_ST 3496W: Digital Indigenous Studies - Writing Intensive** (same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3520: Collective Behavior** (same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3520W: Collective Behavior - Writing Intensive** (same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3521: Group Decision Making Processes** (same as COMMUN 3571). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3522: New Media, Conflict and Control** (same as SOCIOL 3522) This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

**Credit Hours:** 3

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**PEA\_ST 3550: War and Democracy in Late 5th c. BCE Athens** (same as CL\_HUM 3550). War and Democracy in Late 5th c. B.C.E. Athens explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of adamant, unrelenting warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states.

**Credit Hours:** 3

**Recommended:** any 2000 level CL\_HUM course

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**PEA\_ST 3600: Criminology** (same as SOCIOL 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**PEA\_ST 3610: Ireland, 1100s to 1850** (same as HIST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3611: Ireland, 1850-1923** (same as HIST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**PEA\_ST 3612: Ireland, 1920-Present** (same as HIST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Recommended:** HIST 3610 and/or HIST 3611

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**PEA\_ST 3780: World Political Geography** (same as GEOG 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**PEA\_ST 3840: Nonviolence in the Modern World** (same as HIST 3840 and S\_A\_ST 3245). Readings on recent world history, emphasis on Gandhi and nonviolent tradition in America Europe and the Third World.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3850: Islam and the West**

(same as HIST 3850). This course provides a historical intellectual context for the raging debate on Islam and the West. It will discuss how Muslims conceived and reacted variously to the political and cultural challenge the West posed in the nineteenth and twentieth century. It will focus on the discourse on the reception of modernization in Islam. It will highlight the political and cultural energies invested by various Muslim elite communities to distinguish between modernization and Westernization. Islamic fundamentalism, the dominant Islamic expression of our time, will be usefully discussed in the context of this debate and praxis about modernization, authenticity, and Westernization.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**PEA\_ST 3870: Social Revolution in Latin America**

(same as HIST 3870 and SOCIOL 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3

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**PEA\_ST 4003: Topics in Peace Studies - Behavioral Sciences**

Upperclass Topics. Subject may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**PEA\_ST 4005: Topics in Peace Studies: Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Recommended:** sophomore standing

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**PEA\_ST 4080: American Foreign Policy from Colonial Times to 1898**  
(same as HIST 4080).

**Credit Hours:** 3

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**PEA\_ST 4230: Women, Development and Globalization**

(same as SOCIOL 4230 and WGST 4230 and BL\_STU 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332 or BL\_STU 2200; SOCIOL 2200, WGST 1332 or WGST 2010

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**PEA\_ST 4240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as HIST 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 4287; cross-leveled with PEA\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** senior standing

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**PEA\_ST 4288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 7288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state- corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

**Prerequisites:** at least junior standing

**Recommended:** senior standing, 3.0 or above GPA, interest in graduate school

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**PEA\_ST 4330: Science and Technology of Terrorism and Counterterrorism**

(same as NU\_ENG 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 4331: Nonproliferation Issues for Weapons of Mass Destruction**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**PEA\_ST 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing required or instructor's consent

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**PEA\_ST 4341: Building Communities from the Grassroots**

(Same as RU\_SOC 4341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PEA\_ST 4360: Economic Development**

(same as ECONOM 4360). The study of less-developed countries including problems of measuring economic growth, analysis of sources of economic growth, causes of changes in economic and social structure, development and trade policies. The consequences of goals and assumptions for development policy are analyzed.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229, ECONOM 3251 or ECONOM 4351

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**PEA\_ST 4410: Politics and War**

(same as POL\_SC 4410). Why do wars occur? The function of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**PEA\_ST 4440: Ethical Issues in Communication**

(same as COMMUN 4440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PEA\_ST 4480: War Crimes and Genocide**

(same as HIST 4480). This course will explore the development of international law, international consciousness, and U.S. Foreign policy on the two distinct but often related issues of war crimes and genocide during the late 19th and throughout the 20th centuries.

**Credit Hours:** 3

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**PEA\_ST 4510: Western Europe's Foreign Policy**

Comparison of foreign policies of the major Western European countries; their roles within the European community. Study of institutions and

functioning of the European community and its potential as an emerging world power.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PEA\_ST 4520: Political Sociology**

(same as SOCIOL 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course.

**Credit Hours:** 3

**Recommended:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**PEA\_ST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as WGST 4550 and SOCIOL 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200; senior standing required

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**PEA\_ST 4600: Political and Social Philosophy**

(same as PHIL 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, liberalism, libertarianism, Marxism, Communitarianism and feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

**Recommended:** two courses in Philosophy

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**PEA\_ST 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, T\_A\_M 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**PEA\_ST 4830: Journalism and Conflict**

(same as JOURN 4730). Introduction to the basic principles of conflict theory and negotiation, including the sources of conflict, why conflict escalates and what the conditions are for de-escalation, all with a special emphasis on the implications for the working journalist.

**Credit Hours:** 3

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**PEA\_ST 4940: Leadership and Ethics**

(same as NAVY 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a

capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PEA\_ST 4970: Senior Thesis I**

Senior essay on a Peace Studies topic requiring major research.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050, senior standing, and instructor's consent

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**PEA\_ST 4980: Peace Studies Abroad - Social Sciences**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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**PEA\_ST 7003: Topics in Peace Studies - Behavioral Sciences**

Upperclass Topics. Subject may vary from semester to semester.

**Credit Hours:** 3

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**PEA\_ST 7080: American Foreign Policy from Colonial Times to 1898**

(same as HIST 7080).

**Credit Hours:** 3

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**PEA\_ST 7240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 7260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as HIST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

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**PEA\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 7287; cross-leveled with PEA\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**PEA\_ST 7288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 4288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state-corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

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**PEA\_ST 7520: Political Sociology**

(same as SOCIOL 7520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**PEA\_ST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7750 or WGST 7550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**PEA\_ST 7640: Ethical Issues in Communication**

(same as COMMUN 7640). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

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**PEA\_ST 7980: Peace Studies Abroad**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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## Personal and Financial Planning (FINPLN)

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**FINPLN 1183: Financial Survival**

Examines financial management issues needed to survive the critical college years-credit/credit cards, budgeting/planning, financial aid, loans, common financial mistakes, debt management, setting financial goals, effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 2083: Financial Planning Careers**

This course will provide the student with a broad, general introduction to careers in financial planning. Through readings, introspection, discussions, and guest speakers, the student will develop an understanding of the field.

**Credit Hour:** 1

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**FINPLN 2183: Personal and Family Finance**

Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Math Reasoning Proficiency Course. Students who wish to pursue a Personal Financial Planning emphasis must earn a B- or better, in FINPLN 2183.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 with grade of C- or above

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**FINPLN 2185: Consumer as Entrepreneur**

The American economic system and marketplace from both a consumer and an entrepreneurial perspective.

**Credit Hours:** 3

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**FINPLN 3282: Financial Counseling**

Practical course on client financial counseling. Course emphasizes client money issues including budgeting, credit, debt management, bankruptcy and other issues. Students also will learn counseling strategies and communication skills to motivate clients to change negative behaviors and/or adopt positive behaviors.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINPLN 2183 or instructor's consent

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**FINPLN 3283: Financial Planning: Computer Applications**

Development of expertise in analyzing and understanding family financial case situations. Applications include the use of leading financial planning software, as well as applications with spreadsheets.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183 or equivalent

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**FINPLN 3285: Financial Planning: Real Estate**

Family housing and real estate investments as components of the family's quality of life and asset portfolio.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; ECONOM 1014 and ECONOM 1015; STAT 1300 or STAT 2500

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**FINPLN 4000: Problems in Personal Financial Planning**

Supervised and independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4183: Sales Management**

Prepares students to enter financial service occupations dependent upon sales and sales management. Attention given to skill development, evaluation of current and best practices.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINPLN 3283 or instructor's consent  
**Prerequisites:** junior standing; acceptance into professional program; FINPLN 2183

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**FINPLN 4187: Tax Planning**

Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183, FINPLN 3283 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4188: Community Agencies and Volunteerism**

Service learning in a non-profit community social support agency. Examines economic role of non-profits and volunteerism. Students engage in service and evaluate experience in seminar. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 or FINPLN 7187 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4189: Financial Planning: Applied Tax Law**

This course trains students to become volunteer tax preparers and provides the opportunity to use their skills in a lab setting to prepare personal tax returns for U.S. citizens and resident aliens living in central Missouri. The course also discusses tax law, especially as it applies to clients of the Volunteer Income Tax Assistance site.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187

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**FINPLN 4318: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** vary with topic

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**FINPLN 4355: Recent Trends in Personal and Financial Planning**

For upper-class students who wish additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-3

**Prerequisites:** vary with the topic

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**FINPLN 4380: Assessing the American Dream**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**FINPLN 4380W: Assessing the American Dream - Writing Intensive**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal

and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** junior standing

---

**FINPLN 4382: Financial Planning: Risk Management**

Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; ECONOM 1014 and ECONOM 1015; STAT 1300 or STAT 2500. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4383: Financial Planning: Investment Management**

(cross-leveled with FINPLN 7383). Introduction to investment for family financial planning.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 3229

**Prerequisites:** FINPLN 2183 and 3283; STAT 1300 or STAT 2500. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning**

Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382, FINPLN 4383. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4387: Consumer and Household Economics**

Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or equivalent

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**FINPLN 4388: Effective Consumer Decision-Making**

Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, optimal search, heuristics, interactive decisions; strategies for their application in the marketplace.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 and ECONOM 1015

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**FINPLN 4389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187, FINPLN 4382, FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382 and FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4418: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4483: Financial Success**

Examines financial management issues needed to survive the critical post-college years - managing educational debt; after-school budgeting; auto, health, and other forms of insurance; retirement planning and other investment issues; setting financial goals; effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 4992: Readings in Personal Financial Planning**

**Credit Hour:** 1-99

**Prerequisites:** restricted to Personal Financial Planning Majors only

**Recommended:** 2-3 hours in Personal Financial Planning

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**FINPLN 4993: Internship in Personal Financial Planning**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 7000: Problems in Personal Financial Planning**

Prerequisites: Restricted to Personal Financial Planning Majors Only.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**FINPLN 7001: Topics in Household Economics and Finance**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 7083: Teaching Personal Finance Literacy**

(same as LTC\_V 7083). Principles and practices of teaching personal finance with particular emphasis on income, money management, spending and credit, and savings and investing. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 7085: Problems in Household Economics and Finance**

Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 7087: Seminar in Household Economics and Finance**

Reports and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-4

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**FINPLN 7183: Fundamentals of Personal Financial Planning**

Issues and concepts related to the financial planning process, including determination of financial goals and expectations and analysis and evaluation of personal and family financial data with emphasis on savings, insurance, investments, taxes, credit and financial aspects of housing.

**Credit Hours:** 3

---

**FINPLN 7187: Financial Planning: Tax Planning**

Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183, FINPLN 3283, ACCTCY 2010 or equivalent or instructor's consent

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**FINPLN 7282: Advanced Financial Counseling**

Students will learn client-centered financial counseling. Includes development of interviewing techniques, focus on personality strengths and weaknesses, creation of the sales process, and the role of technology in counseling. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 7355: Recent Trends in Personal Financial Planning**

For upper-class and graduate students who wish additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-3

**Prerequisites:** vary with the topic

---

**FINPLN 7380: Assessing the American Dream**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

---

**FINPLN 7382: Financial Planning: Risk Management**

Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; 5-6 hours of Economics; STAT 1300 or STAT 2500

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**FINPLN 7383: Financial Planning: Investment Management**

Management of family financial investments.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283; 5-6 hours of Economics; STAT 1300 or STAT 2500

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**FINPLN 7386: Financial Planning: Employee Benefits and Retirement Planning**

Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382, FINPLN 4383, or instructor's consent

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**FINPLN 7387: Consumer and Household Economics II**

(cross-leveled with FINPLN 7387). Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent

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**FINPLN 7388: Effective Consumer Decision-Making**

Theory, concepts, principles underlying consumer decision-making, including rationality, uncertainty, optimal search, heuristics, interactive decisions; strategies for their application in the marketplace.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2185; 5-6 hours of Economics

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**FINPLN 7389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187, FINPLN 4382, FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 7393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382 and FINPLN 4382

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**FINPLN 7412: Research Methods in Personal Financial Planning**

Introduction to the scope, purpose and methods of research in consumer and family economics, with emphasis on economic survey methods.

**Credit Hours:** 3

**Prerequisites:** an introductory statistics course

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**FINPLN 7583: Personal Financial Issues of Older Adults**

(same as H\_D\_FS 7583). Principles and practice of personal finance relevant to assessing and improving the financial security of older individuals. Topics covered include sources of income, management of cash flow, credit use and abuse, risk exposure, investment management, housing, and financial planning. Financial vulnerabilities of seniors will be explored. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Bachelor or Master's degree in human services, social work, mental health, nursing physical rehabilitation or psychology;

Must be enrolled in Graduate Certificate in Geriatric Care Management program

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**FINPLN 7960: Readings in Household Economics and Finance**  
Readings in recent research in household economics and finance.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 7993: Internship in Personal Financial Planning**  
Internship in Personal Financial Planning.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent; Restricted to Personal Financial Planning Majors Only

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**FINPLN 8001: Topics in Personal Financial Planning**  
Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 8085: Problems in Household Economics and Finance**  
Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8087: Seminar in Household Economics and Finance**  
Report and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8090: Master's Thesis Research in Personal Financial Planning**  
Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8183: Military Personal Financial Readiness**  
Financial planning process applied to military personnel and their families. Focus on service member status; financial readiness; record-keeping; management of cash flow, risk, credit and debt, savings, investments, tax, savings; education planning, retirement and estate planning. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8187: Professional Practices in Financial Planning**  
Practice management techniques for Financial Planners. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8380: Family Systems**  
Exploration of the family as a system within the broader context of society.

**Credit Hours:** 3

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**FINPLN 8381: Theories and Research in Personal Financial Planning I**

Course introduces students to the social science of family finances. Course covers the theories of family functioning, microeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of families and the economy. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8382: Theories and Research in Personal Financial Planning II**

Course reviews theories and empirical research in household financial decision-making, drawing from macroeconomic theory, theories of household behavior, lifecycle hypothesis, behavioral economics and finance, theories of behavioral change and psychological theories of family well-being. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** FINPLN 8381

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**FINPLN 8385: Housing and Real Estate**

The study of real estate as a component to household wealth. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8386: International Employee Benefits and Retirement Planning**

This course develops the theory and application of international employee benefits and retirement planning. Universal theory will be applied to analyze existing programs in an international context. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** FINPLN 7183 and FINPLN 7383

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**FINPLN 8389: Financial Planning Case Studies**

The analysis and development of appropriate presentations for effective financial plans.

**Credit Hours:** 3

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**FINPLN 8393: International Estate and Gift Planning**

This course develops the theory and application of end of life planning in an international context. Core estate planning education will prepare students to sit for the CFP exam, while addressing issues prevalent in other countries. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** FINPLN 7183, FINPLN 7383

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**FINPLN 8450: Applied Research in Household Economics and Planning**

Independent research not leading to a thesis. Report required. For students completing Master's in Personal Financial Planning.

**Credit Hour:** 1-99  
**Prerequisites:** instructor's consent

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**FINPLN 8483: Family Economics**

Multidisciplinary study of research on families as economic units. Examines trends in family income, wealth, labor market participation, household production, distribution of household resources, use of public goods, and underground economy.

**Credit Hours:** 3

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**FINPLN 8485: Human Resource Development and Allocation**

Economic analysis of conditions, programs and policies related to development and use of human resources, with special reference to impact on families and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4387 or instructor's consent

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**FINPLN 8486: Social Policy and the Family Economy**

Economic analysis of public programs that directly affect well-being of families: income maintenance, goods transfers, employment, housing, health, transportation, taxes, etc.; consideration of underlying philosophies, policy alternatives.

**Credit Hours:** 3

**Prerequisites:** FINPLN 7387 or instructor's consent

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**FINPLN 8488: Household Financial Decision Making**

This course provides a solid foundation for critical thinking and research on household financial decision making. A selective but extensive review of normative and descriptive theories and empirical studies pertinent to household financial decision making is provided. The focus is on developing a critical perspective in students that enables them to identify opportunities to advanced theory toward relevant applications through research on household financial decision making.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. A knowledge of intermediate micro economics, introductory statistics, and introductory differential calculus is assumed

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**FINPLN 8500: Personal Financial Planning Capstone**

Independent work on project approved by major advisor and CFP (R) Program Director. For students completing Master's in Personal Financial Planning. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8960: Readings in Household Economics and Finance**

Readings in recent research in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9001: Topics in Household Economics and Finance**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 9085: Problems in Household Economics and Finance**

Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9087: Seminar in Household Economics and Finance**

Report and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9090: Doctoral Dissertation Research in Personal Financial Planning**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9960: Readings in Household Economics and Finance**

Readings in recent research in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Philosophy (PHIL)

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**PHIL 1000: General Introduction to Philosophy**

Introduction to traditional philosophical problems and methods of philosophical enquiry. Consideration given to different philosophical theories on the nature of reality, man, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

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**PHIL 1000H: General Introduction to Philosophy - Honors**

Introduction to traditional philosophical problems and methods of philosophical enquiry. Consideration given to different philosophical theories on the nature of reality, man, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHIL 1100: Introduction to Ethics**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the "good life", nature of ethical reasoning and justification.

**Credit Hours:** 3

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**PHIL 1100H: Introduction to Ethics - Honors**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the "good life", nature of ethical reasoning and justification.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHIL 1150: Introductory Bioethics**

This course approaches moral problems in biomedical and scientific research from a philosophical perspective. First, we'll familiarize ourselves with ethics and political philosophy. Then we'll study the ethical issues that arise in connection with a series of issues, including research involving human and animal subjects, eugenics, the human genome project, cloning and stem cell research. By thinking about these issues, we learn how to think critically about particular moral quandaries, as well as to uncover and examine some of our deepest moral commitments.

**Credit Hours:** 3

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**PHIL 1200: Logic and Reasoning**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

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**PHIL 1200H: Logic and Reasoning-Honors**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

---

**PHIL 2000: Philosophical Ideas in Literature**

Philosophical ideas and issues revolving around human freedom as these ideas and issues are embodied in great literary works from Plato through Dostoyevski to Burgess.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2005: Topics in Philosophy-Humanities**

Organized study of philosophical issues to which no regular course in devoted. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**PHIL 2010: The Philosophy of Film**

(same as FILM\_S 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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**PHIL 2100: Philosophy: East and West**

(same as S\_A\_ST 2100). Compares the interpretation and role of philosophical concepts such as experience, reason, permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2200: Philosophy and Intellectual Revolution**

Examines such revolutions as the Copernican, Darwinian, Marxian and Freudian. What are the new views? How is our place in the universe affected? What puzzles arise in replacing old by new views?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2300: Philosophy and Human Nature**

Philosophical exploration and examination of theories of human nature with reference to relevant developments in such sciences as biology, psychology, and economics.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2350: The Meaning of Life**

Does life have meaning, or is it essentially meaningless, absurd? This course will examine some of answers philosophers have given to this and related questions.

**Credit Hours:** 3

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**PHIL 2400: Ethics and the Professions**

Examination of ethical issues confronted by members of different professions such as medicine, law, business, journalism and engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2410: Philosophies of War and Peace**

(same as PEA\_ST 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PEA\_ST 2410W). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2420: Ethical Issues in Business**

Major theories of moral obligation and justice and their application to business practices. Corporate responsibility, government regulation, investment and production, advertisement, the environment, preferential hiring, etc. through case studies, legal opinions and philosophical analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2430: Contemporary Moral Issues**

Review of the major contemporary ethical theories and their contribution to the resolution of major social issues such as euthanasia, suicide, abortion, capital punishment, violence and war. Emphasis on nature, interests, and rights of persons. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2440: Medical Ethics**

Considers moral issues posed by developments in biological sciences and medical technology. Topics may include: genetic engineering, abortion and euthanasia, distribution of health care.

**Credit Hours:** 3

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**PHIL 2500: Philosophy and Gender**

(same as WGST 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2500H: Philosophy and Gender - Honors**

A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; honors eligibility required

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**PHIL 2600: Rational Decisions**

Principles for making decisions in a rational way. Special attention to principles that use probabilities and utilities. Some discussion of decisions made in conjunction with other people, and decisions made for other people. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1100 or MATH 1120

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**PHIL 2700: Elementary Logic**

(same as LINGST 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1100 or MATH 1120

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**PHIL 2820: Introduction to Cognitive Science**

(same as PSYCH 2820 and LINGST 2820). Cognitive science is the interdisciplinary study of the mind. After an overview of the foundations of cognitive science as a whole, we will see what particular sectors of it have to say about mental capacities such as vision, language, categorization, and social cognition.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** PSYCH 1000

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**PHIL 3000: Ancient Western Philosophy**

(same as CL\_HUM 3025). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3100: Medieval Philosophy**

Major thinkers from St. Augustine through 14th century Ockhamists.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200: Modern Philosophy**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200W: Modern Philosophy - Writing Intensive**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3400: 19th Century Philosophy**

A careful and sympathetic study of some of the major thinkers of this period, notably Kierkegaard and Nietzsche.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3500: Existentialism**

The nature of human existence, the meaning of life, the relation of the individual to nature, society, and any gods that may be, according to Kierkegaard, Nietzsche, Heidegger, Sartre, de Beauvoir, Camus and others. Students are encouraged to come to grips with the issues in relation to their own lives.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3600: 20th Century Philosophy**

The course will be a survey of some of the notable philosophers/thinkers whose contributions have been made in the twentieth century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3700: Selected Modern Philosophers**

Advanced study of a particular philosopher or a number of philosophers from the same school in the modern period. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3800: Selected Contemporary Philosophers**

Advanced study of a particular contemporary philosopher or philosophers. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4001: Topics in Philosophy-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing and two courses in Philosophy, or instructor's consent; departmental consent for repetition

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**PHIL 4005: Topics in Philosophy-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy, or instructor's consent

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**PHIL 4100: Philosophy of Language**

(same as LINGST 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

**Recommended:** one other course in Philosophy

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**PHIL 4110: Advanced Logic**

(same as LINGST 4110; cross-leveled with PHIL 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

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**PHIL 4120: Selected Topics in Logic**

Elementary set theory. Modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and either PHIL 2700 or PHIL 4110

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**PHIL 4130: Probability and Induction**

This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability

of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

---

**PHIL 4200: Metaphysics**

Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 4210: Philosophy of Mind**

Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two Philosophy courses

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**PHIL 4220: Philosophy of Religion**

Considers basis for and nature of religious beliefs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** One course in Philosophy

---

**PHIL 4300: Epistemology**

An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000, PHIL 3200

---

**PHIL 4400: Philosophy of Science**

Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4410: Philosophy of History**

Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4420: Philosophy of Biology**

A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include

reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4500: Theories of Ethics**

Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4600: Political and Social Philosophy**

(same as PEA\_ST 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4610: Philosophy of Law**

What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

---

**PHIL 4620: Marxism**

A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4700: Aesthetics**

Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4700W: Aesthetics-Writing Intensive**

Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4800: Asian Philosophy**

(same as S\_A\_ST 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4810: Philosophy of India**

(same as S\_A\_ST 4810). General development of Indian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4850: Special Readings in Philosophy**

Special Readings in Philosophy.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**PHIL 4950: Senior Seminar in Philosophy**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4950W: Senior Seminar in Philosophy - Writing Intensive**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4998: Honors I in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 4999: Honors II in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 7001: Topics in Philosophy-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PHIL 7005: Topics in Philosophy-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. Prerequisites: instructor's consent

**Credit Hour:** 1-99

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**PHIL 7100: Philosophy of Language**

(same as LINGST 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 7110: Advanced Logic**

(same as LINGST 7110; cross-leveled with PHIL 4110, LINGST 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

---

**PHIL 7120: Selected Topics in Logic**

Elementary set theory. Modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or PHIL 7110

---

**PHIL 7130: Probability and Induction**

This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs. Prerequisites: PHIL 2700

**Credit Hours:** 3

---

**PHIL 7200: Metaphysics**

Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality.

**Credit Hours:** 3

**Recommended:** Previous work in PHIL 1000, PHIL 3000 or PHIL 3200

---

**PHIL 7210: Philosophy of Mind**

Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

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**PHIL 7220: Philosophy of Religion**

Considers basis for and nature of religious beliefs. Philosophical approaches to religion, cultural implications of religion, psychoanalysis and religion, mysticism and myth.

**Credit Hours:** 3

---

**PHIL 7300: Epistemology**

An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Recommended:** Previous work in PHIL 1000, PHIL 3000, or PHIL 3200

---

**PHIL 7400: Philosophy of Science**

Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to the past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

---

**PHIL 7410: Philosophy of History**

Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

---

**PHIL 7420: Philosophy of Biology**

A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory.

**Credit Hours:** 3

---

**PHIL 7500: Theories of Ethics**

Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Recommended:** one course in Philosophy

---

**PHIL 7600: Political and Social Philosophy**

(same as PEA\_ST 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

---

**PHIL 7610: Philosophy of Law**

What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

---

**PHIL 7620: Marxism**

A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

---

**PHIL 7700: Aesthetics**

Typical components of art; theories of art as representation, form, expression; relation of art to value.



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**Credit Hours:** 3

---

**PHIL 7800: Asian Philosophy**

(same as S\_A\_ST 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

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**PHIL 7810: Philosophy of India**

(same as S\_A\_ST 4810). General development of Indian philosophy.

**Credit Hours:** 3

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**PHIL 7850: Special Readings in Philosophy**

Special Readings in Philosophy.

**Credit Hour:** 1-3

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**PHIL 8090: Research in Philosophy**

Research not leading to thesis. Graded S/U only.

**Credit Hour:** 1-99

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**PHIL 8100: Protoseminar in Philosophy**

Introduction to graduate level work in philosophy. Required of all students entering the program, in the first year. An intensive workshop focused on skills rather than any particular philosophical content.

**Credit Hours:** 3

**Prerequisites:** restricted to first year graduate students

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**PHIL 8210: Teaching of Philosophy I**

Seminar meetings on course design, teaching methods, the evaluation of teaching, grading, instructor obligations, and teaching aids. Some individualized instruction, including help preparing for and assessing the effectiveness of practice teaching.

**Credit Hour:** 1

**Prerequisites:** graduate philosophy students

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**PHIL 8220: Teaching of Philosophy II**

A sequel to PHIL 8210. Includes a re-examination of end of semester tasks such as the composition and grading of finals and the assignment of course grades.

**Credit Hour:** 1

**Prerequisites:** PHIL 8210; graduate philosophy student

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**PHIL 8300: Dissertation Seminar**

The course will address writing and time management for Ph.D. students writing a dissertation. Also discussed will be preparation for the academic job market in philosophy, especially the development of an application dossier. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Philosophy Ph.D. student

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**PHIL 8510: Metaphysics: A Survey**

A graduate-level survey of central issues in metaphysics. May be repeated up to 6 hours of credit.

**Credit Hours:** 3

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**PHIL 8520: Philosophy of Mind: A Survey**

A graduate-level survey of central issues in the philosophy of mind.

**Credit Hours:** 3

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**PHIL 8530: Epistemology: A Survey**

A graduate-level survey of central issues in epistemology.

**Credit Hours:** 3

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**PHIL 8540: Philosophy of Language: A Survey**

A graduate-level survey of central issues in philosophy of language.

**Credit Hours:** 3

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**PHIL 9001: Topics in Philosophy**

Organized study of selected topics. Need departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PHIL 9040: Indian Philosophy**

Reality, levels of being, status of the world, nature of knowledge in Indian philosophy in relations in Advaita Vendanta system of Samkara.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9050: Plato**

Advanced studies in Plato; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9060: Aristotle**

Advanced studies in Aristotle; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9070: Medieval Thinkers**

Selected works of one or more: Augustine, Avicenna, Anselm, Maimonides, Aquinas, Scotus, Ockham. Not a survey.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9090: Research in Philosophy**

Work toward preparation of thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate Philosophy students

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**PHIL 9110: The Rationalists**

Interpretation and evaluation of major works of Descartes, Leibniz, and/or Spinoza in relation to their historical context and current philosophical problems.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9120: The Empiricists**

Epistemological and metaphysical doctrines of Locke, Berkeley and Hume.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9130: Kant**

Critique of Pure Reason: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9210: Hegel**

Phenomenology of Spirit: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9220: Marxism**

Basic works of Marx and his successors.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9230: Whitehead**

Process and Reality and other works. Contributions to metaphysics, theology, epistemology, and philosophy of science.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9240: Russell and Wittgenstein**

Each initially defends, but then rejects logical atomism. Metaphysical and epistemological themes of such intellectual phases and shifts of one or both philosophers.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9250: Heidegger**

Being and Time: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9260: Existentialism**

Being and Nothingness and other philosophy and literary works.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9270: Phenomenology**

Selected works of Husserl and other phenomenological thinkers. Implications for epistemology, science, metaphysics, ethics, and other philosophical topics.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9280: Recent Anglo-American Philosophy**

Topics on which current philosophers of the Anglo-American or Analytic tradition are concentrating.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9290: Recent Continental Philosophy**

Topics on which current philosophers on the European continent are concentrating.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9310: Applied Ethics**

Methods for applying normative ethical theories to personal and social moral problems, illustrated by application of consequentialist, deontological and virtue-centered theories to such problems as euthanasia, capital punishment, pornography, world hunger, war and environmentalism.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9320: Social and Political Philosophy**

Topics of current interest in social and political philosophy. generally one of the following: social contract theory, utilitarianism, voting procedures, or convention.

**Credit Hours:** 3

**Prerequisites:** PHIL 4600 or instructor's consent and graduate Philosophy student

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**PHIL 9330: Aesthetics**

Theories of art and beauty, the aesthetic experience, the physical work of art, the role of the artist; art and other human concerns.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9340: Topics in the History of Ethics**

Advanced study of the ethical views of major historical figures ancient and/or modern.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9350: History of Eastern Ethics**

Historical survey of major eastern ethical theories. Explores broad range of ethical theories developed in Asia: Hindu and Buddhist in India; Taoism and Confucianism in China; and Zen in Japan.

**Credit Hours:** 3

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**Prerequisites:** graduate Philosophy student

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**PHIL 9510: Decision Theory**

Principles for making rational decisions, including principles of expected utility theory, game theory, and social choice theory. A survey of basic ideas and an introduction to selected research topics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110; graduate Philosophy student

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**PHIL 9520: Ethical Theory**

Contemporary theories of the right and the good. Metaethical topics such as moral language, reasoning, and justification.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9610: Metaphysics**

Theories of the categories and structures of reality, e.g., appearance and reality, causality, space and time, God, Nature, the human being.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9710: Philosophy of Mind and Psychology**

Survey of important recent work in contemporary philosophy of mind and psychology. Graduate seminar.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9720: Foundations of Cognitive Science**

Examination of philosophical questions arising in cognitive science concerning, for instance, the nature of computation and representation, inter-disciplinary relations, the nature of cognitive scientific explanation, and its relation to folk psychological explanation.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9820: Epistemology**

Knowledge and opinion, the types, sources, and extent of knowledge, according to a variety of views.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9830: Philosophy of Science**

Examines central issues in general philosophy of science concerning the scientific method and the role in it of observation, the nature of rational theory-choice, progress, and the status of theories postulating unobservables.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9840: Philosophy of Language**

Topics of current interest in the philosophy of language.

**Credit Hours:** 3

**Prerequisites:** Graduate Philosophy student

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**PHIL 9850: Philosophy of Biology**

Philosophical problems relating to the life sciences, with attention given especially to explanation and reductionism in biology.

**Credit Hours:** 3

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**PHIL 9887: Seminar in Logic**

Topics of current interest in logic. Generally one of the following: inductive logic, set theory, conditionals, epistemic logic, or formal semantics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110 graduate Philosophy student

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**PHIL 9901: Seminar in Philosophy**

Special topics. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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## Physical Medicine And Rehabilitation (PM\_REH)

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**PM\_REH 6351: ABS Physical Medicine/Rehab. Mechanism of Disease**

ABS Physical Medicine/Rehab. Mechanism of Disease

**Credit Hour:** 5-10

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**PM\_REH 6353: ABS Physical Medicine/Rehab. Research**

ABS Physical Medicine/Rehab. Research

**Credit Hour:** 5-10

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**PM\_REH 6355: ABS Physical Medicine/Rehab. Research and Review**

ABS Physical Medicine/Rehab. Research and Review

**Credit Hour:** 5-10

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**PM\_REH 6615: Physical Medicine and Rehabilitation**

Physical Medicine and Rehabilitation

**Credit Hours:** 5

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**PM\_REH 6915: Rehabilitation of Musculoskeletal and Neurologic Diseases**

The rotating student will be an integral part of the inpatient team, serving in an active role on the floor and participating in the evaluation and treatment of clinic patients. Daily morning rounds will be completed with the inpatient teams and will be followed by scheduled didactic sessions with various faculty throughout the week. Outpatient rotations will be included as a fundamental clinical experience and will encompass the breadth of PM&R to the best that can be accomplished in this short block. In-depth examinations of the neurologic and musculoskeletal systems will be performed.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Physical Therapy (PH\_THR)

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### PH\_THR 1000: Introduction to Physical Therapy

Acquaints students with the physical therapy profession including the required educational preparation, practice settings, sample interventions, current issues, trends and research. Graded on S/U basis only.

**Credit Hour:** 1

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### PH\_THR 2420: Biology of Healthy Living

(same as BIOMED 2420 and NEP 2420). Biology of inactivity as a casual factor in chronic disease.

**Credit Hours:** 2

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### PH\_THR 2500: Musculoskeletal Anatomy and Injury

Study of human musculoskeletal anatomy, movement, common injury and physical therapy management. Graded on an A-F basis only.

**Credit Hours:** 3

**Recommended:** biology

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### PH\_THR 3022: Principles of Physical Therapy

History of physical therapy: the profession; basic skills: first aid, infection control, vital signs; medical terminology. Graded on S/U basis only.

**Credit Hour:** 1

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### PH\_THR 4085: Problems in Physical Therapy

Independent study, based upon educational goals, leading to completion of a project or paper. Specific objectives and time line developed with the supervision of a faculty member.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### PH\_THR 4120: Clinical Education IA

(cross-leveled with PH\_THR 7120). An introduction to clinical education in Physical Therapy: includes development of foundational clinical skills and behaviors as well as experience in the PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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### PH\_THR 4150: Clinical Education IB

(cross-leveled with PH\_THR 7150). Continuation of Clinical Education IA with further emphasis on current events in Physical Therapy as well as the professional attributes of communication, teamwork and problem solving. Required experience in PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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### PH\_THR 4240: Applied Neurophysiology for Allied Health Students

(same as OC\_THR 4240; cross-leveled with PH\_THR 7240, OC\_THR 7240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

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### PH\_THR 4250: Human Kinesiology

(same as HTH\_PR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201 or PH\_THR 2500

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### PH\_THR 4270: Clinical Pathophysiology

(same as OC\_THR 4270; cross-leveled with PH\_THR 7270, OC\_THR 7270). Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** successful completion of prior professional coursework

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### PH\_THR 4330: Physical Agents

Biophysics, theory and technique concerning the use of physical agents as adjuncts to exercise programs. Includes thermal, electrical, light, hydrotherapy and mechanical agents.

**Credit Hours:** 3

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### PH\_THR 4420: Foundations of Therapeutic Exercise

Physiological basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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### PH\_THR 4480: Medical Testing in Rehabilitation

Diagnostic tests used by disciplines within and outside of physical therapy. Studies include laboratory, nuclear medicine, radiologic, and motion analysis. Emphasis placed on interpretation of results as they apply to physical therapy examination and intervention.

**Credit Hours:** 3

**Prerequisites:** Restricted to students accepted into professional major

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### PH\_THR 4510: Evidence-Based Practice

Clinical research design and methods overview. Critical review of current and historically important professional literature. Effective writing related to clinically applicable research using computer and library resources. Identification of research questions.

**Credit Hours:** 3

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### PH\_THR 4520: Applied Therapeutic Exercise

Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**Credit Hours:** 3

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**PH\_THR 4560: Movement Theory and Application**

Human sensorimotor development; motor learning; motor control theories; developmental and practical application to exercise; proprioceptive neuromuscular facilitation.

**Credit Hours:** 2

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**PH\_THR 4570: Bridging the Clinical-Research Gap**

This class focuses on theories of clinical decision making and Evidence-based Practice, their applications to the clinical setting and dissemination of such information to colleagues in professional forums. Graded on A-F basis only.

**Credit Hours:** 3

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**PH\_THR 4620: Introduction to Orthopedic Physical Therapy with Laboratory**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; basics of orthopedic manual therapy. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 4680: Orthopedic Physical Therapy**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; continuation of orthopedic manual therapy emphasizing the axial skeleton; traction; massage; taping; sport-specific injury rehabilitation; orthotics.

**Credit Hours:** 3

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**PH\_THR 4730: Pediatric Physical Therapy**

Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**Credit Hours:** 4

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**PH\_THR 4770: Rehabilitation of the Neurologically Impaired Adult**

Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**Credit Hours:** 4

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**PH\_THR 4790: Pharmacology in Rehabilitation**

Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems across the lifespan.

**Credit Hours:** 2

**Prerequisites:** Restricted to students accepted into a professional major

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**PH\_THR 4960: Special Readings in Physical Therapy**

Independent readings selected in consultation with supervising faculty member. Identified educational goals and activities; discussion, annotated bibliography or report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PH\_THR 4965: Directed Readings in Physical Therapy**

Selected readings on specific topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PH\_THR 4980: Clinical Evaluation and Procedures with Laboratory**

Principles and procedures of basic evaluation methods and documentation: muscle strength, range of motion, muscle balance, posture, neurologic tests. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 4981: Clinical Kinesiology with Laboratory**

Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 7120: Clinical Education IA**

(cross-leveled with PH\_THR 4120). An introduction to clinical education in Physical Therapy; includes development of foundational clinical skills and behaviors as well as experience in PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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**PH\_THR 7150: Clinical Education IB**

(cross-leveled with PH\_THR 4150). Continuation of Clinical Education IA with further emphasis on current events in Physical Therapy as well as the professional attributes of communication, teamwork and problem solving. Required experience in PhysZou clinical setting. Graded on S/U basis only.

**Credit Hour:** 1

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**PH\_THR 7240: Applied Neurophysiology for Allied Health Students**

(same as OC\_THR 7240; cross-leveled with OC\_THR 4240, PH\_THR 4240). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

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**PH\_THR 7250: Human Kinesiology**

(same as HTH\_PR 4250, OC\_THR 4220 or OC\_THR 7220). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** Human Anatomy

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**PH\_THR 7270: Clinical Pathophysiology**

(same as OC\_THR 7270; cross-leveled with PH\_THR 4270, OC\_THR 4270) Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in occupational and physical therapy practice.

**Credit Hours:** 3

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**PH\_THR 7330: Physical Agents**

Biophysics, theory and technique concerning the use of physical agents as adjuncts to exercise programs. Includes thermal, electrical, light, hydrotherapy and mechanical agents.

**Credit Hours:** 3

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**PH\_THR 7420: Foundations of Therapeutic Exercise**

Physiologic basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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**PH\_THR 7480: Medical Testing in Rehabilitation**

Diagnostic test used by disciplines within and outside of physical therapy. Studies include laboratory, nuclear medicine, radiologic, and motion analysis. Emphasis placed on interpretation of results as they apply to physical therapy examination and intervention.

**Credit Hours:** 3

**Prerequisites:** Restricted to students accepted into professional major

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**PH\_THR 7510: Evidence-Based Practice**

Clinical research design and methods overview. Critical review of current and historically important professional literature. Effective writing related to clinically applicable research using computer and library resources. Identification of research questions.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PH\_THR 7520: Applied Therapeutic Exercise**

Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**Credit Hours:** 3

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**PH\_THR 7550: Psychosocial Issues for Health Promotion**

Psychological and social factors impact people's health and the American Physical Therapy Association has called for interprofessional approaches for the provision of fitness, health promotion, wellness, and risk reduction programs to enhance quality of life for persons across the life-span. This course focuses on psychosocial issues for health promotion in order to help future health care providers and scientists to improve the health and well-being of people. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to students who are admitted into the Physical Therapy-DPT program

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**PH\_THR 7570: Bridging the Clinical-Research Gap**

This class focuses on theories of clinical decision making and Evidence-based Practice, their applications to the clinical setting and dissemination of such information to colleagues in professional forums. Graded on A-F basis only.

**Credit Hours:** 3

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**PH\_THR 7620: Introduction to Orthopedic Physical Therapy with Laboratory**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; basics of orthopedic manual therapy. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 7680: Orthopedic Physical Therapy**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal system; continuation of orthopedic manual therapy emphasizing the axial skeleton; traction; massage; taping; sport-specific injury rehabilitation; orthotics.

**Credit Hours:** 3

**Prerequisites:** PH\_THR 4620

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**PH\_THR 7730: Pediatric Physical Therapy**

Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**Credit Hours:** 4

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**PH\_THR 7770: Rehabilitation of the Neurologically Impaired Adult**

Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**Credit Hours:** 4

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**PH\_THR 7780: Differential Diagnosis in Physical Therapy**

Evidence-based clinical decision making emphasizing health screenings and system review to determine physical therapy diagnosis/need for referral to other health care professionals.

**Credit Hours:** 3

**Prerequisites:** Restricted to students accepted into the professional major

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**PH\_THR 7790: Pharmacology in Rehabilitation**

Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems across the lifespan.

**Credit Hours:** 2

**Prerequisites:** Restricted to students accepted into professional major

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**PH\_THR 7850: Assessment and Neuropsychology of Pain**

Pain is a common problem that impairs people's quality of life and costs millions of dollars annually. Yet, an investigation of physical therapy education programs in the U.S. supported inadequate coverage of pain. This course focuses on the assessment and neuropsychology of pain in order to help future health care providers and scientists to improve the health and well-being of people with impaired quality of life due to pain. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to students who are admitted into the Physical Therapy-DPT program

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**PH\_THR 7890: Case Management I**

Evaluation and team approach to physical therapy management in adult medical and surgical conditions: cardiopulmonary, rheumatic, oncologic, integumentary or wound care, including major burn injury. Psychosocial and ethical issues incorporated. Problem based; laboratory.

**Credit Hours:** 5

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**PH\_THR 7940: Clinical Education II**

Full time, supervised clinical experience addressing application of basic skills in patient evaluation and treatment, documentation and professional behaviors. Graded on S/U basis only.

**Credit Hours:** 5

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**PH\_THR 7945: Clinical Education III**

Continuation of supervised clinical education. (Capstone course). Graded on S/U basis only.

**Credit Hours:** 7

**Prerequisites:** Successful completion of PH\_THR 7940

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**PH\_THR 7960: Special Readings in Physical Therapy**

Independent readings selected in consultation with supervising faculty member. Identified educational goals and activities; discussion, annotated bibliography or report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PH\_THR 7965: Directed Readings in Physical Therapy**

Selected readings on specific topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PH\_THR 7980: Clinical Evaluation and Procedures with Laboratory**

Principles and procedures of basic evaluation methods and documentation: transfers, body mechanics, muscle strength, range of motion, muscle length, neurologic tests. Includes laboratory. Includes discussion with emphasis on critical thinking and clinical application through problem solving.

**Credit Hours:** 4

**Prerequisites:** Restricted to physical therapy students only

**Recommended:** Successful completion of prior professional coursework

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**PH\_THR 7981: Clinical Kinesiology with Laboratory**

Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses. Includes laboratory.

**Credit Hours:** 3

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**PH\_THR 8000: Health Policy for Physical Therapy**

This course is designed for physical therapy students and will provide an introduction to health policy along with an overview of the health care system in the United States, including its structures, financing mechanisms, and outcomes. Lecture/reflective writing/written exams. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Successful completion of prior coursework

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**PH\_THR 8001: Topics in Physical Therapy**

Organized study of selected topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PH\_THR 8080: Special Skills in Physical Therapy**

This course will offer a menu of options to students to develop additional knowledge about specific skills in the physical therapy profession. Students may choose topics of interest in addition to the mandatory sessions to meet a minimum of 800 minutes of contact. Graded on S/U basis only. Prerequisites: successful completion of prior professional coursework.

**Credit Hour:** 1

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**PH\_THR 8085: Problems in Physical Therapy**

Independent study and development of a clinical or research paper, poster or workshop suitable for presentation in a symposium or conference. Specific plan individually developed with advisor. Journal reviews.

**Credit Hour:** 1-3

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**PH\_THR 8087: Seminar in Physical Therapy**

Integrate previously learned content in unique patient cases and comprehensive review and evaluation of readiness for entry level physical therapist practice, in both didactic and psycho-motor domains. Enrollment is limited to students in professional physical therapy program.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**PH\_THR 8130: Professional Issues in the 21st Century**

The physical therapist as health care professional, administrator, and educator; legal, ethical, and political issues. Service delivery management; delegation of care; rural vs. urban health care needs.

**Credit Hours:** 3

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**PH\_THR 8390: Case Management II with Laboratory**

Complex orthopedic problems in persons of all ages; supervision, reimbursement, ethical/legal situations; community programs for injury prevention; work capacity evaluation/work hardening; consultation. Problem-based format; laboratory.

**Credit Hours:** 5

**Prerequisites:** PH\_THR 7890

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**PH\_THR 8690: Case Management III with Laboratory**

Traditional and contemporary theories of physical therapy in advanced rehabilitation of children and adults with neurologic disorders; education/employment, ethical/legal issues; patient/client advocacy. Problem based format; laboratory.

**Credit Hours:** 5

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**Prerequisites:** PH\_THR 8390

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**PH\_THR 8945: Clinical Education IV**

A continuation of supervised clinical education with supervision from a licensed physical therapist that has at least one year of experience. This course is a continuation of 7945 with advancing expectations of student physical therapist performance. Graded on S/U basis only.

**Credit Hours:** 7

**Prerequisites:** Successful completion of PH\_THR 7945

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**PH\_THR 8950: Clinical Education V**

Full time supervised clinical education with supervision from a licensed physical therapist that has at least one year of experience. This course is a continuation of 8945 with advancing expectations of student physical therapist performance. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** Successful completion of PH\_THR 8945

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## Physics (PHYSICS)

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**PHYSICS 1002: Topics in Physics and Astronomy**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**PHYSICS 1050: Concepts in Cosmology**

Introduction to fundamental concepts of modern cosmology. Topics include Olbers' paradox, Hubble expansion, Big Bang, and the Cosmic Microwave Background Radiation.

**Credit Hours:** 3

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**PHYSICS 1100: Science and Inventions**

This course covers the history of some of the most important inventions in science and their impact on past civilizations, current advances in science and inventions, funding and policies, and critical advances in technology required for future generations.

**Credit Hour:** 1

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**PHYSICS 1150: Concepts in Physics**

Introduction to fundamental concepts of physics for non-science majors. Concepts include the conservation of energy, the second law of thermodynamics, and the special theory of relativity. Students learn to reason and apply these concepts through writing assignments.

**Credit Hours:** 3

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**PHYSICS 1210: College Physics I**

This introductory college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered are vectors, kinematics, dynamics, gravity, momentum, energy, rotational kinematics, rotational dynamics, fluids, simple harmonic motion, waves and sound, and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 4

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**Prerequisites:** MATH 1100

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**PHYSICS 1220: College Physics II**

This introductory second semester college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered include electricity and magnetism, optics and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in PHYSICS 1210

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**PHYSICS 1500H: Energy and Energy Technology - Honors**

Explore issues in energy, energy production and energy use from a science and technology perspective. Students will learn through a combination of lectures, classroom activities, a writing assignment, open-ended discussion, and student presentations. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHYSICS 2002: Topics in Physics and Astronomy- Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100

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**PHYSICS 2002H: Topics in Physics and Astronomy- Physical Science - Honors**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100; Honors eligibility required

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**PHYSICS 2100: Thinking Physics**

This course investigates motion and force and the relationship between them. Problem-solving skills will be emphasized in addition to hands-on inquiry and deep conceptual understanding. This course is intended to help prepare students for College Physics I or University Physics I. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**PHYSICS 2200: Life and the Universe**

This course explores the connection between our everyday existence and the underlying physics' processes. Students will look at processes - essential to life - ranging from the very small (atomic level) to the very large (universe), and the many length scales in between (cellular level and human being level) as well as make connections between the laws of physics and the numbers that go into them and the prerequisites for the existence of life.

**Credit Hours:** 3

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**PHYSICS 2330: Exploring the Principles of Physics**

A hands-on course covering topics in Electricity, Magnetism, Forces, Motion and Energy. Pedagogy reflects styles used in K-12 classrooms; emphasis on inquiry, concept development, quantitative applications and technology. Enrollment limited to Elementary and Early Childhood Education majors who have completed MATH 1100 or higher.

**Credit Hours:** 4

**Prerequisites:** instructor's consent required

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**PHYSICS 2400: The Physics Around Us**

This course will address the basic physics principles behind commonly accepted technology. Examples include microwave ovens, rockets and LED lights. The course will be taught using hands-on activities combined with lecture and discussion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**PHYSICS 2500: The Beautiful Invisible: Exploring Physics, Fiction, and Reality**

This course explores the conceptual structure of modern physics from a humanistic perspective. Rather than describing the natural world "as it is", physical science weaves some key observations in a convincing and memorable narrative. It is not within its power to explain reality, but it can make it understandable, sometimes even predictable. Due to the presence of internal and external constraints, physical theories are akin to myths, i.e., fiction created by many authors over an extended period of time. The mythical character of a theory does not diminish its scientific validity - quite the contrary. Convincing myths are not easily found and better observations demand better myths. The mythical content of the theory is not some extraneous content that we introduce for the sake of popularization, but an essential part of the science itself.

**Credit Hours:** 3

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**PHYSICS 2750: University Physics I**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent

**Recommended:** MATH 1700

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**PHYSICS 2750H: University Physics I - Honors**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent. Honors eligibility required

**Recommended:** MATH 1700

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**PHYSICS 2760: University Physics II**

Second semester course in calculus-based physics for science and engineering students. Topics covered are electrostatics, circuits, magnetism, electromagnetic phenomena, optics, matter waves and particles and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1700 and grade of C- or better in PHYSICS 2750

**Recommended:** MATH 2300

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**PHYSICS 2800: Undergraduate Seminar in Physics**

Introduction to the Physics Department and presentation of topics of current interest in physics by faculty and students. Intended for physics majors at the freshman or sophomore level only.

**Credit Hours:** 2

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**PHYSICS 3002: Topics in Physics and Astronomy - Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. May be repeated 2 for credit.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 1210 or PHYSICS 2750

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**PHYSICS 3010: Introduction to Modern Astrophysics**

(same as ASTRON 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3100: Teaching Physics**

Introduces modeling and inquiry methods of teaching about force, motion, energy, electricity and magnetism. Students learn research-base physics teaching methods, including eliciting prior understanding, facilitating conceptual change, and active learning strategies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760

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**PHYSICS 3150: Introduction to Modern Physics**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3150W: Introduction to Modern Physics - Writing Intensive**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSCS 3200: Physics of Space Explorations**

The course provides an overview of the solar system, spaceflight history, a review of Newtonian physics and law of universal gravitation, the application of these laws to spacecraft launch, entry, and orbit, planetary trajectories, and other special topics. Three focused case studies of actual space missions are addressed. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** MATH 1100**PHYSCS 4020: Astrophysical Techniques**

(same as ASTRON 4020; cross-leveled with PHYSCS 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4050: Electronic Laboratory**

(cross-leveled with PHYSCS 7050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** PHYSCS 2760**PHYSCS 4060: Advanced Physics Laboratory I**

This upper-level undergraduate laboratory course familiarizes students with the methods and procedures of experimental physics at an advanced level. The course covers principles of magnetism, graphic programming and interface techniques, weak-signal detection, and some modern physics discoveries such as, magneto-optical Kerr effect, digital holography and gamma-ray spectroscopy. Students work on research projects in the areas of condensed matter physics, materials science, modern spectroscopy, superconductivity, and quantum physics.

**Credit Hours:** 3**Prerequisites:** PHYSCS 3150**PHYSCS 4080: Major Themes in Classical Physics**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4080W: Major Themes in Classical Physics - Writing Intensive**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4100: Electricity and Magnetism I**

Mathematical preliminaries, properties of charge distributions at rest and in motion, the field concept, introduces electromagnetic radiation.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4102: Topics on Physics and Astronomy-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3**Prerequisites:** PHYSCS 2760 or instructor's consent**PHYSCS 4110: Light and Modern Optics**

Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4**Prerequisites:** PHYSCS 2760**PHYSCS 4120: Introduction to Thermodynamics**

Development of the concepts of temperature, heat, work, entropy, enthalpy and free energy. Applications to gases, liquids and solids. Statistical methods.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4130: Electricity and Magnetism II**

Application of Maxwell's equations.

**Credit Hours:** 3**Prerequisites:** PHYSCS 4100**PHYSCS 4140: Mechanics**

Development of fundamental concepts, principles of mechanics using mathematical methods. Many problems used.

**Credit Hours:** 3**Prerequisites:** PHYSCS 2760**PHYSCS 4180: Solar System Science**

(same as GEOL 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent**PHYSCS 4190: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, BIOL\_EN 4480 and CHEM 4490). This course will cover fundamental and applied aspects relating to the Physics, Chemistry and Biology of materials with special emphasis on Nanoscience and Nanomedicine. Consists of lectures and experiments in Nanoscience.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent, or instructor's consent

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**PHYSCS 4230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 7230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 4250: Stellar Astrophysics**

(same as ASTRON 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4310: Physics in Cell and Developmental Biology**

(same as BIO\_SC 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIO\_SC 2300 or instructor's consent

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**PHYSCS 4350: Galactic Astronomy**

(same as ASTRON 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3010

**Recommended:** PHYSCS 4140

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**PHYSCS 4360: Extragalactic Astronomy**

This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4390: Problems in Physics**

Problems in Physics

**Credit Hour:** 1-99

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**PHYSCS 4400: The Physics of Electronic Devices**

(cross-leveled with PHYSCS 7400). This course is designed for graduate and undergraduate students of Physics and Electrical Engineering

who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4410: Analysis of Biological Macromolecules and Biomaterials**

This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learn/Writing Intensive approach uses four modules: Proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4420: Introduction to Biomedical Imaging**

This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray, CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4450: Introduction to Cosmology**

Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4460: Interstellar Medium**

(same as ASTRON 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4500: Computational Biological Physics**

Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or instructor's consent

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**PHYSCS 4510: Single Molecule Biophysics**

(same as BIOCHM 4510; Cross-leveled with PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors,

polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4520: Introduction to Biophysics**

This course introduces the study of biological systems from the perspective of a physicist. Students will learn how to relate the structure of a particular system and its constituents to its function. The treatment of molecular and cellular phenomena will be based on physical principles quantified through the necessary analytical tools. Prominent biophysical methods and their fundamental operating principles will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 4550: Cosmochemistry**

(same as ASTRON 4550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent required

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**PHYSCS 4600: Semiconductor Optics**

It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4620: Introduction to Materials Science**

This course on the science and technology of materials explores the interrelationship between processing, structure, properties (electrical, optical, magnetic), and performance. Observable properties of materials will be used to explore and understand the consequences of atomic- and molecular-level events. Structure-property correlations, including electronic, thermal, and mechanical properties, will be presented for different classes of materials including nanoscale materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4650: Modern Condensed Matter Physics**

Introduces the basic concepts and gives an overview of the latest developments of modern condensed-matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4700: Introduction to Methods in Mathematical Physics**

Introduces mathematical methods and theories of physics. Topics usually covered are complex analysis, partial differential equations, integral equations and tensor analysis.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**PHYSCS 4800: Introduction to Quantum Mechanics I**

Foundations of wave mechanics; wave packets; Schrodinger equation and I-D problems; operators and eigenfunctions, spherically symmetric systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and MATH 4100

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**PHYSCS 4810: Introduction to Quantum Mechanics II**

Review of quantum mechanics and units, forms of radiation, radiation detectors, spacetime symmetries, internal symmetries, nuclear structure and form factors, low-energy nuclear models, recent developments.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or equivalent

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**PHYSCS 4850: Computational Methods in Physics**

Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 4885: Problem-Based Learning in Physics Using Case Studies**

Using case studies from frontiers of physics research, students in this course will develop skills on leadership, team-work, communication, deductive reasoning, writing and oral presentation skills. A combined Problem-Based Learning/ Writing Intensive approach will be used.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4950: Undergraduate Research in Physics**

Special studies for advanced undergraduate students in physics covering subjects not included in courses regularly offered. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PHYSCS 4960: Senior Thesis in Physics**

Special studies for senior undergraduate students in physics. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and 3 units of PHYSCS 4950. Departmental consent required for repetition

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**PHYSCS 4985: Issues in Modern Physics and Engineering**

Students are expected to write a major paper on a selected topic from modern physics or engineering. The paper will review the current state

of the experimental and theoretical research on the topic at a level appropriate to their peers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 7020: Astrophysical Techniques**

(same as ASTRON 7020; cross-leveled with PHYSCS 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7050: Electronic Laboratory**

(cross-leveled with PHYSCS 4050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7085: Problems in Physics**

Laboratory work involving study of literature of special experiments in physics. Introduces research methods.

**Credit Hour:** 1-99

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**PHYSCS 7087: Seminar in Physics**

Topics of current interest selected for discussion. May be elected repeatedly. S/U Graded only.

**Credit Hour:** 1

**Prerequisites:** PHYSCS 8150

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**PHYSCS 7110: Light and Modern Optics**

Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7180: Solar System Science**

(same as GEOL 7180 and ASTRON 7180; cross-leveled with GEOL 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 7190: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, BIOL\_EN 7480 and CHEM 7490). This course will cover fundamental and applied aspects relating to the Physics, Chemistry and Biology of materials with special emphasis on

Nanoscience and Nanomedicine. Consists of lectures and experiments in Nanoscience.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and CHEM 1320 or equivalent and instructor's consent

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**PHYSCS 7201: Topics in Physics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**PHYSCS 7230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 4230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 7301: Topics in Astronomy and Astrophysics**

Selected topics from solar system, stellar, galactic and extragalactic astronomy, and astrophysics. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**PHYSCS 7310: Physics in Cell and Developmental Biology**

(same as BIO\_SC 7310 and MPP 7300). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 and BIO\_SC 2300 or instructor's consent

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**PHYSCS 7360: Extragalactic Astronomy**

(same as ASTRON 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7400: Physics of Electronic Devices**

(cross-leveled with PHYSCS 4400). This course is designed for graduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 7410: Analysis of Biological Macromolecules and Biomaterials**

This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learn/Writing Intensive approach uses four modules: proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7450: Introduction to Cosmology**

Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent or instructor's consent

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**PHYSCS 7500: Computational Biological Physics**

Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 7510: Single Molecule Biophysics**

(same as BIOCHM 7510; cross-leveled with PHYSCS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization of the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7550: Cosmochemistry**

(same as ASTRON 7550). Chemistry of cosmic dust and molecules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1220; instructor's consent

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**PHYSCS 7600: Semiconductor Optics**

It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7650: Modern Condensed Matter Physics**

Introduces the basic concepts and gives an overview of the latest developments of modern condensed matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7750: Interstellar Medium**

The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220

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**PHYSCS 7850: Computational Methods in Physics**

Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 8040: Study of Techniques of Teaching College Physics**

Objectives, methods and problems related to teaching college physics. Some credit in this course is required for all students teaching physics. May repeat for 3 hours maximum.

**Credit Hour:** 1-3

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**PHYSCS 8090: Research in Physics**

Graduate research. Graded on S/U Basis only.

**Credit Hour:** 1-99

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**PHYSCS 8101: Topics of Physics and Astronomy**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent. Departmental consent for repetition

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**PHYSCS 8110: Physics for High School Teachers I**

This is a physics course designed primarily for high school teachers. Topics include motion, forces, Newton's Laws, electricity, k and magnetism. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PHYSICS 8120: Physics for High School Teachers II**

This is a physics course designed primarily for high school teachers. Topics include applications of Newton's laws, energy, waves, optics, heat, and astronomy. The course uses research based pedagogical methods utilizing inquiry modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PHYSICS 8130: Physics for High School Teachers 3**

This is a physics course designed primarily for high school teachers. Topics include modern physics and history of science. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**PHYSICS 8150: Condensed Matter Physics I**

Crystal structure, reciprocal lattice, phonons, neutron and x-ray scattering, free electron theory of metals, Fermi surfaces, energy bands, static properties of solids, semiconductors, devices, and quantum structures, optical properties, excitons, introduction to magnetism and superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4800 or equivalent

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**PHYSICS 8160: Condensed Matter Physics II**

The basic Hamiltonian, Phonons, theory of the electron gas, second quantization, Hartree and Hartree-Fock approximation, local-density method, tight-binding theory, electron-electron interaction and screening, Fermi liquid theory, transport properties, impurities, Green's function's, Localization, Quantum Hall effect, magnetism, superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8150

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**PHYSICS 8301: Topics in Astronomy and Astrophysics**

(same as ASTRON 8301). Selected topics from solar system, stellar, galactic and extragalactic astronomy and astrophysics. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PHYSICS 8310: College Science Teaching**

(same as ASTRON 8310, BIO\_SC 8724 and LTC 8724). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**PHYSICS 8350: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725) This course is aimed at promoting public understanding and appreciation of science. The students will develop presentations that increase awareness of the impact of science on many aspects of our daily lives.

**Credit Hour:** 1-2

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**PHYSICS 8400: Low Energy Neutron Scattering**

Theory, application of low energy neutron scattering to investigation of structure and dynamics of aggregate matter including lattice vibrations, ordered spin systems, spin waves, diffusive motions in liquids; experimental techniques discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8150

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**PHYSICS 8410: Concepts in Nanoscale Materials: Interdisciplinary Science**

This interdisciplinary course covers basic concepts in nanoscale materials, their characterization, and how and why they differ from conventional bulk materials. The course focuses on neutron scattering methods and uses lectures, problem-based modules, and writing assignments.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150 and instructor's consent

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**PHYSICS 8420: X-ray and Neutron Scattering Methods for Studying Surfaces/Interfaces of Nanocrystalline Materials**

This course develops the conceptual foundation of neutron and x-ray scattering methods for probing the structure of epitaxial films, nanomaterials and their buried interfaces. A particular emphasis is given to the use of intense synchrotron x-ray radiation. Course graded on A-F basis only.

**Credit Hours:** 3

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**PHYSICS 8450: Plasma Physics**

Single particle motion, plasma kinetic theory, magnetohydrodynamics and other fluid theories, waves in unmagnetized and magnetized plasmas, transport phenomena, instabilities, controlled fusion.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PHYSICS 8550: Stellar Structure and Evolution**

(same as ASTRON 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4250, PHYSICS 4800, or instructor's consent

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**PHYSICS 8560: Quantitative X-Ray Microanalysis and Advanced Imaging**

This course covers the theory and methodology to quantitatively analyze materials using both energy-dispersive (EDS) and wavelength-dispersive (WDS) spectrometry. Other topics include chemical mapping and data extraction using image processing and analysis techniques.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 7230

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**PHYSICS 8610: Classical Mechanics**

The interplay of dynamics and symmetry, Hamilton's principle and Noether's theorem, Lagrangian, Hamiltonian, Hamilton-Jacobi theories

of mechanics in special relativity. Rigid body motion, small oscillation, canonical transformations and fields as continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4140 or equivalent

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#### **PHYSCS 8620: Electrodynamics I**

Electrostatic potential and fields, boundary-value problems in electrostatics, methods of images, Green's functions, multipole expansion, dielectrics, magnetostatics, magnetic materials, Maxwell's equations, time-varying fields.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610 or instructor's consent

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#### **PHYSCS 8640: Electrodynamics II**

Electromagnetic wave propagation, reflection, refraction, wave guides, cavities antennas and diffraction, tensors, special relativity, the Lorentz group, dynamics of relativistic particles and fields radiation by moving charges, retardation, bremsstrahlung. Additional topics may include magnetohydrodynamics and plasma physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8620 or instructor's consent

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#### **PHYSCS 8660: Methods in Mathematical Physics**

Concentrates on mathematical techniques used in modern physics. Infinite series, functions of a complex variable, differential equations, Fourier series and integral, etc.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4700 or instructor's consent

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#### **PHYSCS 8680: Thermodynamics and Statistical Mechanics**

Thermodynamics as applied in physics, chemistry; laws of distribution; statistical methods of study matter, radiation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8710 or concurrently

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#### **PHYSCS 8700: Non-Equilibrium Statistical Mechanics**

This course provides an introduction to the theoretical and mathematical description of classical stochastic systems with examples from biophysics and condensed matter physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8680 or consent of instructor

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#### **PHYSCS 8710: Quantum Mechanics I**

Non-relativistic quantum theory in Hilbert space. States and self-adjoint observables, unitary time evolution in various pictures, the path-integral, identical particles, Fock space, angular momentum and some perturbation theory.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610

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#### **PHYSCS 8720: Quantum Mechanics II**

More perturbation theory, variational methods, semi-classical methods and application to radiation theory, linear response theory and rudiments

of relativistic quantum mechanics including the Klein-Gordan equation and the Dirac equation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8710

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#### **PHYSCS 8730: Quantum Mechanics III**

Properties of many-particle systems at low temperature. General Formalism for Fermi and Bose systems, theory of superconductivity and superfluidity, introduction to quantum spin model--Diagrammatic formulation of quantum electrodynamics. Scattering of electrons and positrons, introduction to radioactive corrections. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8720

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#### **PHYSCS 8801: Topics in Solid State Theory**

Selected topics in solid-state theory, including various elementary excitations in solids and their interactions. May be elected more than once.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **PHYSCS 8820: Relativity and Gravitation**

Special and general theories of relativity. Discussion of accelerated observers and the principles of equivalence. Einstein's gravitational field equations, black holes, gravitational waves and cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610, PHYSCS 8620

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#### **PHYSCS 9090: Research in Physics**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** PhD candidacy has been established

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## **Plant Science (PLNT\_S)**

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#### **PLNT\_S 1002: Topics In Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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#### **PLNT\_S 1010: Plant Science Orientation**

Introduction to perspectives, comprehensiveness, and current issues in the plant sciences. Involves independent learning, faculty interviews, and oral and written communication about agronomy, horticulture, entomology, and plant pathology.

**Credit Hour:** 1

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#### **PLNT\_S 1020: World Food and You**

(same as F\_S 1020). Basic scientific principles involved in production agriculture, food processing, marketing and consumption. Evaluation and understanding of current agriculture issues that affect human foods and required nutrients.



**Credit Hours:** 3

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**PLNT\_S 1120: Career Development**

Introductory course for students planning a career in plant sciences. Includes an overview of each emphasis area, as well as development of professional skills required for a successful career. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Plant Science majors only

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**PLNT\_S 1125: People, Plants and the Environment**

Exploration of the science and niche relationships that exist between people, plants, animals, and the environment. Emphasis placed on urban vs. rural culture, the impact on production agriculture and the world food supply.

**Credit Hours:** 3

**Prerequisites:** restricted to freshmen and sophomores

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**PLNT\_S 2002: Topics in Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 2075: Environmental Horticulture**

Investigate interrelationships between plants and the environment. Special emphasis placed on improving homeowners' environmental stewardship and their knowledge of sustainable practices. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 2100: Introduction to Soils**

(same as SOIL 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hrs of Chemistry

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**PLNT\_S 2110: Plants and their Cultivation**

Principles of plant growth with emphasis on anatomy, physiology, and response to environmental factors. Production and protection of economically important crop and horticulture species.

**Credit Hours:** 3

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**PLNT\_S 2125: Plant Structure and Function**

Introduction to plant anatomy; physiology; how plant structures and processes are involved in growth/development. Labs explore photosynthesis, mineral nutrition, water relations, growth, and hormonal regulation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 and CHEM 1100 or CHEM 1320

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**PLNT\_S 2150: Plants for Interior Design**

Identification, culture and uses of plants adaptable to or capable of becoming acclimated to interior environments.

**Credit Hours:** 2

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**PLNT\_S 2195: Grapes and Wines of the World**

(same as F\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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**PLNT\_S 2210: Ornamental Woody Plants**

Identification and evaluation of trees and shrubs for landscape use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or instructor's consent

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**PLNT\_S 2215: Ornamental Herbaceous Plants**

Annuals, biennials, perennials, ground covers, and bulbs; their identification, nomenclature classification, culture and use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500 or BIO\_SC 1200

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**PLNT\_S 2220: Introduction to Floral Design**

Introduction to the basics of floral design with special emphasis on design mechanics, flower processing, care and handling. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Some sections of this course may be restricted to Plant Science Majors Only and/or students with 75 credit hours or less

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**PLNT\_S 2221: Everyday Floral Design**

Intermediate floral design course expanding skills from introductory floral design with emphasis on the elements and principles of design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220

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**PLNT\_S 2240: Landscape Graphic Communication**

Landscape design is a blend of art and science. This course is designed to help students expand their artistic skills, including graphic communications. Topics included to achieve this goal are drawing mediums and techniques, coloring mediums and techniques, symbol usage, and elevation drawings. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** ART\_DRAW 1050

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**PLNT\_S 2250: Landscape Site Analysis**

In order to effectively design what a site can become a landscape designer must first be able to accurately see what it is. This course presents a detailed look at obtaining, calculating, and manipulating a site's topography and features while offering a glimpse into the methods

and means required for implementation of the final landscape design.  
Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** MATH 1100 or equivalent

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**PLNT\_S 2254: Landscape Design**

An introduction into the processes, principles, and practices of landscape design, this course begins with site analysis and moves through the drawing and presentation of your landscape concepts.

**Credit Hours:** 3

**Prerequisites:** Completion of 30 hours

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**PLNT\_S 2710: Insects in the Environment**

Ways in which insects are adapted for life in particular environments, basics of morphology, taxonomy; how important insect pests affect food and crop production, and principles of control.

**Credit Hours:** 3

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**PLNT\_S 3002: Topics in Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 3110: Horticultural Drainage and Irrigation Systems**

This course is designed to provide practical knowledge of drainage and irrigation systems for golf courses, sports fields, lawns, landscapes, greenhouses, nurseries and vineyards. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 3130: Undergraduate Seminar in Plant Science**

Discussion of assigned or selected topics in Plant Science, including participation in a panel debate and individual seminar oral presentations.

**Credit Hour:** 1

**Prerequisites:** Completion of 60 credit hours

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**PLNT\_S 3210: Principles of Weed Science**

Introduction to principles of weed growth, reproduction, and impact on human activities. Discussion of weed control techniques and technology, weed identification, and developing weed management strategies.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2110 or BIO\_SC 1200

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**PLNT\_S 3213: Genetics of Agricultural Plants and Animals**

(same as AN\_SCI 3213). Concepts of molecular, transmission, and population and quantitative genetics. Emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200 or BIO\_SC 1500.

**Credit Hours:** 3

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**PLNT\_S 3220: Special Occasion Floral Design**

Advanced floral design course with emphasis in silk décor, sympathy design and public ceremony design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both

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**PLNT\_S 3221: Wedding Floral Design**

Advanced floral design course with emphasis in wedding floral design and personal pieces design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both

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**PLNT\_S 3222: Retail Floral Management**

Course focusing on all areas of retail floral management: business finance, marketing, products and services, employee management, and customer service. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221

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**PLNT\_S 3225: Plant Breeding and Genetics**

Mendelian genetic principles and related genetic developments applicable in plant breeding. Discussion of established and new plant breeding procedures applicable to cultivar development.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or equivalent

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**PLNT\_S 3230: Plant Propagation**

Principles and practices of propagation of horticultural plants. Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3

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**PLNT\_S 3230W: Plant Propagation - Writing Intensive**

Principles and practices of propagation of horticultural plants. Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3

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**PLNT\_S 3240: Principles of Viticulture I**

(same as F\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 1010 and F\_S 2195 or PLNT\_S 2195; or PLNT\_S 2100; or PLNT\_S 2110; or PLNT\_S 2125

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**PLNT\_S 3250: Green Industry Bidding**

Principles of interpreting drawings, estimating labor, equipment, materials and other costs and recordkeeping for preparation of competitive green industry bids. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Plant Science major and completion of 30 credit hours

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**PLNT\_S 3252: Arboriculture and Pruning**

Concepts for establishment and management of urban trees. Emphasis on planting, fertilization, pruning, disease, hazard assessment and components of a municipal trees ordinance.

**Credit Hour:** 1

**Prerequisites:** PLNT\_S 2210 or instructor's consent

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**PLNT\_S 3254: Landscape AutoCAD**

AutoCAD is the most widely utilized computer aided drafting software program in the professional landscape design industry. This course will teach students how to utilize AutoCAD to transform their landscape design skills into a digital format and investigate the benefits of utilizing technology as a design tool. We will also explore other industry utilized software, and their functionality, with focus on landscape design and presentation. Additional software will include, but not be limited to, AutoDesk Revit; Adobe Photoshop; and Sketchup. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PLNT\_S 2250 and PLNT\_S 2254

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**PLNT\_S 3260: Greenhouse Management**

Greenhouse design, environmental control and equipment. Practices associated with plant nutrition management, greenhouse pest control, postproduction handling and marketing of greenhouse crops, and greenhouse management are also covered.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2075 or instructor's consent

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**PLNT\_S 3270: Forage Crops**

An introduction to principle forage crops, including identification, anatomy, physiology, and growth characteristics. Pasture production and management, grazing systems, and forage preservation and utilization will also be covered.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or AN\_SCI 3232 or instructor's consent

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**PLNT\_S 3275: Grain Crops**

Lecture and discussion covering production and utilization, plus growth and development of a wide range of grain crops, including Missouri crops. Problem solving tasks include agronomics, economics and environmental factors.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125

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**PLNT\_S 3355: Introductory Turfgrass Management**

Characteristics of turf materials, principles of establishment and maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or instructor's consent

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**PLNT\_S 3385: Problems in Plant Science**

Not accepted as a substitute for any regularly scheduled course. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-4

**Prerequisites:** consent required

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**PLNT\_S 3500: Forest Pathology**

Provides basic understanding of biotic and abiotic agents which cause forest diseases, and current approaches to disease control.

**Credit Hours:** 3

**Recommended:** 5 hours Biological Sciences or equivalent

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**PLNT\_S 3510: Biology of Fungi**

(same as BIO\_SC 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**PLNT\_S 3710: Introductory Entomology**

(same as BIO\_SC 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**PLNT\_S 3715: Insect Diversity**

(same as BIO\_SC 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PLNT\_S 3710 (or BIO\_SC 3710)

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**PLNT\_S 4002: Topics in Plant Science - Biological/Physical/Mathematics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 4313: Soil Fertility and Plant Nutrition**

(same as SOIL 4313; cross-leveled with PLNT\_S 7313, SOIL 7313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**PLNT\_S 4314: Soil Fertility and Plant Nutrition Laboratory**

(same as SOIL 4314; cross-leveled with PLNT\_S 7314, SOIL 7314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4313

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**PLNT\_S 4315: Crop Physiology**

(cross-leveled with PLNT\_S 7315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology

of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 4320: Molecular Plant Physiology**

(same as BIO\_SC 4320; cross-leveled with PLNT\_S 7320, BIO\_SC 7320). Modern physiology of higher plants using common cultivated plants as examples. Prerequisites: CHEM 1320 or CHEM 1330 and one of the following: BIO\_SC 1500 or BIO\_SC 1200.

**Credit Hours:** 3

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**PLNT\_S 4325: Field Crop Breeding**

(cross-leveled with PLNT\_S 7325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 4330: Plant Breeding Theory**

(cross-leveled with PLNT\_S 7330). Designed to provide a logical application of genetic concepts to mating and selection theory in general improvement of cross pollinated crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3225 or equivalent

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**PLNT\_S 4340: Principles of Viticulture II**

(same as F\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**PLNT\_S 4345: Principles of Viticulture and Winemaking**

(same as F\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1020 or BIO\_SC 1030

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**PLNT\_S 4350: Nursery Crop Production and Management**

Operations, methods used by wholesale, retail, landscape nurseries. Field problems, observational trips.

**Credit Hours:** 4

**Recommended:** PLNT\_S 3230 and PLNT\_S 3235

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**PLNT\_S 4355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 7355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, SOIL 4360; cross-leveled with PLNT\_S 7360, AG\_S\_M 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110, or instructor's consent

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**PLNT\_S 4365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 7365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 4385: Problems in Plant Science**

Special problem in plant pathology designed for the minor program in Plant Pathology. Problems arranged on an individual student basis.

**Credit Hours:** 3

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**PLNT\_S 4400: Plant Anatomy**

(same as BIO\_SC 4400; cross-leveled with PLNT\_S 7400, BIO\_SC 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 4500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 7500). Diagnosis of diseases of plants caused by fungi, nematodes, viruses and bacteria Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology. Prerequisites: 5 hours from the following courses: BIO\_SC 1010, BIO\_SC 1020, BIO\_SC 1030, BIO\_SC 1100, BIO\_SC 1200 or BIO\_SC 1500; and completion of 60 credit hours.

**Credit Hours:** 4

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**PLNT\_S 4520: Environmental Microbiology**

Fundamental knowledge of selected microbial processes that are important in agriculture, environmental detoxification, and microbial

biotechnology. Emphasis is on molecular, genetic and physiological aspects of nitrogen metabolism, bioconversions, antibiotics and biocontrol.

**Credit Hours:** 3

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**PLNT\_S 4550: Plant Biotechnology**

(cross-leveled with PLNT\_S 7550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc. Prerequisites: PLNT\_S 2125 and one of the following: PLNT\_S 3213, or BIO\_SC 2200 or BIO\_SC 2300.

**Credit Hours:** 4

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**PLNT\_S 4710: Systematic Entomology**

(cross-leveled with PLNT\_S 7710). Taxonomy of insects: emphasizes biology and classification of orders and suborders in lecture, and major families in lab. Insect collection required. Prerequisites: PLNT\_S 3715 and one of the following: BIO\_SC 1100 or BIO\_SC 1500.

**Credit Hours:** 5

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**PLNT\_S 4720: Aquatic Entomology**

(cross-leveled with PLNT\_S 7720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or PLNT\_S 3715 or equivalent, or instructor's consent

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**PLNT\_S 4730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 7730). History and concepts of Integrated Pest Management of insect pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 4940: Internship in Plant Science**

Combines study, observation, and employment with an industry or government agency in area of agronomy or horticulture. Written and oral reports and faculty evaluation.

**Credit Hours:** 3

**Prerequisites:** Completion of 75 hours including two courses in department and instructor's consent

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**PLNT\_S 4950: Undergraduate Research in Plant Science**

Capstone experience consisting of investigations in Plant Science in support of an undergraduate thesis or special project portfolio.

**Credit Hour:** 1-3

**Prerequisites:** Completion of 75 credit hours and Plant Science Majors only

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**PLNT\_S 4965: Special Readings in Plant Pathology**

Independent readings and discussions of topics in entomology selected in consultation with supervising faculty member. Paper required.

**Credit Hour:** 1-99

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**PLNT\_S 4970: Readings in Molecular Ecology of Herbivory**

(cross-leveled with PLNT\_S 7970). The application of molecular biology tools to the rich history of chemical, physiological, population, and multi-trophic ecology studies on plant herbivore interactions has made for an exciting, fast-paced field at the forefront of ecology, 'functional biology' and 'systems biology'. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 4975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 7975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254 or instructor's consent

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**PLNT\_S 7001: Topics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 7085: Problems**

Advanced studies not expected to terminate in thesis. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PLNT\_S 7087: Seminar**

In-depth development of advanced aspects of plant, insect, or microbial sciences through reviews of results of research in progress and current scientific publications. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 7090: Nonthesis Research**

Original investigation not leading to preparation of thesis.

**Credit Hour:** 1-9

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**PLNT\_S 7313: Soil Fertility and Plant Nutrition**

(same as SOIL 7313; cross-leveled with PLNT\_S 4313, SOIL 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2110 or instructor's consent

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**PLNT\_S 7314: Soil Fertility and Plant Nutrition Laboratory**

(same as SOIL 7314; cross-leveled PLNT\_S 4314, SOIL 4314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites:** concurrent enrollment or previous completion of SOIL 4313 SOIL 7313

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**PLNT\_S 7315: Crop Physiology**

(cross-leveled with PLNT\_S 4315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 7320: Molecular Plant Physiology**

(same as BIO\_SC 7320; cross-leveled with PLNT\_S 4320, BIO\_SC 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or BIO\_SC 1200 and five hours of chemistry

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**PLNT\_S 7325: Field Crop Breeding**

(cross-leveled with PLNT\_S 4325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 7330: Plant Breeding Theory**

(cross-leveled with PLNT\_S 4330). Designed to provide a logical application of genetic concepts to mating and selection theory in general improvement of cross pollinated crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3225 or equivalent

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**PLNT\_S 7345: Principles of Viticulture and Winemaking**

(same as F\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 7350: Readings**

Individual study of assigned topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PLNT\_S 7355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 4355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and SOIL 7360; cross-leveled with PLNT\_S 4360, AG\_S\_M 4360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PLNT\_S 2110 or instructor's consent

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**PLNT\_S 7365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 4365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 7370: Small Fruit and Vegetable Production**

Emphasizes production, management and marketing practices for small fruit and vegetable crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100, PLNT\_S 3230, and PLNT\_S 3235

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**PLNT\_S 7400: Plant Anatomy**

(same as BIO\_SC 7400; cross-leveled with PLNT\_S 4400, BIO\_SCI 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissue systems; comparative anatomy of stem, root, leaf. Emphasized anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 7500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 4500). Diagnosis of disease of plants caused by fungi, nematodes, viruses and bacteria. Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology.

**Credit Hours:** 4

**Prerequisites:** 5 hours BIO\_SC

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**PLNT\_S 7550: Plant Biotechnology**

(cross-leveled with PLNT\_S 4550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2960 or equivalent; BIO\_SC 2200 or equivalent; BIO\_SCI 2300 or equivalent; PLNT\_S 2125

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**PLNT\_S 7710: Systematic Entomology**

(cross-leveled with PLNT\_S 4710). Taxonomy of insects: emphasizes biology and classification of orders and suborders in lecture, and major families in lab. Insect collection required.

**Credit Hours:** 5

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours Biological Sciences

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**PLNT\_S 7720: Aquatic Entomology**

(cross-leveled with PLNT\_S 4720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 or equivalent or instructor's consent

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**PLNT\_S 7730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 4730). History and concepts of Integrated Pest Management for insects pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 7820: Principles of Insect Physiology**

Major concepts of insect physiology emphasizing functions of organ-systems sensory physiology hormones in development, nutrition.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 and PLNT\_S 7810 or equivalent

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**PLNT\_S 7965: Readings in Plant Stress Biology**

Independent readings and discussion of recent research publications. Topics selected in consultation with supervisory faculty member.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**PLNT\_S 7970: Readings in Molecular Ecology of Herbivory**

(cross-leveled with PLNT\_S 4970). The application of molecular biology tools to the rich history of chemical, physiological, population, and multi-trophic ecology studies on plant herbivore interactions has made for an exciting, fast-paced field at the forefront of ecology, 'functional biology' and 'systems biology'. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**PLNT\_S 7975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 4975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254, instructor's consent

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**PLNT\_S 8001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 8010: Professionalism and Ethics**

Ethical issues in the conduct of scientific research including data integrity, plagiarism, and intellectual property. Scientific writing, lab management, peer review and other professional skills for the life sciences. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8090: Thesis Research**

Original investigations in plant, insect or microbial science in support of thesis for master's candidates. Graded on S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 8330: Molecular Breeding**

Development of Molecular Breeding, Evolution of Transgenics, Transformation and Gene Transfer Methods, Transgenics in the Food Supply Genetics and Marker Technology, Genotyping Methods for Marker Assisted Selection (MAS), and Emerging Transgenic and Genotyping Technologies. Graded on A-F basis only. Prerequisites: PLNT\_S 3225

**Credit Hours:** 3

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**PLNT\_S 8362: Introduction to Plant Metabolism**

(same as BIO\_SC 8362 and BIOCHM 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8365: Introduction to Molecular Cell Biology**

(same as BIOCHM 8365 and BIO\_SC 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8410: Advanced Weed Science**

Discussion of herbicide physiology and fate in the environment, current development in weed science theory and methodology, and application of analytical procedures in weed research.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3210

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**PLNT\_S 8420: Herbicide Mode of Action and Symptomology**

Designed for graduate students to gain an understanding of the in-depth processes by which herbicides interrupt normal plant growth and development at a tissue, cellular, and enzymatic level while learning to diagnose visual symptoms associated with herbicide injury. Course maybe repeated for credit. Graded on A-F basis.

**Credit Hours:** 2

**Prerequisites:** PLNT\_S 3210; instructor's consent

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**PLNT\_S 8430: Introduction to Bioinformatics Programming**

(same as AN\_SCI 8430). This course provides the basics of programming and database development to students in the life sciences who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**PLNT\_S 8505: Introduction to Plant Stress Biology**

(same as BIO\_SC 8505) This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8530: Research with Plant Stress Agents**

Students will learn key research strategies for abiotic and biotic plant stress agents. Students will complete two focused hands-on projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510 or PLNT\_S 7315, or PLNT\_S 7320, or equivalent

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**PLNT\_S 8650: Ecological and Evolutionary Genomics**

(same as BIO\_SC 8650). This course is designed to give a background in evolution and then explore an exciting new field: Ecological and evolutionary genomics. We will study genes that affect fitness and how whole genomes evolve. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8720: Insect Behavior**

An examination of the breadth of behaviors found in insects, such as orientation mechanisms, communication, dispersal and migration, defensive mechanisms, lost location, feeding strategies, pollination, courtship and reproduction, and social behavior.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours of Biological Sciences

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**PLNT\_S 9001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 9087: Seminar in Plant Science**

In-depth development of advanced aspects of plant, insect and microbial sciences through reviews of results of research in progress and current scientific publications. Graded on A-F or S/U basis dependent on section.

**Credit Hour:** 1

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**PLNT\_S 9090: Dissertation Research**

Original investigations in plant, insect or microbial science in support of dissertation for doctoral candidates. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 9310: Ecology of Grazing Lands Systems**

Students travel to grazing lands ecosystems to learn: the components and function of grazing lands; research techniques in soil-plant-animal research; forage-livestock ecology; and the role of forages in conservation practices, wildlife habitat, and sustainable agriculture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PLNT\_S 9415: Advanced Plant Physiology**

Advanced course in the physiology of plant growth and development. Discussion of current and classical studies in plant physiology with emphasis on responses to environmental variation.

**Credit Hour:** 1-3

**Prerequisites:** PLNT\_S 4315 or PLNT\_S 4320 or equivalent. Instructor's consent required

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**PLNT\_S 9440: Applied Quantitative and Statistical Genetics**

Estimation of genetic effects using means and variances, diallel analysis, environmental stability responses, index selection, and gain from selection.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 4330, STAT 4510, STAT 4530, AN\_SCI 9423, or equivalent

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**PLNT\_S 9540: Genetics of Plant-Microorganism Interaction**

Molecular and general genetics of the interactions between plants and pathogenic or symbiotic microorganisms.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510, one course each in Biochemistry and Genetics

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**PLNT\_S 9810: Insect Ecology**

Ecological aspects of insect populations and communities including population dynamics, predator-prey interactions, competition, diversity and stability. Quantitative methods are emphasized.

**Credit Hours:** 3



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**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715, STAT 1400 and BIO\_SC 3650 or instructor's consent

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## Political Science (POL\_SC)

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### **POL\_SC 1004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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### **POL\_SC 1100: American Government**

Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**Credit Hours:** 3

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### **POL\_SC 1100H: American Government - Honors**

Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **POL\_SC 1400: International Relations**

Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**Credit Hours:** 3

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### **POL\_SC 1400H: International Relations - Honors**

Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **POL\_SC 2004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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### **POL\_SC 2100: State Government**

Government and politics at the state level, with emphasis on Missouri. Meets state law constitutional requirement.

**Credit Hours:** 3

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### **POL\_SC 2200: The Judicial Process**

Analysis of roles played by American judges and courts in democratic policy formation.

**Credit Hours:** 3

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### **POL\_SC 2445: American Constitutional Democracy**

(same as HIST 2445) This course offers an introduction to American consitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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### **POL\_SC 2450: The Intellectual World of the American Founders**

This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

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### **POL\_SC 2450H: The Intellectual World of the American Founders - Honors**

This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **POL\_SC 2455: Constitutional Debates**

While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in "high theory." Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framers-worship. While we will discuss why the Federalists ultimately "won the day," we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about

some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 2455H: Constitutional Debates - Honors**

While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in "high theory". Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framers-worship. While we will discuss why the Federalists ultimately "won the day," we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; POL\_SC 1100

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**POL\_SC 2600: Canadian Politics and Government**

Introductory survey of Canada, including constitutional development, governmental institutions, political participation, and Canadians' political attitudes and behaviors.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 2700: Comparative Political Systems**

Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 2700H: Comparative Political Systems - Honors**

Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100. Honors eligibility required

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**POL\_SC 2710: Politics and the Military**

Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**Credit Hours:** 3

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**POL\_SC 2720: European Democracies**

This course provides an introduction to the institutions and issues in contemporary European political systems. It covers domestic institutions and policies as well as the developments of the European Union.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 2800: Liberty, Justice and the Common Good**

Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 2860: American Political Thought**

Examines major themes that shaped three centuries of American political thought, including slavery, religion, and the tension between unity and difference. Readings are drawn from primary sources (Jefferson, Adams, Mason, Tocqueville, Calhoun, Lincoln, Stowe, Baldwin) as well as contemporary analytic commentary on those sources (Bercovitch, Hartz, Wolin, Guinier, Morrison).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**POL\_SC 3000: Introduction to Political Research**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of "explanation" and "causal reasoning." and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3000W: Introduction to Political Research - Writing Intensive**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of "explanation" and "causal reasoning." and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3164: Nation Building through a Barrel of a Gun**  
(same as MIL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**POL\_SC 3165: "Chasing Ghost", The History of Irregular Warfare**  
(same as MIL\_SC 3165). This course explores the history of irregular warfare from the guerrilla perspective. The course examines the works of Mau Tse-Tung, Che Guevara, T.E. Lawrence and several other guerrilla leaders. You will analyze the evolution of irregular warfare through history and understand the complexities associated with the difficulties of countering and defeating irregular warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4000: Introductory Statistics for Political Science**  
Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent, concurrent enrollment in POL\_SC 4010

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**POL\_SC 4004: Topics in Political Science - Social Science**  
Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 4010: Computing Methods**  
Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 4030: Formal Political Analysis**  
Introductory course in formal mathematical models of political behavior and political institutions. Topics includes electoral rules, agenda control, measures of power, collective action, constitutions.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

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**POL\_SC 4100: Political Parties and Election Campaigns**  
Development, organization, functions, activities of major and minor political parties; principles and procedures of managing campaigns; campaign finance; election administration.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 3000

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**POL\_SC 4110: Political Behavior**  
Economic, psychological, and social dimensions of political behavior; participation, leadership and elites; political attitudes; voting behavior and decision-making processes.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 3000

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**POL\_SC 4120: Politics and the Media**  
The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4120W: Politics and the Media - Writing Intensive**  
The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4130: African-American Politics**  
(same as BL\_STU 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4140: Congress and Legislative Policy**  
Study of national and state legislative systems and legislative policy making, with emphasis on Congress.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4150: The American Presidency**  
Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4150W: The American Presidency - Writing Intensive**  
Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4160: Interest Groups**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4160W: Interest Groups - Writing Intensive**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4170: Politics of the American South**

This course focuses on the politics of the American South in the latter part of the 20th century and the early years of the current millennium. For undergraduate credit only.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, junior standing or instructor's consent

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**POL\_SC 4180: Politics and Hollywood**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4180W: Politics and Hollywood - Writing Intensive**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4200: The American Constitution**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100; junior standing

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**POL\_SC 4200W: The American Constitution - Writing Intensive**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100; junior standing

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**POL\_SC 4210: Constitutional Rights**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4210W: Constitutional Rights - Writing Intensive**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4220: The United States Supreme Court**

Role of Supreme Court in American system of government; particular attention given to reading biographies and writings of the Justices.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4230: Constitution and Civil Liberties**

Civil liberties in the American constitutional context emphasizing freedom of expression (religion, speech, press, assembly), rights of accused and right to privacy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4310: Comparative State Politics**

Analyzes similarities and differences of state politics and the ways in which such politics are shaped by political and socioeconomic environments of the states.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4320: Public Policy**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, and junior standing

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**POL\_SC 4320W: Public Policy - Writing Intensive**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, and junior standing

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**POL\_SC 4370: The Administrative State, Public Policy and Constitutional Democracy**

Off in the quiet corners of the policy process, public servants distribute public benefits, write rules that have the force of law, adjudicate conflicts and selectively enforce the law. Frequently the government delegates these tasks to non-profit organizations. These public and quasi-public administrative organizations play, therefore, a critical role in the politics of who gets what, when and how - the essential question of public policy. Administrative organizations in the United States play this powerful role, however, within a constitutional democracy. This course focuses on policymaking through the administrative state and the relationship between the administrative state, democracy and the U.S. Constitution.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4380: Politics of Criminal Justice**

Course explores the political motivations for and the substantive consequences of state and federal criminal justice policy in the United States.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**POL\_SC 4400: Theories of International Relations**

Surveys Theories of International Relations. Analyzes conceptions of decision-making, foreign policy behavior and international society. Prerequisites: junior standing

**Credit Hours:** 3

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**POL\_SC 4410: Politics and War**

(same as PEA\_ST 4410). Why do wars occur? The functions of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4411: Genocide, Terrorism and Civil War**

This course explores the conditions that lead to the initiation, escalation and termination of civil wars as well as the causes and targets of terrorism and the effects of genocide.

**Credit Hours:** 3

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**POL\_SC 4412: Strategy and Warfare**

Examines strategic theory, traditional forms of warfare (on land, sea, and in the air), as well as irregular warfare and terrorism. Additional topics include weapons of mass destruction, deterrence, and technology.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4415: Peacekeeping and Intervention**

This course will survey the causes and consequences of peacekeeping and intervention as well as assess the conditions that lead to successful and failed missions.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4420: Politics of International Economic Relations**

Study of reciprocal interaction between global politics and economics. Includes politics of north/south relations, multinational non-state actors, arms transfers and dependency.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4430: Global Human Rights**

Human rights violations are widespread. The majority of the world's citizenry lives with inadequate civil and political and economic, social, and cultural rights, often with dire consequences on economic and human security. What caused this situation? And, moreover, what can be done

to fix it? This course focuses on the social scientific study of human rights. We will focus on scientific explanations of the rise of the human rights movement, political and economic explanations for human rights conditions, and the effects of advocacy efforts concerning human rights. After this class, you will have not only an understanding of the major players and factors influencing human rights, but a base understanding of the social scientific processes which govern human rights conditions and improvements. As such, this class is not a history class or a class on current events. Though current and historical events will be discussed, your grade will not depend on your rote memorization of these events. Instead, the focus will be on understanding the underlying interests of important actors towards human rights, the arenas in which these actors interact, and the rules which govern their interactions. This focus on the basic principles will provide you with a rich practical knowledge of human rights. At the conclusion of the course, you will be able to actively engage with the global human rights community.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4440: International Organization**

Forms and functions of governmental (United Nations, European Union, NATO) and nongovernmental international organizations.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4500: The European Union in the Global System**

Provides an understanding of the European Union from the perspective of international relations and comparative politics. Topics covered pertain to the institutions, politics and policies of the European Union and its member states.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and POL\_SC 1400 and junior standing

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**POL\_SC 4540: American Foreign Policies**

Bases, formulation, evaluation of current American foreign policies.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4600: Latin American Politics**

Development, present status of political institutions in South America; emphasizes current political problems.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4605: Latin American Politics through Film**

This course provides an introduction to Latin American politics using the medium of film to illustrate the complexities of political development, regime change, revolutionary movements, and problems facing new democracies such as crime, poverty, drugs, and democratic stability.

**Credit Hours:** 3

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**POL\_SC 4610: European Political Systems**

Comparison of political cultures, institutions, and processes of Britain, France, West Germany, and selected smaller countries in Western Europe.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4630: The Politics of Modern Europe**

The course is an introduction to the politics of modern Europe. Europe provides an ideal setting to explore the central concepts and debates of comparative politics in industrialized countries. The course introduces the wide variety of political institutions, political economics and cultures existing in contemporary Europe and probes the question how such discrepancies might affect political outcomes and the possibility to coordinate EU policy. Several central topics in comparative politics, including political parties, elections, the welfare state, civil society and corruption will be introduced with application to modern European democracies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and Junior Standing

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**POL\_SC 4640: African Politics**

(same as BL\_STU 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and junior standing

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**POL\_SC 4660: Canada in North America**

This course focuses on the role of Canada in North America. The main topic areas include the evolution of Canada as a political system; political structures and processes; regionalism and social movements; political, economic and social connections with North America; and the future of Canada in North America.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 2600

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**POL\_SC 4670: The Political System of the European Union**

This course examines the politics, political actors, and institutions of the European Union from a comparative perspective. It questions whether we can view the EU as a federal democratic system similar to the U.S.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and Junior or Senior standing

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**POL\_SC 4680: Chinese Politics and Foreign Policy**

This course is intended to introduce you to the history and analysis of Chinese politics and foreign policy since 1949. The course has two main goals. The first is that during the semester, you should learn the key historical events in Chinese political development and foreign policy. Second, you will examine these events and developments in light of major theories in comparative politics and international relations.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and POL\_SC 1400 or Instructor's permission

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**POL\_SC 4690: North and South Korea**

This course is an introduction to the development of North and South Korea since 1945. By the end of the semester, students will 1) Know the

key events and historical trends in the political development and foreign policy of the two Koreas 2) Be able to explain these developments using major theories in comparative politics and international relations We will focus on processes of continuity and change, both for the two political systems and for the everyday lives of individuals on both sides of the DMZ. We will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4700: America's Wars in Asia/War and Peace in Asia**

This course is an introduction to the causes and character of conflict in Asia, especially the conflicts that either have involved or could plausibly involve the United States of America. These conflicts often combine aspects of civil conflict with aspects of international politics, and one of the important themes of the course will be to look at Asia's conflicts through both of these lenses. In addition, we will examine America's foreign policy options and how it selected strategies to deal with these conflicts. By the end of the semester, students will 1) Be familiar with the key historical events and concepts related to conflict in East Asia 2) Be able to explain these developments using a range of major theories and conceptual lenses in comparative politics and international relations. The course will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4710: Terrorism: Religious, Ethnic and Ideological Politics**

Terrorism as political violence extending beyond the acts themselves. Examines major modern movements, e.g. Northern Ireland, Basques (Spain), Germany, Algeria, Arab-Israeli, Iran, India, Sri Lanka, Peru, Argentina, Uruguay.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4720: Politics of Development**

(same as BL\_STU 4720). Comparative, interdisciplinary analysis of the politics of developing countries in Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4730: Women and Politics**

(same as WGST 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100; junior standing

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**POL\_SC 4740: Comparative Political Culture**

Review of the many divergent conceptions of political culture and examination of the dynamics and consequences for the performance of political systems and the behavior of their citizenry. Comparison of particular cultures of selected regions including East Asia, Europe and the Middle East, Latin America, and North America.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4750: Power and Money**

This course provides an introduction to comparative political economy by focusing on the following questions. How and why do governments promote economic prosperity? Does democracy make people richer or poorer? Is it true that "money is power"? Can poor countries enjoy a stable democracy?

**Credit Hours:** 3

**Prerequisites:** junior standing

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**POL\_SC 4760: Comparative Political Parties**

This course will explore political parties and party systems in democracies around the world. The course will focus on differences in the number, size, ideology, polarization, and functions of political parties.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 2700 and Junior standing

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**POL\_SC 4770: Comparative Political Behavior**

Explores research questions related to cross-national differences and similarities in public opinion formation, political culture and values, voting behavior, and other forms of political participation. Violent forms of political participation are also considered. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4780: Dictatorship and Democracy**

Why did the Arab Spring happen? Will China survive or collapse? Did North Korea's new dictator Kim Jong Un really execute his old girlfriend? Throughout history, the majority of the world's regimes have been dictatorships rather than democracies. This course is an introduction to the causes and character of contemporary authoritarian and democratic regimes: how and why they are created, why they survive, why people resist dictatorship or don't, and why regimes survive or fall. We will use academic articles, news stories, and films to study dictatorship and democracy. You will come away from this course with an understanding of the major theoretical debates about dictatorship and democracy, and how these debates apply to important countries and issues in the world today.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4790: The Age of Democratization?**

Democracy has become a global norm. After repeated waves of democratization, democracy has now reached all corners of the world and spread far beyond the affluent West. How can we understand transitions to democracy and democratic stability? What is the relationship between democracy and development and what can America and other Western powers do to promote democracy abroad? Although democracy has been on the rise in the last decades we have also seen new challenges emerge. Many countries have adopted democratic facades hiding the persistent stability of authoritarianism. We have also seen the rise of China and Russia in world politics, creating a powerful counterweight to the previously dominant liberal order. How will this change affect the prospects for democratization in the future? These and other questions will be debated in this course as students will be

introduced to central question, theories, and findings in comparative democratization.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4800: Classical Political Theory**

(same as CL\_HUM 4800). Great Greek, Roman, and Medieval political theorists on the relation of psychology, ethics, politics, and the best form of government.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4810: Modern Political Theory**

Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism, and Marxism.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4820: Contemporary Political Theory**

Great contemporary thinkers on Western vs. Eastern Marxism, existentialism, critical theory, political theologies, postmodernism, feminism, environmentalist ideologies, biological approaches to politics.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4830: Democracy in America (and Elsewhere)**

This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100 and Junior standing

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**POL\_SC 4840: Developing Dynamics of Democracy**

This course examines developments in the theory and practice of democracy from the ancient Greeks to the present. Beginning with the origins of democracy in the Hellenic city states, we consider the transformation of democratic concepts in the classical liberal period, review the development of democratic institutions in the United States and Europe, examine the emergence of supra-national democratic institutions such as the European Union, and assess the future of democratization in the 21st century.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850: Scots and the Making of America**

This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850H: Scots and the Making of America - Honors**

This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, Honors eligibility required

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**POL\_SC 4890: Contemporary Political Analysis**

This course introduces public choice writings. Public choice applies economic methods to the study of politics. Topics covered include the appropriate size of the state, how individuals organize to achieve shared goals and how voters chose in elections.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**POL\_SC 4900: Beltway History and Politics: American Constitutional Democracy in Theory and Practice**

(same as HIST 4900). This course is an experiential overview of American political history for students on the Kinder Forum's Washington program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

**Prerequisites:** This course is limited to students participating in the Kinder Scholars Washington D.C. Internship program

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**POL\_SC 4940: Political Science Internship**

Work experience in a public or private organization that is relevant to the political science major coordinated by a faculty member.

**Credit Hour:** 3-6

**Prerequisites:** junior standing with a 3.0 GPA; or senior standing with 2.67 GPA. Must be in good standing

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**POL\_SC 4975: Journal on Constitutional Democracy**

(same as HIST 4975). The journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current former participants in the institute's undergraduate Society of Fellows program. Each volume of the journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**POL\_SC 4985: Problems in Political Science**

Independent investigation to meet needs of the individual student.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4986: Special Readings in Political Science**

Independent readings selected in consultation with supervisory faculty member.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4995: Political Science Capstone**

Readings and discussions in selected areas of political science (comparative, American, international affairs, public administration/policy or theory). Subject depends on instructor.

**Credit Hours:** 3

**Prerequisites:** political science major, senior standing

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**POL\_SC 4996: Political Science Capstone, Honors**

Special readings, reports in the several fields of political science. For political science Honors students.

**Credit Hour:** 1-6

**Prerequisites:** senior standing. Honors eligibility required

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**POL\_SC 7000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

**Corequisites:** POL\_SC 4010

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**POL\_SC 7010: Computing Methods**

Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 7085: Problems in Political Science**

Individual study in one of the fields of Political Science.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 8085: Master Research in Political Science**

Independent research not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 8090: Masters Research in Political Science**

Independent research leading to thesis. Graded on S/U basis only.



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**Credit Hour:** 1-99

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**POL\_SC 9000: Scope and Methods**

Examines the major fields in the discipline, assumptions underlying empirical social science and theoretical issues in the study of politics. Primarily for doctoral candidates in political science.

**Credit Hours:** 3

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**POL\_SC 9030: Linear Models in Politics**

Linear and non-linear multivariate estimation techniques with applications to political science research.

**Credit Hours:** 3

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**POL\_SC 9040: Advanced Political Methodology**

Analytic strategies and statistical models applicable to social science research. Emphasis on modeling political phenomena. Topics vary, include linear and nonlinear models, multidimensional scaling.

**Credit Hours:** 3

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**POL\_SC 9050: Introduction to Formal Political Theory**

Formal and mathematical models of political institutions and behavior. Topics may include social choice, game theory, spatial models, coalition formation.

**Credit Hours:** 3

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**POL\_SC 9070: Qualitative Research Methods in Political Science**

Seminar on research design for qualitative research in political science. Topics include case-study, archival, multi-method, and field research and other qualitative methods.

**Credit Hours:** 3

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**POL\_SC 9085: Problems in Political Science**

For graduate students with necessary prerequisite courses. Topics in one of the fields of political science for individual study.

**Credit Hour:** 1-99

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**POL\_SC 9090: Ph D Research in Political Science**

Independent research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9100: American Political Behavior**

Critical examination of literature on political behavior in the United States. Topics include voting and elections, public opinion, parties and interest groups, political psychology, communication, elites, and collective action.

**Credit Hours:** 3

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**POL\_SC 9120: Voting and Elections**

Research seminar on political participation, voter choice, campaigns, and elections, primarily in the United States. Covers theories, approaches and research on electoral behavior.

**Credit Hours:** 3

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**POL\_SC 9140: American Political Institutions**

Critical examination of literature on political institutions in the United States. Topics include Congress, the Presidency, courts, the bureaucracy, political organizations, federalism, and institutional dynamics.

**Credit Hours:** 3

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**POL\_SC 9145: American State Politics**

Research seminar on state government and politics in the U.S. Topics include state culture, mass politics, elections, state executives, legislatures, courts, and public policy.

**Credit Hours:** 3

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**POL\_SC 9150: Political Parties**

Research seminar on the organization and activities of political parties, primarily in the United States. Attention to historical development, nature of party change, functions, elites, membership, political finance, and policy formulation.

**Credit Hours:** 3

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**POL\_SC 9160: Interest Groups**

Research seminar on nonpartisan organizations seeking to influence the public policy agenda. Includes problems of collective action, mobilization and organization of interest groups, strategies and tactics, lobbying, political movements, theories and research.

**Credit Hours:** 3

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**POL\_SC 9170: Legislative Institutions**

Research seminar on the U.S. Congress and legislative institutions generally. Topics include the legislative process, policy change, committees, political parties, leadership, representation, and relations with other branches of government.

**Credit Hours:** 3

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**POL\_SC 9175: Evolution of American Legislatures, 1619 to the Present**

Examination of the organizational evolution of American legislatures from the colonial era to the present.

**Credit Hours:** 3

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**POL\_SC 9190: Research in American Politics**

Directed research into one or more specific aspects of American Politics, behavior, and institutions.

**Credit Hours:** 3

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**POL\_SC 9210: Civil Rights and Civil Liberties**

Research seminar on the U.S. Constitution, civil liberties, and civil rights. Topics include the First Amendment and freedom of expression and of belief, due process, the rights of the accused, privacy, equal protection, and constitutional interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9220: Constitutional Law: Institutions and Powers**

Research seminar on powers and constraints on government found in the U.S. Constitution. Topics include separation of powers, federalism, legislative and presidential power, the commerce clause, taxing and spending.

**Credit Hours:** 3

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**POL\_SC 9230: Public Law**

Research seminar on the judicial process in the United States.

**Credit Hours:** 3

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**POL\_SC 9240: Racial and Ethnic Politics**

Theories, institutional processes, and behaviors pertaining to social defined racial and ethnic groups. Topics include social dominance, representation, mobilization, public opinion, and the influence of racial and ethnic factors on the American political process.

**Credit Hours:** 3

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**POL\_SC 9300: Federalism and Intergovernmental Relations**

Analyzes relationships among American governmental units emphasizing national-state relations and metropolitan area problems.

**Credit Hours:** 3

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**POL\_SC 9310: Public Policy**

Covers the basic theory, approaches, problems and issues relating to the scope, development and implementation of public policy.

**Credit Hours:** 3

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**POL\_SC 9320: Administrative Politics**

Critical examination of literature relating to selected topics in public bureaucracies.

**Credit Hours:** 3

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**POL\_SC 9330: Research in Policy and Administration**

Contemporary research in public policy, bureaucratic politics, public management and administration.

**Credit Hours:** 3

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**POL\_SC 9350: Public Policy, Processes and Strategies**

Provides an overview of the history, function, size, scope, development, and management of the nonprofit sector. Historical, political, economic, and social perspectives are used to examine the meaning of voluntarism, charity, philanthropy, and the nonprofit sector. Graded on A-F basis.

**Credit Hours:** 3

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**POL\_SC 9390: Administration and Public Policy**

Directed research in Public Administration or Public Policy. Inquire as to the emphasis for any given semester.

**Credit Hours:** 3

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**POL\_SC 9400: Introduction to International Relations**

Analysis, evaluation of some basic theories which attempt to explain international affairs.

**Credit Hours:** 3

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**POL\_SC 9420: Quantitative Approaches in International Relations**

Research seminar emphasizing quantitative analysis of large data sets on international politics, especially international conflict. Topics include conflict escalation, correlates of war, deterrence, alliance behavior and the democratic peace.

**Credit Hours:** 3

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**POL\_SC 9430: International Political Economy**

Theories of political economy and current problems such as North-South relations, international trade, monetary relations, aid regimes, and international divisions of labor.

**Credit Hours:** 3

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**POL\_SC 9440: Foreign Policy Analysis**

Research seminar assessing foreign policy decisions and outcomes with particular attention given to decision-making. Both theoretical and empirical methods for testing foreign policy are considered. Approaches include domestic politics, bureaucratic, and psychological models.

**Credit Hours:** 3

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**POL\_SC 9450: International Conflict**

This is an advanced seminar in international conflict. The range of material that might be included is vast, so an effort will be made to balance overall coverage with the need to look in more depth at some especially salient areas in the literature. The seminar unfolds in five parts.

**Credit Hours:** 3

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**POL\_SC 9460: Coercive Diplomacy**

Research seminar on how nations apply political and economic sanctions on other nations in order to compel or entice changes in foreign policy and/or government behavior. How threats (short of conflict) and incentives govern international relations.

**Credit Hours:** 3

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**POL\_SC 9470: Theories of Civil War**

Seminar on why groups may engage in violence against the state or other opposition groups. Topics include causes of civil wars, terrorism as a strategy of violence and possible solutions including third party security, partition, intervention, power sharing and treaty design. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9480: Human Security**

Seminar on cross-national civil, political, economic, social, and cultural rights. The determinants of human security issues and the efficacy and dynamics of efforts from intergovernmental organizations, foreign aid, peacekeeping, interventions, and treaties on human rights.

**Credit Hours:** 3

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**POL\_SC 9490: Selected Themes in International Relations**

Graduate seminar in International Relations. Variable content. May be repeated for credit.

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**Credit Hours:** 3

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**POL\_SC 9550: Strategic Studies**

This graduate seminar analyzes important theories regarding strategic studies. The course explores topics such as war outcomes, military effectiveness, military history, military strategy, civil-military relations, counterinsurgency, military innovation, and air warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9600: Introduction to Comparative Politics**

Study of theories and approaches to comparative politics in Europe, Asia and/or Latin America.

**Credit Hours:** 3

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**POL\_SC 9610: Latin American Politics**

Research seminar on politics and government in Central and South America. Topics include modernization and dependency theories, civil-military relations, economics adjustment, democratic transitions, and area and country studies.

**Credit Hours:** 3

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**POL\_SC 9620: Politics of Industrial Societies**

Comparative analysis of public policy in Western democracies. Emphasis on economic policy and related policy areas. Comparisons of Western European countries with United States, Japan, Russia when appropriate.

**Credit Hours:** 3

**Prerequisites:** graduate standing

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**POL\_SC 9640: East Asian Politics**

Intensive study of selected topics in the internal and external politics of China, Japan and Korea.

**Credit Hours:** 3

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**POL\_SC 9645: China and Political Science Research**

This is a graduate-level seminar on Chinese politics and foreign policy since 1949 covering the key historical events in Chinese political development and foreign policy. These events and developments will be examined in light of major theories in and methodological approaches adopted by the subfields of comparative politics and international relations, with the goal of exploring the strengths and weaknesses of alternative perspectives. At the end of the course, students should be familiar with the key debates and questions in the study of Chinese politics and foreign policy, and have a better sense of how to research questions on these topics. The course is also intended to encourage a dialogue between the study of China and the broader fields of comparative politics and international relations. Thus by the end of the course, students should have a sense not only for how the study of Chinese politics and foreign policy applies broader CP/IR theories to explain key patterns and events in China, but also gain insight into the question of what China as a case (or cases) can contribute back to major theories and debates in these fields.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 9600

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**POL\_SC 9650: African Politics**

Research seminar on comparative African politics. Theory and research on sub-Saharan post-independence governance on the African continent.

**Credit Hours:** 3

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**POL\_SC 9670: European Transitions**

Research seminar comparing post-communist transitions with those from previous European transformations along economic, political, and social lines. The course focuses on testing theories and on comparing transitional experiences in search of generalizable results.

**Credit Hours:** 3

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**POL\_SC 9680: Politics of Development**

Research seminar on the politics of development in the developing world. Examines the relationship between political and economic change in Africa, Asia and Latin America, as well as global patterns.

**Credit Hours:** 3

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**POL\_SC 9690: Democracy and Dictatorship**

Research seminar on comparative politics of authoritarian and democratic regimes. Topics include characteristics and durability of authoritarianism, political institutions under autocracy, tactics of rule, state-society relations, transition and breakdown of regimes.

**Credit Hours:** 3

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**POL\_SC 9700: Democratization**

Research seminar on the third wave of democratization. Classical and contemporary conceptions of democracy, measurement, theories, trends, and influences on democratization across the globe.

**Credit Hours:** 3

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**POL\_SC 9710: Comparative Political Economy**

Interdisciplinary, comparative analysis of political aspects of political economy, rural development, and related issues.

**Credit Hours:** 3

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**POL\_SC 9720: Comparative Political Institutions**

Research seminar on comparative political institutions. Debates in comparative politics on the influence of rules and institutions on political decisions in developed democracies. Topics include political parties, legislatures, governments, and electoral rules.

**Credit Hours:** 3

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**POL\_SC 9730: Comparative Elections and Voting Behavior**

This is a graduate level seminar in comparative political behavior. We will discuss a variety of topics dealing with comparative political behavior, such as the formation of partisan identification, public opinion formation, the decision to vote, organize and protest, and how foreign and domestic policy influence elections. The readings will introduce you to the various methodological techniques--including case studies, quantitative analysis, and agent-based modeling--used to test the empirical expectations of these theories. The goal of this course is to provide a solid foundation

upon which you can build for comprehensive examinations. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9760: Comparative Political Parties**

This course will analyze cross-national differences in the size and nature of party systems in established democracies. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9790: Seminar in Comparative Politics**

Comparative study of selected aspects of political systems. Variable content. May be repeated for credit.

**Credit Hours:** 3

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**POL\_SC 9901: Topics in Political Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 9910: Leadership in Civic Education**

Intensive workshop for Missouri secondary social studies teachers. Includes instructional materials on U.S. and Missouri governments, lectures by leading scholars, breakout sessions, and interactions with government practitioners.

**Credit Hours:** 3

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**POL\_SC 9970: Independent Readings for Ph.D. Comprehensive Examinations**

Graded on S/U basis only.

**Credit Hour:** 1-9

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## Portuguese (PORT)

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**PORT 1100: Elementary Portuguese I**

This is the first course in the three-part elementary Portuguese-language sequence. The focus is on building common vocabulary and learning basic verb tenses and syntax, as well as other grammar basics such as noun/adjective number and gender, adverbs, and preposition usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, and in-class structured conversation and discussion of texts, videos, music and additional cultural materials related to Brazilian and other Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

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**PORT 1200: Elementary Portuguese II**

This is the second course in the three-part elementary Portuguese-language sequence. The focus is on increasing vocabulary (including common idiomatic expressions) and reviewing basic verb tenses and syntax. The course also includes further study of key grammatical concepts such as irregular and reflexive verbs, progressive and past tenses, the imperative, and pronoun usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, as

well as in-class structured conversation and discussion of texts, videos, music and other cultural materials related to Brazilian and additional Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in PORT 1100 or its equivalent

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**PORT 2001: Topics in Portuguese-General**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**PORT 2005: Topics in Portuguese-Humanities/Fine Arts**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**PORT 2160: Intermediate Portuguese**

Review of grammar through Brazilian culture. Designed for students who have taken either PORT 1200 or PORT 4070 and wish to continue studying the language.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in PORT 1200 or equivalent

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**PORT 2310: Brazilian Civilization**

Survey of Brazilian history, arts and culture. Open to any student interested. No knowledge of Portuguese required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3001: Topics in Portuguese-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3005: Topics in Portuguese-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3160: Advanced Portuguese Composition and Conversation**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in PORT 2160

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**PORT 3260: Cinema for Portuguese Conversation**

This course is for intermediate and advanced students of Portuguese and uses film as the basis for teaching vocabulary, strengthening oral and written skills, and presenting Brazilian culture. Graded on A-F basis only,

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in PORT 2160 or equivalent

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**PORT 3420: Survey of Brazilian Literature**

Masterpieces of Brazilian literature in translation from its origins to present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3875: Brazilian Cinema**

(same as FILM\_S 3875). An introduction to Brazilian cinema, culture and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; re-definitions of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**PORT 3885: Twenty-First Century South American Cinema**

(same as FILM\_S 3885, SPAN 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**PORT 4070: Intensive Beginning Portuguese**

Designed for rapid acquisition of a reading knowledge of Portuguese. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PORT 4960: Special Readings in Portuguese**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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## Psychiatry (PSCHTY)

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**PSCHTY 6005: Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 6

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**PSCHTY 6015: Rural Psychiatry Clerkship**

Rural Psychiatry Clerkship

**Credit Hours:** 6

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**PSCHTY 6025: Springfield Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**PSCHTY 6105: Remediation Psychiatry Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Psychiatry Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 6

**Prerequisites:** PSCHTY 6005 Psychiatry Clerkship, received unsatisfactory grade

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**PSCHTY 6363: ABS Psychiatry Research**

ABS Psychiatry Research

**Credit Hour:** 5-10

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**PSCHTY 6365: ABS Psychiatry Research and Review**

ABS Psychiatry Research and Review

**Credit Hour:** 5-10

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**PSCHTY 6367: ABS Psychopharmacology**

ABS Psychopharmacology

**Credit Hour:** 5-10

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**PSCHTY 6630: Narrative Med and the Meaningful Life**

The 4th year medical student will attend didactics and participate in discussions. They will complete suggested readings (short stories, poems and essays), assessments and writing assignments/projects. May be repeated for credit.

**Credit Hours:** 5

**Prerequisites:** 4th year medical student, all core clerkships

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**PSCHTY 6730: Adult Outpatient Psychology - Rural**

Adult Outpatient Psychology - Rural

**Credit Hours:** 3

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**PSCHTY 6731: Psychiatry Rural Elective**

The 4th year medical student will participate in the evaluation of adult psychiatric patients and child psychiatric patients in a clinical setting.

**Credit Hours:** 5

**Prerequisites:** PSCHTY 6005; restricted to 4th year medical students

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**PSCHTY 6835: Psychiatry Outpatient Clinic**

Psychiatry Outpatient Clinic

**Credit Hours:** 5

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**PSCHTY 6836: Psychiatry Adult Inpatient Service**

Psychiatry Adult Inpatient Service

**Credit Hours:** 5

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**PSCHTY 6837: Psychosomatic Medicine**

Psychosomatic Medicine

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**Credit Hours:** 5

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**PSCHTY 6838: Forensic Psychiatry**

Forensic Psychiatry

**Credit Hours:** 5

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**PSCHTY 6839: Child/Adolescent Psychiatry**

Child/Adolescent Psychiatry

**Credit Hours:** 5

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**PSCHTY 6840: Geriatric Psychiatry**

Geriatric Psychiatry

**Credit Hours:** 5

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**PSCHTY 6939: Two Week - Psychiatry Adult Inpatient Service**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of adults on an acute care inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6940: Two Week - Child and Adolescent Psychiatry**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of children and adolescents on an acute care child inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6941: Two Week - Psychiatry Consultation and Liaison**

Students will participate in the psychiatric consultation process for medical rehabilitation, medical and surgical inpatients. The types of patients seen present with a wide spectrum of psychiatric conditions such as depression, substance abuse, anxiety disorders, delirium, dementia, somatoform disorders, personality disorders, psychotic disorders and organic behavior/mood disorders. Typical duties include bedside evaluation in collaboration with attendings and residents, documentation and presentation of findings and recommendations and participation in rounds.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Psychology (PSYCH)

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**PSYCH 1000: General Psychology**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

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**PSYCH 1000H: General Psychology - Honors**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PSYCH 1003: Topics in Psychology - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

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**PSYCH 1003H: Topics in Psychology - Honors - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1003HW: Topics in Psychology - Behavioral Science - Honors/Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1020: Applied Psychology**

Surveys wide range of applications of psychology. Topics include social issues (prejudice and violence), applications to fields such as business and law, applications for personal improvement (improving memory), and others (sports, health, environment).

**Credit Hours:** 3

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**PSYCH 1030: Orientation to the Psychology Major**

This course is intended to help students choose the best major for themselves and to provide information on careers available to psychology majors.

**Credit Hour:** 1

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**PSYCH 2001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used

toward behavioral science distribution credit. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2110: Learning, Memory, and Cognition**

Students will gain an understanding of the fundamental principles of learning, memory and cognition, and will be able to recognize important historical figures and their contributions. Students will also learn how the principles can be applied to their everyday lives.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2210: Mind, Brain, and Behavior**

Introduction to the structures and processes of the mind and the nervous system, including the psychobiology of eating, sleeping, emotion, stress and learning. No credit if taken after PSYCH 4210. Recommended: PSYCH 1000

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

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### **PSYCH 2220: Drugs and Behavior**

Basic principles of drug action on the nervous system; the effects of important psychoactive drugs; drug use and society.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2310: Social Psychology**

An introduction to how people's thoughts, feelings and behaviors are influenced by the actual or imagined thoughts, feelings and behaviors of others.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2320: Introduction to Personality**

Personality is the scientific study of individual differences (e.g., traits, motives, abilities). This course reviews historical theoretical perspectives as well as current research. Students will have an opportunity to learn about on their own motives and traits.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to undergraduate psychology majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2330: Consumer Psychology**

This course surveys how and why we engage in consumer activities and how we are affected by them. We will survey many areas of psychology as they apply to influencing consumer purchase decisions. We will also survey research examining the consequences of our consumption behavior.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to undergraduate psychology majors

**Recommended:** PSYCH 1000

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### **PSYCH 2410: Developmental Psychology**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2410H: Developmental Psychology - Honors**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2510: Survey of Abnormal Psychology**

Basic survey of maladaptive human behavior and experience, including personality disorders, alcohol and drug abuse, anxiety and mood disorders, sexual dysfunctions, and thought disorders.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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### **PSYCH 2810: Human Sexuality**

Survey of research on sexual behavior including sex norms, gender identity, sexual dysfunctions, sexual deviation, homosexuality, and legal

aspects of sexual behavior. Attendance at small group discussions may be required at the option of the instructor.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2830: Human-Companion Animal Interaction**

Exploration of historical and theoretical bases of human-companion animal interaction (HAI), the nature issues, and clinical applications of HAI. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2940: Internship in Psychology**

Work experience in an organization that is relevant to the psychology major.

**Credit Hour:** 3-6

**Prerequisites:** must be in good standing and have completed 9 credit hours in psychology; instructor's consent. Intended for students with freshman or sophomore standing

**Recommended:** PSYCH 1000

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**PSYCH 2950: Special Problems in Psychology**

Research apprenticeship with a faculty member, assisting a faculty member in the development and execution of research. May be repeated to 6 hours maximum.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** PSYCH 1000

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**PSYCH 3001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000

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**PSYCH 3003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3003H: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration. Honors eligibility required

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**PSYCH 3003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3010: Research Methods in Psychology I**

Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods.

**Credit Hours:** 3

**Prerequisites or Corequisites:** concurrent enrollment in STAT 1200 or a grade of C or better in STAT 1200 (or its equivalent)

**Prerequisites:** PSYCH 1000. This course is restricted to psychology majors with sophomore standing and above

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**PSYCH 3010H: Research Methods in Psychology I- Honors**

Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Concurrent enrollment in STAT 1200 or a grade of C or better in STAT 1200 (or its equivalent)

**Prerequisites:** PSYCH 1000; Honors eligibility required. This course is restricted to psychology majors with sophomore standing and above

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**PSYCH 3020: Research Methods in Psychology II**

Continuation of PSYCH 3010 and required for all further labs in psychology.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 with a grade of C- or better or exemption, and PSYCH 1000, and a grade of C or better in PSYCH 3010 and STAT 1200 or exemption. This course is restricted to junior and senior psychology majors

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**PSYCH 3020H: Research Methods in Psychology II - Honors**

Continuation of PSYCH 3010 and required for all further labs in psychology.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 3010 and STAT 1200 (or its equivalent). Honors eligibility required. This course is restricted to junior and senior Psychology majors

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**PSYCH 3110: Theories of Learning**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3



**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3110W: Theories of Learning - Writing Intensive**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3130: Decisions, Values and Choice**

Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3140: Cognitive Psychology**

A survey of psychological theory and research on human cognition.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3150: Human Memory**

Surveys research on human memory, including basic laboratory studies with normal subjects as well as research on amnesia and other memory impairments, life-span memory development, and the cognitive neuroscience of memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3160: Perception and Thought**

Covers research on various aspects of mental life: language, problem-solving, decision-making, sensory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3310: Intergroup Relations**

Provides an overview of the social psychological literature on stereotyping, prejudice, discrimination, and intergroup relations. Students learn theoretical frameworks and research findings regarding the development and maintenance of intergroup conflict.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3350: Positive Psychology**

This course introduces students to the science of positive psychology, including its origin and the historical imbalances it addresses within the broader field of psychology. A wide variety of topics are covered, including happiness, materialism, purpose, flow, courage, humility,

positive emotions, curiosity, mindfulness, savoring, gratitude, forgiveness, personal strengths, resilience, and compassion. Psychology majors cannot receive credit for both PSYCH 3350 and ESC\_PS 4200.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000, This course may be restricted to Undergraduate Psychology Majors during early registration

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**PSYCH 3360: Automatic Social Judgments**

In this course we will survey the area of social psychology dealing with automatic social judgments, including an introduction to the topic, review of techniques used to measure automatic social judgments, and discussion of applications of automatic social judgment research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Psychology majors through early registration

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**PSYCH 3370: The Science of Mindfulness**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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**PSYCH 3370W: The Science of Mindfulness - Writing Intensive**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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**PSYCH 3420: Cognitive Development in Childhood**

Theories and research on cognitive development in childhood.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430: Social Development in Childhood**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430W: Social Development in Childhood - Writing Intensive**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3440: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate psychology majors through early registration

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**PSYCH 3440H: Women's Professional Development - Honors**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required. This course may be restricted to undergraduate psychology majors through early registration

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**PSYCH 3510: Introduction to Clinical Psychology**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3510W: Introduction to Clinical Psychology - Writing Intensive**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3830: Health Psychology**

A hands-on approach to the study of health psychology including research on a topic of current relevance to the field.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3840: Individual Differences**

Surveys individual and group differences. Contributions of various factors to variations in behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3860: Law and Psychological Science**

This survey course examines the interactions of law and psychology across the justice system. Emphasis is placed on how psychological research does (and does not) inform important legal issues. Requirements may include an in-class team debate of relevant controversy in law.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3870: Sleep and Sleep Disorders**

This course provides a critical review of the current research on both normal sleep and sleep disorders.

**Credit Hours:** 3

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**PSYCH 3880: African-American Psychology**

(Same as BL\_STU 3100 and ESC\_PS 3100). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors through Early Registration

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**PSYCH 4001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Enrollment limited to students who have completed PSYCH 1000.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral

science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-6

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4010: Topics in Psychology Capstone**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PSYCH 4010W: Topics in Psychology Capstone - Writing Intensive**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PSYCH 4110: Perception**

Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4210: Physiological Psychology**

An introduction to neuroscience with an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress psych immunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4220: Animal Learning and Behavior**

Survey of animal behavior and learning abilities, including topics such as learning, habitat selection, foraging, problem solving, mating, communication, conditioning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4240: Cognitive Neuroscience**

The neural basis of human information processing in memory, attention, perception, imagery, movement, and language.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2210 and PSYCH 4210

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**PSYCH 4340: Attitude Change**

Theories, methods, and experimental findings in attitude change research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4350: Stereotypes and Prejudice**

This course provides an overview of theory and research on stereotypes, prejudice, and discrimination from a social-psychological perspective. Course material comes primarily from textbook and supplementary readings, in addition to videos related to these topics.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4360: Social Cognition**

The overarching goal of this course is to provide an overview of current research and theory in social cognition. If there is a running theme to this course, it is in the use of "top down" processes in how we construct an understanding of the world around us. That is, we use our past experiences and memories to interpret new experiences, people and behavior. This fact does not dictate whether that understanding is accurate or not. However, social psychologists have historically been interested in the ways that this process leads to errors or biases in a vast array of human endeavors. This perspective has had a strong impact on the trajectory of social cognition. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate Psychology majors during early registration

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**PSYCH 4420: Personality Development**

This course covers the topic of temperament and personality development through the lifespan with particular focus on infancy, childhood, and adolescence. Coverage includes classic and contemporary theories and classic and contemporary research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4440: Sex Differences**

This course covers the evolution of sex differences and hormonal and environmental influences on their expressions in nonhuman species. These insights are used to understand human sex differences in mate choices, emotions, development, brain and cognition, and in modern societies.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4520: Behavior Genetics**

(cross-leveled with PSYCH 7520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Grade of C or better in PSYCH 3010 and STAT 1200 or higher. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4530: Research in Psychopathology**

Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4540: Emotional Disorders in Childhood and Adolescence**

Surveys disturbed behavioral development during childhood and adolescence, emphasizing factors that produce deviation from normal developmental patterns.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2410

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**PSYCH 4560: Schizophrenia**

This course will examine one of the most severe, debilitating, and complex mental disorders. We will review the major symptoms and clinical features of schizophrenia, explore possible causes of Psychology disorder, and critically assess treatments for the disorder.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4570: Pediatric Neuropsychology**

Introduction to the field of pediatric neuropsychology and the study of individuals with early brain dysfunction. Common central nervous system disorders of childhood (e.g. autism, ADHD, epilepsy) will be discussed.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000, PSYCH 2210 or PSYCH 4240

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**PSYCH 4580: Externalizing Spectrum Disorders**

The purpose of this course is to provide an overview of the symptoms, etiology, and treatment of psychiatric disorders that fall within the externalizing spectrum, including Attention-Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder, Alcohol and other Substance Use Disorders, and Antisocial Personality Disorder. This course will attempt to provide an overview of key issues and topics related to the classification of psychiatric disorders and how research in this area has led to current conceptualizations of the externalizing spectrum. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4590: Autism Mentor Program**

The Autism Mentor Program and its accompanying course are designed to educate and train student mentors to be of assistance to their peers on the autism spectrum. The student will have an opportunity to participate in class and interact weekly with their mentee in a practical learning environment. Graded on A-F basis only.

**Credit Hour:** 1-2

**Prerequisites:** PSYCH 1000 or PSYCH 2510

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**PSYCH 4815: Cross-Cultural Psychology**

This course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course is restricted to juniors and seniors

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**PSYCH 4815H: Cross-Cultural Psychology - Honors**

The Cross-cultural Psychology course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required. Restricted to sophomores and above

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**PSYCH 4825: Psychology at the Movies**

In this course we watch and discuss films from multiple psychological perspectives. Connections are made between cinematic content and contemporary psychological research on culture and diversity. Race, Gender, Disability, Class, and LGBT issues in movies are explored.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. Restricted to juniors and seniors

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**PSYCH 4830: Psychology of Women**

(same as WGST 4830). Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 4840: The History of Psychology**

Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4940: Internship in Psychology**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

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**Prerequisites:** Instructor's consent required

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**PSYCH 4940W: Internship in Psychology - Writing Intensive**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent required

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**PSYCH 4950: Special Problems in Psychology**

Independent investigation leading to a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4960: Special Readings in Psychology**

Independent readings selected in consultation with supervisory faculty member. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4970: Psychological Measurement Capstone**

Survey of theories and methods of psychological test construction, focusing on measures of intelligence and personality. Lab component involves experimental training in test construction and test evaluation.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4971: Developmental Psychology Capstone**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4971W: Developmental Psychology Capstone - Writing Intensive**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4972: Animal Learning Capstone**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4972W: Animal Learning Capstone - Writing Intensive**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4973: Human Cognition Capstone**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4973W: Human Cognition Capstone - Writing Intensive**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4974: The Human Senses Capstone**

Psychophysical data, sense organs, psychological attributes, and theories of vision, hearing, and the vestibular (motion) senses. Elementary aspects of psychophysics.

**Credit Hours:** 3

**Prerequisites:** grade of C better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Department Consent

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**PSYCH 4974W: The Human Senses Capstone - Writing Intensive**

Psychophysical data, sense organs, psychological attributes, and theories of vision, hearing, and the vestibular (motion) senses. Elementary aspects of psychophysics.

**Credit Hours:** 3

**Prerequisites:** grade of C better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4975: Social/Personality Capstone**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4975W: Social/Personality Capstone - Writing Intensive**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976: Independent Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976H: Honors Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977H) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976HW: Honors Research Capstone I - Honors/Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977HW) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976W: Independent Research Capstone I - Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977W) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977: Independent Research Capstone II**

Continuation of PSYCH 4976. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977H: Honors Research Capstone II**

Continuation of PSYCH 4976H. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior

standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976H.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977HW: Honors Research Capstone II - Honors/Writing Intensive**

Continuation of PSYCH 4976HW. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976HW.

**Credit Hours:** 3

**Prerequisites:** Consent required. Honors Eligibility Required

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**PSYCH 4977W: Independent Research Capstone II - Writing Intensive**

Continuation of PSYCH 4976W. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976W.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4978: Clinical Psychology Capstone**

Students work at assigned agencies to gain "real-world" experience in the practice of psychology and attend regularly scheduled class meetings in order to integrate their academic knowledge with their practical experience. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4978W: Clinical Psychology Capstone - Writing Intensive**

Students work at assigned agencies to gain "real-world" experience in the practice of psychology and attend regularly scheduled class meetings in order to integrate their academic knowledge with their practical experience. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4979: Judgement and Decision Making Capstone**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4979W: Judgement and Decision Making Capstone - Writing Intensive**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental

findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4980: Human Relationships Capstone**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing, a grade of C or better in PSYCH 3020, PSYCH 2810 or two social/personality courses.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4980W: Human Relationships Capstone - Writing Intensive**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing, a grade of C or better in PSYCH 3020, PSYCH 2810 or two social/personality courses.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4981: Advanced Developmental Psychology Capstone I**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4981W: Advanced Developmental Psychology Capstone I - Writing Intensive**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982: Advanced Developmental Psychology II**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982W: Advanced Developmental Psychology II - Writing Intensive**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4983: Consumer Psychology Capstone**

This course examines numerous social and psychological issues related to the area of consumer psychology. The course begins by examining how media exposure influences consumption, prejudice in marketing and advertising, and the question of whether children should be targets of marketing strategies. The second section examines how consumption can be influenced by unconscious and automatic factors. The third section examines unhealthy forms of consumption and consumption's relationship to well being. The fourth section focuses on ethical and social responsibility issues like consumption's impact on the environment and the voluntary simplicity movement. The last section of the course is devoted to student presentations of term papers. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4983W: Consumer Psychology Capstone - Writing Intensive**

This course examines numerous social and psychological issues related to the area of consumer psychology. The course begins by examining how media exposure influences consumption, prejudice in marketing and advertising, and the question of whether children should be targets of marketing strategies. The second section examines how consumption can be influenced by unconscious and automatic factors. The third section examines unhealthy forms of consumption and consumption's relationship to well being. The fourth section focuses on ethical and social responsibility issues like consumption's impact on the environment and the voluntary simplicity movement. The last section of the course is devoted to student presentations of term papers. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4984: Promoting Social Justice, Diversity, and Inclusion Capstone**

This course is an advanced exploration of diversity and social justice in the United States and provides students with a framework for understanding specific forms and the interlocking systems of oppression; a process to explore how oppression affects our lives; a pedagogical framework for teaching and training about concepts of oppression and diversity; and an application of these ideologies and skills in community settings. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent required

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**PSYCH 7001: Topics in Psychology - General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. Graduate credit will be earned through additional reading and assignments.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; departmental consent for repetition

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**PSYCH 7003: Topics in Psychology - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. Graduate credit will be earned through additional reading and assignments.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; departmental consent for repetition

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**PSYCH 7085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 7110: Perception**

(cross-leveled with PSYCH 4110). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

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**PSYCH 7210: Physiological Psychology**

An introduction to neuroscience giving an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress psychoimmunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7340: Attitude Change**

Theories, methods, and experimental findings in attitude change research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7420: Personality Development**

This course covers the topic of temperament and personality development through the lifespan with particular focus on infancy, childhood, and adolescence. Coverage includes classic and contemporary theories and classic and contemporary research.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7520: Behavior Genetics**

(cross-leveled with PSYCH 4520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**PSYCH 7530: Research in Psychopathology**

Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7550: Introduction to Clinical Psychology**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7560: Schizophrenia**

Examines symptoms, possible causes, and treatments of schizophrenia. Goals include understanding psychopathology by examining one disorder and reviewing cutting edge psychology and clinical science research being used to understand schizophrenia.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7810: Industrial/Organizational Psychology**

Survey of basic and applied personnel and organizational psychology. Focus on the human relations field, job satisfaction, leadership, group dynamics and formal organizational structures within the realm of industry.

**Credit Hours:** 3

**Prerequisites:** PSYCH 3010

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**PSYCH 7815: Cross-Cultural Psychology**

This course aims to explore relationships between cultural variables and human behavior, and to look at recent attempts by cross-cultural psychologists to devise theories that reflect the cultural, social and developmental perspectives on behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and departmental consent

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**PSYCH 7830: Psychology of Women**

Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 7840: The History of Psychology**

Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 8001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 8050: Research in Psychology - Non-Thesis**

Research in psychology not leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8090: Research in Psychology - Thesis**

Research in psychology leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8110: Cognitive Psychology**

Focuses on basic research on human perception, memory, attention, language, and thought.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8210: Functional Neuroscience**

Basic techniques, data and theory in the neurosciences applied to the study of psychopathology, psychopharmacology, neural development, brain damage, memory and other areas of "behavior."

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8310: Survey of Social Psychology**

Survey of historical and contemporary theory and research in affiliation, attribution, social comparison, attitude change and group dynamics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8410: Psychology of Development**

Principles, theories, research in normal human development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8420: Cognitive Development**

(same as H D FS 8420). An introduction to central theories and issues in the study of cognitive development in infancy and childhood. Emphasis is on major theoretical frameworks for studying cognitive development, and topics such as perception, memory, language, categorization, and reasoning.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8430: Temperament and Personality Development**

(same as H\_D\_FS 8430). Intended for graduate students in psychology and related fields. This course is a survey of theory and research in the area of temperament and personality development, with emphasis on child development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8440: Social and Emotional Development**

(same as H\_D\_FS 8440). There are two major objectives for this course. The first is a "content" objective and involves familiarizing students with theory and research regarding social, emotional, and personality development in childhood and adolescence and also regarding the relationships in which such development takes place. The second objective is a "process" objective and involves enhancing students skills at interpreting empirical research, identifying gaps in the literature, and identifying research strategies for addressing those gaps.

**Credit Hours:** 3

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**PSYCH 8510: Developmental Psychopathology**

Etiology, diagnosis, and treatment of disordered behavior from infancy through adolescence. Emphasizes contrasting theories and research issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8520: Adult Psychopathology**

Problems of etiology, diagnosis, treatment in psychopathology. Considers theory, research, case histories.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8530: Experimental Psychopathology**

Critical examination of current theories, with special emphasis on empirical studies in psychopathology including such topics as alcoholism, enuresis, sexual deviancy, drug addiction, mental retardation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8610: Motivation**

Survey of historical and contemporary theories and models of human motivation. Major emphasis on different levels of motivational analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8620: Personality Psychology**

Graduate-level introduction to the field of personality psychology, including readings and discussion of both classic and contemporary works.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8710: General Linear Models in Psychology I**

Principles of interval estimation and hypothesis testing, scalar and matrix forms of simple and multiple regression with continuous and categorical predictors, regression diagnostics.

**Credit Hours:** 4

**Prerequisites:** undergraduate course in statistics; concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8720: General Linear Models in Psychology II**

Complex analysis of variance; experimental design.

**Credit Hours:** 4

**Prerequisites:** PSYCH 8710 or equivalent, concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8730: Statistical Software Packages**

Computer implementation of data management and statistical analysis. Covers elementary computer operations, data entry and quality control, and computer implementation of statistical models covered in PSYCH 8710 and PSYCH 8720.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 8910: Responsible Conduct of Research**

This course exposes students to important concepts in the responsible conduct of research. Graded on A-F basis only.

**Credit Hour:** 1

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**PSYCH 8920: Social and Behavioral Sciences in Public Health**

(same as P\_HLTH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**PSYCH 9001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9050: Research in Psychology - Non-Dissertation**

Research in Psychology not leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. Departmental consent for repetition

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**PSYCH 9090: Research in Psychology - Dissertation**

Research in Psychology leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9110: Studies in Experimental Psychology**

Critical consideration of selected research in neuroscience and cognitive psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 4972 or PSYCH 4973; departmental consent for repetition; instructor's consent

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**PSYCH 9120: Studies in Physiological Psychology**

Weekly seminars given by local and regional cognitive psychologists and cognitive neuroscientists. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PSYCH 7210, departmental consent for repetition, and instructor's consent

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**PSYCH 9150: Human Learning and Memory**

Current theory and research in the area of human learning and memory will be investigated. A major component of the course will involve the critical review of existing literature in this area.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9210: Psychopharmacology**

Basic principles of drug action on the nervous system, the theory and clinical use of the various psychotherapeutic drugs, drug abuse and its treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9220: Clinical Neuropsychology Seminar**

In this course students will analyze published cases in the neuropsychology literature. By studying how behavioral and mental processes break down, the supposition is that one can infer how intact processes must have been constructed, and how a brain supports them.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**PSYCH 9230: Seminar on fMRI**

Fundamentals of MRI and its application to brain imaging, including experimental design, analysis and contemporary issues. During the lab component, students will use FSL and other software to analyze fMRI data and will design and implement their own fMRI experiments.

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**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9240: Advanced Neural Systems**

The course provides in-depth coverage of the neurophysiology, neuroanatomy, and function of the brain. Course lectures and discussions cover the brain and its systems in a "bottom-up" sequence starting with basic sensory pathways and concluding with higher cognitive functions. The course also includes hands-on laboratory sessions, which include dissection component. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9310: Theories of Social Psychology**

Intensive review of classic and contemporary concepts and theories of social psychology; emphasizes readings from primary sources. PhD candidates only. Required for all PhD candidates in social psychology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9320: Social Psychology Methodology**

Advanced study of experimental methods in social psychological research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9330: Field Research Methods**

Advanced course in research methods and designs commonly used in field settings; theoretical, ethical, and pragmatic issues that arise in field settings are considered; emphasis is on learning and skill acquisition through a series of hands-on assignments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9350: Studies in Social Psychology**

Critical coverage of selected research and theory in social psychology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9360: Seminar in Social Psychology**

Intensive review of concepts and theories of social psychology; emphasizes readings from primary sources. Ph.D. candidates only. Required for all Ph.D. candidates in social psychology program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9365: Positive Psychology**

This seminar will discuss and critique modern research in positive psychology. Each chapter of the textbook provides overviews of positive psychology research topics at various levels of analysis, while providing suggestions for further research. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9440: Studies in Developmental Psychology**

Covers contemporary research and professional topics in developmental psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9460: Studies in Evolution and Behavior**

Reading and discussion of classic and contemporary works in evolution.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9470: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor Consent Required

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**PSYCH 9510: Studies in Clinical Psychology**

Contemporary research and theory for advanced graduate students in clinical psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9515: Orientations in Psychotherapy**

The introductory psychotherapy course for students in the clinical psychology doctoral program. The focus of the course is on development of knowledge and skills in the following four areas: (1) Theory and practice of contemporary (brief) psychotherapy; (2) Basic interviewing skills; (3) Psychotherapy research and empirically supported treatments; and (4) The role and impact of managed care in contemporary psychotherapy.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9520: Psychometrics**

Introduction to concepts and issues essential to psychological assessment including psychometrics, test construction, controversies in psychological testing, behavioral assessment, and structured interviewing.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9525: Orientations to Clinical Assessment**

Topics include psychometric principles, intelligence testing, objective and projective personality testing and behavioral assessment.

**Credit Hours:** 3

**Prerequisites:** PSYCH 9520 and instructor's consent

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**PSYCH 9530: Clinical Child Assessment**

Introduction to clinical instruments, techniques and problems in the psychological assessment of children.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9540: Ethical and Professional Issues II**

Legal issues, state and national codes, ethical decision-making, dangerousness, ethical clinical treatment issues, mandated reporting, and ethics in specialized clinical settings. This course is the second in a sequence for clinical psychology doctoral students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9545: Clinical Practicum**

Intensive supervised training in use and interpretation of psychological techniques and in psychotherapy. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent and professional liability insurance

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**PSYCH 9550: Clinical Intervention with Children**

Introduction to theory, research and practice in the area of behavior change with children and adolescents.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9560: Family and Group Process**

Theory, intervention, and research in the areas of family and group dynamics. Emphasis on family therapy approaches.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9570: Assessment and Treatment of Sexual Problems**

Background information for and methods and techniques of dealing with a variety of sexual problems that clients bring to therapists. Sexual dysfunction, homosexuality, sexual aberrations and sex crimes covered.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9575: Clinical Research Methods**

Focus on research design with emphasis on active critique of methodological challenges (e.g., subject selection, control groups, multimodal measures, and treatment issues), includes lecture and active review or research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9580: Seminar in Clinical Psychology**

Critical coverage of selected research and theory in clinical psychology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9585: Introduction to Alcohol Studies**

Intensive seminar on alcohol research primarily intended for alcohol research training fellows. Covers a range of topics of interest to psychologist, including pharmacology, research methods, genetics, diagnosis, expectancies, and treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9590: Clinical Pediatric Neuropsychology**

The goal of this course is to provide an in-depth introduction to the field of clinical pediatric neuropsychology. Particular emphasis will be placed on how we can increase our understanding of development through the study of individuals with early brain dysfunction.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9710: Multivariate Statistics in Psychology**

Multivariate statistical methods, including multivariate analysis of variance, discriminant analysis, principal component analysis, and elements of matrix algebra, as applied to problems in psychology.

**Credit Hours:** 3

**Prerequisites:** PSCYH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9715: Multilevel Modeling**

Introduction to random coefficient multilevel modeling of clustered data. Topics include two- and three-level models, estimation techniques, computing options, model fitting issues, advanced model applications, and growth modeling.

**Credit Hours:** 3

**Prerequisites:** instructor's consent, a graduate course in regression analysis

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**PSYCH 9720: Latent Variable Models in Statistical Analysis**

Covers Matrix Algebra fundamentals, Factor Rotation, Communality Estimation techniques, High Order and Dynamic Factor Models, Path Analysis, Use of computer programs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and PSYCH 8720

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**PSYCH 9725: The Literature Review**

Focuses on methods for gathering, summarizing, integrating and interpreting research on a particular research issue. Topics include searching the literature, evaluating research quality and synthesizing statistical results across separate studies.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and instructor's consent

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**PSYCH 9735: Psychological Process Models**

Examines mathematical and statistical models of cognition and perception. Emphasis on modeling basics such as estimation, hypothesis testing, and assessment of fit.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720 or instructor's consent

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**PSYCH 9740: Statistical Consulting for Psychologists**

Provision of statistical consulting to individuals working with psychological data. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing in Psychological Sciences and instructor's consent

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**PSYCH 9750: Advanced Structural Equation Modeling**

Growth Mixture Models, Dynamic Factor models, and nonlinear structural models.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 or departmental consent

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**PSYCH 9755: Quantitative Psychology Seminar**

Quantitative Psychology Topics Seminar. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**PSYCH 9760: Categorical Data Analysis**

This course will provide an applied introduction to the most important methods for analyzing categorical data. Topics include; logistic regression modeling Poisson regression modeling, multinomial sampling, and classic analysis of contingency tables.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9765: Cluster Analysis and Network Analysis**

The course covers traditional and modern clustering techniques (hierarchical, partitioning, and mixture modeling), both from an algorithmic and modeling perspective. Several types of data types are explored, including traditional two-mode data sets and network structures.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PSYCH 9780: Item Response Theory I**

Introduction to item response theory, including classical test theory, popular item response models, model estimation, software considerations, and application. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** PSYCH 8710

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**PSYCH 9910: Teaching of Psychology Practicum**

Focuses on development and enhancement of teaching skills for graduate students in psychology who are primary instructors of undergraduate psychology courses. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9920: Advanced History of Psychology**

Advanced course in history of psychology designed to show how general philosophical models of mind and behavior have been linked to doctrines of mental health and pathology and to theories of social behavior.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Public Affairs (PUB\_AF)

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**PUB\_AF 4001: Topics in Public Affairs**

Selected topics in public affairs.

**Credit Hours:** 3

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**PUB\_AF 4700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 7700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7001: Topics in Public Affairs**

Select current topics in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PUB\_AF 7330: Scientific and Technological Aspects Terrorism and Counter Terrorism**

(same as NU\_ENG 7330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**PUB\_AF 7357: Health Economics for Public Affairs**

(same as ECONOM 7357). This course analyzes the economics of health care in the United States with particular attention to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, speculation and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine, as well as an examination of recent proposals and initiatives for health care reform.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8190 or equivalent

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**PUB\_AF 7367: Law and Economics for Public Affairs**

(same as ECONOM 7367). This course is a survey of economic analysis of American legal institutions. Students will apply basic microeconomic, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime and the judiciary.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or ECONOM 3251 and STAT 2500, or equivalent

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**PUB\_AF 7700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 4700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8001: Topics in Public Affairs**

Select current topics in public affairs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8085: Problems in Public Affairs**

Intensive study of an area of public affairs related to the student's special interest.

**Credit Hour:** 1-99

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**PUB\_AF 8150: Collaborative Governance**

Political, economic, and social context of government and public service; examines theories and models of collaborative governance and implications for policy-making, public management, and public service delivery. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8160: Organizational Dynamics and Leadership**

Focuses on understanding human action in administrative situations and on developing personal capacities for effective action in varied and difficult organizational situations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8170: Public Policy Processes and Strategies**

Processes through which public demands are generated, converted into public policy, and implemented. Examines the intersection of politics, policy, and management as well as the diverse strategies and tools of public action. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8171: Environmental Policy**

This course is an introduction to U.S. environmental policy, focusing on important political institutions and political actors. The course provides a survey of the primary laws, regulations, and policies that comprise pollution control and natural resource management policy.

**Credit Hours:** 3

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**PUB\_AF 8172: Health Policy**

(same as P\_HLTH 8300). This seminar will examine the health care system in the United States, including government funded programs, regulation of costs, and policies promoting health behaviors. The course will examine historical development, recent trends, and methods of health policy analysis.

**Credit Hours:** 3

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**PUB\_AF 8173: Education Governance, Finance and Policy**

The course centers on public policy processes as applied to governance, finance and policy in public education. The administrative, political and economic dimensions of policy reform are emphasized. A special focus is placed on developing tools for analyzing and critiquing policy rational, design and implementation.

**Credit Hours:** 3

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**PUB\_AF 8174: Social Policy**

This seminar will examine the nature and extent of poverty in the U.S., its causes and consequences, and the antipoverty effects of existing and proposed government programs and policies.

**Credit Hours:** 3

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**PUB\_AF 8175: Early Childhood Policy**

This course provides an understanding of early childhood development issues and their impact on policy formation. Will study different family situations in the US and other countries (e.g. maternal employment and job policies, divorce, child abuse and neglect) that may be a concern for child policy makers and analysis. In addition we are going to examine the effects of different early childhood programs in the US and other countries around the world. Also, US federal regulations that have an impact on child policy, such as the National Health Policy and Welfare reform will be examined. Will use both qualitative and quantitative criteria to analyze these policies. This course is applied in focus, so by the end of the semester students should be able to understand policy analysis and the trade-offs of implementing policy choices, as well as being able to develop analytical skills for early childhood and family policies in their work. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8177: Energy Economics**

The course examines economic theory and empirical analyses of global energy supply and demand. It examines the role of non-renewable and renewable energy in the economy and trends in energy production and consumption. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8178: Sustainable Energy Policy**

This course examines the concept of sustainability as it applies to energy production and consumption, and explores policy options for achieving sustainable energy use.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8177

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8180: Research Methods and Inquiry in Public Affairs I**

Introduction to research methods for graduate students in public affairs. Topics include measurement, quantitative description, problem definition, the policy research process, and basic analytical tools commonly applied in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8181: Research Methods and Inquiry in Public Affairs II**

Advanced topics and applications in research methods for public affairs. Topics include: multivariate analysis and other advanced quantitative techniques; evaluation of policy research products.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8180 or permission of instructor

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**PUB\_AF 8185: Research Methods and Inquiry in Public Affairs - Mid Career**

Applications in research methods for graduate students in public affairs mid-career program. Topics include: measurement; quantitative description; problem definition; the policy research processes; basic analytical tools commonly applied in public affairs; multivariate analysis and other advanced quantitative techniques; evaluation of policy research products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8190: Economic Analysis for Public Affairs**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8195: Economic Analysis for Public Policy - Mid Career**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8210: Public Service and Democracy**

This course examines some of the challenges of public service in a liberal democracy. It addresses basic questions about the design of institutions through which public power is exercised and about the ethical and administrative obligations of people who work within those institutions. The aim of the course is to provide students with tools for thinking about such questions, and practice addressing them. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8211: MPA Capstone (Applied Project)**

Application of concepts and methods of public affairs to actual policy or management problems. Diagnosis of problem or decision situation, collection of relevant data, development of alternative solutions, recommendations of proposed course of action.

**Credit Hours:** 3

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**PUB\_AF 8280: Public Affairs Internship**

Gives students an opportunity to gain experience in government operations by providing supervised work with an agency at the local, state, or federal level of government or in nonprofit agencies. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8282: Practicum in Public Affairs**

Supervised field experience in an approved community, public agency, or nonprofit organizations. Opportunity for observation and participation under the guidance of a qualified advisor. Formal study of advanced theories and techniques is integrated into the student's experience. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** advanced standing and instructor's consent required

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**PUB\_AF 8310: E-Democracy in Theory and Practice**

Examines the theory and practice of electronic democracy. Uses case studies to assess how information and communication technology affects public involvement in public decisions. Major topics include the methods and tools used in current e-democracy projects as well as the philosophical political, practical and institutional issues faced. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8320: Spatial Analysis for Public Affairs**

Examines theoretical and empirical issues related to the spatial analysis of economic activity and local public issues. Major topics include the role of the public sector, the economics of public services, social accounting matrices, input-output analysis, econometric models of regional economies, and geographic information systems. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8330: Informatics and Governance**

Provides students with a non-technical introduction to the design, implementation and management of information systems for local and regional governance. Surveys key issues for information professionals, including policy planning, design, procurement, staffing, applications and public access and participation. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8340: Regional and Economic Development Policy**

Presents an overview of historical perspectives and current practice in regional development policy. Explores various rationales for regional collaboration. Topics include global and political context of development policy, theories of regional growth and development, regional governance, distribution of benefits and sustainable development. Graded on A-F basis only

**Credit Hours:** 3

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**PUB\_AF 8350: Regional Development Issues and Analysis**

(same as AG\_EC 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**PUB\_AF 8410: Public Policy Workshop**

Application of policy analysis tools and methods onto a specific policy topic or problem. Topics vary depending upon interests of the instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8420 and PUB\_AF 8430

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**PUB\_AF 8420: Public Program Evaluation**

Covers implementation and outcome evaluation models, research design strategies, and data collection methods used to assess the effectiveness of public programs and means of their improvement. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 or equivalent

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**PUB\_AF 8430: Public Policy Analysis**

Uses economic logic and statistical techniques to design, analyze and evaluate public policy. Applies social choice theory, cost/benefit analysis, forecasting, regression analysis, trend analysis, time series methods, and other analytic techniques to policy decision. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 and PUB\_AF 8190 or equivalent, or permission of instructor

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**PUB\_AF 8510: Public Budgeting and Taxation**

Intensive study of the institutions, processes, politics, and social and economic impact of public taxation and expenditures.

**Credit Hours:** 3

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**PUB\_AF 8520: Human Resources Management and Development in Public and Nonprofit Sector**

Examines the political, economic, and legal context of the personnel function, as well as the technical aspects of the personnel administrator's job. Stresses the dynamics of bureaucratic organizations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8530: Strategic Management of Public Service Organizations: People, Information and Money**

Presents the rationale for strategic planning, and techniques and processes to develop and implement strategic planning in the public sector. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8540: Local Government Management**

Organization and division of service responsibility within local governments. Problems of managing delivery of services with special emphasis upon program implementation, productivity, planning, responsiveness. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8610: Group Dynamics and Conflict Resolution**

Focuses on the study of group psychology in the context of communities and organizations. It provides a specific examination of the emergence and resolution of conflict. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8620: Organizational Analysis and Change**

Investigates processes and methodologies of organizational diagnosis, intervention strategies, and the role of a change agent. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8630: Organizational Change in a Community and Global Context**

Examines changing organizations in their task environments, which include communities and the global economy. The phenomenon of ambiguous boundaries between public and private as well as nonprofit sectors will be investigated as these profound changes impact organizational behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8710: The Nonprofit and Voluntary Sector**

Provides an overview of the history, function, size, scope, development, and management of the nonprofit sector. Historical, political, economic, and social perspectives are used to examine the meaning of voluntarism, charity, philanthropy, and the nonprofit sector. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8720: Budgeting and Financial Management in the Nonprofit Sector**

Nature and environment of public and nonprofit financial administration. Principles of accountability for management of public and nonprofit funds; management and investment of cash balances; special problems related to long- and short-term debt. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8830: Grant Writing I**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a letter proposal. They will experience the peer review process both as applicant and reviewer. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8831: Grant Writing II**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a full-blown state or federal grant proposal. They will experience the peer review process both as applicant and reviewer. The course will cover a variety of funding sources and a range of funding types to provide students with an information base for preparing future grant applications.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8830

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**PUB\_AF 8832: Sponsor Relationships**

Provides students with knowledge of the landscape and culture of grant seeking with an emphasis on understanding how private and public sector sponsors are in many ways, significantly different enterprises. Students will gain an understanding of the pivotal role relationships play in grant seeking and gain an appreciation of the particularities and rigors of both public and private grant seeking.

**Credit Hours:** 3**Prerequisites:** Proposed Grant Writing 2 course

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**PUB\_AF 8833: Grant Award Management**

Provides students with knowledge regarding the process and policies entailed in managing grant awards. Course content includes federal OMB circulars, basic human resource issues, project management strategies, reporting obligations, and project close-out.

**Credit Hours:** 3**Prerequisites:** Proposed Grant Writing 2 course

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**PUB\_AF 8850: Policies and Institutions of the European Union**

Policies and Institutions of the European Union

**Credit Hours:** 3

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**PUB\_AF 8860: International Comparative Rural Policy**

(same as AG\_EC 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** instructor's consent

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**PUB\_AF 8864: Administrative Law**

(same as LAW 5310). Principles, factors and statutory provisions which govern availability of relief (both judicial and administrative) to persons or entities aggrieved by the actions or inactions of governmental officials or agencies. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 9000: Directed Individual Study**

Supervised readings and research in area of doctoral specialization. Student must submit formal written proposal to doctoral supervising faculty member prior to registration. May be repeated up to 6 hours.

**Credit Hours:** 3**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9090: Dissertation**

Independent research for Ph.D. dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9150: Governance and Public Affairs**

Examines theories of governance, the role of the state and other social institutions. Other topics include administrative reform, the new public management, and the emergence of the multi-sector public service.

International comparative dimensions emphasized. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PUB\_AF 8150, PhD standing or permission of professor

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**PUB\_AF 9160: Organization Studies in Public Affairs**

Examines theories of public and nonprofit organizations, including classical and contemporary perspectives in organization science; individual and group behavior; leadership, power and influence; organization design and structure; and organizational culture. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9170: Policy Theory**

This seminar examines theories on the policy process, institutions, and delegation of power that influence public policy. Topics covered may include agenda setting, policy design, implementation, legislative decision-making, state political institutions, and federalism. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9171: Political Economy of Public Affairs**

Course focuses on formal theories of public decision-making, collective choice and strategic interaction of public actors in the policy process using tools such as welfare economics, social choice, game theory, logic of collective action, public choice, and principal agent models. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PhD standing or instructor's consent

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**PUB\_AF 9180: Advanced Research Methods for Public Affairs I**

Focuses on multiple regression analysis, the implications and treatment of serial correlation, heteroskedasticity, multicollinearity, specification error, and measurement error. Students estimate models, use diagnostic information, and interpret and present findings for public affairs. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PUB\_AF 8180 or equivalent, PhD standing or permission of instructor

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**PUB\_AF 9181: Advanced Research Methods for Public Affairs II**

The seminar examines statistical modeling tools for limited dependent variables and complex data situations, such as time-series cross-sectional data, clustered observations, and multilevel data. Other topics include simultaneous equation models and instrument variable in public affairs. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PUB\_AF 9180 or equivalent, PhD standing or permission of instructor

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**PUB\_AF 9182: Logics of Inquiry in Public Affairs**

This course examines the philosophical foundations of social inquiry public affairs. Topics include investigation of epistemological and

methodological issues in development and use of social research, and exploration of the theoretical underpinnings of multiple paradigms in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9183: Public Affairs Research and Professional Development Seminar**

Research and professional development through participation in research seminars, colloquia, academic conferences, lectures, and professional workshops. Students required to register every spring semester in residence. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9185: Supervised Research**

Research experience directed by major professor designed to prepare doctoral students for independent scholarship in area of doctoral specialization.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8150, PhD standing or permission of instructor

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**PUB\_AF 9446: Advanced Empirical Methods**

(same as ECONOM 9446). Empirical and modeling techniques for evaluation of microeconomic policy questions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructors consent or PUB\_AF 8181, PUB\_AF 9180, and PUB\_AF 9181

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**PUB\_AF 9447: Topics in Microeconomic Policy Analysis**

(same as ECONOM 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** PUB\_AF 8181, PUB\_AF 9180 and PUB\_AF 9181

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## Public Health (P\_HLTH)

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**P\_HLTH 7001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hours:** 3

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**P\_HLTH 7085: Problems in Public Health**

Guided readings, intensive study of an area in Public Health related to special interest of student or an area in which the student needs to strengthen. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**P\_HLTH 7150: Principles of Public Health**

This course provides an overview of public health, including concentration areas of public health systems, epidemiology, social and behavioral determinants of health, environmental health, and public health policy. Case studies from local, state, national and international public health issues are incorporated into each segment, culminating in a discussion of the future of public health.

**Credit Hours:** 3

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**P\_HLTH 7160: Interdisciplinary Perspectives in Global Health**

This course is designed for those interested in health issues from a global perspective. It explores contemporary issues, problems, and controversies in global health through an interdisciplinary perspective. This course will follow a lecture and case study discussion format. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**P\_HLTH 7750: Physical Function and Older Adults**

(same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, H\_D\_FS 7750, NURSE 7750, and SOC\_WK 7752). This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7800: Public Health Campaign Successes and Failures**

Explains public health campaigns from assessing needs to planning and implementing interventions, as well as taking lessons learned from previous public health campaigns to create strategies that increase the likelihood of success and reduce the chance of failure. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7850: Mental Health Policy**

This course is an introductory survey of the principles and practice of mental health policy, beginning with its early history and continuing to the present day. Topics will include the nature of mental illness, its incidence and prevalence, mental health stigma, policy concerns related to mental health finance, the process of policy making, involvement of mental health care consumers in the policy process, and mental health in health policy reform. The needs of special populations including the homeless, persons in the criminal justice system, ethnic/minority groups, persons living in rural areas and veterans will be examined as well as needs specific to children and the elderly. Students are also expected to understand mental health policy considerations related to current health

care reform and ethical issues in the practice of mental health policy.  
Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7952: Research Methods in Public Health**

This course is designed to introduce students to the process of research as a sequence of events, systematically organized to further knowledge. A scientific and conceptual stance to knowledge development is emphasized, along with the importance of the empirical approach in establishing relationships between theories, concepts, and behavior phenomena. May be repeated for credit.

**Credit Hours:** 3

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**P\_HLTH 8001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hour:** 1-3

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**P\_HLTH 8085: Problems in Public Health**

Guided readings, intensive study of an area in Public Health related to special interest of student or an area in which the student needs to strengthen.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. May be repeated for credit

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**P\_HLTH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. May only be repeated for credit for six hours. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** P\_HLTH 8980. Instructor's consent required

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**P\_HLTH 8120: Applied Epidemiology in Community Assessment**

The purpose of this course is to enable students to gain skills and abilities in assessing population groups and determining their priority public health problems. Students will consider a variety of strategies for empowering and mobilizing populations in collaborative public health efforts. Communication skills are key to the community assessment and intervention process, particularly in translating epidemiological data to lay audiences, and advocating for action. Students will be challenged to communicate public health issues effectively both on-line and in writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_HLTH 7952

**Prerequisites:** P\_HLTH 8420, Graduate level Statistics (STAT 7020 or STAT 7410)

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**P\_HLTH 8150: Human Health and the Environment**

This graduate level course will address threats to public health related to environmental factors including biological, physical and chemical factors. Subjects will include environmental contamination and remediation, zoonotic disease food and water quality. This course will include recorded lectures with optional synchronous participation. Lectures will be recorded live and students will have the option to virtually attend live lecture, but this will not be required. Lecture recordings are archived for students to view at their convenience. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8250: Equity and Disparities in Health**

(same as SOC\_WK 8250). This course is designed to provide students with knowledge about the distribution, causes, and consequences of health inequalities. The course will examine how multiple predictors such as socioeconomic status, behavioral risk factors, and cultural factors such as perceived discrimination and acculturation, gender and marriage, stigma, and health care inequalities are related with racial/ethnic, socioeconomic, and gender disparities in health. This course will also discuss implications that may contribute substantively toward the elimination of health inequalities.

**Credit Hours:** 3

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**P\_HLTH 8251: Immigrant Health**

Public health professions have considerable interest in understanding the unique health concerns of immigrants, in order to prevent disease, promote health, and prolong life in this specific population and in the population as a whole. This course will be based on readings in the peer-reviewed literature, discussion in a seminar format, community visits and observations/interviews, and guest speakers on topics of importance when considering issues of public health particular to immigrant communities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**P\_HLTH 8260: Emergency Preparedness**

An overview of current national guidance and basic assessment of the current health care system level of readiness focusing on the critical role of the health care system for community, regional, state, and nationally based emergency preparedness efforts. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8270: Storytelling in Public Health and Public Policy**

Storytelling for public health and public policy offers students an opportunity to become familiar with the literature and theoretical frameworks underlying the use of narrative and digital storytelling in public health and policy advocacy and public health interventions focused on behavior change. Students will review case studies of effective narrative communication and practice elements of effective storytelling in a variety of print and digital platforms. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8280: Biosafety and Laboratory Issues in Public Health**

This course is designed to provide current worldwide guidance on laboratory issues & bio-safety with respect to conducting field epidemiology. This integration has recently been given media exposure with recent outbreaks of infectious disease, food-borne illnesses in the food supply, & also recently in Hollywood filmography (see Contagion, 2011 & Outbreak, 1995). While bio-safety, epidemiology, & laboratory medicine are disciplines that are closely interrelated, they are not always optimally connected on functional & organizational levels. This course will provide an overview of the field of biological safety (shorthand to 'bio-safety') & its application to epidemiology & laboratory medicine for the control biological hazards for students at all levels who are interested in the epidemiology of microbial diseases. Students will review biological hazards associated with occupational laboratory acquired infections,

& examine select case studies to identify critical bio-safety lapses & outbreak scenarios of food borne illness using epidemiological tools. The course will teach participants how to perform a comprehensive qualitative risk assessment for the use bio-hazards in the laboratory & learn how to employ the control strategies to appropriately manage these risks for field epidemiology. This course will also convey the laboratory perspective of public health investigations to field epidemiologists in order to improve collaboration between these disciplines & to enhance the quality of field investigations as well as day-to-day interaction. Course concepts can be applied to the control of bio-hazards during the review of proposed research involving bio-hazards, along with emphasizing protective measures when addressing incidents involving bio-hazards, such as emergency spills or bio-terrorism related events. In addition, coverage of the Select Agent Program & the additional security practices entailed with research will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent

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**P\_HLTH 8300: Health Care in the United States**

(same as PUB\_AF 8172). Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8400: Clinical Veterinary Regulatory Medicine and Public Health**

(same as V\_M\_S 8400). The goal of this course is to familiarize the student with clinical aspects of veterinary public health/regulatory medicine. Must be enrolled in MPH (veterinary public health concentration) or DVM curriculum.

**Credit Hours:** 2

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**P\_HLTH 8420: Principles of Epidemiology**

This course is intended to provide a general introduction to the course epidemiological concepts and methods as grounded in the essential services of public health. The focus of the course is on developing critical thinking skills and providing a foundation in applied epidemiologic competencies. May be repeated for credit. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** graduate level statistics; instructor's consent

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**P\_HLTH 8620: Emerging Zoonoses Diseases**

This course will enhance student understanding of epidemiology and ecology as it relates to emerging and established zoonotic diseases. Risk factors for the emergence of and mechanisms for control and prevention of zoonotic diseases will be discussed. Course will involve individual and group assignments, use of discussion board, and several blackboard collaborate sessions. Blackboard collaborate sessions (time is TBA) will be held throughout the semester as an introduction to course modules and for help sessions. Students must have audio capability (microphone and speakers) for the course. Built in microphones and speakers work nicely, an inexpensive headset helps screen out background noise. If your computer does not have a built in microphone, an inexpensive one can be purchased at an electronics/computer store. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455 and P\_HLTH 8150

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**P\_HLTH 8625: Data Analysis for Health Researchers**

The goal of this course is to introduce students to the systematic approach to data analysis, statistical computing, correct interpretation and presentation of results. Note that mathematical equations or their derivations forms are not emphasized. However, candidates taking this course are required to have a basic understanding of the epidemiologic and statistical principles and data analysis. The course is not expected to convert you into an expert data analyst within 16 weeks but upon completing the course, you will have acquired skills needed to analyze and interpret cohort, case-control and cross-sectional studies by cross tabulations, stratification, and regression. In addition, you will be able to build and interpret findings from complex multivariable models after controlling for confounding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455, STAT 7020

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**P\_HLTH 8920: Social and Behavioral Sciences in Public Health**

(same as PSYCH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**P\_HLTH 8921: Assessment of Population Health and Field Epidemiology**

Assessment in public health including outbreak investigation, surveillance, infectious disease, and environmental epidemiology. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate level statistics, basic graduate level epidemiology. Instructor's consent required

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**P\_HLTH 8953: Evaluating Global Public Health Programs**

This course is designed to prepare students to evaluate global public health programs, preferably in developing countries. Students will identify a global public health issue, find one or more global health intervention or prevention programs, evaluate the programs using principles of evaluation research methods, and suggest implications for global public health promotion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 7952 or P\_HLTH 8420

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**P\_HLTH 8970: Public Health Capstone**

As an integrating experience, the Public Health Capstone will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring areas of knowledge the students identify as most relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education.

**Credit Hours:** 3

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**P\_HLTH 8971: Veterinary Public Health Capstone**

This capstone experience provides a unique set of opportunities and responsibilities. It is generally scheduled after completion of at least 2 semesters of the MPH curriculum and is designed to serve as a capstone experience integrating previous coursework and experiences. Exceptions to the requirement of completion of 2 semesters of MPH coursework will be granted for students who have completed or concurrent degree. Examples of relevant preparatory coursework will include epidemiology and veterinary public health. As an integrating experience, the capstone will require students to apply knowledge in an independent manner, integrate knowledge into cohesive production, and communicate the results of this experience.

**Credit Hour:** 1-99

**Prerequisites:** completion of at least 2 semester of MPH curriculum

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**P\_HLTH 8980: Public Health Internship**

The field experience, or internship, is an opportunity for the student to test many of the theories, concepts, and information about public health learned during the first year and translate them into practice. Using the internship site as the "organizational laboratory," the student begins to develop the necessary professional skill sets for becoming a successful public health professional. The current knowledge, skills, abilities, and experiences will continue to develop and grow as each student becomes a life-long learner and practitioner of public health. Graded on S/U basis only.

**Credit Hour:** 1-99

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## **Radiologic Sciences (RA\_SCI)**

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**RA\_SCI 1000: Introduction to Radiography**

Overview of radiography through small group discussions and onsite visitations in radiology departments. Graded on S/U basis only.

**Credit Hour:** 1

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**RA\_SCI 3110: Radiography Procedures I**

This course is an introduction to basic radiographic positioning and procedures. Specific radiographic procedures of the chest, upper extremity, shoulder girdle, pelvis and lower extremity are taught.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3120: Fundamentals of Radiography**

Orientation to radiology department, ethics, psychodynamics of patient care, medical legal considerations and radiation safety procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3130: Basic Radiographic Skills**

Radiographic film processing techniques, intensifying screens and sensitometry will be discussed. The x-ray tube, x-ray production and

some of the factors which affect the quantity and quality of the x-ray beam as well as the x-ray image will also be introduced.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3140: Principles in Radiographic Exposure I**

Theory and principles of X-ray technique; correlation of factors with application.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3150: Radiologic Pharmacology**

Pharmacological principles, biopharmaceutics, pharmacokinetics, pharmacodynamics, drug classifications, drug names, administration routes, and infection prevention and control will be covered. Attention will be given to contrast agents relative to radiographic imaging. Ethical and legal implications will be explored.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3160: Radiologic Physics**

Fundamental physics of electricity and radiant energy; principles of generation of electromagnetic radiation and applicable equipment; and principles of digital image capture, display and storage.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3170: Imaging Modalities**

The study of radiographic and fluoroscopic equipment with attention to automatic exposure devices, image intensification, and imaging detectors. Consideration will be given to equipment in such modalities as computed tomography, magnetic resonance imaging, ultrasound, nuclear medicine and radiation therapy.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3180: Radiography Procedures II**

Instruction in radiographic procedures of the upper and lower gastrointestinal system, urinary system, bony thorax, vertebral column, and cranium.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3190: Radiography Procedures III**

Instructions in advanced radiographic imaging techniques with emphasis in trauma radiography, vascular studies and other specialty radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3460: Cardiovascular and Pulmonary Diagnostic Applications I**

(same as CDS 3460). Problem-based study of cardiopulmonary anatomy and physiology using current imaging methods. Emphasis given to assessment of the acutely distressed cardiac or pulmonary subject, emergency pulmonary support and vascular access techniques.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 3941: Clinical Education I**

First in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing radiographic procedures of the chest, abdomen, and extremities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3942: Clinical Education II**

Second in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the development of technical skills and procedural knowledge of routine radiographic procedures,

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4085: Problems in Medical Imaging**

Supervise investigation in an aspect of medical imaging science usually culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RA\_SCI 4110: Sectional Anatomy**

(same as DMU 4312; cross-leveled with RA\_SCI 7110, DMU 7312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RA\_SCI 4140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 7140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 7150). Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4303: Radiation Safety**

(same as NU\_ENG 4303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

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**RA\_SCI 4440: Organization and Administration**

(same as RS\_THR 4440 and CDS 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**RA\_SCI 4943: Clinical Education III**

Third in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the transition to self-directed practice of routine radiographic procedures and the development of technical skills and procedural knowledge of more advanced radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Science, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4944: Clinical Education IV**

Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4945: Clinical Education V**

Final clinical course. Supervised clinical experience emphasizing self-directed performance of complex radiographic procedures, continued competency in routine diagnostic radiography and the investigation of advanced modalities, while transitioning to reflective, critical, and strategic professional practice.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Sciences students only

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**RA\_SCI 4946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 7946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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**RA\_SCI 4947: Radiography Overview**

A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980: Imaging Pathology**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980W: Imaging Pathology - Writing Intensive**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 7110: Sectional Anatomy**

(same as DMU 7312; cross-leveled with RA\_SCI 4110, DMU 4312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent required

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**RA\_SCI 7140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 4140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor consent

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**RA\_SCI 7150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 4150). Computed tomography (CT) imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor's consent required

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**RA\_SCI 7303: Radiation Safety**

(same as NU\_ENG 7303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

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**RA\_SCI 7946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 4946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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## Radiology (RADIOL)

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**RADIOL 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**RADIOL 6371: ABS Radiology Mechanism of Disease**

ABS Radiology Mechanism of Disease

**Credit Hour:** 5-10

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**RADIOL 6373: ABS Radiology Research**

ABS Radiology Research

**Credit Hour:** 5-10

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**RADIOL 6375: ABS Radiology Research and Review**

ABS Radiology Research and Review

**Credit Hour:** 5-10

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**RADIOL 6645: Radiology**

Goals/Objectives: General survey of all subspecialties of radiology. Evaluations: Written evaluations performed by both faculty and residents.

**Credit Hours:** 5

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**RADIOL 6650: Advanced Radiology**

Advanced Radiology

**Credit Hours:** 5

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**RADIOL 6745: Radiology - Rural**

Radiology - Rural

**Credit Hours:** 5**RADIOL 6931: Introduction to Radiology**

This two week elective will provide students with exposure to chest and body imaging (1 week per area). They will participate in 2-3 didactic sessions focused on the basics of radiology and imaging that is important to all fields of medicine, as well as video lectures one day a week along with the upperclassmen that are doing their 4 week elective at that time. Videos present a case based learning plan involving common emergent situations that may be encountered during their clinical training.

**Credit Hours:** 2**Prerequisites:** successful completion of the first two years of medical school**RADIOL 7328: Introductory Radiation Biology**

(same as BIO\_SC 7328, NU\_ENG 7328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent**RADIOL 8085: Problems in Radiology**

Supervised investigation in an aspect of radiological science usually culminating in a written report.

**Credit Hour:** 1-3**RADIOL 8090: Problems in Radiology**

Supervised investigation in an aspect of radiological science usually culminating in a written report.

**Credit Hour:** 1-3

## Religious Studies (REL\_ST)

**REL\_ST 1100: Introduction to Religion**

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3**Prerequisites:** Sections are restricted to Freshmen and Sophomores only or Juniors and Seniors only**REL\_ST 1100H: Introduction to Religion - Honors**

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3**Prerequisites:** Sections are restricted to Freshman and Sophomores only and Juniors and Seniors only. Honors eligibility required**REL\_ST 1500: Religion and Culture**

The study of religion as expressed in art, literature, music, dance, drama, architecture.

**Credit Hours:** 3**Prerequisites:** Restricted to Freshmen and Sophomores only**REL\_ST 1820: Asian Humanities**

(same as AR\_H\_A 1230, HIST 1820, and S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3**REL\_ST 1820H: Asian Humanities - Honors**

(same as AR\_H\_A 1230, HIST 1820, S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required**REL\_ST 2001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3**REL\_ST 2005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hour:** 1-3**REL\_ST 2100: Indigenous Religions**

(same as ANTHRO 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific groups, it considers individual and group identity, the meaning of the sacred, and the impact of foreign domination.

**Credit Hours:** 3**REL\_ST 2100H: Indigenous Religions - Honors**

(same as ANTHRO 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required**REL\_ST 2110: Religions of the World**

This course introduces students to a variety of religious traditions through the study of their myths, rituals, beliefs, and practices, and explores approaches to the academic study of religion.

**Credit Hours:** 3



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**REL\_ST 2110H: Religions of the World - Honors**

Explores the differing ways in which Asian and Western religions interpret life and reality. Includes study of Hinduism, Buddhism, Chinese and Japanese religions, Judaism, Christianity, and Islam.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2220: Death and Dying in the Western World**

Death is a topic most Americans wish to avoid. Once we were very familiar with it since people before the mid-19th c. usually died at home, their bodies mourned at home, and then buried either in a designated public space or on their property (especially in the South). Today, most people die in hospitals or medical-oriented institutions (like nursing homes). Because death is so hidden (even disguised) most of us have never seen a dead body except in film or on television and those bodies are often a result of an exceptionally gruesome, yet highly staged death. Hidden death in everyday life has led to the fact that most Americans are unfamiliar with death and even outright afraid of it. People unconsciously treat death, the process of dying, and grief as a sort of infectious disease. However, death surrounds us both personally and collectively and this means that the living and the dead do not exist (and have never existed) in completely separate realms. This class explores how death has historically been approached in the Western world and familiarizes us with different types of death (natural death, death by execution, death from illness, and death by murder). Using a religious studies and American studies approach we will examine overarching themes of grief, loss, mourning, and even anger in association with death and dying.

**Credit Hour:** 1-3

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**REL\_ST 2230: Religion and Popular Culture in the U.S.**

Explores intersections of religion and popular culture and methods for analysis.

**Credit Hours:** 3

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**REL\_ST 2240: Harry Potter, Magic, and Religion**

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups.

**Credit Hours:** 3

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**REL\_ST 2240H: Harry Potter, Magic, and Religion - Honors**

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2250: Religious Perspectives on Peace and War**

This course explores religious justification for war as well as religious perspectives on peacemaking. We engage these issues through the investigation of a variety of religious leaders and traditions, drawing from contemporary and historical examples. Traditions studied can include Jewish, Christians, Buddhist, Hindu, Islamic, and indigenous illustrations.

**Credit Hours:** 3

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**REL\_ST 2260: Gods, Dwarves, and Dragons: Introduction to Old Norse Mythology**

This course is an introduction to the pre-Christian religion and mythology of Northern Europe. Topics covered include Old Norse society, gender roles, and values. Main deities and mythological figures are explored through images and texts. Graded on A-F basis only.

**Credit Hours:** 2

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**REL\_ST 2270: Religion and Literature**

This course explores religious themes such as myth, rituals and rites, sacred power, transcendence, salvation, and pilgrimage in secular literature. Selections in English, include novels and short stories from a variety of cultures and religious traditions.

**Credit Hours:** 3

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**REL\_ST 2270H: Modern Literature and the Quest for Values - Honors**

This course is an interdisciplinary study of the religious and ethical questions, quests, and solutions in the literary works of selected modern writers: Beckett, Eliot, Camus, Kazantzakis, O'Connor, Updike, Wiesel, Percy and Morrison.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2280: Biblical Themes in American Literature**

This course is a study of the reinterpretation of Hebrew scriptures and New Testament sources in classic American texts. The works of Melville, Faulkner, MacLeish, Baldwin, O'Connor, Updike, Percy, and Morrison create a history of certain American ideas as they transform traditional biblical figures and ideas.

**Credit Hours:** 3

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**REL\_ST 2280H: Biblical Themes in American Literature - Honors**

A study of the sources in the Hebrew Scriptures and the New Testament and their reinterpretation in classic American texts. Such a study, initially textual, results in a history of American ideas. Authors studied include MacLeish, Baldwin, O'Connor, Updike, Percy and Morrison.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2310: Religions of China and Japan**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

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**REL\_ST 2310H: Religions of China and Japan - Honors**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

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**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2410: Essential Stories and Ideas of the Torah**

Students will examine major narratives and texts from the Pentateuch section of Hebrew Bible. This class will present such ancient, medieval, and contemporary interpretations that will demonstrate how biblical texts could be construed in more than one way.

**Credit Hours:** 3

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**REL\_ST 2420: Jewish Ethics**

The study and discussion of selected traditional and modern Jewish ethics (e.g., anger, fair speech, gratitude, charity, the animal world) that derive from ancient sources such as the Hebrew Bible, the Talmud, Rabbinic commentaries and contemporary resources.

**Credit Hours:** 3

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**REL\_ST 2450: The Holocaust and Reflections on Genocide**

Examines the nature of genocide as an historical phenomenon using the Holocaust as the primary case study.

**Credit Hours:** 3

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**REL\_ST 2500: Introduction to the Hebrew Bible and its World**

An introduction to the literature of the Hebrew Bible in its Ancient Near Eastern cultural context. Students are exposed to the art, archaeology, literature, and histories of the great civilizations of the ANE and their impact on Israelite history and the formation of the Hebrew Bible. Emphasis is placed on the development and changes in Israelite theology in response to historical circumstances over the centuries that witnessed the Hebrew Bible's composition, compilation, and canonization.

**Credit Hours:** 3

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**REL\_ST 2500H: Introduction to the Hebrew Bible and its World - Honors**

An introduction to the literature of the Hebrew Bible in its Ancient Near Eastern cultural context. Students are exposed to the art, archaeology, literature, and histories of the great civilizations of the ANE and their impact on Israelite history and the formation of the Hebrew Bible. Emphasis is placed on the development and changes in Israelite theology in response to historical circumstances over the centuries that witnessed the Hebrew Bible's composition, compilation, and canonization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2510: Introduction to the New Testament and its World**

An introduction to the books of the New Testament and the methods and principles guiding its academic study. Emphasis is placed on Jesus' and his disciples' Jewish heritage and the relationship and interactions between Judaism and Christianity over the decades the NT books were written and compiled. Attention is given to the character of the Roman world in which Christianity grew and found the bulk of its converts. Finally, stress is given to the texts that were not accepted into the canonical NT, the Christians whose views those texts represent, and their differences from those Christians whose views became orthodox.

**Credit Hours:** 3

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**REL\_ST 2510H: Introduction to the New Testament - Honors**

An introduction to the books of the New Testament and the methods and principles guiding its academic study. Emphasis is placed on Jesus' and his disciples' Jewish heritage and the relationship and interactions between Judaism and Christianity over the decades the NT books were written and compiled. Attention is given to the character of the Roman world in which Christianity grew and found the bulk of its converts. Finally, stress is given to the texts that were not accepted into the canonical NT, the Christians whose views those texts represent, and their differences from those Christians whose views became orthodox.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2600: Early Christianity**

(same as HIST 2600). History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodoxy Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world.

**Credit Hours:** 3

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**REL\_ST 2600H: Early Christianity - Honors**

History of Christian practices and teachings from Christian origins through the 8th century, including Eastern Orthodoxy Syrian Christianity, Roman Catholicism. Themes such as interpretation and creation of Scriptures, worship style, central rituals, debates about right teaching (orthodoxy) mysticism and developing lifestyles both in and apart from the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2610: Medieval Christianity**

(same as HIST 2610). History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

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**REL\_ST 2610H: Medieval Christianity - Honors**

History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2620: History of Christianity, 1500-Present**

(same as HIST 2620). History of Christian practices and teachings from the 15th - 21st centuries, including global dimensions of Orthodox, Catholic, Protestant and other forms of Christianity. Themes such as right teaching and practice, indigenous-Christian contact, mission and expansion, impact of secular theories, contemporary debates.

**Credit Hours:** 3

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**REL\_ST 2620H: History of Christianity, 1500-Present - Honors**

History of Christian practices and teachings from the 15th - 21st centuries, including global dimensions of Orthodox, Catholic, Protestant and other forms of Christianity. Themes such as right teaching and practice, indigenous-Christian contact, mission and expansion, impact of secular theories, contemporary debates.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2630: History of Christian Traditions**

(same as HIST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topic will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy. May be repeated for credit.

**Credit Hours:** 3

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**REL\_ST 2700: Islam**

Examines the historical development of Islamic traditions, noting the manner in which various sects & factions understand religion, humanity and God.

**Credit Hours:** 3

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**REL\_ST 2860: Religious History of the Middle East II**

This course is a historical introduction to the religions of the pre-modern and modern Middle East. It follows the histories of Judaism, Christianity, and Islam from the defeat of the Mongol army in Palestine in 1260 to the present day. In particular it focuses on the social, political, and economic interactions of the Jewish, Christian, and Muslim populations, and the role religion has (and has not) played in the formation and development of the modern Middle East. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2900: Contemporary Religious Thought**

Explores issues within contemporary Christian theology that cut across denominational lines such as: the nature and existence of God; secularization, relativism, and humanism; the authority of the Bible; attitudes toward other religions; the moral integrity of Christianity; and the purpose of human existence.

**Credit Hours:** 3

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**REL\_ST 2910: Religion and Contemporary Social Issues**

Study of the social ethics of Jewish and Christian theologians and movements of the 19th and 20th centuries and an examination of selected social problems in light of these systems.

**Credit Hours:** 3

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**REL\_ST 2920: Images of Good and Evil**

Study of the symbols and myths which explore the nature and power of good and evil. Includes examination of the music, art and literature of both ancient and contemporary religions.

**Credit Hours:** 3

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**REL\_ST 2930: Religion and Psychological Perspectives**

Examines how religion is understood from various psychological perspectives, and how psychological theories reflect religious presuppositions about the nature and purpose of human life.

**Credit Hours:** 3

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**REL\_ST 2939: Religion and Human Sexuality**

Examines attitudes within the Christian tradition toward sexuality, with particular reference to the alternatives of patriarchy and feminism, especially as they consider issues such as the meaning of bodilyness, masturbation, pornography, prostitution, homosexuality and sexual pluralism.

**Credit Hours:** 3

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**REL\_ST 2940: African Religions**

(same as BL\_STU 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures are will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2950: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May not be repeated.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**REL\_ST 3000: History of Religion in America to the Civil War**

(same as HIST 3000). Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3000H: History of Religion in America to the Civil War - Honors**

Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent. Honors eligibility required

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**REL\_ST 3001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 3005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 3042: Sacred Humor: Tricksters, Clowns, and Contraries**

This class will explore the notion that humor plays an important role in conveying sacred meaning. To that end, we will need to adopt a fairly common vocabulary regarding the concepts "humor" and "sacred," and will do so while exploring some of the key aspects of the sacred humor discourse, especially the "trickster," "clown," and "contrary" motifs in mythic narrative.

**Credit Hours:** 3

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**REL\_ST 3100: Religious Literacy for the Public and Professions**

This course teaches students to engage and encounter religion in day-to-day life and in the professional workplace. Its primary goal is to examine religious diversity in private and professional contexts from a practical standpoint by examining a variety of case studies.

**Credit Hours:** 3

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**REL\_ST 3200: Hinduism**

(same as S\_A\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga, and meditation, Indian religious thought, and devotional Hinduism.

**Credit Hours:** 3

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**REL\_ST 3210: History of Religion in Post-Civil War America**

(same as HIST 3210). Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments.

**Credit Hours:** 3

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**REL\_ST 3210H: History of Religion in Post-Civil War America - Honors**

Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments. Prerequisites: Honors Eligibility Required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3220: Tibetan Buddhism**

This course explores the Buddhist tradition in Tibet, from its introduction in the 8th century to the present. Topics include the merger of Indian Buddhism with the local Bon religion, the relationship between Tibetan Buddhism and Mahayana Buddhism, the Tibetan Buddhist canon, lamas and tulkus, religion and material culture in Tibet, and the influence of Tibetan Buddhism in Central Asia. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3230: Buddhism and Environmental Ethics**

(same as S\_A\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**REL\_ST 3240: Buddhism of South and Southeast Asia**

(same as S\_A\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in South and Southeast Asia.

**Credit Hours:** 3

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**REL\_ST 3250: Buddhism in East Asia**

This course will trace the transmission of Buddhism from the Indian subcontinent to China, and from there to Korea and Japan. We will examine the historical development of East Asian forms of Buddhism, deal with key issues of Buddhist thought and practice, and look at the role of Buddhism in modern East Asian societies.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2110, REL\_ST 2300, REL\_ST 2310 or REL\_ST 3200, or instructor's consent

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**REL\_ST 3260: Hindu Goddesses**

(same as S\_A\_ST 3261). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**REL\_ST 3270: Yoga and Meditation in the Modern World**

This course explores the practice of Yoga and meditation, both as an ancient tradition of India and as an example of the globalization of religion. It will examine how the ancient Hindu religious tradition of Yoga was reinvented against the backdrop of India's colonial experience. Then it will look at a variety of emerging and transforming varieties of Hindu inspired yoga and meditation that spread globally in the context of increasing transnational interaction. To better appreciate both the traditional and the modern aspects of yoga and meditation, a secular meditation practice is included as an instructional and experiential component of this class.

**Credit Hours:** 4

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**REL\_ST 3280: Chinese Popular Religion**

Starting with a consideration of conceptual issues (what is 'popular religion?'), the course will give a survey of the beliefs and practices of Chinese popular religion, including ancestor worship, territorial cults, spirit-mediumism, divination, and popular sects.

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**Credit Hours:** 3

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**REL\_ST 3300: The Prophets**

Study of the prophetic writings of the Hebrew Scriptures, with consideration of the origin and nature of Israelite prophecy. Includes the narratives of the period of prophetic activity and study of the classical prophets.

**Credit Hours:** 3

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**REL\_ST 3310: The Problem of Evil: Theodicy in the Ancient Near East**

A comparative study of Ancient Near Eastern reflections on the question of why bad things happen to good people, aka the Problem of Evil. Students read primary texts in translation from Ancient Egypt, Ancient Mesopotamia, and Ancient Israel, including such famous texts as the Dispute between a Man and his Ba, the Babylonian Theodicy, and the book of Job. Students will discover how different beliefs about the origins of the universe, the relationship between humans and the divine, the notion of sin, and the causes of suffering lead to different answers to the age-old question of why the righteous suffer.

**Credit Hours:** 3

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**REL\_ST 3350: Monsters in Western Religion and Folklore**

This course focuses on monsters found in Western cultures and more specifically how monsters are instantiated and put to use in contexts of popular culture. Theoretical and methodological approaches to the material are drawn from both Religious Studies and Folkloristics. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3360: Cults and New Religious Movements**

While religious traditions constantly change, and new religions emerge in every historical time period, the new religious movements of the past century (many of which are often referred to negatively as "cults") present a particular challenge to contemporary cultures and societies. We will begin with a theoretical overview of new religious movements (NRMs) and will proceed gradually to discuss in detail the religion of the Peoples Temple and its charismatic leader and founder, Jim Jones. Recommended: An introductory course in any of the following disciplines/area studies: Religious Studies, Psychology, Communication Studies (emphasis on Media and Society/Media Theory); or Sociology.

**Credit Hours:** 3**Prerequisites:** Sophomore standing

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**REL\_ST 3380: Native American Religions**

(same as ANTHRO 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**REL\_ST 3380H: Native American Religions - Honors**

(same as ANTHRO 3380H). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**Prerequisites:** Honors eligibility required

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**REL\_ST 3400: The Gospels of Matthew, Mark, and Luke**

Examination of the Gospels of Matthew, Mark, and Luke as single works and as literarily related compositions. Interpretation focuses on the literary form of passages and the theological and ethical themes expressed.

**Credit Hours:** 3

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**REL\_ST 3400H: The Gospels of Matthew, Mark, and Luke - Honors**

Examination of the Gospels of Matthew, Mark, and Luke as single works and as literarily related compositions. Interpretation focuses on the literary form of passages and the theological and ethical themes expressed.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**REL\_ST 3410: Cities and Letters of Paul: an Archaeological Investigation**

This course combines a close contextual reading of the seven undisputed letters written by the apostle Paul and the three disputed letters of uncertain authorship coupled with an in-depth historical and archaeological investigation of the cities to which they were written. Students will learn about ancient letter writing, how the conventions used differed from modern practice, and how understanding those differences is essential for a more accurate reading of Paul. Likewise, this course will demonstrate that knowing the circumstances in which a letter was written sheds additional light on its contents and therefore investigates the historical and social conditions of Thessalonica, Corinth, Rome, Phillipi, the cities of Galatia, Ephesus, and Colossae in an effort better to understand the purposes for which Paul presumably wrote to the Christian communities in these cities.

**Credit Hours:** 3

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**REL\_ST 3410H: Cities and Letters of Paul: an Archaeological Investigation - Honors**

This course combines a close contextual reading of the seven undisputed letters written by the apostle Paul and the three disputed letters of uncertain authorship coupled with an in-depth historical and archaeological investigation of the cities to which they were written. Students will learn about ancient letter writing, how the conventions used differed from modern practice, and how understanding those differences is essential for a more accurate reading of Paul. Likewise, this course will demonstrate that knowing the circumstances in which a letter was written sheds additional light on its contents and therefore investigates the historical and social conditions of Thessalonica, Corinth, Rome, Phillipi, the cities of Galatia, Ephesus, and Colossae in an effort better to understand the purposes for which Paul presumably wrote to the Christian communities in these cities.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**REL\_ST 3420: Jesus in Myth, Tradition and History**

This course will explore the identity and character of Jesus of Nazareth as depicted in various early Christian canonical and non-canonical sources and, using a variety of scholarly techniques, ascertain what

information in those sources can be considered to describe accurately the real, historical Jesus.

**Credit Hours:** 3

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**REL\_ST 3430H: Revelation and Apocalyptic Literature - Honors**

A study of Jewish and Christian apocalyptic literature with an emphasis on the Revelation to St. John.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 3445: The Body in Western Christianity**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3445W: The Body in Western Christianity - Writing Intensive**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3451: Religion in Science Fiction**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours:** 3

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**REL\_ST 3451W: Religion in Science Fiction - Writing Intensive**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours:** 3

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**REL\_ST 3455: Robots and Religion: Reflection on Self, Soul, and Humanity**

This course explores ancient and modern texts about robots, androids, and other artificial and virtual humans in order to analyze cultural and religious notions of what it means to be human. Course readings include ancient Indian, Tibetan, and Chinese robot stories in translation, medieval Jewish legends about golems, as well as contemporary Western science fiction

**Credit Hours:** 3

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**REL\_ST 3500: Judaism in the Time of Jesus**

This course is an introduction to the origin and development of Judaism from the time of the destruction of the first Jerusalem temple (587 BCE) to the Bar Kochba revolt (132-135 CE).

**Credit Hours:** 3

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**REL\_ST 3530: Rabbinic Judaism: Perspective and Literature**

Overview of the Jewish oral tradition during the Rabbinic era. The information covered in this course will focus upon the vast literature created during the Mishnaic and Talmudic periods and the emerging new styles and directions of Jewish religious thought.

**Credit Hours:** 3

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**REL\_ST 3540: Jewish-Christian Relations**

Explores historical and contemporary relations between Christians and Jews, and the transformations in Christian thought and practice resulting from awareness of Christianity's role in the Holocaust and from post-Holocaust dialogues between Jews and Christians.

**Credit Hours:** 3

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**REL\_ST 3600: Spirituality**

Comparative investigation of selected mystical writings from Western religious traditions; consideration of contemporary psychological, philosophical, and phenomenological interpretations of mystical experience.

**Credit Hours:** 3

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**REL\_ST 3610: Angry Theologians**

This course examines how intense debates and furious prose helped define many of modern Christianity's most widely agreed upon tenets of faith. Through close readings of theological treatises laced with profanity, insults, and outrage, we shall explore how central Christian theological convictions about baptism, the nature of Jesus, gender roles, sin, salvation, and other topics were constructed through argumentation and compromise. Though some theological disputes were settled politely through votes at church councils, even these peaceable compromises often emerged through a spate of insults and red-faced polemic. We shall read and discuss some of the most colorful--and enduringly influential--cases of theology developing through brash confrontation, from the Luther Insult Generator to the fiercely angry articulations of Christian theology in contemporary America. Students will learn to understand the logic and purpose behind these vehement arguments in their historical context and practice evaluating competing claims about complex issues such as the Trinity, the path to salvation, and sin. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3700: Modern Religious Thought**

Examination of the theological systems of major Christian thinkers and movements of the 19th and 20th centuries in relation to historic religious traditions and modern cultural challenges. Prerequisites: sophomore standing, and one course in Philosophy, or instructor's consent.

**Credit Hours:** 3

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**REL\_ST 3710: Reality of God**

Will explore the meaning of "the loss of God" (Tillich) and various modern and contemporary attempts to reaffirm the reality of God.

**Credit Hours:** 3

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**REL\_ST 3740: Religion and Film**

Addresses issues of interpretation and analysis in the convergence of religion and film. Addresses three areas under this broad rubric: 1) film representations of established religions; 2) film and the construction of social values; 3) film as contemporary "myth". Treating films as social texts, we will ask what such representations of ourselves to ourselves suggest about culture in general.

**Credit Hours:** 3

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**REL\_ST 3750: Women and Religions**

(same as WGST 3750). A rediscovery of the wealth of religious activity which women have created and enacted. Investigates women's roles and rituals in large-scale and local religions, including ancient Goddess religions, Hinduism, Buddhism, Judaism, Christianity, Islam, and African, South American, and native American groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**REL\_ST 3760: Geography of the World's Religions**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3760W: Geography of the World's Religions - Writing Intensive**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3800: Religion in America Today**

Explores in depth a few selected issues currently shaping or being shaped by religion in the United States. Specific topics will be chosen from events conflicts, developments, or news items within the last five years. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**REL\_ST 3820: Religion and Law in America**

This class explores how the U.S. legal system is navigating an increasing diversity of religious traditions. Course examines the place of religious values and the ongoing tension between religion and law in the legal system of the U.S. through a variety of controversial topics.

**Credit Hours:** 3

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**REL\_ST 3990: Majors Seminar**

In this seminar religious studies majors will be encouraged to form a community of inquiry focused on the subject of religion and public life. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Religious Studies majors in their junior year

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**REL\_ST 4001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**REL\_ST 4005: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 4100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies majors and MA students

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**REL\_ST 4100W: Advanced Theories and Methods - Writing Intensive**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies majors and MA students

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**REL\_ST 4110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 7110). This course will unpack theoretical and methodological issues surrounding the study of embodied religious practice and the nature of religious narrative using myths and rituals from around the world's religious traditions.

**Credit Hours:** 3

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**REL\_ST 4120: Studies in Ritual**

Exploration of particular themes of religious expression in seasonal, calendric and life-cycle rituals and in personal and public ceremonies. Includes comparisons of indigenous communities and modern society.

**Credit Hours:** 3

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**REL\_ST 4130: Haunting and Healing**

This course explores instances, stories, and representations of haunting in the United States. We apply a variety of theoretical and methodological

approaches to illuminate the diversity of meanings, functions, and contexts of supernatural beings in American popular and folk cultures.

**Credit Hours:** 3

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**REL\_ST 4150: Religion, Spirituality, and the Brain**

Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

**Prerequisites:** Restricted to juniors and seniors only

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**REL\_ST 4200: Survey of West African and African Diasporic Religions**

Explores indigenous African religions and Islam in West Africa, as well as the development of African American Christianity and African diasporic religions in the Americas.

**Credit Hours:** 3

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**REL\_ST 4210: African-American Religion**

(same as BL\_STU 4210). Historical and thematic examination of African American religious traditions and practices. Addresses intersections of religious expression with race, identity, culture, and society.

**Credit Hours:** 3

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**REL\_ST 4280: Archaeology of Religion**

(same as ANTHRO 4280). This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 4287; cross-leveled with REL\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras.

Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing, senior standing preferred

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**REL\_ST 4300: Religious Narratives of South Asia**

(same as S\_A\_ST 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

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**REL\_ST 4310: The Confucian Tradition: Past and Present**

Investigates Confucianism as the dominant religio-philosophical tradition of China and its impact on Korea and Japan. We will study basic Confucian canonical texts, follow its historical development, look at its interactions with other religions, and discuss the continuing relevance of the Confucian tradition in modern East Asia.

**Credit Hours:** 3

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**REL\_ST 4320: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 4380: Anthropological Theories of Religion**

(same as ANTHRO 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030, ANTHRO 2100 or REL\_ST 2100, or instructor's consent

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**REL\_ST 4400: The Catholic Intellectual Tradition**

(cross-level with REL\_ST 7110). Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 4410: Major Religious Thinkers**

Concentrated study of one or more selected theologians, such as Augustine, Aquinas, Luther, Calvin, Buber, Tillich, and Rahner.

**Credit Hours:** 3

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**REL\_ST 4418: Religion Reporting and Writing**

(same as JOURN 4426). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life, and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 professional writing experience and instructor's consent

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**REL\_ST 4500: Greek and Roman Religion**

(same as CL\_HUM 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and CL\_HUM 1060, AR\_H\_A 1110 or HIST 1520



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**REL\_ST 4535: Monastic Worlds**

Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details.

**Credit Hours:** 3

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**REL\_ST 4550: The Historical Jesus**

This course examines theory, method, and conclusions in recent Jesus scholarship. Attention is also paid to the historical and cultural context in which Jesus research becomes prominent.

**Credit Hours:** 3

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**REL\_ST 4630: Sanskrit I**

(same as S\_A\_ST 4350). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**REL\_ST 4640: Sanskrit II**

(same as S\_A\_ST 4640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 4750: Women, Religion and Culture**

(same as WGST 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 4960: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May be repeated up to 6 hrs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**REL\_ST 4990: Senior Seminar in Religious Studies**

A seminar in which Religious Studies majors use methods of understanding and comparing religions by focusing on times and places of significant contact among peoples of different religions.

**Credit Hours:** 3

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**REL\_ST 7001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7005: Topics in Religious Studies - General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 4100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies major or minor or instructor's consent

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**REL\_ST 7110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 4110). Comparative analysis of religious mythologies and symbolism as well as the ritual systems associated with those mythologies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**REL\_ST 7120: Studies in Ritual**

Exploration of particular themes of religious expression in seasonal, calendric and life-cycle rituals and in personal and public ceremonies. Includes comparisons of indigenous communities and modern society.

**Credit Hours:** 3

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**REL\_ST 7150: Religion, Spirituality, and the Brain**

Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

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**REL\_ST 7280: Archaeology of Religion**

(Same as ANTHRO 7280) This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 7287; cross-leveled with REL\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras.

Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**REL\_ST 7380: Anthropological Theory of Religions**

(same as ANTHRO 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**REL\_ST 7418: Religion Reporting and Writing**

(same as JOURN 7426). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life, and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 and instructor's consent

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**REL\_ST 7500: Greek and Roman Religion**

Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and CL\_HUM 1060, AR\_H\_A 1110 or HIST 1520

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**REL\_ST 7510: The Catholic Intellectual Tradition**

(cross-leveled with REL\_ST 4400), Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 7520: Major Religious Thinkers**

Concentrated study of one or more selected theologians, such as Augustine, Aquinas, Luther, Calvin, Buber, Tillich, and Rahner.

**Credit Hours:** 3

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**REL\_ST 7630: Sanskrit I**

(same as S\_A\_ST 7630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist literature.

**Credit Hours:** 3

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**REL\_ST 7640: Sanskrit II**

(same as S\_A\_ST 7640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 7700: Religious Narratives of South Asia**

(same as S\_A\_ST 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2110, REL\_ST 3200, or REL\_ST 3240, or instructor's consent

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**REL\_ST 7710: The Confucian Tradition: Past and Present**

Investigates Confucianism as the dominant religio-philosophical tradition of China and its impact on Korea and Japan. We will study basic Confucian canonical texts, follow its historical development, look at its interactions with other religions, and discuss the continuing relevance of the Confucian tradition in modern East Asia.

**Credit Hours:** 3

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**REL\_ST 7720: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 7750: Women, Religion and Culture**

(same as WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 7800: West African and African Diasporic Religions**

Explores traditional African religions and African Islam prior to the slave trade. Also, will examine the Christianity of African American slaves.

**Credit Hours:** 3

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**REL\_ST 7810: African-American Religion**

(same as BL\_STU 7810). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

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**REL\_ST 7990: Independent Readings in Religious Studies**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hours:** 3

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**REL\_ST 8001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 8005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 8010: Proseminar in Method and Theory in the Study of Religion**

Proseminar in classic and recent theoretical and methodological perspectives in the academic study of religion. This course is required of all graduate students in Religious Studies.

**Credit Hours:** 3

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**REL\_ST 8090: Research and Thesis in Religious Studies**

Research and writing for master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**REL\_ST 8200: Religious Texts and Interpretation: The Veda**

(same as S\_A\_ST 7200). This course examines the Veda, the foundational scripture of Hinduism. It includes close study of Vedic texts and rituals and the influence, interpretation, and application of the Veda in the later Hinduism.

**Credit Hours:** 3

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**REL\_ST 8210: Indian Buddhism**

This course examines the role of sacred texts in the Theravada and Mayayana Buddhist traditions. The course will emphasize canon formation and ideas about sacred texts in Buddhist traditions.

**Credit Hours:** 3

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**REL\_ST 8250: Religious Texts and Interpretation: Gospel Literature**

The seminar includes comparative study of ancient gospels, and an examination of modern theories about the development of Jesus traditions.

**Credit Hours:** 3

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**REL\_ST 8400: Religious History: Christian Interpretative Communities**

This course compares notions of religious authority in the sixteenth century: the Roman Catholic Church's Scripture and tradition and the Protestant principle of sola scriptura. The focus is the doctrine of the Eucharistic disputes carried on throughout the sixteenth century.

**Credit Hours:** 3

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**REL\_ST 8430: Religious History: West African Interpretative Communities**

In this study of West African religious history, we will examine indigenous African religions, Islam, and Christianity. We will consider the impact of the slave trade, environmental changes, prophetic movements, and changes in the status of women. We will also evaluate theoretical perspectives on the study of Africa, of "traditional religions" and oral traditions.

**Credit Hours:** 3

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**REL\_ST 8440: Religion, Globalization and Local Cultures**

Interdisciplinary, comparative approach to globalization's religious dimensions and productions in a variety of specific sites around the world.

**Credit Hours:** 3

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**REL\_ST 8500: History of Religion and Everyday Life in America**

This graduate seminar will familiarize you with several theoretical and methodological issues involved in the study of religion in everyday life, its historical recovery and interpretation, and its presentation. We will focus on examples of scholarship on U. S. history.

**Credit Hours:** 3

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**REL\_ST 8600: Comparative Studies in Spirit Possession**

This course will investigate four distinct Afro-Latin religious traditions of the Americas, including traditions from Haiti, Cuba, Brazil and Honduras, as well as comparative examples from South Asia, Europe and North Africa. We will read and discuss such issues as 1) spirit possession and narratively; 2) spirit possession as "history"; 3) possession as dramatic performance; 4) the relationship between sacrifice and possession trance. Through careful exploration of their histories and contemporary practice, the class will attempt general comparisons between the religion as well as the critical review of comparative methods employed.

**Credit Hours:** 3

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**REL\_ST 8700: Seminar in Folklore**

(same as ANTHRO 8157 and ENGLSH 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups.

**Credit Hours:** 3

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**REL\_ST 8710: Comparative Religion: Popular Religion**

Popular religion is the lived religion of the common people which takes shape in contact with and distinction from the religion(s) of the elite(s) of a society. This course introduces concepts and theories of popular

religion, and investigates its role in various traditions, including Hinduism, Buddhism, Christianity, and Chinese religions.

**Credit Hours:** 3

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## Respiratory Therapy (RS\_THR)

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### RS\_THR 1000: Introduction to Respiratory Therapy

Introductory course to assist students acquiring information about the respiratory therapy profession. Students observe therapists in hospitals and participate in lectures on credentialing, program requirements, placement and future trends in the profession. Graded on S/U basis only.

**Credit Hour:** 1

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### RS\_THR 3000: Fundamentals of Respiratory Care

Orientation to the profession. Focus on professional attributes of communication, teamwork, licensure and safety.

**Credit Hour:** 1

**Prerequisites:** acceptance into respiratory therapy major

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### RS\_THR 3220: Equipment and Techniques

History, organization of respiratory therapy. Theory, application of gas laws. Equipment for invasive and non-invasive pulmonary assessment, therapeutic aerosol and humidity, gas delivery, airway management. Techniques for infection control, lung expansion, bronchial hygiene. Graded on A-F basis only.

**Credit Hours:** 5

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### RS\_THR 3290: Cardiopulmonary Pharmacology

To provide the student with specific knowledge of the pharmacologic strategies in treating cardiopulmonary disorders. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to students in the respiratory therapy program

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### RS\_THR 3420: Principles of Mechanical Ventilation

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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### RS\_THR 3420W: Principles of Mechanical Ventilation - Writing Intensive

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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### RS\_THR 3440: Mechanical Ventilation Lab

Application of mechanical ventilation emphasizing acute care: pressure, volume, and oscillatory ventilation of adults. Pediatrics, and infants. Related graphical, laboratory, and hemodynamic analysis; therapeutic intervention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941, RS\_THR 4040

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### RS\_THR 3941: Clinical Practice I

To be taken concurrently with RS\_THR 3220 for which it serves as an extension of the laboratory time and an opportunity for structured clinical experience exposures.

**Credit Hours:** 2

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### RS\_THR 3942: Clinical Practice II

To be taken concurrently with RS\_THR 3420, for which it serves as an extension of the laboratory time, and an opportunity for structured clinical experience exposures.

**Credit Hours:** 4

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### RS\_THR 3943: Clinical Practice III

Continuation of supervised clinical experience from RS\_THR 3942. Graded on A-F basis only.

**Credit Hours:** 2

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### RS\_THR 4020: Perinatal/Neonatal Respiratory Care

Evaluation and management of perinatal/neonatal pulmonary, medical and surgical conditions which require respiratory care. Emphasis on resuscitation, pathophysiology, evaluation, blood gas and x-ray interpretation, treatment and mechanical ventilation.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 4040; Respiratory Therapy students only

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### RS\_THR 4040: Respiratory Pathophysiology

Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature. Impact of disease on normal structure function; clinical, roentgenographic, and physiologic manifestations are described.

**Credit Hours:** 5

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### RS\_THR 4085: Problems in Respiratory Therapy

Independent work on special problems related to cardiopulmonary health. Course not offered for graduate credit. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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### RS\_THR 4220: Community and Patient Education I

Design and implement materials for educational presentations for a given patient population. Graded on A-F basis only.

**Credit Hour:** 1

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### RS\_THR 4240: Pulmonary Rehabilitation

Focus is on an interdisciplinary approach to pulmonary rehabilitation and home care of the adult cardiopulmonary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RS\_THR 4420: Pediatric Respiratory Care**

Evaluation and management of pulmonary, medical and surgical pediatric conditions requiring respiratory care. Emphasis on pediatric resuscitation, pathophysiology, treatment and prevention of respiratory conditions, mechanical ventilation, lab interpretation.

**Credit Hours:** 3

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**RS\_THR 4440: Organization and Administration**

(same as RA\_SCI 4440 and CPD 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**RS\_THR 4460: Evidence-Based Medicine in Respiratory Care**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4460W: Evidence-Based Medicine in Respiratory Care - Writing Intensive**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4620: Pulmonary Function Technologies**

This course will provide the student with a specific knowledge of the testing procedures and equipment for pulmonary function technology. The student will learn to interpret pulmonary function tests and perform quality assurance within the pulmonary function laboratory.

**Credit Hours:** 2

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4640: Teaching Practicum**

Structured and supervised experience identifying student characteristics, methods for teaching, improving assessment, current development and instructional design.

**Credit Hours:** 3

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**RS\_THR 4660: Advanced Mechanical Ventilation Theory**

Exploration of advanced disease management via specific disease processes as well as concepts and modes of mechanical ventilation. Emphasis will be placed on mode selection for various disease and how new modes of mechanical ventilation impact disease management.

**Credit Hours:** 3

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**RS\_THR 4720: Advanced Pulmonary Function Technology**

This course will focus on the respiratory therapist's role in diagnostic testing. Topics include pulmonary function tests, exercise tests, and metabolic studies. In addition the course briefly addresses polysomnography, pulmonary rehabilitation, and home care. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Respiratory Therapy students only

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**RS\_THR 4820: Adult Critical Care**

This course will focus on the respiratory therapist's role in the adult critical care environment. Topics include airway management, mechanical ventilation, general adult critical care and functioning as a vital member of the critical care team.

**Credit Hours:** 3

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 7930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CDS 4955 or HLTH SCI 3900 or Instructor consent

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**RS\_THR 4940: Clinical Practice IV**

Structured and supervised clinical experience and case conferences regarding bioterrorism response and emergency/disaster planning.

**Credit Hours:** 5

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**RS\_THR 4956: Research in Respiratory Therapy**

Selected research projects guided by a senior staff member.

**Credit Hour:** 2-6

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**RS\_THR 4973: Clinical Practice V**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in adult critical care and special procedures including bronchoscopies, cardiac catheterization and chest tube placement.

**Credit Hours:** 4

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**RS\_THR 4983: Clinical Practice VI**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in perinatal and pediatric critical care including pediatric pulmonary function testing and airway management.

**Credit Hours:** 4

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**RS\_THR 4990: Respiratory Therapy Capstone**

Integration of literature, knowledge of previous coursework and clinical experience.

**Credit Hours:** 2

**Prerequisites:** Respiratory Therapy Majors Only

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**RS\_THR 4993: Clinical Practice VII**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in rehabilitation and home care, inservice education, and management. Students will participate in on-going research projects and community service activities.

**Credit Hours:** 5

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**RS\_THR 7040: Respiratory Pathophysiology**

Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature. Impact of disease on normal structure/function; clinical, roentgenographic, and physiologic manifestations are described.

**Credit Hours:** 5

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**RS\_THR 7930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 4930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet).

**Credit Hours:** 3

**Prerequisites:** CDS 4955 or HLTH SCI 3900 or Instructor consent

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## Romance Languages (RM\_LAN)

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**RM\_LAN 2001: Undergraduate Topics in Romance Languages-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**RM\_LAN 2200: Introduction to Catalan Language and Culture**

This is an introductory course to Catalan language and culture. Previous knowledge of another Romance language might be beneficial. Students will learn basic Catalan expressions, vocabulary and grammatical structures. Furthermore, students will begin to familiarize themselves with elements of Catalan culture.

**Credit Hours:** 3

**Recommended:** Some knowledge of a Romance language desirable

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**RM\_LAN 2310: Literature of the African Diaspora**

(same as BL\_STU 2310). A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas. Exemplary texts from the Caribbean (English, French, Spanish), South America and the United States are discussed in comparative perspective. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**RM\_LAN 2820: Trends in World Cinema**

(same as FILM\_S 2820 and GERMAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1800 or FILM\_S 1800

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**RM\_LAN 3200: Catalan Culture and Identity**

Students in this course are not expected to have previous exposure to Catalan instruction. If they do, it will enhance their learning experience. Knowledge of another Romance language might be beneficial as well. This is a course focused on Catalan culture and identity. Students will learn about the history of the language, the language policies in Spain and Europe, Catalan literature, cinema, music, and food. Students will read different materials in English for the most part. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RM\_LAN 3820: Major Directors**

(same as ENGLISH 3820 and FILM\_S 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800

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**RM\_LAN 4310: Literature of the African Diaspora**

A study, in English translation, of writings by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**RM\_LAN 4730: Linguistic Theory and Language Acquisition**

(same as LINGST 4730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** SPAN 4721 or SPAN 7721, FRENCH 4720 or FRENCH 7720, ENGLISH 4600 or ENGLISH 7600 or LINGST 4860 or LINGST 7860

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**RM\_LAN 4940: Service Learning in Romance Languages**

(same as SPAN 4940 and FRENCH 4940). Course offers our majors and advanced minors the opportunity to use their language skills in real-life community settings. Does not meet Art and Science general education requirements. May be repeated once for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior or senior standings and departmental consent

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**RM\_LAN 7310: Literature of the African Diaspora**

A study, in English translation, of writings by authors of African descent in the Americas.

**Credit Hours:** 3

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**RM\_LAN 7730: Linguistic Theory and Language Acquisition**  
(same as LINGST 7730). The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** SPAN 4721 or SPAN 7721, FRENCH 4720 or FRENCH 7720, ENGLSH 4600 or ENGLSH 7600 or LINGST 4860 or LINGST 7860

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**RM\_LAN 8085: Problems in Romance Languages**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RM\_LAN 8087: Seminar in Literature and Languages of the African Diaspora**

One of two courses devoted to the theory and practice of African diaspora literary criticism. Beginning with the United States, we address the issues of developing appropriate theoretical models for black literatures in the Americas.

**Credit Hours:** 3

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## Rural Sociology (RU\_SOC)

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**RU\_SOC 1000: Rural Sociology**

Introduction to basic concepts and principles of sociology with a focus on rural populations and places. The course explores interconnections between rural/urban and local global economies and cultures. Students are exposed to the rich diversity of rural society, social changes underway, and to current social issues. (Students may not earn credit for both RU\_SOC 1000 and SOCIOL 1000).

**Credit Hours:** 3

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**RU\_SOC 1103: Topics in Rural Sociology - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 1104: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 1120: Population and the Environment**

(same as SOCIOL 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**RU\_SOC 1150: The Amish Community**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include

cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000

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**RU\_SOC 1150W: The Amish Community - Writing Intensive**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000

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**RU\_SOC 1175: The Health of People in Local Communities**

Health is a universal concern of all people. However, the place of residence has a major impact on many things closely related to health including the local cultural such as diets, exercise, occupations, local health services, etc. This is an introduction to these topics.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2010: Leadership in Today's World**

Examination of dynamics of group leadership, especially in local voluntary organizations; study of how leader's behavior is related to success or failure of organization's program.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2203: Topics in Rural Sociology - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2203W: Topics in Rural Sociology - Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2204: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2225: Science, Technology and Society**

Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based.

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**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2225W: Science, Technology and Society - Writing Intensive**

Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2950: Social Research I**

(same as SOCIOL 2950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 3085: Problems in Rural Sociology**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 3100: Recent Theories in Sociology**

(same as SOCIOL 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Recommended:** SOCIOL 2200

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**RU\_SOC 3235: Global Perspectives and Realities**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3235W: Global Perspectives and Realities - Writing Intensive**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3303: Topics in Rural Sociology - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 2-3

**Recommended:** 6 hours of Rural Sociology or SOCIOL 1000, or junior standing

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**RU\_SOC 3304: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 2-3

**Recommended:** 6 hours Rural Sociology or Sociology, or junior standing

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**RU\_SOC 3310: Society, Agriculture and Natural Resources**

Explore the human dimensions of agriculture and natural resources through an overview of key areas in natural resource social science. Diverse conceptual approaches and empirical research topics related to society-natural resource interactions are included.

**Credit Hours:** 3

**Recommended:** junior standing or instructor's consent

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**RU\_SOC 3325: Sociology of Food and Nutrition**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3325W: Sociology of Food and Nutrition - Writing Intensive**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3940: Practicum in Rural Sociology**

Independent research or professional experience under faculty supervision. Projects must be arranged by student and faculty member prior to registration.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**RU\_SOC 3950W: Social Research I - Writing Intensive**

(same as SOCIOL 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 4120: Social Statistics**

(same as SOCIOL 4120; cross-leveled with RU\_SOC 7120, SOCIOL 7120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.



**Credit Hours:** 3

**Recommended:** SOCIOL 2950

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**RU\_SOC 4301: Topics in Rural Sociology**

Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 or equivalent

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**RU\_SOC 4325: American Community Studies**

(cross-leveled with RU\_SOC 7325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 4335: Social Change and Development**

(same as SOCIOL 4335; cross-leveled with SOCIOL 7335, RUR\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4341: Building Communities from the Grassroots**

(same as PEA\_ST 4341; cross-leveled with RU\_SOC 7341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 7374), Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 4370: Environmental Sociology**

(same as SOCIOL 4370; cross-leveled with SOCIOL 7370, RU\_SOC 7370). An interdisciplinary examination of domestic and international

environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

**Recommended:** junior standing

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**RU\_SOC 7120: Social Statistics**

(same as SOCIOL 7120; cross-leveled with RU\_SOC 4120, SOCIOL 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**RU\_SOC 7301: Topics in Rural Sociology**

Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000 or equivalent, RU\_SOC 4301

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**RU\_SOC 7325: American Community Studies**

(cross-leveled with RU\_SOC 4325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 7335: Social Change and Development**

(same as SOCIOL 7335; cross-leveled with SOCIOL 4335, RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from other disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 7341: Building Communities from the Grassroots**

(cross-leveled with RU\_SOC 4341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 4343). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7370: Environmental Sociology**

(same as SOCIOL 7370; cross-leveled with SOCIOL 4370, RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**RU\_SOC 7445: Seminar on Issues in the Sociology of Agriculture and Natural Resources**

Issues in current research in the sociology of agriculture of developing and industrial nations. Links sociological theory with research in agriculture, examining contributions of applied research to sociological knowledge.

**Credit Hours:** 3

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**RU\_SOC 7446: Community Social Structure**

(same as SOCIOL 7446). A comparative study of communities in different nations and in urban and rural areas. A primary focus of the course will be on social change in communities in response to changing economic, political, social, cultural, and ecological factors.

**Credit Hours:** 3

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**RU\_SOC 8085: Problems in Rural Sociology**

Research for student capable of semi-independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 8130: Advanced Social Statistics**

(same as SOCIOL 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4120 or equivalent

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**RU\_SOC 8287: Seminar on Sustainable Development**

(same as SOCIOL 8287). An interdisciplinary examination of sustainable development focusing on social, economic, cultural and environmental dimensions of development. International and domestic issues and approaches to sustainable development are included.

**Credit Hours:** 3

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**RU\_SOC 8430: Program Development and Evaluation**

(same as AG\_ED\_LD 8430). Program development principles, teaching plans and evaluation principles applied to extension program development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 8435: Political Ecology**

Political ecology is an analytical approach to environment and natural resource issues at local, regional and global scales, emphasizing political, economic, cultural, social and historical factors and their relationship to ecological trends and processes. Seminar format. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8436: Community, Natural Resources and Sustainability**

A graduate seminar on conceptual and methodological (mixed methods) approaches to natural resource sustainability issues at the human community level. Focuses on theoretical, methodological, and empirical topics related to the interactions between community, natural resources and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 4310 or RU\_SOC 7310

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**RU\_SOC 8444: Agriculture, Food and Community**

Introduces key debates in the sociology of food and agriculture. Includes research on the structure and history of the agriculture system and its impacts on farmers, communities and the natural environment.

**Credit Hours:** 3

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**RU\_SOC 8447: Seminar on Contemporary Issues in Rural Sociology**

Seminar on Contemporary Issues in Rural Sociology

**Credit Hour:** 1-99

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**RU\_SOC 8448: Society and Ecosystems Research Seminar**

(same as AG\_EC 8448 and NAT\_R 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**RU\_SOC 8450: Research in Rural Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8510: Research Methods and Design**

(same as AG\_ED\_LD 8510). A foundations course on quantitative research methodology and design principles for investigating problems in social and behavioral sciences. A focus is on the language of research, purposes, validity threats, and data collection methods. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8540: Methods of Qualitative Research**

(same as AG\_ED\_LD 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**RU\_SOC 8610: Economic and Sociological Approaches to Collective Action**

(same as AG\_EC 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AG\_EC 8610

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**RU\_SOC 9090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 9287: Seminar in Qualitative Methods in Sociology**

(same as SOCIOL 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or instructor's consent

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**RU\_SOC 9437: Synthesis of Theory and Method in Sociology**

The purpose of the course is to provide the student with a critical understanding of the basic theoretical paradigms employed in the development of research projects in sociology. The course is designed for graduate students.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4130 and RU\_SOC 8510, or instructor's consent

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**RU\_SOC 9480: Community Survey Research**

(same as SOCIOL 9987). This course applies social science survey research methods to the unique kinds of problems that arise in the study of whole communities.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or equivalent

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**RU\_SOC 9510: Data Collection, Analysis and Interpretation**

(same as AG\_ED\_LD 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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**RU\_SOC 9837: Seminar in Multivariate Analysis Techniques**

(same as SOCIOL 9837). Examination of various qualitative techniques of data analysis.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or instructor's consent

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## Russian (RUSS)

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**RUSS 1100: Elementary Russian I**

Five hours of classroom instruction, with one hour lab work weekly. For beginners with no prior knowledge of Russian.

**Credit Hours:** 6

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**RUSS 1200: Elementary Russian II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in RUSS 1100 or equivalent. or instructor consent

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**RUSS 2001: Undergraduate Topics in Russian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**RUSS 2005: Undergraduate Topics in Russian-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent. No language credit.

**Credit Hour:** 1-3

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**RUSS 2100: Classics and Iconoclasts: An Introduction to Russian Literature**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called "father of Russian literature" Aleksandr Pushkin, then moves on to two "classics" from the 19th century (Gogol, Chekhov) and two "iconoclasts" from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2100W: Classics and Iconoclasts: An Introduction to Russian Literature - Writing Intensive**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called "father of Russian literature" Aleksandr Pushkin, then moves on to two "classics" from the 19th century (Gogol, Chekhov) and two "iconoclasts" from the first part of the 20th

(Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2120: Russia: Enigma Wrapped in Mystery**

Broad introduction to the study of Russia as a discipline; designed to acquaint the student with a wide range of topics connected to the study of Russia.

**Credit Hours:** 3

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**RUSS 2130: Second-Year Russian I**

Students will solidify their command of Russian grammar and begin developing their reading skills.

**Credit Hours:** 4

**Prerequisites:** RUSS 1200, equivalent, or instructor's consent

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**RUSS 2160: Second-Year Russian II**

Continuation of RUSS 2130.

**Credit Hours:** 4

**Prerequisites:** RUSS 2130 or equivalent, or instructor's consent

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**RUSS 2310: Between Heaven and Earth: Russian Civilization**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2310W: Between Heaven and Earth: Russian Civilization - Writing Intensive**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320: The Arts of Survival: Civilization in Soviet Times**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320W: The Arts of Survival: Civilization in Soviet Times - Writing Intensive**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2330: Russia and America as Comparative Civilizations**

Analyzes similar developments in the arts, architecture, literature, and film of Russia and America.

**Credit Hours:** 3

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**RUSS 2570: The Supreme Measure: Capital Punishment in Russian History and Literature**

Highlights historical, ethical, and religious aspects of capital punishment across the span of Russian history. Provides an opportunity to explore a difficult topic using material unknown to most students; a serious course in literary history. Develops critical thinking skills.

**Credit Hours:** 3

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**RUSS 2865: The Art of Soviet and Russian Cinema**

(same as FILM\_S 2865) Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(same as FILM\_S 2865) Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 3001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3130: Intermediate Russian**

Normally taken as 5th semester of Russian language sequence.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3160 or instructor's consent

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**RUSS 3160: Intermediate Conversation and Composition**

Further develops oral command of Russian as well as listening comprehension and some letter writing skills.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3130 or instructor's consent

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**RUSS 3310: Heroes of Their Times: Individualism in Russian Literature**

Examines selected works by the major Russian writers of the first half of the nineteenth century. Reading and lectures in English.

**Credit Hours:** 3

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**RUSS 3320: Matters of Life and Death: The Fiction of Tolstoy and Dostoevsky**

Analyzes the major works of Tolstoy and Dostoevsky. Readings and lectures in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**RUSS 3330: Decline, Fall, and Resurrection in Modern Russian Literature**

Analysis of the major trends in Russian literature and related cultural developments from 1890 to 1930. Readings and lectures in English.

**Credit Hours:** 3

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**RUSS 3350: The Split Tree of Russian Literature: Contemporary Russian Prose**

Analyzes the divided tradition of Russian literature since 1930 in the works of such authors as Nabokov, Pasternak, Bulgakov, and Solzhenitsyn. Readings and lectures in English.

**Credit Hours:** 3

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**RUSS 3380: Sinners, Saints, and Madmen: 19th Century Russian Literature**

Introduction to foundational periods (Sentimentalism, Romanticism, Realism and its decline), narratives, and authors of 19th century Russian literary tradition. Traces development of the "Russian" short story and novel forms, as well as the all-important "Petersburg" theme.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; sophomore standing or instructor's consent

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**RUSS 3390: True Fictions: Russian Prose since 1900**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will read and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**RUSS 3390W: True Fictions: Russian Prose since 1900 - Writing Intensive**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will read and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**RUSS 3630: Russian Classics I**

Reading and discussion of selected works by major Russian writers of the nineteenth century. Course conducted in Russian. May be taken before or after RUSS 3640.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3640: Russian Classics II**

Reading and discussion of selected works by major Russian writers of the twentieth century. Course conducted in Russian. May be taken before or after RUSS 3630.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3870: Russian Women and Film**

(same as FILM\_S 3870 or WGST 3870). Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles).

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**RUSS 3890: Russian and Soviet Cinema**

(same as FILM\_S 3890). Survey and analysis of selected Soviet films. Emphasis on film-making as a form of art. English or subtitled. Second screenings by arr. Some films may run over 2 hrs. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 3895: Service Learning in Russian Studies**

Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in

foreign language/culture classes at area schools. Does not meet Arts and Science foundation requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**RUSS 3896: Honors in Russian**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent of Honors director

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**RUSS 4001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 4005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4070: Intensive Beginning Russian**

Designed to lead quickly to a reading knowledge of Russian. Cannot be taken to fulfill undergraduate language requirement. Intended for graduate students in other departments who plan to conduct research in Russian.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

**Recommended:** junior standing

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**RUSS 4160: Advanced Russian Conversation**

Advanced syntax, idiomatic constructions, and vocabulary building.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 4350: Special Readings in Russian**

Special Readings in Slavic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 4420: Russian Poetry**

Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430: Russian Drama**

Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430W: Russian Drama - Writing Intensive**

Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4435: Russian Prose**

Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4440: The Russian Novel**

Selected readings and seminar discussion of major novelists of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4510: The Art and Life of Pushkin**

Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4520: Nikolai Gogol**

Study of the life and art of Nikolai Gogol. Includes biographical overview, Ukrainian stories, dynamics of folklore, local dialect, and the process of literary creation. Considers St. Petersburg stories, novels, and plays.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4530: Dostoevsky**

Introduction to the works of Fyodor Dostoevsky, including selections from both the shorter works and the major novels.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4540: Tolstoy's Fiction and Truth**

Provides a conceptual overview and analysis of two masterpieces of Tolstoy's art. Acquaints students with the complex and hidden connections between Tolstoy's artistic methods and religious beliefs.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4550: Nabokov's Russian Fiction**

Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian (English translations for undergraduate students).

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4730: Internship in Russian**

Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4896: Honors Thesis in Russian**

Intended for Russian majors in their final year of study who have completed the majority of course requirements within the major and are prepared to engage in an independent research project that culminates in a 25-40 page thesis paper. To be considered for honors thesis, the student should be in his/her final year of the major; must have completed at least three courses in literature, one of which must be at the 4000 level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** Russian major; senior standing, have a minimum cumulative GPA to 3.3, and a GPA of 3.5 or above within the major, and completion of an independent reading course the previous semester (e.g. RUSS 3896; RUSS 4350)

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**RUSS 7085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7087: Seminar in Russian**

Course content varies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 7105: Topics in 19th Century Russian Literature-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7205: Topics in 20th Century Russian Literature**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7305: Topics in Slavic Linguistics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7310: Russian Literary History**

A study of the major works of Russian literature in relation to their representations in literary history.

**Credit Hours:** 3

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**RUSS 7350: Special Readings in Russian**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 7405: Topics in Slavic Literatures**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7420: Russian Poetry**

Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

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**RUSS 7430: Russian Drama**

Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

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**RUSS 7435: Russian Prose**

Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay, early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

---

**RUSS 7440: The Russian Novel**

Selected readings and seminar discussion of major novelists of the 19th and 20th centuries.

**Credit Hours:** 3

---

**RUSS 7520: Nikolai Gogol**

Study of the life and art of Nikolai Gogol. Includes biographical overview, Ukrainian stories, dynamics of folklore, local dialect, and the process of literary creation. Considers St. Petersburg stories, novels, and plays.

**Credit Hours:** 3

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**RUSS 7530: Dostoevsky**

Introduction to the works of Fyodor Dostoevsky, including selections from both the shorter works and the major novels.

**Credit Hours:** 3

---

**RUSS 7540: Tolstoy's Fiction and Truth**

Provides a conceptual overview and analysis of two masterpieces of Tolstoy's art. Acquaints students with the complex and hidden connections between Tolstoy's artistic methods and religious beliefs.

**Credit Hours:** 3

---

**RUSS 7550: Nabokov's Russian Fiction**

Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian.

**Credit Hours:** 3

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**RUSS 7730: Internship in Russian**

Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment.

**Credit Hours:** 3

---

**RUSS 7820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 7820 and FRENCH 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context. Working in cross-disciplinary teams, students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold: students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concepts of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

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**RUSS 7975: Distorted Picture: Post-War Cinema in a Police State**

(same as FILM\_S 7975) Considers strategies and stylistic devices employed by East European and Soviet directors to produce artistically worthy films under censorship. Discusses how artists adapted methods, boldness of expression, thematic content, and technical sophistication. Attention paid to production techniques.

**Credit Hours:** 3

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**RUSS 8050: Research in Russian**

Translations or creative work not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8090: Thesis Research in Russian**

Independent research leading to a Master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8105: Topics in 19th Century Russian Literature-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8205: Topics in 20th Century Russian Literature**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.



**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8220: Russian Intellectual History and Critical Theory I**

Survey of Russian literary and cultural criticism of the 18th and 19th centuries. Course texts will include representative critical essays as well as selected literary texts. May be taken before or after RUSS 8230.

**Credit Hours:** 3

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**RUSS 8230: Russian Intellectual History and Critical Theory II**

Survey of Russian literary and cultural criticism of the 20th century. Course texts will include representative critical essays as well as selected literary texts. May be taken before or after RUSS 8220.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 8305: Topics in Slavic Linguistics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8405: Topics in Slavic Literatures**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8510: The Art and Life of Pushkin**

Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English.

**Credit Hours:** 3

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**RUSS 8560: Old Russian Literature**

Considers the genres, periodization, and development of Russian literature from the beginnings of literacy to the end of the Rurikovich dynasty. Emphasis on literary genres and their evolution. Readings in English or in Russian.

**Credit Hours:** 3

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**RUSS 8570: Russian Symbolism**

Study of the history, aesthetics, and creative works associated with the Symbolist movement in Russian literature and art. Primary emphasis on poetry drama, and prose fiction.

**Credit Hours:** 3

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**RUSS 8580: Pasternak**

Presents the life-long work of Boris Pasternak in three stages: early, interbellum, and late. Special attention to the evolution of poetics, with close analysis of selected poems. Includes theory of poetic expression. Requires a grasp of the main principles of Western versification (prosody, tropes, metaphor, rhyme, euphony), and history of Russian poetry.

**Credit Hours:** 3

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**RUSS 8650: Old Church Slavonic**

Designed to familiarize student with the phonological system, inflectional morphology and most important literature of the oldest recorded Slavic language. Comparisons of OCS to modern Slavic languages.

**Credit Hours:** 3

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## Science and Agricultural Journalism (SCI\_AG\_J)

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**SCI\_AG\_J 1160: Introduction to Science and Agricultural Journalism**

Introduction to journalistic writing for print, broadcast, Web. Introduction to writing for public relations. Also includes writing for live Web publication: cafnrcornerpost.com. Provides overview of career opportunities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 2150: Problems in Science and Agricultural Journalism**

For undergraduates majoring in science and agricultural journalism. May be repeated.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 2210: Communicating Science to the Public**

For science majors. Introduction to the history, theory and practice of communicating science to the general public. Emphasis on the interplay of science, human values and politics; also, the art and craft of writing and talking to lay audiences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and a declared major in a science or engineering field or instructor's consent

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**SCI\_AG\_J 2940: Internships in Science and Agricultural Journalism**

May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 3201: Topics in Science and Agricultural Journalism**

Instruction in select subject matter areas in the field of communications.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 3210: Fundamentals of Communications**

Instruction in writing about conflicts in agriculture and the environment and their cultural impacts. Emphasis on media literacy, critical thinking, communication and the interplay of science and human values.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and sophomore standing

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**SCI\_AG\_J 3210W: Fundamentals of Communications - Writing Intensive**

Instruction in writing about conflicts in agriculture and the environment and their cultural impacts. Emphasis on media literacy, critical thinking, communication and the interplay of science and human values.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and sophomore standing

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**SCI\_AG\_J 3240: Communicating on the Web**

Learn to make a useful, content-driven web site using web authoring software (this is not a programming class). This course emphasizes informative content and functional design.

**Credit Hours:** 3

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**SCI\_AG\_J 3385: Problems in Science and Agricultural Journalism**

Opportunity to apply journalism skills to agricultural subjects; opportunity to integrate communication processes within single medium or across media. Section 1: Corner Post Staff, Section 2: Problems in Science and Agricultural Journalism. May be repeated for up to 9 credit hours.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 4301: Topics in Science and Agricultural Journalism**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing

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**SCI\_AG\_J 4301H: Topics in Science and Agricultural Journalism-Honors**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing; Honors Eligibility required

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**SCI\_AG\_J 4301HW: Topics in Science and Agricultural Journalism - Honors/Writing Intensive**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing; Honors Eligibility required

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**SCI\_AG\_J 4301W: Topics in Science and Agricultural Journalism - Writing Intensive**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing

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**SCI\_AG\_J 4410: Readings in Science and Agricultural Journalism**

An examination of modern journalistic book-length storytelling about science, the food system, environment, natural resources and society.

Students will learn about the authors and how they use theory and techniques of storytelling. Students will gain a deeper knowledge about how to pursue such information-gathering and writing, as well as develop their critical-thinking abilities and expertise in the subject matter covered by the books. They will read, analyze and write about the books and the ideas and times that shaped them. Each course will examine a particular subject grouping of books, for example several on farming, or on conservation, or on climate change.

**Credit Hour:** 1-3

**Prerequisites:** English 1000

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**SCI\_AG\_J 4414: Field Reporting on the Food System and Environment**

(Same as JOURN 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SCI\_AG\_J 4415: Current Issues in Science Journalism**

(Same as JOURN 4415) Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 or instructor's consent

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**SCI\_AG\_J 4480: Will Write for Food (and Wine)**

(same as JOURN 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science Agricultural Journalism students only

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**SCI\_AG\_J 4480W: Will Write for Food (and Wine) - Writing Intensive**

(same as JOURN 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science Agricultural Journalism students only

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**SCI\_AG\_J 4482: Field Reporting: Wine Country Writing**

(same as JOURN 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**SCI\_AG\_J 4482W: Field Reporting: Wine Country Writing - Writing Intensive**

(same as JOURN 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**SCI\_AG\_J 4940: Internships in Science and Agricultural Journalism**

May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** 60 or more credit hours completed

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**SCI\_AG\_J 4970: Agriculture and the Media Senior Seminar Capstone**

Provides background, knowledge of trends and experience with agricultural media.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** Science and Agricultural Journalism seniors take last Spring semester before graduation

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**SCI\_AG\_J 7301: Topics in Science and Agricultural Journalism**

Selected current topics in science and agricultural journalism. Specific topics to be announced at time of registration. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**SCI\_AG\_J 7414: Field Reporting on the Food System and Environment**

(same as JOURN 7414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Social Work (SOC\_WK)

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**SOC\_WK 1101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** For undergraduate students only

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**SOC\_WK 1110: Introduction to the Social Work Major**

Students examine their interest in social work and other human service professions; learn of career possibilities in their interest area; and develop an educational plan to reach their goal.

**Credit Hour:** 1

**Prerequisites:** freshman or sophomore standing

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**SOC\_WK 1115: Social Welfare and Social Work**

Survey course that examines the history and development of social welfare in the United States and the profession of social work, as well as contemporary issues.

**Credit Hours:** 3

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**SOC\_WK 1200: Criminal Justice**

This course provides an introduction to the history and development of criminal justice in our country and includes policing and law enforcement, and the adjudication and court process as well as the terminology associated with each system. Theories on crime, prison, community corrections and reentry discussions for both juvenile and adult systems will be addressed. Emphasis will be placed on an overview to the major sociological and psychological perspectives on variations from normative individual and group behaviors prevalent in the U.S. society while providing a strengths perspective in which to understand them. Finally, this course will evaluate the delicate balance between community interest and personal freedom that criminal justice decision-making requires.

**Credit Hours:** 3

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**SOC\_WK 2000: Exploration in Social and Economic Justice**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**SOC\_WK 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**SOC\_WK 2101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 2220: Human Behavior and the Environment**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 2220W: Human Behavior and the Environment - Writing Intensive**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 3101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3101W: Topics in Social Work - Writing Intensive**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3310: Comparative Social Policy**

A comparative study of social policy aspects in the framework of international development. Policy areas include South Asia, as well as other regions relevant to such study.

**Credit Hour:** 2-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3320: Understanding Personality in a Social Context**

Introduces students to diverse personality theories and examines background, key concepts, motivation, structure, development dynamics and applications of each theory in a social context. Required of all undergraduate social work majors.

**Credit Hours:** 3

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**SOC\_WK 3330: Medical Social Problems**

Interrelations of biological, psychological, social factors in understanding people with common physical illnesses.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent required

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**SOC\_WK 3340: Dynamics of Interviewing**

Analysis of interviewing techniques employed in communication for securing reliable, valid data to modify behavior in accordance with professional objectives.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 3350: Problems in Social Work**

Research and independent study projects offered on a tutorial basis to undergraduate social work students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 4300: Women and Health Care**

Provides a study of the role of women as health care providers and an analysis of the impact of value systems and the women's movement on the organization and delivery of health services to women.

**Credit Hours:** 3

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**SOC\_WK 4310: Social Statistics**

Descriptive, analytic techniques applied to qualitative and quantitative social data. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** sophomore standing required

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**SOC\_WK 4320: Rural Human Services**

A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4330: Addiction Treatment and Prevention**

Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4350: Deaf Culture: A Social Work Perspective**

An introduction to the deaf community as a linguistic and cultural minority. Examines the complexities of Deaf culture from a historical and contemporary perspective. Addresses cultural identity, communication, education, social services, civil rights and advocacy. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 4360: Working with Minority Youth**

(same as BL\_STU 4360). Develops awareness and understanding of social/psychological and cognitive realities influencing the behavior of minority youth. Content draws upon theories, research and practice skills relevant to understanding and counseling minority youth.

**Credit Hours:** 3

**Prerequisites:** junior standing

---

**SOC\_WK 4370: Delinquency, Corrections and Social Treatment**

Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4380: Social Work Practice With Minorities: African-American Emphasis**

(same as BL\_STU 4380). Provides students with an appreciation of the African-American experience in the United States on a knowledge and feeling level.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4390: Helping Strategies With Children and Adolescents**

Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4395: Death, Grief and Loss**

This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4400: Domestic Violence**

(same as WGST 4400). This 3-hour course covers history of battered women's movement, violence theories, policy issues, prevention and intervention practice models for working with battered women, their children, and abusers.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**SOC\_WK 4410: Law and Social Work Practice**

Legal processes relevant to social work practice and court procedures, and study of decisions affecting social work across micro and macro practice.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4440: International Social Work Practices and Principles**

This course explores issues of fairness and equity in economic, political and social systems, and applies social justice principles to major international social problems. Social Justice is the perspective that in a

perfect world, all citizens deserve equal rights, protection, opportunities, obligations and social benefits. Recognizing that the world is not perfect, International Social Work Practice and Principles presents theories and perspectives on how to affect a more just society and world community. Social Work person in environment orientation and strong value system are used as guides in analyzing problems and determining ways of promoting a more just society and global community.

**Credit Hours:** 3

**Prerequisites:** Junior Standing required

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**SOC\_WK 4450: Professional Perspectives on Child Welfare Services in the 21st Century**

This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long-term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within the program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 4455: Latino/a Immigrants and Receiving Communities**

This interdisciplinary course is designed to educate students about the Latino/a immigrants seeking better lives and the communities that receive them. Special attention is given to social justice issues; micro, mezzo, and macro systems will be used to explore content.

**Credit Hours:** 3

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**SOC\_WK 4480: Helping Strategies with Older Persons**

This course is designed to provide knowledge and skill development for work with older adults and their families. It offers an intensive examination of the concepts and skills needed for effective social work practice with these populations. In particular, sociological, psychological, political, and economic factors affecting older adults will be examined as they relate to intervention, programmatic, and policy responses. Special attention will be given to assessment and intervention from macro, mezzo, and micro perspectives. The interrelationship between the aging person, the family, and society is explored since these factors affect all levels of practice. Content in this course related to the social and economic mission of the School of Social Work.

**Credit Hours:** 3

**Prerequisites:** Junior standing in Social Work and instructor's consent required

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**SOC\_WK 4710: Social Justice and Social Policy**

Based on the concepts of human need and social justice, a historical and analytical approach to social welfare policies and programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4711: Social Justice and Social Policy II**

Advanced course in the analysis of policies and programs relevant to social work and social welfare. Prepares students to understand and conduct policy analysis of public, voluntary, and proprietary human service organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4710; Social Work Professional standing

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**SOC\_WK 4720: Variations in Human Behavior**

Basic concepts and principles regarding psychological/social dynamics of deviance; implications for social welfare policy and social interventions.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4730: Introduction to Social Work Practice**

Introductory, generalist practice theory course promoting student's understanding of professional social work practice as holistic, identifiable, unique configuration of knowledge, values and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional Standing and departmental consent required

---

**SOC\_WK 4740: Introduction to Community and Organizational Processes**

Introduction to contextual framework of social work practice with particular emphasis on community and organization as social systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Social Work professional standing and departmental consent required

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**SOC\_WK 4750: Interaction Skills Workshop**

Generalist practice at individual, group and community levels. Group communication and social influence theories address generic and unique aspects of interaction across systems. Uses laboratory instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing and departmental consent required

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**SOC\_WK 4760: Theory and Practice of Social Group Work**

Focuses on small group dynamics and models of group work practice suitable in all social work fields. Emphasizes practice theory and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing

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**SOC\_WK 4770: Strategies of Direct Practice**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4770W: Strategies of Direct Practice - Writing Intensive**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4951: Research for Social Work Practice**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4951W: Research for Social Work Practice - Writing Intensive**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952: Research Methods for Social Work**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952W: Research Methods for Social Work - Writing Intensive**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4960: Special Readings in Social Work**

Extensive readings in selected area or intensive reading in a special field.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4970: Senior Professional Seminar**

Integrative professional practice seminar for BSW students, focusing on the principles of generic social work and its application to direct practice in diverse fields, career planning and responsibilities.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; departmental consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970

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**SOC\_WK 4971: Undergraduate Field Practicum**

Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Fall semester, three days per week. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** senior standing; SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; departmental consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970

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**SOC\_WK 4971H: Undergraduate Field Practicum - Honors**

Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** senior standing; SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970. Honors eligibility required

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**SOC\_WK 7000: Professional Social Work Practice**

This course introduces the social work profession within a historical and contemporary context, provides an overview of key concepts, standards and regulations, and assists students in examining personal and professional values and ethics related to practice. Graded on an A-F basis only.

**Credit Hour:** 1

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**SOC\_WK 7001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 7085: Problems in Social Work**

Intensive study of an area of social welfare related to special interest of student.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 7220: Advanced Social Work Practice in Integrated Healthcare**

The course will introduce students to the essential practice skills needed to effectively address the challenges of integrating services, care, and support for persons with health, mental health, and substance use problems. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7230: Integrative Behavioral Health Clinic**

This is an elective course devoted to assessment, intervention and research with under-served individuals, couples, groups and families. This course is facilitated as a skills-training laboratory. Intervention methods will be applied to client's coping with major life stressors and relational problems. Students should leave this course with increased confidence in their ability to analyze patterns, assess, and intervene using diverse clinical methods. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** Masters of Social Work students only

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**SOC\_WK 7300: Women and Health Care**

Provides a study of the role of women as health care providers and an analysis of the impact of value systems and the women's movement on the organization and delivery of health services to women.

**Credit Hours:** 3

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**SOC\_WK 7320: Rural Human Services**

A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns.

**Credit Hours:** 3

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**SOC\_WK 7330: Addiction Treatment and Prevention**

Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

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**SOC\_WK 7340: Military Culture**

An introduction to the branches of the military and related cultural issues. Examines the historical and contemporary complexities of military service and personal and professional values and ethics related to practice with military personnel, families, and veterans. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7350: Deaf Culture: A Social Work Perspective**

An introduction to the deaf community as a linguistic and cultural minority. Examines the complexities of Deaf culture from a historical and contemporary perspective. Addresses cultural identity, communication, education, social services, civil rights, and advocacy. Graded on A-F basis only

**Credit Hours:** 3

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**SOC\_WK 7370: Delinquency, Corrections and Social Treatment**

Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

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**SOC\_WK 7390: Helping Strategies With Children and Adolescents**

Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

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**SOC\_WK 7395: Death, Grief and Loss**

This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

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**SOC\_WK 7400: Domestic Violence**

(same as WGST 7400; cross-leveled with SOC\_WK 4400, WGST 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma.

**Credit Hours:** 3

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**SOC\_WK 7410: Law and Social Work Practice**

(cross-leveled with SOC\_WK 4410). This course explores the intersection of human services, law, and policy. It explores how law shapes services directed at children, families, women, and racial and sexual minorities. Students learn to work with legal professionals, prepare for proceedings, and avoid malpractice.

**Credit Hours:** 3

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**SOC\_WK 7430: Community Organization for Social Welfare**

The theory and practice of community organization as a social work problem solving method. Approaches emphasized include locality development, social planning and social action.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7450: Professional Perspectives on Child Welfare Services in the 21st Century**

This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within either program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 7460: Advanced Social Group Work**

An intensive exposure to the theories and models of social group work practice through cognitive, affective and experiential (laboratory) methods of teaching/learning.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7470: Organizational Issues in Social Work Practices in Child Welfare**

Intensive seminar in meso-level practice in the field of child welfare. Examines communication theory, team building, and interorganizational dynamics as they affect professional practice in child welfare.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7480: Helping Strategies with Older Persons**

Focus on interdisciplinary methods of assessment and intervention strategies designed to optimize healthy functioning for older persons and their families.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7485: Military Social Work**

An introduction to social work practice with military personnel, veterans, and their families. Content draws on theories strategies, and research relevant to effective social work practice with this population. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7490: Family Treatment**

Comparative study of theories and methods required for work with problems of family functioning. Both conjoint and subsystem approaches to family treatment are examined.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7710: Social Policy and Service Delivery in Social Work**

Covers historic and contemporary issues in social welfare policy. Focuses on relationships among social problems, public policies, private actions, poverty, racism, sexism and social work practice/values. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7720: Foundations of Human Behavior**

Substantive sources from behavioral sciences used in social work toward understanding the biosocial processes and constraints of human development.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7730: Social Work Skills**

Introduces theory and application of strengths-based generalist practice. Develops knowledge, values, and techniques of professional social work practice at micro, mezzo, and macro levels, emphasizing assessment and interaction skills.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; Foundation level course

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**SOC\_WK 7740: Large Group Theory**

Examination of social environment in which social work is practiced with particular emphasis on development of analytic framework for understanding formal organizations and communities.

**Credit Hour:** 2-3

**Prerequisites:** graduate standing in Social Work

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**SOC\_WK 7750: Advanced Interaction Skills Workshop**

Advanced class in social processes and interaction skills basic to generalist social work practice. Learning in cognitive, behavioral and affective domains: including group dynamics, communication and social influence theory.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; departmental consent required

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**SOC\_WK 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and HMI 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7752: Physical Function and Older Adults**

(Same as F\_C\_MD 7750, ARCHST 7640, HMI 7750, H\_D\_FS 7750, NURSE 7750, and P\_HLTH 7750. This course takes an interdisciplinary approach to understanding and improving the physical function and independence of older adults and explores approaches to alleviate disabling conditions that interfere with physical function and quality of life in old age. Graded A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7760: Social Justice Seminar**

Provides integrative learning experience in social work practice in foundation level social work practice focusing on social and economic justice experiences in field practicum.

**Credit Hours:** 2

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 7971

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**SOC\_WK 7770: Strategies of Clinical Social Work Intervention**

Strategies of social treatment with individuals and small groups applicable to practice in public and private social agency settings.

**Credit Hours:** 3

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**Prerequisites:** graduate standing in social work; departmental consent required

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**SOC\_WK 7780: Fundamentals of Social Work Administration**

Basic managerial skills which social workers need for supervision, planning, staff development and administrative positions in social agencies; focus on individual management functions and skills associated with them.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7790: Practicum in Cultural Diversity I**

A practicum conducted on a workshop with content focused on racial, cultural and gender dynamics in social work practice. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 7791: Practicum in Cultural Diversity II**

Continuation of SOC\_WK 7790. A practicum conducted as a workshop with content focused on racial, cultural and gender dynamics in social work practice. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 7820: DSM V and Psychopathology: A Social Work Perspective**

Examines psychopathology of human behavior within social work context, prevailing diagnostic models (Diagnostic and Statistical Manual of Mental Disorders V), and historically oppressive categorizations.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Social Work

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**SOC\_WK 7920: Advanced Foundations of Human Behavior for Administrators**

Examination of relevant theoretical and behavioral foundations in order that students can acquire the knowledge to function as a social work administrator.

**Credit Hours:** 3

**Prerequisites:** graduate Social Work majors

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**SOC\_WK 7952: Research Methods in Social Work**

Examines research methodology and design as applied to the study of social work techniques and problems. Emphasizes differential uses of scientific observation and techniques for developing knowledge and improving practice.

**Credit Hours:** 3

**Prerequisites:** Graduate Social Work Majors

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**SOC\_WK 7971: Graduate Field Practicum I**

Supervised social work practice in a school-approved agency providing a full range of interventive experiences. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** admission to MSW program; SOC\_WK 7710, SOC\_WK 7720, SOC\_WK 7730, SOC\_WK 7740, SOC\_WK 7760. Departmental Consent Required

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**SOC\_WK 7981: Professional Development Workshop**

Field practicum under intensive faculty instruction for eight weeks prepares the student for entry into the accelerated graduate degree program.

**Credit Hours:** 8

**Prerequisites:** BSW degree and dean's consent

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**SOC\_WK 8001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. May be repeated for credit

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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**SOC\_WK 8010: Child Abuse and Neglect Assessment and Intervention**

In-depth exploration of identification of and interventions with abused/neglected children and their families. Examines roles for social work with both victims and perpetrators. Examines how environmental factors affect successful intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; instructor's consent for non MSW students

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**SOC\_WK 8020: Social Work in Schools**

The course focuses on the etiology and development of child and adolescent educational, social, emotional, and behavioral health disorders encountered, identified and treated in school settings. Educational disabilities and related policies and the interdisciplinary nature of school settings will be highlighted. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8030: Client Case Management, Networking, and Advocacy**

Examines the key role of clinical case management across all social work client populations. Models of case management for and techniques applicable to those populations will be developed for effective practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; instructor's consent for non-MSW students

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**SOC\_WK 8040: Narrative Approaches to Social Work Practice**

This class will enable students to gain knowledge of theory and basic practice skills grounded in narrative therapy. The use of narratives with vulnerable and oppressed populations and creative strategies to evoke narratives are highlighted in this course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; departmental consent required

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**SOC\_WK 8050: Resiliency and Solution-Focused Practice**

Focuses on brief therapy approaches to dealing with clinical problems in a time-efficient, clinically effective method. Various approaches to solution-oriented work based in resiliency theory are presented. Stresses client empowerment across the lifespan.

**Credit Hours:** 3

**Prerequisites:** Social Work [SOC\_WK] 7770; graduate level Social Work Majors only. Graded on A/F basis only

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**SOC\_WK 8060: Trauma Practice and Crisis Intervention**

Focuses on clinical techniques for social work with trauma survivors. Addressing effects of disasters, personal violence and war are included. Resiliency in survivors is presented as basis for interventions.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; graduate level Social Work majors only

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**SOC\_WK 8070: Cognitive Behavioral Practice**

Focuses on the theory, concepts, and techniques of cognitive behavioral therapies, with a particular emphasis on clinical intervention methods that may be used by the social worker to address specific client needs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770. Restricted to graduate Social Work majors

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**SOC\_WK 8090: Master's Research in Social Work**

Independently conducted research that includes concept development, data collection, statistical analysis and social policy implications prepared in a format suitable for publication. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 8100: Mental Health Policies and Programs**

Focus is on knowledge of the content, context, history and current trends in mental health policymaking at federal and state levels, and skill building in policy analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 8200: Family and Child Welfare Policies and Programs**

Graduate seminar on policies and programs relevant to social work practice in the family and child welfare field, including policies on aging.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 8210: Disability Rights Advocacy**

Highlights historical views of disabilities in relationship to contemporary policies, programs and services. This cross-disability focus examines the shift in focus from cure, care, and treatment to participation, capabilities, adapting environments, and building community. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8220: Integrated Health Policy and Services**

The course focuses on the role of social workers as social policy practitioners within an Integrated Behavioral Health environment. Strategies to influence policies and promote change in the interest of service consumer, agency, and society will be presented. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8240: Social Policy for Older Adults**

Examines local, state, and federal social policies related to older adults highlighting challenges related to diverse and special needs. Students will explore and appraise needs, values, ageism, and human rights related to social policies for older adults.

**Credit Hours:** 3

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**SOC\_WK 8250: Equity and Disparities in Health**

(same as P\_HLTH 8250). This course is designed to provide students with knowledge about the distribution, causes, and consequences of health inequalities. The course will examine how multiple predictors such as socioeconomic status, behavioral risk factors, and cultural factors such as perceived discrimination and acculturation, gender and marriage, stigma, and health care inequalities are related with racial/ethnic, socioeconomic, and gender disparities in health. This course will also discuss implications that may contribute substantively toward the elimination of health inequalities. Graded on AF basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7710, SOC\_WK 7720, SOC\_WK 7730, SOC\_WK 7740 and SOC\_WK 7760; Instructor's consent required

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**SOC\_WK 8300: Advanced Social Policy for Planning and Administration**

Focus on integration of cognitive and skill components of policy development, analysis and change with special emphasis on utility by social work administrators and planners.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7920; departmental consent required

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**SOC\_WK 8350: Management of a Social Agency**

Basic resource management and control techniques common to social agencies with emphasis on personnel management, information and data management, and fiscal management.

**Credit Hours:** 3

**Prerequisites:** restricted to Graduate Social Work majors

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**SOC\_WK 8952: Evaluative Research in Clinical Social Work Practice**

Develop ability to systematically evaluate effectiveness of interventive strategies designed to produce positive change in clients' environment and/or cognitive, affective and behavioral functioning.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8953: Evaluative Research in Social Work**

Develop ability to design and implement appropriate evaluative research methods and strategies employed in social and human service delivery.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8955: Independent Study in Social Work**

Intensive investigation of phenomena germane to area of concentration carried out with guidance of faculty. May include data collection; leads to a written report in publishable format.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 8970: Professional Practice Seminar I**

Provides integrative learning experience in social work practice in an area of beginning specialization in autonomous social work practice.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 8971

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**SOC\_WK 8971: Graduate Field Practicum II**

Field instruction tailored to concentration interests, developing depth in clinical skills in direct service or in planning and administration. Graded on S/U basis only.

**Credit Hour:** 1-13

**Prerequisites:** Restricted to graduate Social Work majors. Completion of all required graduate coursework except SOC\_WK 8970

**Corequisites:** SOC\_WK 8970

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**SOC\_WK 8990: Topics in Advanced Social Welfare**

Topics in Advanced Social Welfare.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**SOC\_WK 9001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 9090: Research in Social Work**

Research in Social Work. Graded on S/U basis only.

**Credit Hour:** 1-12

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**SOC\_WK 9100: Knowledge Building I**

Advanced systemic review of theories requisite for study and implementation of practice and policy centered research in social welfare and development; emphasis placed on critical analysis of theories needed for research and study of integrated social development.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9200: Knowledge Building IIA**

Building on the foundation laid in SOC\_WK 9100, in depth examination of human development and social environment theories appropriate to

scientific examination of social welfare practice with individuals, families, formed and natural groups.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9300: Research Methodology and Design Seminar**

Review of historical development of social welfare and social work research with emphasis on critical analysis of seminal studies; examination of "state-of-the-art" social welfare and development initiatives, designs and methodology.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9350: Advanced Quantitative and Qualitative Methods in Social Research**

The course provides an in-depth understanding of the use of both quantitative and qualitative methods. The curriculum emphasizes an integration of quantitative and qualitative approaches, methods, and data analysis. Computer application sessions are included. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 9300 or permission of instructor

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**SOC\_WK 9400: Macro Social Theory**

(Same as NURSE 9400). Building on the foundation laid in SOC\_WK 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with formal organizations, interorganizational combinations, communities and larger political entities.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9500: Pro Seminar I**

Joint student-faculty exercise in intellectual discovery focusing on current and emerging issues in the field of social work and social development; emphasis on integration of multi-disciplinary perspectives. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 9560: Qualitative Systematic Reviews**

(Same as NURSE 9560 and H\_D\_FS 9560) Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** NURSE 9420 or equivalent

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**SOC\_WK 9600: Professional Seminar II**

This second seminar focuses on topics related to long term professional success for doctoral students. The seminar covers topics on conference presentations, peer-reviewed publications, external funding, and academic job search process. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9650: Pedagogical Methods in Social Work and Applied Professional Programs**

An in depth examination of the pedagogical issues, policies, and principles associated with teaching social work in higher education. Topics include the history and philosophy of social work education, instructional models and methods, assessing educational outcomes, and instructional improvement methods. Issues specific to social work include the need to differentiate teaching methods relative to direct practice, human services administration, community organization, policy practice, and program evaluation. Particular focus will be directed toward online education and its role in the 21st century. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9700: Social Welfare Policy Seminar**

(Same as NURSE 9700). Critical examination of comparative models of social policy development; preparation of a professional social work policy analysis in the student's area of interest/specialization that is suitable for submission to an appropriate referred journal.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9800: Research Application I**

Research practicum for Social Work doctoral students.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9850: Research Application II**

Research Practicum. In most cases it will be a second research practicum but may also be a continuation of the research conducted in SOC\_WK 9800. Prerequisites: departmental consent required

**Credit Hours:** 3

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**SOC\_WK 9890: Dissertation Seminar**

This course will assist doctoral students in planning and writing the dissertation.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9900: Doctoral Dissertation Research in Social Work**

Independently conducted research that includes concept development, data collection, statistical analysis and social policy implications prepared in a format suitable for publication. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent required

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## Sociology (SOCIOL)

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**SOCIOL 1000: Introduction to Sociology**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOL 1000 and RU\_SOC 1000.

**Credit Hour:** 1-3

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**SOCIOL 1000H: Introduction to Sociology Honors**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOL 1000 and RU\_SOC 1000.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**SOCIOL 1010: Social Problems**

Introduces a sociological perspective on what constitutes social problems and their impact on individuals and societies. Emphasizes critical thinking skills. Topics covered may include poverty, inequalities of gender, race, class, religion, education, and political power, the environment and global conflicts among others.

**Credit Hours:** 3

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**SOCIOL 1120: Population and Ecology**

(same as RU\_SOC 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**SOCIOL 1360: The Female Experience: Body, Identity, Culture**

(same as WGST 1360). Study of the experience of being female in American culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**SOCIOL 1650: Social Deviance**

Survey of approaches to the study of behaviors commonly regarded as deviant such as crime, sexual abuse, substance abuse, mental illness, etc.

**Credit Hours:** 3

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**SOCIOL 2103: Topics in Sociology-Behavioral Science**

Organized study of selected topics. Particular topics may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**SOCIOL 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as PEA\_ST 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOL 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as PEA\_ST 2182W). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOL 2200: Social Inequalities**

(same as BL\_STU 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequalities are structured.

**Credit Hours:** 3

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**SOCIOL 2210: The Black Americans**

(same as BL\_STU 2210). Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, styles of life, patterns of work and intergroup relations.

**Credit Hours:** 3

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**SOCIOL 2230: Social Perspectives on Aging**

Survey of basic knowledge in social gerontology, aging and old age in American society. Analysis of changes as individuals age, differences among old people, social problems of the aged.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**SOCIOL 2255: Youth, Islam, and Global Cultures**

(same as PEA\_ST 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**SOCIOL 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, "regional" nuclear war, and weapons testing for human health, agriculture, and society. Examining "a world without nuclear weapons"; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2284: Critical Dialogs: Global Environmental Policy Conflicts**

(same as PEA\_ST 2284). Climate change, water supplies, food, sustainability, industrialization, and chemical, oil, radioactive pollution. Activity of transnational corporations, social harm, and formulation of international policies. Analysis of alternatives using criteria of justice: distribution, recognition, participation, legality.

**Credit Hours:** 3

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**SOCIOL 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as PEA\_ST 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2286: Technological Futures, National Security, and Civil Liberties**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital

intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2300: Self and Society**

Analysis of the self in modern society. Topics covered include social interaction, social perception, language and learning, the sociology of emotions and the social construction of identity.

**Credit Hours:** 3

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**SOCIOL 2310: Culture and Mass Media**

Sociological study of modern folk, local, popular and mass cultural production and consumption; mass media, diffusion, change, differentiation.

**Credit Hours:** 3

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**SOCIOL 2950: Social Research I**

(same as RU\_SOC 2950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 3000: Urban Sociology**

Urbanism as a world phenomenon; ecological, demographic characteristics of cities; organization of urban society including status systems, occupational structure, formal and informal associations, racial and cultural relations, forms of communication, housing, city planning.

**Credit Hours:** 3

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**SOCIOL 3100: Recent Theories in Sociology**

(same as RU\_SOC 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Prerequisites:** Sociology majors only. Non-sociology majors may petition the instructor to add the course

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**SOCIOL 3200: Class, Status, and Power**

Study of the structure of wealth, poverty, prestige, and power. Concepts of social justice in political, economic and legal issues and policies. Provides student engagement in research.

**Credit Hours:** 3

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**SOCIOL 3210: Sociology of Globalization**

Globalization's origin and dynamics; the social and political effects of globalization: countervailing forces to economic globalization, in particular reassertions of "traditional" identities, labor movements, new social movements, and the global democracy movement.

**Credit Hours:** 3

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**SOCIOL 3230: Education and Social Inequalities**

Examination of the ways in which inequalities are constructed, reproduced, maintained or transformed by and within educational institutions. Particular attention will be given to inequalities based on gender, race, and social class.

**Credit Hours:** 3

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**SOCIOL 3255: Youth in Today's World**

Study of what factors influence the development of youth in today's society. Examined are types of behavior such as mating, deviance and the role of schools, parents, TV and friendship groups.

**Credit Hours:** 3

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**SOCIOL 3300: Queer Theories/Identities**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3300W: Queer Theories/Identities - Writing Intensive**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3310: Social Psychology**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3310W: Social Psychology - Writing Intensive**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3320: Sociology of Gender**

(same as WGST 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

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**SOCIOL 3330: Environmental Justice**

(same as PEA\_ST 3330). Environmental justice refers to the ways in which the "cost and benefits" of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank

account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality.

**Credit Hours:** 3

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**SOCIOL 3400: Politics of the Media**

(same as PEA\_ST 3400). In this course we study critical thinking skills and use them to compare and contrast U.S. media coverage of current issues with media in other parts of the world. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3400W: Politics of the Media - Writing Intensive**

(same as PEA\_ST 3400). In this course we study critical thinking skills and use them to compare and contrast U.S. media coverage of current issues with media in other parts of the world. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3420: The Family**

Families, kin and households as interacting groups; roles, socialization, problems, structural change; family in relation to other social institutions; historical, cultural and class variations.

**Credit Hours:** 3

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**SOCIOL 3430: The Sociology of Sport**

The role of sport in modern society. Includes violence in sport; politics and economics of sport; male, female, and racial inequalities; and international comparisons of sport structures.

**Credit Hours:** 3

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**SOCIOL 3440: Sociology of Health**

A survey of sociological thinking and research on health, health problems, health occupations and health services. How these are shaped by the society. Problems faced by individuals and the system. Potential solutions to problems.

**Credit Hours:** 3

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**SOCIOL 3450: The Sociology of Religion**

Sociology of religious experience, action, organization, movements and social change; contemporary trends, including mainline and new religions, civil religion, secularization.

**Credit Hours:** 3

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**SOCIOL 3460: Technology and Society**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the

relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3460W: Technology and Society - Writing Intensive**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3510: Public Opinion and Communication**

Nature of public opinion; processes of opinion formation; special publics, pressure groups; effects of communication through personal contacts and mass media; propaganda, censorship; opinion surveying.

**Credit Hours:** 3

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**SOCIOL 3520: Collective Behavior**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3520W: Collective Behavior - Writing Intensive**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3522: New Media, Conflict and Control**

(same as PEA\_ST 3522). This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

**Credit Hours:** 3

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**SOCIOL 3600: Criminology**

(same as PEA\_ST 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**SOCIOL 3700: Institutions and Society**

Institutions of societies with focus on institutional arrangements (economy, polity, media, education, religion); organizational structures; interorganizational networks; interrelations of institutional sectors.

**Credit Hours:** 3

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**SOCIOL 3710: The Sociology of Work**

Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1650

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**SOCIOL 3950W: Social Research I - Writing Intensive**

(same as RU\_SOC 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 4104: Topics in Sociology-Social Science**

Organized study of selected topics. Particular topics may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**SOCIOL 4110: Feminist Research and Criticism**

(same as WGST 4110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**SOCIOL 4120: Social Statistics**

(same as RU\_SOC 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 or graduate standing

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**SOCIOL 4200: Social Inequalities**

Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent

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**SOCIOL 4210: Aging and the Life Course**

Course will take a life course perspective on the sociological aspects of aging in contemporary American society. Begins with birth, then childhood, adolescence, emergent adulthood, middle life, old age, and death. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above

**Recommended:** At least three credits in Sociology prior to enrollment is preferred

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**SOCIOL 4220: Race and Ethnic Relations**

The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**SOCIOL 4230: Women, Development, and Globalization**

(same as BL\_STU 4230 and WGST 4230 and PEA\_ST 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332, BL\_STU 2200; SOCIOL 2200; WGST 1332 or WGST 2010

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**SOCIOL 4235: Social Perspectives on Gender and Emotion**

(same as BL\_STU 4235, WGST 4235; cross-leveled with BL\_STU 7235, SOCIOL 7235, WGST 7235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** WGST 1332 or WGST 1360; SOCIOL 1360 or SOCIOL 2300; BL\_STU 1332 or BL\_STU 2200; junior standing

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**SOCIOL 4315: Social Demography**

(same as RU\_SOC 4315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000 and junior standing

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**SOCIOL 4320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectivities.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310 graduate standing or instructor's consent

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**SOCIOL 4335: Social Change and Development**

(same as RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**SOCIOL 4370: Environment and Society**

(same as RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

**Prerequisites:** junior, senior or graduate standing

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**SOCIOL 4410: Sociology of Education**

(cross-leveled with ED\_LPA 7458 and SOCIOL 7410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**SOCIOL 4500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**SOCIOL 4510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions. MA core course.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3520, SOCIOL 3700, or SOCIOL 3320 or graduate standing

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**SOCIOL 4520: Political Sociology**

(same as PEA\_ST 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**SOCIOL 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as WGST 4550 and PEA\_ST 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200; senior standing required

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**SOCIOL 4610: Society and Social Control**

The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 4620: Drugs and Society**

Course will examine the social, political, and economic aspects of legal and illegal drug use in American society. Issues include: theories of drug use, the social correlates of drug use, the war on drugs and policy alternatives, and the rise of the pharmaceuticals industry. Graded on A/F basis only

**Credit Hours:** 3

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**SOCIOL 4630: Sociology of Mental Health**

Course examines the social aspects of mental health and illness. Topics include: stress and mental health, medicalization of behavior, stigma and labeling, mental health care systems, social correlates of mental health (such as gender, childhood, work status, and social support).

**Credit Hours:** 3

**Recommended:** 1000 level sociology course or 1000 level Psychology course

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**SOCIOL 4940: Internship in Sociology**

Professional experience under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-9

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 4942: Service Learning in Sociology**

Students participate in a variety of research-oriented, community service projects which illuminate and reinforce concepts introduced in various sociology courses. Repeatable twice for credit. Does not meet Arts and Science general education requirements.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SOCIOL 4960: Special Readings in Sociology**

Extensive reading in selected area or special field.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 4970: Senior Seminar**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4970W: Senior Seminar - Writing Intensive**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4995: Honors in Sociology**

Intensive work in a selected field within sociology, including readings and research. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

**Prerequisites:** for honors candidates; SOCIOL 2950 and SOCIOL 3100

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**SOCIOL 7004: Topics in Sociology-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 7085: Problems in Sociology**

Directed research not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 7110: Feminist Research and Criticism**

(same as WGST 7110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**SOCIOL 7120: Social Statistics**

(same as RU\_SOC 7120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**SOCIOL 7200: Social Inequalities**

Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students.

**Credit Hours:** 3

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**SOCIOL 7210: Sociology of Aging**

Sociological research and theories of aging and old age; historical, demographic, comparative, social psychological and structural topics are studied in depth.

**Credit Hours:** 3

**Prerequisites:** 6 hours of Sociology

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**SOCIOL 7220: Race and Ethnic Relations**

The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**SOCIOL 7230: Women, Development and Globalization**

(same as WGST 7230 and BI\_STU 7230; cross-leveled with WGST 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**SOCIOL 7235: Social Perspectives on Gender and Emotion**

(same as WGST 7235, BL\_STU 7235; cross-leveled with WGST 4235, SOCIOL 4235, BL\_STU 4235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 7287: Seminar in Comparative Social Institutions**

Analysis of selected social institutions such as agriculture, family, economy, education, health care, law, polity, religion. Inter-institutional and international comparisons.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 4700 or instructor's consent

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**SOCIOL 7300: Death and Dying**

Death and dying explored from demographic, sociological and social psychological perspectives. Topics: trends and differentials; definitions of death; dying as a social process; funerals and survivors; cultural solutions to problems of death.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SOCIOL 7315: Social Demography**

(same as RU\_SOC 7315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000

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**SOCIOL 7320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectives.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310

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**SOCIOL 7335: Social Change and Development**

(same as RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**SOCIOL 7340: Self, Language, and Social Life**

Examines the interplay between self, language, and social life. Particular attention is paid to how the everyday construction of inner lives relates to diverse social worlds. The effects of situational and institutional conditions as they shape identity and social interactions are important considerations.

**Credit Hours:** 3

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**SOCIOL 7370: Environment and Society**

(same as RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**SOCIOL 7387: Seminar in Sociology of Work**

Recent developments in the sociological study of occupations and professions. Surveys alternative theoretical perspectives and methodological approaches. Deals with rationalization, professionalization, alienation, class consciousness, self management.

**Credit Hours:** 3

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**SOCIOL 7410: Sociology of Education**

(same as ED\_LPA 7458; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

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**SOCIOL 7446: Community Social Structure**

(same as RU\_SOC 7446). A comparative study of communities in different nations and in urban and rural areas. A primary focus of the course will be on social change in communities, in response to changing economic, political, social, cultural, and ecological factors.

**Credit Hours:** 3

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**SOCIOL 7500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

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**SOCIOL 7510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions.

**Credit Hours:** 3

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**SOCIOL 7520: Political Sociology**

(same as PEA\_ST 7520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change.

**Credit Hours:** 3

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**SOCIOL 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as PEA\_ST 7550 and WGST 7550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**SOCIOL 7587: Seminar in Culture and Mass Media**

Sociological examination of culture and mass media, including institutional character, production and distribution, audience effects, relation of social structures. Current research, theories, methods.

**Credit Hours:** 3

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**SOCIOL 7610: Society and Social Control**

The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 7687: Seminar in Family Sociology**

Research and theory on family structure and family life; in-depth study of a selection of topics and issues.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 4210 or instructor's consent

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**SOCIOL 7960: Special Readings in Sociology for the Graduate Level**

Extensive reading in selected area or special field. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SOCIOL 8086: Teaching Sociology**

This graduate seminar will cover current issues in higher education, building a teaching portfolio, the daily work of teaching, and work/life balance in academia. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8087: Critical Race Theory**

Critical examination of key sociological theories of race, racialization, and racism in contemporary society.

**Credit Hours:** 3

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**SOCIOL 8100: Theoretical Thinking in Sociology**

Close analysis of the texts of classical and contemporary social theory. Key concepts will be elaborated in the context of intellectual history, and will be applied to deepening the theoretical significance of an empirical research question on the student's emerging agenda. Required for all entering graduate students in Sociology.

**Credit Hours:** 3

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**SOCIOL 8110: Research in Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**SOCIOL 8120: The Logic of Social Research**

Meta-theoretical and conceptual issues at the core of design decision making, questionnaire construction, qualitative field techniques, interviewing, scaling, panel analysis, computer applications to qualitative

data; experimental, survey and case study designs, ethics. Required for Ph.D. students.

**Credit Hours:** 3

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**SOCIOL 8130: Advanced Social Statistics**

(same as RU\_SOC 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 7120 or equivalent

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**SOCIOL 8140: Seminar in Population Health**

Graduate Seminar on the social distribution of morbidity and mortality. Covers major theoretical perspectives and the state of empirical evidence regarding several individuals and contextual explanations of health disparities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor permission

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**SOCIOL 8150: Graduate Seminar in Urban Sociology**

In this course we will survey the field of urban sociology. Urban sociology is the study of human social relations in cities and urbanized communities. We will consider urbanization in its preindustrial, industrial, and postindustrial forms in the U.S. and elsewhere. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8187: Seminar on Interview Theory and Technique**

The seminar has three goals: First is the consideration of literature dealing with recent theoretical formulations of the interview. This will provide a basis, second, for critically examining a number of popular interview guidebooks. The third goal is to offer the opportunity to put theory and technique into practice by analyzing selected interview material.

**Credit Hours:** 3

**Prerequisites:** doctoral standing

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**SOCIOL 8250: Media and Power in Comparative Perspective Seminar**

This course traces the historical development of U.S. and selected international media systems. We analyze and debate the relationship of differing media systems to political power, popular culture, and the facilitation or inhibition of democratic practices. Students do comparative analyses of international media institutions and related analyzes of media content.

**Credit Hours:** 3

**Prerequisites:** undergraduate seniors may enroll with instructor's consent

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**SOCIOL 8277: Race, Ethnicity, and Transnational Inequalities**

(same as BL\_STU 8277). This graduate seminar examines the global contest of our radicalized modern world system. How do people develop and give meaning to race/ethnicity in different regions? Focus on the construction of bodies Creole identities, gender, sexualities, citizenships and immigration. Graded on A-F basis only.

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**Credit Hours:** 3

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**SOCIOL 8287: Seminar on Sustainable Development**

(same as RU\_SOC 8287). An interdisciplinary examination of sustainable development focusing on social, economic, cultural and environmental dimensions of development. International and domestic issues and approaches to sustainable development are included.

**Credit Hours:** 3

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**SOCIOL 8387: Seminar on Narrative and Identity**

**Credit Hours:** 3

**Prerequisites:** graduate standing required; instructor's consent required

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**SOCIOL 8425: Social Processes of Information/Knowledge Utilization**

(same as RU\_SOC 8425). Factors conditioning communication and diffusion of ideas and practices; exercise of personal influence; role of change agents and agencies in the process of change.

**Credit Hours:** 3

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**SOCIOL 8435: Graduate Seminar in Medicine, Technology, and Globalization**

In the last two hundred years medicine and technology have transformed our day-to-day living as never before. They have permeated our social and personal imagination, our epistemological bearing, disciplinary practices, and not to forget national and global agendas. A key aspect of such transformations, which we are going to investigate in this course, has been the intertwining of medicine and technology in a variety of ways, resulting in wide ranging impact - from the emergence of medical gaze, transformation of healthcare practices, to present day transnationalization and globalization of medical practices. This course would utilize recent theoretical developments to interrogate different interrelated facets of medicine, technology, and globalization. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8687: Seminar in Criminology and Deviant Behavior**

Survey of empirical research and sociological theory in criminology and deviant behavior. May be repeated once with instructor's consent.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3600

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**SOCIOL 8987: Seminar on the Sociology of Health and Sickness**

Topical seminar dealing with one of three subject areas: (1) Health problems, disease, illness, sickness; (2) Occupations, and Organizations in the health field, or (3) Comparative Health Care Systems. Course may be repeated for different topics.

**Credit Hours:** 3

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**SOCIOL 9090: Research**

Advanced work leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**SOCIOL 9187: Seminar in Sociological Theory I**

Traces development of sociological theory from the "generation of 1890" through the 1940s, including the work of Durkheim, Weber, Parsons and others.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9287: Seminar in Qualitative Methods in Sociology**

(same as RU\_SOC 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 and instructor's consent

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**SOCIOL 9288: Ethnographic Fieldwork**

History of sociological ethnography, the analysis of key ethnographic texts, forms of ethnographic fieldwork, and recent debates related to representational practices. Applications to participant observation, field interviewing, and strategies of discourse analysis in various social settings.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 9287, instructor's consent

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**SOCIOL 9300: Social Interaction Research**

Seminar on research methods in social interaction. Prerequisites: PSYCH 8310 or instructor's consent

**Credit Hours:** 3

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**SOCIOL 9350: Graduate Seminar in Environmental Discourses**

This seminar explores human cultural interactions with nature: how we understand ourselves in relation to space, how we interact with and learn about nature, and how we use nature. Readings will include exemplary texts from sociology, geography and anthropology, science studies and cultural studies. Graduate Standing required.

**Credit Hours:** 3

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**SOCIOL 9487: Seminar in Sociological Theory II**

Theoretical developments in sociology in Europe and United States since 1950. Recent formulations, controversies.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9500: Seminar in State and Economy**

Analysis of public policy and economic change in contemporary political-economic systems; growth of welfare state, capitalist planning, state socialist economics.

**Credit Hours:** 3

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**SOCIOL 9525: Culture, Difference, and Inequality**

This course is an examination of exemplary, interdisciplinary texts employing a variety of cultural approaches to understanding difference and inequality. In this seminar, we will think about what is gained from various cultural approaches to difference and inequality, now such

approaches can be achieved methodologically, and how students can apply such approaches to their own research. The main focus of the course is on cultural studies and poststructural feminist studies, but readings will also be included from intersectionality studies, affect studies, critical race studies and cultural sociology.

**Credit Hours:** 3

**Prerequisites:** restricted to Sociology graduate students or instructor permission

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### **SOCIOL 9587: Topical Seminar in Contemporary Sociological Theory**

Critical evaluation of selected points of view in current sociological theory. May be repeated with departmental consent.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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### **SOCIOL 9687: Topical Seminar in Historical Sociology**

Methodological approaches to sociological explanation of historical phenomena; related sociological theories of historical development, including Weberian, Marxist and other perspectives applied to a topical historical problem.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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### **SOCIOL 9777: Graduate Seminar in Body and Society**

The course is organized around three major themes - body as a site of personal and political experience; the social body, emphasizing the relationship between society, culture, and individuals; and the body as a site and instrument of politics. Readings assigned for the course are aimed at critical engagement with the "body: within and across these themes. Graded on A-F basis only.

**Credit Hours:** 3

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### **SOCIOL 9837: Seminar in Multivariate Analysis Techniques**

(same as RU\_SOC 9837). Examination of various qualitative techniques of data analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 or instructor's consent

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### **SOCIOL 9887: Seminar in Sociology of Gender**

Analysis of recent research in which gender is a major focus. This research is chosen to exemplify a variety of theoretical perspectives, research strategies, and substantive topics.

**Credit Hours:** 3

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### **SOCIOL 9920: Independent Readings in Preparation for Comprehensive Examinations**

Independent readings for PhD comprehensives. Open only to PhD candidates who have passed qualifying examinations.

**Credit Hour:** 1-6

**Prerequisites:** consent of major advisor

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### **SOCIOL 9987: Seminar in Sociological Reasoning and Research Development**

Systematic development of sociological research integrating theory, method, and contributions to knowledge. Formulations of sociological problems, conceptual frameworks, research programs analytical strategies.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 or equivalent; departmental consent; doctoral standing

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## **Soil Science (SOIL)**

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### **SOIL 2100: Introduction to Soils**

(same as PLNT\_S 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hours of Chemistry

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### **SOIL 2106: Soil Science Laboratory**

Laboratory application of fundamental soil science concepts.

**Credit Hours:** 2

**Corequisites:** SOIL 2100

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### **SOIL 3001: Topics in Soil Science**

Organized study of selected topics in soil science.

**Credit Hour:** 1-99

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### **SOIL 3085: Problems in Soil Science**

Special individualized research projects or readings in soil science.

**Credit Hour:** 1-99

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### **SOIL 3290: Soils and the Environment**

(same as ENV\_SC 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLISH 1000

**Recommended:** 3 hours of chemistry

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### **SOIL 3290W: Soils and the Environment - Writing Intensive**

(same as ENV\_SC 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLISH 1000

**Recommended:** 3 hours of chemistry

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### **SOIL 4001: Topics in Soil Science**

Organized study of selected topics in soil science.

**Credit Hour:** 1-99

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**SOIL 4085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 4305: Environmental Soil Physics**

(same as ENV\_SC 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

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**SOIL 4306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 4308: Soil Conservation**

Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 4312: Environmental Soil Microbiology**

(same as ENV\_SC 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**SOIL 4313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 4314: Soil Fertility and Plant Nutrition Laboratory**

(same as PLNT\_S 4314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4313

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**SOIL 4318: Environmental Soil Chemistry**

(same as ENV\_SC 4318 and GEOL 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**SOIL 4320: Genesis of Soil Landscapes**

The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Recommended:** introductory soil science or introductory geology course

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**SOIL 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, PLNT\_S 4360; cross-leveled with SOIL 7360, AG\_S\_M 7360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110, or instructor's consent

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**SOIL 4940: Soil Science Internship**

Supervised professional experience with an approved public or private organization. Course may be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Soil and Atmospheric Sciences majors only, instructor's consent

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**SOIL 4950: Undergraduate Research in Soil Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** SOIL 2100 and SOIL 2106, STAT 2530, or instructor's consent

**Recommended:** 9 hours of Soil Science with at least 3 hours above the 3000-level

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**SOIL 7001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 7085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing

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**SOIL 7305: Environmental Soil Physics**

(same as ENV\_SC 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**SOIL 7306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 7306). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 7308: Soil Conservation**

Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 7312: Environmental Soil Microbiology**

(same as ENV\_SC 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformations bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** general microbiology, SOIL 2100, or instructor's consent

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**SOIL 7313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 7313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 7314: Soil Fertility and Plant Nutrition Laboratory**

(same as PLNT\_S 7314). The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 7313

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**SOIL 7318: Environmental Soil Chemistry**

(same as GEOL 7318 and ENV\_SC 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**SOIL 7320: Genesis of Soil Landscape**

The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Prerequisites:** introductory soil science or introductory geology or permission of instructor

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**SOIL 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and PLNT\_S 7360; cross-leveled with SOIL 4360, AG\_S\_M 4360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PLNT\_S 2110 or instructor's consent

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**SOIL 8001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 8085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 8090: Masters Research in Soil Science**

Original investigations in soil science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 8400: Solute Transport in the Vadose Zone**

(same as ENV\_SC 8400). Transport of water and solutes in geomedia with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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**SOIL 8450: Nonthesis Research in Soil Science**

Research not expected to terminate in dissertation.

**Credit Hour:** 1-9

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**SOIL 8500: Chemistry of the Vadose Zone**

(same as ENV\_SC 8500). Chemical reactions occurring in geomedia with emphasis on understanding molecular scale processes occurring at the solid-water interface, aqueous geochemistry, and soil organic matter.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300 or instructor's consent

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**SOIL 9001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 9085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 9087: Seminar in Soil Science**

In-depth development of advanced aspects of soil science through reviews of results of research in progress and current scientific publications.

**Credit Hour:** 1

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**SOIL 9090: Doctoral Research in Soil Science**

Original investigations in soil science for presentation in a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 9407: Advanced Environmental Soil Physics**

(same as ENV\_SC 9407). Transport of mass and energy through soil with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to differential equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** SOIL 7305, MATH 4100 or MATH 7100, or equivalent

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**SOIL 9414: Advanced Soil Fertility**

History and application of concepts of fertility and plant nutrition.

**Credit Hours:** 3

**Prerequisites:** SOIL 7313 and PLNT\_S 7315 or equivalent, 14 hours of college chemistry and five hours of calculus

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**SOIL 9418: Advanced Environmental Soil Chemistry**

(same as ENV\_SC 9418). Linking molecular-scale solution-phase and surface reactions with macroscopic chemical processes. Fundamentals of aqueous surface and colloid chemistry will be discussed.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300, and CHEM 3300

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**SOIL 9422: Pedology**

Three one-hour lectures. Detailed study of processes of soil horizonization and current topics in soil genesis including quantitative assessment of spatial and temporal variability and application of GIS in landuse planning.

**Credit Hours:** 3

**Prerequisites:** SOIL 7320, one statistics course beyond ANOVA

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**South Asia Studies (S\_A\_ST)**

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**S\_A\_ST 1004: Topics in South Asian Studies - Social Science**

Special topics.

**Credit Hours:** 3

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**S\_A\_ST 1100: Elementary Hindi I**

Oral-aural and structural approach. Devanagari script.

**Credit Hours:** 5

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**S\_A\_ST 1152: Asian Humanities**

(same as REL\_ST 1820, HIST 1820 and AR\_H\_A 1230). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**S\_A\_ST 1200: Elementary Hindi II**

Continuation of S\_A\_ST 1100. Spoken and written Hindi.

**Credit Hours:** 5

**Prerequisites:** grade of C or better in S\_A\_ST 1100

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**S\_A\_ST 1860: History of Ancient India**

(same as HIST 1860). This course surveys the history of South Asian history. The course begins with the Indus Valley Civilization (fl. 2600-1900B.C.) and ends with an analysis of Islamic impact on Indic culture around 1200-1350. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used for the study of permodern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 1861: History of Modern India**

(same as HIST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 1862: History of India: 1000-1750**

(Same as HIST 1862) This course surveys the history of the South Asian subcontinent from the eleventh through mid-eighteenth centuries. Emphasis will be placed on cultural and social history, religion, arts and literature, and the sources used to study civilization. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 2005: Topics in South Asian Studies-Humanities**

Special Topics. May be repeated for credit.

**Credit Hours:** 3

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**S\_A\_ST 2100: Philosophy: East and West**

(same as PHIL 2100). Compares the interpretation and role of philosophical concepts such as experience, reason permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**S\_A\_ST 2110: Elementary Hindi III**

Continuation of S\_A\_ST 1200. Prerequisites: S\_A\_ST 1100 or S\_A\_ST 1200

**Credit Hours:** 3

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**S\_A\_ST 2270: Geography of Asia**

(same as GEOG 2270). An introductory survey of the geography of Asia from India through Southeast Asia to China and Japan, emphasizing factors contributing to cultural similarities and variations, conflicts of interest, and current development.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**S\_A\_ST 2800: Women in Indian History**

(same as HIST 2800). This course examines the role of women in Indian (South Asian) history, focusing on women in British India from the eighteenth century up to the Partition of 1947. While previous knowledge of South Asian history may be beneficial, it is not required for this course.

**Credit Hours:** 3

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**S\_A\_ST 3130: Advanced Hindi Readings I**

Directed readings in the literature of the student's area of concentration, and advanced conversation.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**S\_A\_ST 3160: Advanced Hindi Readings II in South Asian Studies**

Continuation of S\_A\_ST 3160.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**S\_A\_ST 3200: Hinduism**

(same as REL\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga and meditation, Indian religious thought and devotional Hinduism.

**Credit Hours:** 3

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**S\_A\_ST 3230: Buddhism and Environmental Ethics**

(same as REL\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**S\_A\_ST 3240: Buddhism of South and Southeast Asia**

(same as REL\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in south and Southeast Asia.

**Credit Hours:** 3

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**S\_A\_ST 3245: Nonviolence in the Modern World**

(same as PEA\_ST 3840). Readings on recent world history, emphasis on Ghandi and nonviolent tradition in America, Europe and the Third World.

**Credit Hours:** 3

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**S\_A\_ST 3260: Southeast Asia**

(same as GEOG 3260). Physical, cultural, historical and regional geography of Southeast Asia, with an introduction to East Asian geography. Emphasizes the problems of tradition and development.

**Credit Hours:** 3

**Prerequisites:** GEOG 2270 or junior standing

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**S\_A\_ST 3261: Hindu Goddesses**

(same as REL\_ST 3260). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**S\_A\_ST 3280: Geography of South Asia**

(same as GEOG 3280). Topical and regional analysis of India, Pakistan, Sri Lanka. Historical development of distinctive cultural regions. Relations with neighboring areas. Impact of Westernization on economic activities, settlements, population.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**S\_A\_ST 3490: Indian Cinema**

(same as AR\_H\_A 3790, ANTHRO 3490 and FILM\_S 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**S\_A\_ST 4004: Topics in South Asian Studies - Social Science**

Special topics.

**Credit Hours:** 3

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**S\_A\_ST 4300: Religious Narratives of South Asia**

(same as REL\_ST 4300). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

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**S\_A\_ST 4620: Politics in India and South Asia**

(same as POL\_SC 4620). Contemporary political and governmental patterns of India, Pakistan, Sri Lanka, Nepal, and Bangladesh.

**Credit Hours:** 3

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**S\_A\_ST 4630: Sanskrit I**

(same as REL\_ST 4630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**S\_A\_ST 4640: Sanskrit II**

(same as REL\_ST 4640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**S\_A\_ST 4790: Culture and Society in South Asia**

(same as ANTHRO 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include caste, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**S\_A\_ST 4800: Asian Philosophy**

(same as PHIL 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and one course in Philosophy; or instructor's consent

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**S\_A\_ST 4810: Philosophy of India**

(same as PHIL 4810). General development of Indian Philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and one course in Philosophy; or instructor's consent

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**S\_A\_ST 4820: Contemporary Indian Philosophy**

(same as PHIL 4820). Indian philosophical traditions as represented in backgrounds of Gandhi, Tagore, Tagore, Tagore, and philosophical systems of Radharkrishnan, Aurobindo, etc.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**S\_A\_ST 4850: Traversing the Muslim World**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**S\_A\_ST 4850W: Traversing the Muslim World - Writing Intensive**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**S\_A\_ST 4860: Colonial Masculinity/Colonial Frontier**

(same as HIST 4860). This writing intensive discussion-based course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny and martial race ideology.

**Credit Hours:** 3

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**S\_A\_ST 7004: Topics in South Asian Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**S\_A\_ST 7200: Religious Texts and Interpretation: The Veda**

(same as REL\_ST 8200). This course examines the Veda, the foundational scripture of Hinduism. It includes close study of Vedic texts and rituals and the influence, interpretation, and application of the Veda in the later Hinduism.

**Credit Hours:** 3

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**S\_A\_ST 7350: Special Readings in South Asian Studies Languages**

Individual advanced study of desired South Asian language.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**S\_A\_ST 7630: Sanskrit I**

(same as REL\_ST 7630). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of

textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**S\_A\_ST 7640: Sanskrit II**

(same as REL\_ST 7640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**S\_A\_ST 7700: Religious Narratives of South Asia**

(same as REL\_ST 7700). Study of major narratives of India and their interpretation in literature and art. Topics include: Vedic and Epic mythology, stories of Krishna, myths and images of Shiva, and forms of the Goddess.

**Credit Hours:** 3

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**S\_A\_ST 7790: Cultures and Society in South Asia**

(same as ANTHRO 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

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**S\_A\_ST 8085: Problems in South Asian Studies**

(same as HIST 8085).

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**S\_A\_ST 9040: Indian Philosophy**

Reality, levels of being, status of the world, nature of knowledge in Indian philosophy in relation the Advaita Vedanta system of Samkara.

**Credit Hours:** 3

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## Spanish (SPAN)

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**SPAN 1100: Elementary Spanish I**

An introductory course for students who wish to begin their study of Spanish. It teaches the four skills - listening, speaking, reading, and writing. The class meets four days a week (with the exception of the online section, which taught completely online). Class time is used to integrate new structures and vocabulary into spoken and written language.

**Credit Hours:** 4

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**SPAN 1100H: Elementary Spanish I - Honors**

This designated honors section of Elementary Spanish will challenge students to explore more deeply the currently existing thematic units of the SPAN 1100 curriculum. Students will participate in group discussions, creative projects, independent study and use of authentic written and

aural material from primary sources. Honors Spanish 1100 will integrate cultural events outside the classroom such as movies, guest lectures, art exhibits, seminars or concerts as available. Once a semester, Honors Spanish 1100 will meets with Honors SPAN 1200H and SPAN 2100H as a cohort group for further intellectual exchange and enrichment. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 1200: Elementary Spanish II**

The second course of the beginning sequence in the continuation of SPAN 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of Spanish are encouraged to take this course. NO credit for both SPAN 1200 and SPAN 1250.

**Credit Hours:** 4

**Prerequisites:** Grade of C or better in SPAN 1100 or equivalent

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**SPAN 1200H: Elementary Spanish II - Honors**

This course, designed for students who have taken SPAN 1100 or an equivalent course and enrolled in the Honors College, offers an introduction to the Spanish language and the many cultures in encompasses. Your course work will allow you to develop all four language skills: reading, speaking, listening and writing along with the cultural background necessary to help you to communicate effectively in Spanish. With the honors designation section, the course will allow students to access greater challenges in the existing thematic units in the curriculum through group discussion, creative projects and authentic situations. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2001: Undergraduate Topics in Spanish-General**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better

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**SPAN 2005: Undergraduate Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better

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**SPAN 2005H: Undergraduate Topics in Spanish-Humanities/Fine Arts - Honors**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better. Honors eligibility required

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**SPAN 2100: Elementary Spanish III**

A multi-skill course following SPAN 1200, centering on cultural/ literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade of C or better in SPAN 1200 or SPAN 1250, or their equivalent courses

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**SPAN 2100H: Elementary Spanish III - Honors**

A multi-skill course following SPAN 1200, centering on cultural/literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression. The course seeks to improve student's fluency in Spanish and to expose them to the many cultures it encompasses. This course will integrate cultural events outside the classroom as well such as movies, guest lectures, art exhibits, seminars or concerts as available. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2160: Intermediate Spanish Composition and Conversation**

First course following required elementary sequence. Designed specifically to correct any remaining weaknesses in gross writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork involves written compositions and oral presentations.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent

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**SPAN 2160H: Intermediate Spanish Composition and Conversation - Honors**

First course following required elementary sequence. Designed specifically to correct any remaining weaknesses in gross writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork involves written compositions and oral presentations.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent. Honors eligibility required

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**SPAN 2310: Spanish Civilization**

Survey of Spanish history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**Credit Hours:** 3

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**SPAN 2320: Literature of Spanish Civil War**

(same as PEA\_ST 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 2330: Latin American Civilization**

Survey of Latin American history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**Credit Hours:** 3

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**SPAN 2340: Hispanic Minority Literature**

This course studies the literature of Hispanic minorities in the United States: Chicanos (Mexican American), Mainland Puerto Ricans, and Cuban exile writers. It explores the question of minority versus majority literatures and the creation of a Hispanic minority discourse. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**SPAN 3001: Topics in Spanish-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3005: Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3150: Advanced Spanish Conversation**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3150H: Advanced Spanish Conversation**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent. Honors Eligibility required

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**SPAN 3160: Advanced Spanish Composition**

Course emphasizes writing at an advanced level, with a certain degree of sophistication about varied subjects and using different techniques of composition. Classwork consists mainly of the discussion of both the ideas and techniques used in different textual forms.

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**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3170: Conversational Spanish Practice**

Study Abroad Conversational Spanish course for students who have already completed SPAN 3150, but want more practice. Does not count for majors/minors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and instructor's consent

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**SPAN 3280: Commercial Spanish**

Business terminology and forms. Translate and compose business letters and documents for advertising and promotion, trade and commerce, imports and exports, money and banking.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3400: Mexican Culture and Civilization**

Study of Mexican culture and civilization through field trips, excursions and selected readings in Mexican history and literature. No knowledge of Spanish required. Open only to participants in UMC's study programs in Mexico.

**Credit Hour:** 2-3

**Prerequisites:** sophomore standing or instructor's consent

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**SPAN 3420: Introduction to Hispanic Literature I**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3420W: Introduction to Hispanic Literature I - Writing Intensive**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430: Introduction to Hispanic Literature II**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430H: Introduction to Hispanic Literature II - Honors**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent. Honors eligibility required

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**SPAN 3430W: Introduction to Hispanic Literature II - Writing Intensive**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as FRENCH 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, culture and national identity (taught in Eng.).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 3721: Spanish Phonetics**

(same as LINGST 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3885: Twenty-First Century South American Cinema**

(same as FILM\_S 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**SPAN 4070: Intensive Beginning Spanish**

Designed for rapid acquisition of a reading knowledge of Spanish. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPAN 4120: Foreign Language Teaching Methodology**

(same as FRENCH 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**SPAN 4130: Stylistics**

Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4130W: Stylistics - Writing Intensive**

Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices

and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4410: Spanish Medieval Literature**

The principal periods, schools, and genres of Spanish medieval literature are surveyed through representative masterworks. Lectures and periodic student reports help relate works read to the rest of contemporary Spanish and European literature.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4420: Golden Age Poetry**

Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4421: Renaissance and Golden Age Prose**

Representative prose works from various genres are read as well as literary criticism devoted to them. Among the authors studied are Fernando de Rojas, Jorje Montemayor, Miguel de Cervantes, Francisco de Quevedo, and Maria de Zayas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4422: Spanish Theatre in the Golden Age**

Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4423: Don Quijote**

In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4441: Twentieth-Century Spanish Novel**

(cross-leveled with SPAN 7441). Reading and critical analysis of representative novels written in Spain from early century to the post-Franco period. The objectives of the course are to develop critical skills in dealing with these fictional works and to understand the major trends of the contemporary Spanish novel.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4442: Advanced Contemporary Culture of Spain**

(cross-leveled with SPAN 7442). Study of Spanish culture and civilization through field trips, excursions, and selected readings in history, literature, and contemporary print media.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150, SPAN 3160, SPAN 3721 or equivalent.

Open only to participants in the UMC's summer study in Spain

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**SPAN 4450: Hispanic Literature of Resistance**

A study of the literature of commitment in the Hispanic world: literature in its historical and political contexts that makes a conscious effort to change social conditions.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 7460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4461: Advanced Spanish Civilization**

(cross-leveled with SPAN 7461). A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4470: Survey of Spanish American Literature I**

This is an introductory course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4471: Survey of Spanish American Literature II**

Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4480: Mexican Literature**

Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4490: Hispanic Oral Traditions**

This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4520: Modernista and Contemporary Poetry**

Careful study and analysis of selected poems by major figures in Hispanic poetry. The period covered includes the modernist movement to the present. Particular attention is given to the following figures: Ruben Dario, Octavio Paz, Pablo Neruda, and Nicolas Guillen.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4530: The Spanish American Theatre**

Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4540: Afro-Hispanic Literature**

A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4550: Nobel Laureates in Spanish American Literature**

Analyzes the creative expression of five Nobel laureates from Spanish America. Selected works of Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, Octavio Paz and Gabriel Garcia Marquez are read in relation to contemporary theory.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4711: History of the Spanish Language**

(same as LINGST 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4721: Structure of Modern Spanish**

(same as LINGST 4721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722: Spanish Across the Continents**

(same as LINGST 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722W: Spanish Across the Continents - Writing Intensive**

(same as LINGST 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4723: Language and Society: Spanish in the U.S.**

(same as LINGST 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 4940: Service Learning in Spanish**

(same as RM\_LAN 4940). Course offers our majors and advanced minors the opportunity to use their language skills in real-life community settings. Does not meet Art and Science general education requirements. May be repeated once for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior or senior standing and departmental consent

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**SPAN 4960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 3420 and SPAN 3430 and departmental consent

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**SPAN 4980: Special Themes in Spanish**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4993: The Capstone Experience in Spanish**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 7004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**SPAN 7120: Foreign Language Teaching Methodology**

(same as FRENCH 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

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**SPAN 7130: Stylistics**

Advanced composition class. Discussion of complex grammatical structures necessary for formal writing. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 7410: Spanish Medieval Literature**

The principal periods, schools, and genres of Spanish medieval literature are surveyed through representative masterworks. Lectures and periodic student reports help relate works read to the rest of contemporary Spanish and European literature.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7420: Golden Age Poetry**

Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7421: Renaissance and Golden Age Prose**

Representative prose works from various genres are read as well as literary criticism devoted to them. Among the authors studied are Fernando de Rojas, Jorje Montemayor, Miguel de Cervantes, Francisco de Quevedo, and Maria de Zayas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7422: Spanish Theatre in the Golden Age**

Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7423: Don Quijote**

In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7441: Twentieth-Century Spanish Novel**

(cross-leveled with SPAN 4441). Reading and critical analysis of representative novels written in Spain from early century to the post-Franco period. The objectives of the course are to develop critical skills in dealing with these fictional works and to understand the major trends of the contemporary Spanish novel.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7442: Advanced Contemporary Culture of Spain**

(cross-leveled with SPAN 4442). Study of Spanish culture and civilization through field trips, excursions, and selected readings in history, literature, and contemporary print media.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150, SPAN 3160, SPAN 3721 or equivalent.

Open only to participants in the UMC's summer study in Spain

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**SPAN 7450: Hispanic Literature of Resistance**

A study of the literature of commitment in the Hispanic world: literature in its historical and political contexts that makes a conscious effort to change social conditions.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 4460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 7461: Advanced Spanish Civilization**

(cross-leveled with SPAN 4461). A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 7470: Survey of Spanish American Literature I**

This is a course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7471: Survey of Spanish American Literature II**

Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7480: Mexican Literature**

Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7490: Hispanic Oral Traditions**

This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7520: Modernista and Contemporary Poetry**

Careful study and analysis of selected poems by major figures in Hispanic poetry. The period covered includes the modernist movement to the present. Particular attention is given to the following figures: Ruben Dario, Octavio Paz, Pablo Neruda, and Nicolas Guillen.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7530: The Spanish American Theatre**

Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7540: Afro-Hispanic Literature**

A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7550: Nobel Laureates in Spanish American Literature**

Analyzes the creative expression of five Nobel laureates from Spanish America. Selected works of Gabriela Mistral, Pablo Neruda, Miguel Angel Asturias, Octavio Paz and Gabriel Garcia Marquez are read in relation to contemporary theory.

**Credit Hours:** 3

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**SPAN 7711: History of the Spanish Language**

(same as LINGST 7711). Diachronic analysis of phonology, morphology, and syntax from Vulgar Latin to modern period.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

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**SPAN 7721: Structure of Modern Spanish**

(same as LINGST 7721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 7722: Spanish Across the Continents**

(same as LINGST 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 7723: Language and Society: Spanish in the US**

This class surveys linguistic and social issues pertaining to Spanish in the US (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 7960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**SPAN 7980: Special Themes in Spanish**

Subject varies according to instructor.

**Credit Hours:** 3

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**SPAN 7993: The Capstone Experience in Spanish**

Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 8080: Readings in Spanish**

Independent readings in preparation for MA or MALT comprehensive examination in Spanish. Graded on A-F basis only.

**Credit Hour:** 1-99

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**SPAN 8085: Problems in Spanish**

Problems in Spanish.

**Credit Hour:** 1-99

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**SPAN 8087: Seminar in Spanish**  
Subject varies according to instructor.

**Credit Hour:** 2-3

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**SPAN 8090: Research in Spanish**  
Leads to preparation of MA or MALT thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**SPAN 8120: Bilingualism and Language Contact**  
(same as FRENCH 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**SPAN 8412: Studies in Spanish Literature of the Medieval Period**  
Studies in Spanish Literature of the Medieval Period.

**Credit Hours:** 3

**Recommended:** SPAN 8460

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**SPAN 8415: Studies in Spanish Literature of the Renaissance**  
Studies in Spanish Literature of the Renaissance

**Credit Hours:** 3

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**SPAN 8416: Studies in Spanish Literature in the Golden Age**  
Studies in Spanish Literature in the Golden Age

**Credit Hours:** 3

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**SPAN 8419: Studies in Nineteenth-Century Spanish Literature**  
Studies in Nineteenth-Century Spanish Literature

**Credit Hours:** 3

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**SPAN 8420: Studies in Twentieth-Century Spanish Literature**  
Studies in Twentieth-Century Spanish Literature

**Credit Hours:** 3

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**SPAN 8427: Studies in Colonial Spanish American Literature**  
Analysis of seminal literary and "Historical" texts interpreting the Encounter, Conquest and Colonization of Spanish America.

**Credit Hours:** 3

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**SPAN 8431: Studies in Spanish-American Fiction**  
Studies in Spanish-American Fiction

**Credit Hours:** 3

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**SPAN 8433: Studies in Latin American Literature**  
Studies in Latin American Literature

**Credit Hours:** 3

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**SPAN 8460: Old Spanish--Phonology, Morphology and Syntax**

**Credit Hours:** 3

**Prerequisites:** knowledge of Latin, to be demonstrated by passing departmental written examination or by completing LATIN 7110 with grade of B or better

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**SPAN 9080: Readings in Spanish**

Independent readings in preparation for Ph.D. comprehensive examination in Spanish.

**Credit Hour:** 3-6

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**SPAN 9090: Research in Spanish**

Leads to preparation of PhD dissertation in Spanish. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Special Education (SPC\_ED)

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**SPC\_ED 4020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Progression into Phase II

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**SPC\_ED 4300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 4310: Behavioral Management for Exceptional Students**

Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4320: Assessment and Evaluation in Special Education**

Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4325: Language Development of Exceptional Students**

Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3

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**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4330: Collaboration and Consultation in Special Education**

Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4370: Literacy in Special Education**

Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4300

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**SPC\_ED 4371: Literacy in Special Education II**

Advanced study in literacy methods and research for students with disabilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

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**SPC\_ED 4375: Cross Categorical Special Education**

Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380: Methods in Cross-Categorical Special Education**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380W: Methods in Cross-Categorical Special Education - Writing Intensive**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4390: Methods in Vocational Education for the Disabled and Disadvantaged**

(same as LTC\_V 4770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4401: Topics in Special Education**

In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**Credit Hours:** 3

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**SPC\_ED 4940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from SPC\_ED 4375.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** SPC\_ED 4375

**Recommended:** Admittance to Phase II

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**SPC\_ED 4941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 7941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 4972: Capstone Seminar and Portfolio in Special Education**

Students in final student teaching internship will meet weekly to examine and compare their internship experiences. Analysis, synthesis, evaluation and problem solving are the focus of the examination of various aspects of pedagogy and experience. Additionally, students will develop and submit for scoring their State mandated certification portfolio.

**Credit Hour:** 1

**Prerequisites:** SPC\_ED 4981

**Recommended:** Enrollment in final semester of student teaching internship

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**SPC\_ED 4981: Internship in Special Education**

(cross-leveled with SPC\_ED 7981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 4060

**Recommended:** Admittance to Phase II

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**SPC\_ED 7020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Progression into Phase II

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**SPC\_ED 7300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 7310: Behavioral Management for Exceptional Students**

Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7320: Assessment and Evaluation in Special Education**

Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7325: Language Development of Exceptional Students**

Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7330: Collaboration and Consultation in Special Education**

Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7370: Literacy in Special Education**

Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4300

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**SPC\_ED 7371: Literacy in Special Education II**

Advanced study in literacy methods and research for students with disabilities. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

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**SPC\_ED 7375: Cross Categorical Special Education**

Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3

**Prerequisites:** professional standing in Phase II

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**SPC\_ED 7380: Methods in Cross-Categorical Special Education**

This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hours:** 4

**Prerequisites:** professional standing in Phase II, SPC\_ED 4375, SPC\_ED 4940

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**SPC\_ED 7390: Methods in Vocational Education for the Disabled & Disadvantaged**

(same as LTC\_V 7770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7401: Topics in Special Education**

In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**Credit Hours:** 3

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**SPC\_ED 7940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from Special Education 4375.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4375, professional standing in Phase II

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**SPC\_ED 7941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 4941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 7981: Internship in Special Education**

(cross-leveled with SPC\_ED 4981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 7060; Admittance to the College of Education

**Recommended:** Admittance into Phase II

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**SPC\_ED 8085: Problems in Special Education**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 8090: Masters Thesis Research Hours**

Restricted to students enrolled in the graduate program. Graded S/U only.

**Credit Hours:** 3

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**SPC\_ED 8210: Using Assessment to Guide Instruction**

This course is designed to present information on the evaluation of individual student skills and the effects of instruction on those skills. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8220: School-Wide Positive Behavior Support**

Overview of theory, research, and methods related to establishing a system of positive behavior support in schools. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8287: Professional Seminar in Special Education**

Designed to provide overview of Special Education, COE program requirements, and general graduate student expectations. Students STRONGLY encouraged to take course first semester in graduate program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** acceptance into a master's degree program

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**SPC\_ED 8300: Students with Behavioral Disorders**

Study of characteristics of students with behavioral disorders as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8310: Students With Learning Disabilities**

Study of characteristics of students with learning disabilities as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8340: Advanced Studies in Developmental Disabilities**

Current theories and practices and their historic roots through examination of empirical and descriptive literature.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8345: Trends and Issues in Special Education**

A study of the historical developments and related trends, issues and problems associated with the education of exceptional students.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8350: Research with Exceptional Children**

Explores significant, historical, and current research in special education. Emphasizes the application of research, methodology, and findings relative to problems facing the practitioner.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8353: Advanced Studies: Single Subject Design**

The course is for advanced graduate students in special education, k psychology, related fields and includes behavioral measurement, single subject research designs, data analysis methods, critical analysis and evaluation of single subject research and research proposal. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8355: Grant Writing**

Preparation of research, demonstration, training, or other grant proposals meeting the criteria for competitive funding by a federal agency; review and evaluation of proposals.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8360: Special Education Administration**

Principles, protective safeguards, and general practices associated with the organization and administration of special education; legal foundations for special education; selection, training, and supervision of personnel.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8365: Research Design in Special Education**

Overview of professional writing and intermediate research applications with a focus on knowledge and skills needed for higher level doctoral work in statistics and research design.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or equivalent, SPC\_ED 8350 or equivalent, and instructor's consent

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**SPC\_ED 8370: Foundations I: History, Law and Policy in Special Education**

The changing concept of disability will be viewed from the perspectives of history, legal issues, and policy traced from early Greek and European periods through contemporary times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8375: Foundations II: Pedagogical Theories in Special Education**

A study of theories of teaching as they apply to special education with emphases on empirically based practices, historical trends, current theories, and the relationship between theories of learning and teaching.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8380: Nature and Needs of Gifted and Talented Students**

A conceptual and empirical examination for educational personnel of student identification procedures, special populations, programming issues, research topics and teacher competencies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8387: Seminar in Special Education**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SPC\_ED 8391: Curriculum Methods for Gifted and Talented Students**

A theoretical examination for educational personnel of specific instructional approaches including structure of intellect, enrichment triad, empirical research, and creative problem solving.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8400: Affective Development of Gifted Students**

Psychosocial development of gifted students; theories, and practices in affective development; strategies to develop positive self-concept, successful coping strategies, and effective peer relationships by gifted students.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8405: Assessment and Evaluation in Gifted Education**

Seminar focuses on practices for identifying students for gifted education programs, evaluation models applicable to school programs and strategies for grading and evaluation of gifted students.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8406: Differentiating Instruction: Reaching Gifted, Typical and Struggling Learners**

Explores various instructional approaches to help meet the learning needs of a range of learners from gifted through struggling and at-risk students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8440: Advanced Behavior Management: Applied Behavior Analysis**

This course will provide graduate students with advanced theory and knowledge in behavior management. Emphasis will be placed on understanding and using the principles of applied behavior analysis.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4310 and instructor's consent

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**SPC\_ED 8455: Advanced Studies in Behavioral Disorders**

Contemporary issues a historical perspective; theoretical perspectives or models which guide research, policy, and intervention approaches.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8470: Advanced Literacy in Special Education**

Study of literacy assessment and instruction methods specific to special education; formal and informal assessment; language and instructional strategies to improve literacy for students with disabilities.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 8475: Advanced Studies in Learning Disabilities**

Major current issues, trends, and controversies in learning disabilities; theories, research, and practices in learning disabilities.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

---

**SPC\_ED 8485: Introduction and Methods of Early Intervention**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in home and center-based programs for infants and toddlers with disabilities, consistent with the philosophical and legal requirements of IDEA Part C.

**Credit Hours:** 3

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**SPC\_ED 8490: Assessment in Early Childhood Special Education**

Procedures and instruments used in assessment of children with special needs, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans.

**Credit Hours:** 3

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**SPC\_ED 8495: Introduction and Methods of Early Childhood Special Education**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in community or public school integrated programs for preschools with disabilities, consistent with the philosophical and legal requirements of IDEA Part B Section 619.

**Credit Hour:** 2-3

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**SPC\_ED 8505: Advanced Studies in Early Childhood Special Education**

Origins, theoretical perspectives, issues, scope and efficacy of the field of early childhood special education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8520: Meeting the Needs of all Learners**

The purpose of this course is to provide information on current research and methodology on teaching students who are struggling or who have disabilities. Open only to teaching fellows. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8601: Introduction to Autism**

This course provides an introduction of children youth with autism spectrum disorders. Topics include: historical and theoretical foundations,

diagnostic and assessment approaches, and characteristics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8602: Methods of Instruction for Students with Autism**

Overview of interventions for individuals with autism spectrum disorders and strategies needed for teaching. Best practices and promising practices will be presented. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8603: Social Competency for Students with Autism**

Course provides a framework for addressing social competence deficits experienced by students with autism. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8604: High Functioning Students with Autism**

The course is designed to increase understanding and ability to support individuals on the Autism Spectrum who have average to above average intelligence. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8605: Young Children with Autism**

Current research on characteristics, diagnosis, and intervention for very young children with autism. Strategies for support children and their families. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8606: Assessment in Autism, Special Education**

This course covers procedures and instruments used in assessment of school-aged children with autism, including screening, diagnosis, interpretation of assessment findings, and application to instructional plans. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 7300

**Corequisites:** SPC\_ED 8601

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**SPC\_ED 8940: Practicum: Students with Behavioral Disorders**

Graduate field experience in educational setting for students with behavioral disorders. Application of competencies from Special Education 8300.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8941: Practicum: Students with Learning Disabilities**

Graduate field experience in educational setting for students with learning disabilities. Application of competencies from SPC\_ED 8310.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8942: Practicum: Students with Developmental Disabilities**

Graduate field experience in educational setting for students with mental retardation. Application of knowledge and skills from SPC\_ED 8320.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8943: Practicum in Special Education**

Provides graduate practicum experience relevant to the education of exceptional students.

**Credit Hour:** 1-10

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8944: Practicum I: Cross-Categorical Special Education**

Graduate field-based experience focused on observation and participation in programming for students with mild-moderate disabilities.

**Credit Hours:** 3

**Prerequisites:** instructor's and/or advisor's consent

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**SPC\_ED 8945: Practicum II: Cross-Categorical Special Education**

Advanced graduate field experience. Demonstration of required competencies with mild-moderate disabilities.

**Credit Hour:** 3-8

**Prerequisites:** SPC\_ED 8944 and instructor and/or advisor's consent

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**SPC\_ED 8946: Practicum: Gifted Education**

Provides graduate field experience in the area of gifted education.

**Credit Hours:** 3

**Prerequisites:** instructor or advisor's consent

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**SPC\_ED 8947: Practicum: Early Childhood Special Education**

Graduate field experience in an approved setting for young children with special needs. May be repeated.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**SPC\_ED 9090: Research in Special Education**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 9387: Professional Seminar in Special Education**

Designed to provide overview of Special Education, COE program requirements, and general graduate student expectations. Students STRONGLY encouraged to take course first semester in graduate program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** acceptance into a master's degree program

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**SPC\_ED 9940: Internship: College Teaching in Special Education**

Individually guided and supervised college teaching experiences. Competency based activities using portfolio assessment methods. May be taken more than once. Graded on S/U basis only.

**Credit Hours:** 3



**Prerequisites:** instructor's consent

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**SPC\_ED 9941: Internship: Special Education Research**

Individually guided research internship with doctoral advisor and/or faculty mentor(s). Opportunity to develop research competencies either on individual or collaborative projects. May be taken more than once. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 9942: Internship: Professional Practice in Special Education**

Individually guided internship in the public schools and/or agencies serving students with special needs or exceptionalities. Focus on professional practices, administrative practices, and/or evaluation practices. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Statistics (STAT)

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**STAT 1200: Introductory Statistical Reasoning**

Statistical concepts for critically evaluation quantitative information. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for a higher numbered course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1050 or MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from College Algebra by examination

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**STAT 1300: Elementary Statistics**

Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade in C - or higher in MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination

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**STAT 1300H: Elementary Statistics - Honors**

Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C-or higher in MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination. Honors eligibility required

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**STAT 1400: Elementary Statistics for Life Sciences**

Designed for students studying agriculture and other life sciences. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade in C- or higher in MATH 1050 or MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination

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**STAT 2200: Introductory Statistical Methods**

Designed to upgrade the curriculum of STAT 1200 or STAT 1300 or STAT 1400 to the level of STAT 2500. Students may not receive credit for STAT 2200 if they have completed a course from the Department of Statistics numbered 2500 or higher. Math Reasoning Proficiency Course.

**Credit Hour:** 1

**Prerequisites:** grade in C- or higher in STAT 1200 or STAT 1300 or STAT 1400

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**STAT 2500: Introduction to Probability and Statistics I**

Designed primarily for students in College of Business. Descriptive statistics, probability, random variables, sampling distributions, estimation, confidence intervals, hypothesis tests. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1300 or MATH 1400 or MATH 1500

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**STAT 2530: Statistical Methods in Natural Resources**

Statistical methods, with emphasis on applications to natural resources and including computer exercises. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** a college-level computing course and a grade in the C range or better in MATH 1100, MATH 1120, MATH 1160, or MATH 1180

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**STAT 3500: Introduction to Probability and Statistics II**

Continuation of STAT 2500. Coverage of additional topics including: Regression; model building; ANOVA; nonparametric methods; use of a statistical computer package.

**Credit Hours:** 3

**Prerequisites:** grade in the C - or higher in STAT 2200 or STAT 2500 or STAT 2530, or STAT 4710 or concurrent enrollment in STAT 2200

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**STAT 4002: Topics in Statistics-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Consent of instructor required

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**STAT 4050: Connecting Statistics to Middle and Secondary Schools**

Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or STAT 1400 or STAT 2500 or STAT 4710 or ESC\_PS 4170 or MATH 2320

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**STAT 4085: Problems in Statistics for Undergraduates**

Independent investigations. Reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**STAT 4110: Statistical Software and Data Analysis**

Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4150: Applied Categorical Data Analysis**

The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed STAT 4830. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4210: Applied Nonparametric Methods**

Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparisons with parametric procedures. Goodness of-fit, chi-square, comparison of several populations, measures of correlation.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4310: Sampling Techniques**

Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4410: Biostatistics and Clinical Trials**

(cross-leveled with STAT 7410). Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, carcinogenicity bioassay and case-cohort designs. Prerequisites: any of the following: STAT 3500, STAT 7070, STAT 4710, STAT 7710, STAT 4760, STAT 7760, or instructor's consent.

**Credit Hours:** 3

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**STAT 4420: Applied Survival Analysis**

Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4430: Applied Longitudinal Data Analysis**

Repeated measurements; event history studies; linear and nonlinear mixed effects models; growth models; marginal mean and rate models; pattern-mixture models; selection models; non-informative and informative drop-out; joint analysis of longitudinal and survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4450: Applied Statistical Methods for Bioinformatics**

Random variables; Point estimation; Multiple t-test; Likelihood principle; Analysis of variance; Probabilistic methods for sequence modeling; Gene expression analysis; Protein structure prediction; Genome analysis; Hierarchical clustering and Gene classification.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4510: Applied Statistical Models I**

Introduction to applied linear models including regression (simple and multiple, subset selection, estimation and testing) and analysis of variance (fixed and random effects, multifactor models, contrasts, multiple testing). No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760

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**STAT 4530: Analysis of Variance**

Study of analysis of variance and related modeling techniques for cases with fixed, random, and mixed effects. Exposure to designs other than completely randomized designs including factorial arrangements, repeated measures, nested, and unequal sample size designs.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710, STAT 4760 or STAT 7760

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**STAT 4540: Experimental Design**

Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or STAT 4530 or STAT 7530

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**STAT 4560: Applied Multivariate Data Analysis**

Testing mean vectors; Discriminant analysis; Principal components; Factor analysis; Cluster analysis; Structural equation modeling; Graphics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070 STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent. No credit towards a graduate degree in statistics

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**STAT 4580: Introduction to Statistical Methods for Customized Pricing**

(cross-leveled with STAT 7580). Introduction to basic concepts of and statistical methods used in customized pricing. Focuses on applying statistical methods to real customized pricing problems. Students will gain an understanding of customized pricing and some hands on experience with SAS Enterprise Miner.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

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**STAT 4610: Applied Spatial Statistics**

Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or instructor's consent

**Recommended:** basic knowledge of calculus and matrices

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**STAT 4640: Introduction to Bayesian Data Analysis**

Bayes formulas, choices of prior, empirical Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510

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**STAT 4710: Introduction to Mathematical Statistics**

(same as MATH 4315). Introduction to theory of probability and statistics using concepts and methods of calculus. No credit for Math 4315.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**STAT 4750: Introduction to Probability Theory**

(same as MATH 4320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**STAT 4760: Statistical Inference**

(same as MATH 4520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750

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**STAT 4810: Nonparametric Methods**

A first course in Non-parametric statistical methods based on ranks. Both theory and application are emphasized. Two-sample problems. K-sample problems. Tests for independence. Contingency tables. Goodness-of-fit tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4830: Categorical Data Analysis**

Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4850: Introduction to Stochastic Processes**

Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750

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**STAT 4870: Time Series Analysis**

A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory. Examples are drawn from a variety of areas including business, economics and soil science.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4970: Senior Seminar**

A capstone course required of and open only to senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized.

**Credit Hours:** 3

**Prerequisites:** senior statistics major and 12 completed hours of statistics courses or instructor's consent

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**STAT 4970W: Junior/Senior Seminar - Writing Intensive**

A capstone course required of and open only to junior or senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized.

**Credit Hours:** 3

**Prerequisites:** Statistics major with Junior or Senior class standing or instructor's consent

**Recommended:** 12 completed hours of statistics courses with grade of C or better; STAT 4110

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**STAT 4999: Departmental Honors in Statistics**

Special work for Honors candidates in statistics. May be repeated for credit.

**Credit Hour:** 1-3

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**STAT 7002: Topics in Statistics-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 7020: Statistical Methods in the Health Sciences**

Basic inference methods, both parametric and non-parametric, appropriate for answering questions arising in health sciences research. Computer exercises involving data from real experiments from health science area.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 and instructor's consent

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**STAT 7050: Connecting Statistics to Middle and Secondary Schools**

Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** an introductory course in statistics or MATH 2320 or instructor's consent

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**STAT 7070: Statistical Methods for Research**

Designed for graduate students who have no previous training in statistics. Topics include descriptive statistics, probability distributions, estimation, hypothesis testing, regression, and ANOVA. No credit toward a degree in statistics.

**Credit Hours:** 3

**Prerequisites:** either MATH 1100 or MATH 1120

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**STAT 7085: Problems in Statistics for Non-majors**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 7110: Statistical Software and Data Analysis**

Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7150: Applied Categorical Data Analysis**

The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed STAT 4830. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 7210: Applied Nonparametric Methods**

Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparisons with parametric

procedures. Goodness of-fit, chi-square, comparison of several populations, measures of correlation.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7310: Sampling Techniques**

Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7410: Biostatistics and Clinical Trials**

(cross-leveled with STAT 4410). Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, carcinogenicity bioassay and case-cohort designs. Prerequisites: any of the following: STAT 3500, STAT 7070, STAT 4710, STAT 7710, STAT 4760, STAT 7760, or instructor's consent.

**Credit Hours:** 3

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**STAT 7420: Applied Survival Analysis**

Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent

---

**STAT 7430: Applied Longitudinal Data Analysis**

Repeated measurements; event history studies; linear and nonlinear mixed effects models; growth models; marginal mean and rate models; pattern-mixture models; selection models; non-informative and informative drop-out; joint analysis of longitudinal and survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 7450: Applied Statistical Methods for Bioinformatics**

Random variables; Point estimation; Multiple t-test; Likelihood principle; Analysis of variance; Probabilistic methods for sequence modeling; Gene expression analysis; Protein structure prediction; Genome analysis; Hierarchical clustering and Gene classification.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7510: Applied Statistical Models I**

Introduction to applied linear models including regression (simple and multiple, subset selection, estimation and testing) and analysis of variance (fixed and random effects, multifactor models, contrasts, multiple testing). No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7530: Analysis of Variance**

Study of analysis of variance and related modeling techniques for cases with fixed, random, and mixed effects. Exposure to designs other than completely randomized designs including factorial arrangements, repeated measures, nested, and unequal sample size designs.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

---

**STAT 7540: Experimental Design**

Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or STAT 4530 or STAT 7530 or instructor's consent

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**STAT 7560: Applied Multivariate Data Analysis**

Testing mean vectors; discriminant analysis; principal components; factor analysis; cluster analysis; structural equation modeling; graphics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760. No credit toward a graduate degree in statistics

---

**STAT 7580: Introduction to Statistical Methods for Customized Pricing**

(cross-leveled with STAT 4580). Introduction to basic concepts of and statistical methods used in customized pricing. Focuses on applying statistical methods to real customized pricing problems. Students will gain an understanding of customized pricing and some hands on experience with SAS Enterprise minor.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

---

**STAT 7610: Applied Spatial Statistics**

Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or STAT 7510 or instructor's consent  
**Recommended:** Basic knowledge of calculus and matrices

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**STAT 7640: Introduction to Bayesian Data Analysis**

Bayes formulas, choices of prior, empirical Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

---

**STAT 7710: Introduction to Mathematical Statistics**

(same as MATH 7315). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent. No credit MATH 7315

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**STAT 7750: Introduction to Probability Theory**

(same as MATH 7320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

---

**STAT 7760: Statistical Inference**

(same as MATH 7520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750 or instructor's consent

---

**STAT 7810: Nonparametric Methods**

A first course in Non-parametric statistical methods based on ranks. Both theory and application are emphasized. Two-sample problems. K-sample problems. Tests for independence. Contingency tables. Goodness-of-fit tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or instructor's consent

---

**STAT 7830: Categorical Data Analysis**

Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or instructor's consent

---

**STAT 7850: Introduction to Stochastic Processes**

Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750 or instructor's consent

---

**STAT 7870: Time Series Analysis**

A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory. Examples are drawn from a variety of areas including business, economics and soil science.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or STAT 7760 or instructor's consent

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**STAT 8085: Problems in Statistics for Majors - Masters**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 8090: Master's Thesis Research in Statistics**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**STAT 8100: Special Topics in Statistics**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 8220: Applied Statistical Models II**

Advanced applied linear models including mixed linear mixed models (fixed and random effects, variance components, correlated errors, split-plot designs, repeated measures, heterogeneous variance), generalized linear models (logistic and Poisson regression), nonlinear regression. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or STAT 7510 or instructor's consent

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**STAT 8310: Data Analysis I**

Applications of linear models including regression (simple and multiple, subset selection, regression diagnostics), analysis of variance (fixed, random and mixed effects, contrasts, multiple comparisons) and analysis of covariance; alternative nonparametric methods.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 8320: Data Analysis II**

Advanced applications including analysis of designs (e.g. repeated measures, hierarchical models, missing data), multivariate analysis (Hotelling's T<sup>2</sup>, MANOVA, discriminant analysis, principal components, factor analysis), nonlinear regression, generalized linear models, categorical data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 8310 or instructor's consent

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**STAT 8330: Data Analysis III**

An introduction to data analysis techniques associated with supervised and unsupervised statistical learning. Resampling methods, model selection, regularization, generalized additive models, trees, support vector machines, clustering, nonlinear dimension reduction.

**Credit Hours:** 3

**Prerequisites:** STAT 8320

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**STAT 8370: Statistical Consulting**

Participation in statistical consulting under faculty supervision. Formulation of statistical problems. Planning of surveys and experiments. Statistical computing. Data analysis. Interpretation of results in statistical practice.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and STAT 8320 or instructor's consent

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**STAT 8410: Statistical Theory of Bioinformatics**

Study of statistical theory and methods underpinning bioinformatics. Topics include statistical theory used in biotechnologies such as gene sequencing, gene alignments, microarrays, phylogenetic trees, evolutionary models, proteomics and imaging.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760

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**STAT 8640: Bayesian Analysis I**

Bayes' theorem, subjective probability, non-informative priors, conjugate prior, asymptotic properties, model selection, computation, hierarchical models, hypothesis testing, inference, predication, applications.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140 or instructor's consent

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**STAT 8710: Intermediate Mathematical Statistics I**

Sample spaces, probability and conditional probability, independence, random variables, expectation, distribution theory, sampling distributions, laws of large numbers and asymptotic theory, order statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

---

**STAT 8720: Intermediate Mathematical Statistics II**

Further development of estimation theory, including sufficiency, minimum variance principles and Bayesian estimation. Tests of hypotheses, including uniformly most powerful and likelihood ratio tests.

**Credit Hours:** 3

**Prerequisites:** STAT 8710 or instructor's consent

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**STAT 9085: Problems in Statistics for Majors - PhD**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 9090: Doctoral Dissertation Research in Statistics**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**STAT 9100: Recent Developments in Statistics**

The content of the course which varies from semester to semester, will be the study of some statistical theories or methodologies which are currently under development, such as bootstrapping, missing data, non-parametric regression, statistical computing, etc.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and instructor's consent

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**STAT 9250: Statistical Computation and Simulation**

Random number generation, acceptance/rejection methods; Monte Carlo; Laplace approximation; the EM algorithm; importance sampling; Markov chain Monte Carlo; Metropolis-Hasting algorithm; Gibbs sampling, marginal likelihood.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

---

**STAT 9310: Theory of Linear Models**

Theory of multiple regression and analysis of variance including matrix representation of linear models, estimation, testing hypotheses, model building, contrasts, multiple comparisons and fixed and random effects.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140, and instructor's consent

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**STAT 9320: Advanced Linear Models**

Advanced topics in the theory and application of linear models. Specific content varies with instructor.

**Credit Hours:** 3

**Prerequisites:** STAT 9310 or instructor's consent

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**STAT 9370: Multivariate Analysis**

Distribution of sample correlation coefficients. Derivation of generalized T-squared and Wishart distributions. Distribution of certain characteristic roots, vectors. Test of hypotheses about covariance matrices and mean vectors. Discriminant analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140 or instructor's consent

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**STAT 9410: Survival Analysis**

Statistical failure models, Kaplan-Meier estimator, Log-rank test, Cox's regression model, Multivariate failure time date analysis, Counting process approaches.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9510: Theory of Nonparametric Statistics**

Estimation, hypothesis testing, confidence intervals, etc., when functional form of the population distribution is unknown.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9530: Data Mining and Machine Learning Methods**

Approaches to estimating unspecified relationships and findings unexpected patterns in high dimensional data. Computationally intensive methods including splines, classifications, tree-based and bagging methods, support vector machines.

**Credit Hours:** 3

**Prerequisites:** STAT 4110 or STAT 7110, STAT 4760 or STAT 7760 and STAT 8320 or instructor's consent

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**STAT 9640: Bayesian Analysis II**

Likelihood principle, decision theory, asymptotic properties, advanced topics in Bayesian analysis at the instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** STAT 8640 and STAT 9710 or instructor's consent

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**STAT 9710: Advanced Mathematical Statistics I**

Advanced study of mathematical statistics appropriate for PhD students in statistics. Elements of probability theory, principles of data reduction, point and interval estimation, methods of finding estimators and their properties, hypothesis testing, methods of finding test functions and their properties. Decision theoretic, classical and Bayesian perspectives.

**Credit Hours:** 3

**Prerequisites:** STAT 8720 or instructor's consent

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**STAT 9720: Advanced Mathematical Statistics II**

Continuation of STAT 9710. Topics include distribution theory and convergence, laws of large numbers, central limit theorems, efficiency, large sample theory, and elements of advanced probability.

**Credit Hours:** 3

**Prerequisites:** STAT 9710 or instructor's consent

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**STAT 9810: Advanced Probability**

(same as MATH 8480). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 STAT 7750 or MATH 4700 or MATH 7700 or instructor's consent

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**STAT 9820: Stochastic Processes**

(same as MATH 8680). Markov processes, martingales, orthogonal sequences, processes with independent and orthogonal increments, stationarity, linear prediction.

**Credit Hours:** 3

**Prerequisites:** STAT 9810 or instructor's consent

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## Student Success Center (SSC)

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**SSC 1020: University Freshmen Seminar**

(same as INTDSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities.

**Credit Hour:** 1

**Prerequisites:** Restricted to first time college student. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester

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**SSC 1020H: University Freshmen Seminar - Honors**

(same as INTDSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities.

**Credit Hour:** 1

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**Prerequisites:** Restricted to first time college student. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester. Honors eligibility required

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**SSC 1150: College Success Seminar**

This course is designed to create a positive new student experience by connecting students with the Mizzou campus community and the academic resources essential to their success. Students' strengths will be assessed and used to assist each student in the development and implementation of an individualized and strategic approach to successfully navigating their way through collegiate life. Individual course sections may be restricted to specific majors or groups.

**Credit Hours:** 2

**Prerequisites:** Freshmen or sophomore standing required

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**SSC 1151: Academic Success Seminar**

Academic recovery strategies will be explored and implemented throughout the course. Students will learn to assess their academic situations, develop a plan of action, apply new strategies for success, and activate their success plan throughout all aspects of their collegiate career. Campus academic resources will be identified to meet students' specific needs. Each student will create an individual plan of action in order to recover academically and stay on the path toward success and graduation. Individual course sections may be restricted to specific majors or groups.

**Credit Hours:** 2

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**SSC 1155: Mindfulness and Academic Recovery**

This class includes instruction in mindfulness practices with a special emphasis on how these skills can positively help manage stress associated with work, school, family, relationships, finances and health concerns. The class is practically oriented and teaches breathing strategies, body awareness practices, mindful communication skills, and a variety of positive psychology practices designed to change the way we use our thoughts and emotions for greater personal and academic success. Graded on an A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor consent required

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**SSC 1500: Disney Internship**

Internship: Experiential learning as a "cast member" of the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney Classes. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent; departmental signature

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**SSC 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center.

**Credit Hour:** 1-3

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**SSC 2150: Tutoring University Students: Theory & Practice**

An introduction to tutoring university students. Provides a pedagogical foundation for tutoring college students in content areas. Topics include but are not limited to diversity, the tutoring relationship, plagiarism, learning strategies, and best practices. Students will observe tutorials during the first part of the course and will conduct their own tutorials later in the semester. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**SSC 3100: Advanced Disney Internship**

Advanced Internship: Experiential learning opportunity with the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney classes. This is a second internship that is more field-specific and carries with it more responsibilities. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent, departmental signature

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## Surgery (SURGRY)

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**SURGRY 6006: Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Each student has a faculty mentor-advisor, attends faculty discussion sessions that cover objectives in the required textbooks and takes call under the supervision of surgical residents. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

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**SURGRY 6016: Rural Surgery Clerkship**

Rural Surgery Clerkship

**Credit Hours:** 8

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**SURGRY 6026: Springfield Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**SURGRY 6039: SCC Vascular Surgery Selective**

The 4th year vascular surgery student will function similar to a "junior house officer" and be actively involved in the diagnosis and management of vascular disorders. They will work in the clinics, participate in ward rounds, teaching conferences, and will be a full member of the vascular team in and out of the operating room.

**Credit Hours:** 5



**Prerequisites:** Fourth Year Medical Student. Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Surgery Clerkship. SURGRY 6006, 6016, 6026, or 6106

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**SURGRY 6106: Remediation Surgery Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Surgery Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** SURGRY 6006 Surgery Clerkship, received unsatisfactory grade

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**SURGRY 6383: ABS Surgery Research**

ABS Surgery Research

**Credit Hour:** 5-10

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**SURGRY 6385: ABS Surgery Research and Review**

ABS Surgery Research and Review

**Credit Hours:** 5

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**SURGRY 6655: Surgical Off-Site Elective**

Surgical Off-Site Elective

**Credit Hours:** 5

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**SURGRY 6658: Burn Unit**

Burn Unit

**Credit Hours:** 5

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**SURGRY 6661: Surgery Research Elective**

Surgery Research Elective

**Credit Hours:** 5

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**SURGRY 6671: Oncology Multidisciplinary**

Oncology Multidisciplinary

**Credit Hours:** 5

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**SURGRY 6672: Neuro-Oncology/Radiosurgery**

Neuro-Oncology/Radiosurgery

**Credit Hours:** 5

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**SURGRY 6686: Neurosurgery B**

Neurosurgery B

**Credit Hours:** 5

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**SURGRY 6687: Advanced Neurosurgery**

Advanced Neurosurgery

**Credit Hours:** 5

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**SURGRY 6688: Orthopaedic Surgery Reserach Elective**

Student will identify interest in surgical clinical research and other topical areas of orthopaedic surgery. The research will define concepts relevant

to the practice of orthopaedic surgery. The student will engage in self-directed learning and evaluation of new information.

**Credit Hours:** 5

**Prerequisites:** SURGRY 6006; level M4

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**SURGRY 6759: General Surgery Externship - Rural**

General Surgery Externship - Rural

**Credit Hours:** 5

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**SURGRY 6770: Surgery Rural Elective**

The 4th year surgery student will function as a surgical extern and be integrated into the pre-operative, operative, and post-operative care of surgical patients. The student will function as surgical extern with close supervision and one-on-one instruction.

**Credit Hours:** 5

**Prerequisites:** SURGRY 6002 and SURGRY 6006

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**SURGRY 6774: Otolaryngology - Rural**

Otolaryngology - Rural

**Credit Hours:** 3

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**SURGRY 6780: Urology - Rural**

Urology - Rural

**Credit Hours:** 5

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**SURGRY 6781: Orthopaedic Surgery A - Rural**

Orthopaedic Surgery A - Rural

**Credit Hours:** 5

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**SURGRY 6860: EMERGENCY MEDICINE**

EMERGENCY MEDICINE

**Credit Hours:** 5

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**SURGRY 6926: Ambulatory Otolaryngology**

The student will recognize all subspecialty areas included on this rotation: facial trauma, otology/neurotology, head and neck surgical oncology, facial plastic surgery, sinus surgery, pediatric ENT, laryngology and allergy. The student will be exposed to a broad spectrum of patients (adult and pediatric) in both procedural and clinical settings. Students will demonstrate improved technical skills during the 2 week rotation.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**SURGRY 6938: SCC Urology Two Week Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and physical exam, and develop a patient-centered assessment and plan. They will discuss their findings, assessment and plan with the faculty preceptor and see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will gain significant exposure

to the Urologic operating room environment and procedural treatments, including open, laparoscopic, robotic, and endoscopic procedures.

**Credit Hours:** 2

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**SURGRY 6944: SCC Vascular Surgery 2-week**

This course is intended as an introduction to the specialty of vascular surgery. The vascular surgery student will be actively involved in the diagnosis and management of vascular disorders. They will work in the clinics, participate in ward rounds, teaching conferences, and will be a full member of the vascular team in and out of the operating room.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the Surgery Clerkship

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**SURGRY 6955: Ambulatory ENT/Urology**

Goals/Objectives: This elective will offer students an exposure to ambulatory care in urology and otolaryngology. Students will see a broad range of patients and numerous outpatient procedures. Students will have close supervision during this experience. Both services have a combined outpatient population of 24,000 visits per year. Students will be exposed to numerous situations they would face in a primary care office. Clinic is offered five days per week by each service. Observation in the O.R. is available and attendance at teaching conferences is required. There will be a written exam given at the completion of the 2 weeks of ENT.

**Credit Hours:** 5

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**SURGRY 6957: Cardiothoracic Surgery**

Cardiothoracic Surgery

**Credit Hours:** 5

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**SURGRY 6958: Surgical off-Site Selective**

Surgical off-Site Selective

**Credit Hours:** 5

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**SURGRY 6959: General Surgery Externship**

Goals/Objectives: 1. Provide the student with ability to function as a first year general surgery house officer with close supervision and one-on-one instruction. 2. Become familiar with pre-operative, operative, and post-operative care of general surgical patients. 3. Become familiar with the graded responsibility structure necessary to ethically conduct post-graduate surgical residency training. 4. Develop bedside patient care skills. 5. Develop reading and clinical research skills necessary for contemporary surgical care.

**Credit Hours:** 5

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**SURGRY 6971: Surgical Critical Care**

The Surgical Critical Care student will acquire a broad exposure to assessment and management of critically ill and injured patients. The student will participate in daily rounds and patient care with the Surgical Critical Care service. Students will become an active member of the multidisciplinary ICU team and remain under the close supervision of Acute Care Surgery Faculty and Residents. Participation with the members of the multidisciplinary critical care team creates an excellent practical learning environment, while didactic conferences/case presentations compliment the experience.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6972: Surgical Oncology**

Surgical Oncology

**Credit Hours:** 5

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**SURGRY 6973: Head and Neck Surgical Oncology**

Head and Neck Surgical Oncology

**Credit Hours:** 5

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**SURGRY 6974: Otolaryngology**

Goals/Objectives: The Otolaryngology student rotation offers learning through participation in daily care of patients, case discussion in conferences, and didactic conferences. All subspecialty areas are included on this rotation, including facial trauma, otology, neurotology, head and neck surgical oncology, facial reconstruction, sinus surgery, pediatric ENT and allergy. Significant outpatient experience is provided and the extent of operating room participation to the student's needs and preferences. The student sees a full spectrum of patients (adult and pediatric) at the University and the VA. The student sees and learns about a variety of outpatient problems during the outpatient segment of this rotation. A wide variety of surgical procedures are observed in the operating room. The residents and faculty encourage an individually tailored learning experience for the student. Supplemental texts and other teaching aids are encouraged. Clinical research projects are available for interested and committed students.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6975: Pediatric Surgery**

Goals/Objectives: To gain a working knowledge of a) diagnosis, b)preoperative care, c) surgery, and d) postoperative care of the 1) congenital 2) traumatic 3) oncologic and 4) common surgical conditions affecting infants and children. This rotation is designed for the student planning a career that includes the care of infants and children. CURRICULUM: Attendance on daily rounds and participation in pediatric surgery clinic are mandatory. The student should also be present in radiology for all inpatient and outpatient contrast studies on surgical patients and consults. Operating room exposure can be individualized; the student is expected to be present, but not necessarily scrubbed, for the key portion of each case. Pediatric Surgical texts can be found in the Medical Library under RD 137, in the Pediatric or Surgery libraries, in the bookstore. Rowe - Essentials of Pediatric Surgery, Holder - Pediatric Surgery, Welch - Pediatric Surgery (4th ed.), Coran - Surgery of the Neonate.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6976: Plastic Surgery**

Goals/Objectives: The plastic surgery student rotation is considered "hands on" experience for the student rotating in the division of plastic surgery. This is a busy rotation with good opportunity for clinical exposure. The patient population includes all subspecialty areas of plastic surgery including hand and microsurgery, head and neck cancer surgery, congenital deformities, burns, facial trauma, and major reconstruction,

as well as cosmetic surgery. On this rotation, the student is expected to have an in-depth opportunity to learn, practice, and hone surgical suturing techniques and to first or second assist on many major surgical procedures. The graphic specialty of plastic surgery is best appreciated by participation and observation and there will be ample opportunity for this. In addition to the ward and major operating room duties, the student will obtain ambulatory patient care exposure by participating in the clinics, in the evaluation of new patients, and the after care of surgery patients. In addition, a significant percentage of the surgery is done as an outpatient and the student should have the opportunity to gain appreciation of the nuances of surgery done in the ambulatory environment. Incumbent to these considerations are exposure and appreciation of cost containment in plastic surgical procedures.

**Credit Hours: 5**

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#### **SURGRY 6977: Acute Care Surgery**

Students will participate in patient care, gather pertinent patient data, and develop plans of care for the patients on the surgery service. Case presentations will be given to the surgical team each day. Night and weekend call should be expected.

**Credit Hours: 5**

**Prerequisites:** Surgery and Internal Medicine Clerkship

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#### **SURGRY 6979: Vascular Surgery**

Vascular Surgery

**Credit Hours: 5**

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#### **SURGRY 6980: Urology**

The goal of the rotation is to provide a comprehensive urologic experience for those students who may be interested in Urology as a career as well as those students who simply want a more in-depth experience before pursuing another specialty. At the conclusion of the rotation, the student will be able to competently manage common urologic conditions such as hematuria, incontinence, and erectile dysfunction and recognize those patients who need referral to a specialist. To accomplish this, emphasis is placed on the management of both outpatients and inpatients. Active participation in the operating room is expected and the student will assist in a wide variety of urologic procedures. Students will also participate in outpatient procedures such as cystoscopy and vasectomy. Basically, the student will function as an extern on the University Urologic Service with appropriate patient care responsibilities.

**Credit Hours: 5**

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#### **SURGRY 6981: Orthopaedic Surgery Sub-Internship**

Goals/Objectives: Rotation for students actively interested (more aggressive) students in orthopaedics as a career. Emphasis will be placed on surgical indications, operative technique and post-operative care of orthopaedic patients. The student will be assigned by Ortho faculty to two different orthopaedic teams (sports medicine, foot and ankle, total joint, general, pediatrics, trauma, and hand) for two weeks at a time. Each student would be given an extensive reading schedule, a list of topics to be covered, given a written or oral examination including both services emphasized at the end of block. Brief oral presentation, to the residency or service on which they are working, on orthopaedic subject of choice pertaining to Ortho service/residency assigned. CURRICULUM: The student will spend two weeks on two different university teams

during this rotation. The student will be expected to participate in all aspects of the orthopaedics services they are assigned. This will include outpatient clinics, elective and emergent OR time, routine day-to-day care of patients on the orthopaedic service, and consultations. The student will take four nights of call with the Ortho residents assigned to service. The student will be evaluated by the attending and residents on the two services to which they have been assigned.

**Credit Hours: 5**

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6982: Introduction to Orthopaedic Surgery**

Goals/Objectives: Rotations for students interested in a career in primary care. The student will learn physical diagnosis and outpatient as well as surgical treatment of common orthopedic conditions. Each student will be given a list of topics that will be covered, a reading list to which the student would be obligated to read and given a short written and/or oral examination of the musculoskeletal system emphasized. Brief oral presentation, to the residency or service on which they are working, on an orthopedic subject of choice pertaining to Ortho service/residency assigned. The student will be assigned for the four weeks by Ortho Faculty to a preceptor from one of the following areas: sports medicine, foot and ankle, total joint, general, pediatrics, trauma or hand. CURRICULUM: The student on this rotation will be expected to learn to diagnose and manage commonly seen orthopedic conditions in the assigned orthopedic area. The student will participate in outpatient clinics, OR cases, rounds and conferences. The student will take two call nights with the Ortho Resident assigned to service. Basic techniques of splinting and cast application will be learned by sessions with the orthopedic cast technician.

**Credit Hours: 5**

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6983: Advanced Orthopaedic Surgery**

Advanced Orthopaedic Surgery

**Credit Hours: 5**

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#### **SURGRY 6985: Neurosurgery A**

Goals/Objectives: This course will provide the conscientious student an opportunity to acquire the following: 1. The ability to perform comprehensive neurological evaluation of the patient including both history taking and physical examination. This will entail a review of basic neuroanatomy and neurophysiology and a correlation of that information with the requirements of clinical medicine. 2. A basic understanding of neurosurgical diseases and their evaluation and management. Of particular importance will be the emphasis placed upon the initial evaluation of patients with central and peripheral nervous system trauma and neoplasms, cerebrovascular disease, congenital diseases of the nervous system, pain problems, diseases of the spine and lumbar discs. CURRICULUM: In order to direct the objectives of this course, students will be exposed to the following: 1. Individualized teaching sessions with the faculty. 2. Combined conferences with neurology, neuroradiology and neuropathology. 3. Outpatient clinics at the UMHSC and EFCC (Ellis Fischel). 4. The inpatient services of neurosurgery at UMHSC. 5. The operating room at UMHSC. Evaluations: The progress of the student will be evaluated through personal interaction with the faculty and residents and through an oral examination at the end of the course.

**Credit Hours: 5**

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**Prerequisites:** Surgery Clerkship

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**SURGRY 6986: Bariatric Surgery**

Bariatric Surgery

**Credit Hours:** 5

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**SURGRY 6988: Critical Care Neurosurgery**

Goals/Objectives: The student will gain experience with the clinical evaluation of patients with critical care neurosurgical problems such as head trauma, subarachnoid hemorrhage, and spinal cord injury. The student will perform neurologic assessments, evaluate laboratory data and participate in the decision making on patients with these disorders. CURRICULUM: 1. Daily inpatient rounds in the MNICU, SICU and CCU on the neurosurgical patients. 2. Individualized teaching with faculty. 3. Conferences: Neurosurgery Grand Rounds, Neuro-radiology, Neuro-pathology, Neuroscience. Evaluations: By interactions with faculty and residents and oral examination at the end of the rotation.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6989: Pediatric Neurosurgery**

Goals/Objectives: To provide interested students the opportunity to acquire exposure and knowledge in the field of pediatric neurosurgery. This elective will allow the student to learn about clinical entities such as craniofacial anomalies, hydrocephalus, neuroendoscopy, congenital and central nervous system anomalies, and trauma of the CNS. The student becomes part of a team and closely interacts with the attending physician, neurosurgery residents, and clinical nurse specialist. CURRICULUM: 1. Daily inpatient rounds. 2. Individualized teaching with faculty. 3. Clinics: Chiari and Pediatric Neurosurgery. 4. Conferences: Neurosurgery Grand Rounds, Neuro-radiology, Neuro-pathology, Neuroscience. Prerequisites: Surgery Clerkship

**Credit Hours:** 5

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## Textile And Apparel Management (T\_A\_M)

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**T\_A\_M 1200: Basic Concepts of Apparel Design and Production**

Introduction to design techniques, coordination of fabric with design, selection of support materials, and basic understanding of garment assembly operations.

**Credit Hours:** 3

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**T\_A\_M 1300: Softgoods Retailing**

Surveys merchandising and retailing principles with specific applications to the softgoods industry.

**Credit Hours:** 3

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**T\_A\_M 2100: Presentation Techniques for Merchandising**

This class explores Adobe Creative Suite (Photoshop, Illustrator, and InDesign) as a tool for presentation techniques within the field of fashion merchandising.

**Credit Hour:** 1-3

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**T\_A\_M 2120: Professional Seminar**

Exploration of issues in professional activity/success including: evaluating opportunities, oral and written communication for presenting oneself, the articulation of professional/private life, and professional ethics.

**Credit Hour:** 1

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**T\_A\_M 2200: Science of Textiles**

Fundamental concepts of textiles. Chemical composition, molecular arrangement, and physical structure of natural and manufactured fibers. Yarn and fabric manufacturing and various finishing techniques. Impacts of such characteristics and techniques on function, performance, and quality. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 2280: Apparel Production**

Introduction to sewn products industry applications in which students assemble sample garments and products on industrial equipment. Order of operations is emphasized and industry specific software is introduced. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** T\_A\_M 1200 and T\_A\_M 2200

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**T\_A\_M 2300: Retail Finance and Merchandise Control**

Emphasizes assortment and financial planning utilizing computer applications in the retail environment. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 1300 or MRKTNG 3000, MATH 1100

**Recommended:** computer familiarity

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**T\_A\_M 2380: Integrated Apparel Design and Production I**

A beginning apparel product development course integrating pattern-making, apparel assembly decision-making and materials selection. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in T\_A\_M 2280 or instructor's consent

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**T\_A\_M 2400: Global Consumers**

This course uses consumer behavior and cultural frameworks, integrated with critical and creative thinking processes to develop global perspective that is sensitive to diverse consumers' needs and preferences for products and services in the global marketplace. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 2480: Apparel and Textile Presentation Techniques**

Apparel and textile presentation processes. Introduction to a range of traditional and innovative presentation techniques using various media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2280

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**T\_A\_M 2500: Social Appearance in Time and Space**

An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2500W: Social Appearance in Time and Space - Writing Intensive**

An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2520: History of Western Dress**

Surveys the history of Western dress from prehistory through the 18th Century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2520W: History of Western Dress - Writing Intensive**

Surveys the history of Western dress from prehistory through the 18th Century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2580: Digital Textile and Apparel Applications**

Use of computer aided design technology to create designs for textiles and apparel. Includes portfolio development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or above in T\_A\_M 2480 or instructor's consent

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**T\_A\_M 2810: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, PEA\_ST 2810, JOURN 3510, DST 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 2810H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, JOURN 3510H, PEA\_ST 2810H, DST 3510H). This interdepartmental course serves as the introductory seminar for students pursuing the Certificate of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives.

**Credit Hours:** 3

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**Prerequisites:** Honors eligibility required. Restricted to non-Journalism students. Journalism students should enroll in Journalism sides of this course

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**T\_A\_M 2810HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, JOURN 3510HW, PEA\_ST 2810HW). This interdepartmental course serves as the introductory seminar for students pursuing the Certificate of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Restricted to non-Journalism students. Journalism students should enroll in Journalism sides of this course

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**T\_A\_M 2810W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 2810W, JOURN 3510W, DST 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 3001: Recent Trends in Textiles and Apparel Management**

For upper-class students who wish additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-3

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**T\_A\_M 3110: Textiles and Apparel in the Global Economy**

Economic, social, and political dimensions of the textile complex and trade in a global economy; implications for production, distribution, and consumption of products.

**Credit Hours:** 3

**Recommended:** 6 hours of economics

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**T\_A\_M 3200: Softgoods Quality Evaluation**

Examination and evaluation of fabric and apparel structures with emphasis on principles of advanced textile performance and quality analysis. Includes end-use characteristics; price/quality relationships; textile and apparel product standards and specifications; and standard test methods to evaluate comfort, performance, and function of sewn products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2200

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**T\_A\_M 3210: Computer Aided Design**

Use of computer aided design technology to create designs for textiles and apparel.

**Credit Hours:** 3

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**T\_A\_M 3300: Retail and Merchandising Analysis**

This course provides an opportunity to apply the concepts of merchandise planning, financial control, and promotions to real life buying situations. It will employ a problem-based learning approach. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2300

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**T\_A\_M 3380: Integrated Apparel Design and Production II**

An intermediate apparel product development course integrating pattern-making, apparel assembly decision-making and materials selection. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in T\_A\_M 2380

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**T\_A\_M 3480: Technical Design**

Technical product development for the global sewn products industry. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3200

**Prerequisites:** T\_A\_M 3380

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**T\_A\_M 3520: 19th and 20th Century Western Dress**

A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Restricted to Textile and Apparel Management majors only

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**T\_A\_M 3520W: 19th and 20th Century Western Dress - Writing Intensive**

A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Restricted to Textile and Apparel Management majors only

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**T\_A\_M 3700: MultiChannel Retailing in the Digital World**

Assessing the integration of various retail channels and developing multichannel strategies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 3800: Fundamentals of Entrepreneurship**

This course covers the fundamental principles, practices, and procedures of entrepreneurship in a step-by-step approach, and generates a final business plan. It delves into identifying viable target market through research, appealing to and securing customers, selecting a location, recruiting and retailing great employees and determining how much stock to carry and how to sell it. This course is designed for those who want to consider starting their own retail businesses, but not limited to those who want to reassess the direction of their existing businesses, or to those who want to build tangible as well as intangible entrepreneurial skill sets for their corporate careers. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 4001: Topics in Textiles and Apparel Management**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 4085: Problems in Textiles and Apparel Management**

Selected current problems in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**T\_A\_M 4087: Seminar in Textiles and Apparel Management**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-4

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**T\_A\_M 4100: Electronic Commerce Applications**

Integration of theory, design, management, and application processes used in Electronic Commerce.

**Credit Hours:** 3

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**T\_A\_M 4110: Global Sourcing**

(cross-leveled with T\_A\_M 7110). Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4130: Supply Chain Management**

This course examines how the supply chain management can be used to gain a competitive advantage in the softgoods industry.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4300: Softgoods Brand Management and Promotion**

(cross-leveled with T\_A\_M 7300). This course addresses how to build, measure, and manage brands specifically in the softgoods industry. It also covers the strategic implications of developing brand equity toward increasing customer loyalty.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4400: The Clothing/Textile Consumer: Research and Analysis**

Examines the effects of economic, social and marketing factors on the clothing consumption process. Legislative and quality issues related to clothing and textiles are also discussed.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 1300 or MRKTNG 3000

**Recommended:** 3 hours of statistics

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**T\_A\_M 4480: Creativity and Problem Solving**

Exploration of the creative process and sources of inspiration. Emphasis on research, design development for a variety of markets. Graded on A-F basis only. Prerequisites or Corequisites: T\_A\_M 3380.

**Credit Hours:** 3

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**T\_A\_M 4549: International Experiential Learning in Textiles and Apparel**

International experience of textile and apparel management, including visitation of foreign industries, government agencies, and cultural/historical sites. Destination may vary. Course may be repeated up to 3 times. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; Minimum GPA of 2.5

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**T\_A\_M 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, PEA\_ST 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 4949: Field Training in Textiles and Apparel Management**

Practical aspects of internship experience coordinated with the university curriculum. Available for various areas of emphasis.

**Credit Hour:** 1-99

**Prerequisites:** 2.5 GPA, T\_A\_M 2120, instructor's consent, and necessary prerequisite for area of emphasis

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**T\_A\_M 4960: Readings in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**T\_A\_M 4980: Apparel Production Management**

Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multifunctional team approach. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** T\_A\_M 3480 or T\_A\_M 4480

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**T\_A\_M 4990: Retail Marketing and Merchandising**

(cross-leveled with T\_A\_M 7990). Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use of these techniques and others in the development of a comprehensive retail marketing strategy.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2300, ACCTCY 2036 or ACCTCY 2026 or ACCTCY 2010, MRKTNG 3000

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**T\_A\_M 4998: Experiential Learning in Textiles and Apparel**

This course is designed to provide students with hands-on-experiences in the softgood industry. The purpose is to link classroom learning to business cultural centers, museums, workshops, and /or service learning opportunities achieved through experiential study. Additional field study fees might be applicable, depending on experience. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and minimum GPA of 2.5

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**T\_A\_M 7001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 7085: Problems in Clothing and Textiles**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** 3000-level course in field of problems and instructor's consent

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**T\_A\_M 7087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-99

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**T\_A\_M 7110: Global Sourcing**

Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 3110 or T\_A\_M 9100

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**T\_A\_M 7140: Web-Based Marketing Research**

This project-oriented course will focus on principles of marketing research applicable to textile/apparel online environments. Students will learn how to develop, utilize, and analyze web-based research.

**Credit Hours:** 3

**Prerequisites:** 3 hours of statistics

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**T\_A\_M 7300: Branding**

(cross-leveled with T\_A\_M 4300). This course addresses how to build, measure, and manage brands specifically in the softgoods industry. It also covers the strategic implications of developing brand equity toward increasing customer loyalty.

**Credit Hours:** 3

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**T\_A\_M 7960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** 20 hours in Textile and Apparel Management, and instructor's consent

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**T\_A\_M 7980: Softgoods Product Development**

Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multi-functional team approach.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3480 or T\_A\_M 4480

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**T\_A\_M 7990: Retail Marketing and Merchandising**

(cross-leveled with T\_A\_M 4990). Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use of these techniques and others in the development of a comprehensive retail marketing strategy.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2300, ACCTCY 2036 or ACCTCY 2026 or ACCTCY 2010, MRKTNG 3000

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**T\_A\_M 7999: International Experiential Learning in Textiles and Apparel**

Investigation of the complex interaction of manufacturing, marketing, and merchandising in the apparel industry, achieved through instructional and experiential study. Includes international or domestic study trip. Graded on A-F basis only.

**Credit Hour:** 1-9

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**T\_A\_M 8000: Readings in Textiles and Apparel Management**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** 20 hours in Textile and Apparel Management, and instructor's consent

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**T\_A\_M 8001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 8085: Problems in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**T\_A\_M 8087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-99

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**T\_A\_M 8090: Research in Clothing and Textiles**

Independent research leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-99

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**T\_A\_M 8130: Supply Chain Management in the Global Softgoods Industry**

This course examines supply chain management strategies to gain a competitive advantages in the global softgoods industry.

**Credit Hours:** 3

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**T\_A\_M 8190: Survey of Research in Textile and Apparel Management**

A survey of current research in textiles and apparel management. Underlying theory, research design and empirical techniques will be analyzed and critiqued.

**Credit Hour:** 1-6

**Prerequisites:** hours in Statistics and 3 hours in Research Methods

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**T\_A\_M 8410: Applied Research Procedures and Analyses in Textiles and Apparel**

Investigation of applied research techniques and analyses used in the field of Textile and Apparel Management.

**Credit Hours:** 3

**Prerequisites:** 3 credits of merchandising, marketing, or microeconomics; 3 credits in computer science and 3 credits in statistics

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**T\_A\_M 8500: Qualitative Social Research Methods**

Focus is on the philosophical differences inherent in an interpretivist versus a positivist approach to social research, the strategies and methods of qualitative research, and qualitative research design and criticism. May be repeated twice.

**Credit Hours:** 3

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**T\_A\_M 8510: Perspectives of 19th and 20th Century Dress**

A study of nineteenth and twentieth century western dress as influenced by time, place, and culture.

**Credit Hours:** 3

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**T\_A\_M 8600: Sustainable Softgoods: Global Policies and Practices**

This course examines sustainability in the soft goods industry in the context of cultural, economic, environmental, social, and technological policies and procedures of soft goods industries. Includes ethics, government policies international labor standards, environmental regulations, company priorities, consumer responsibilities, economic impact, and worker rights. The importance of establishing leadership for social change will be incorporated. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 8960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing, 20 hours in Textile and Apparel Management, and instructor's consent

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**T\_A\_M 9001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**T\_A\_M 9085: Problems in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-99



**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**T\_A\_M 9087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-99

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**T\_A\_M 9090: Research in Textiles and Apparel Management**

Independent research leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**T\_A\_M 9190: Theory Development and Evaluation in Textile and Apparel Research**

This class examines and analyzes extant theories in textiles and apparel research in systemic manner to be able to construct new theories. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 9500: Cloth and the Human Experience**

Examines the social context of dress and other intimate manifestations of daily life using culture as the level of analysis.

**Credit Hours:** 3

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**T\_A\_M 9510: Textile History Seminar**

Investigation of research in textile and costume history with emphasis on developing questions, methods of analysis and interpretation appropriate for data sources used.

**Credit Hours:** 3

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**T\_A\_M 9960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-99

**Prerequisites:** 20 hours in Textile and Apparel Management, and instructor's consent

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## Theatre (THEATR)

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**THEATR 1005: Topics in Theatre - Humanities/Fine Arts**

Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

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**THEATR 1100: The Theatre in Society**

Examines the form and meaning of theatre in civilizations of the West from the ancient Greeks to modern times.

**Credit Hours:** 3

**Recommended:** Freshman or Sophomore standing

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**THEATR 1200: Voice and Articulation**

Techniques for improving speaking voice; theories underlying techniques. Attention to student's articulation, pronunciation, voice quality, general expressiveness.

**Credit Hours:** 2

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**THEATR 1250: World Theatre Workshop**

(same as BL\_STU 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**THEATR 1320: Beginning Scenic Construction**

This course examines, through theory and practice, the art and science of technical theatre. Students explore the methods, equipment, and materials used in executing scenery, properties, and lighting designs for the stage, and participate in the backstage operation of a theatrical production.

**Credit Hours:** 3

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**THEATR 1340: Beginning Costume Construction**

This course examines, through theory and practice, the art and science of costume technology in the theatre. Students explore the methods, equipment, and materials used in executing costume designs for the stage, and participate in the backstage operation of a theatrical production.

**Credit Hours:** 3

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**THEATR 1360: Stage Makeup**

Character analysis, facial anatomy, color for stage and television makeup. Practice in application.

**Credit Hour:** 1

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**THEATR 1400: Acting for Non-Majors**

Basic theory and practice of acting for the non theatre major.

**Credit Hours:** 3

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**THEATR 1420: Stage Movement for the Actor**

Basic work in the techniques that comprise movement training for the actor.

**Credit Hours:** 2

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**THEATR 1720: African-American Theatre History**

(same as BL\_STU 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**Credit Hours:** 3

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**THEATR 2005: Topics in Theatre - Humanities**

Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with department consent.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 2150: African-American Cinema**

(same as BL\_STU 2150). Study of the impact of cinema and the entertainment industry on the social perceptions of African-Americans and on African-American culture.

**Credit Hours:** 3

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**THEATR 2200: Introduction to Performance Studies**

This course focuses on the writing of adaptations for the stage through performance. Students develop skills in critical reading, writing, listening, speaking and analysis of performance as they study oral and literary texts, autobiography and narratives.

**Credit Hours:** 3

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**THEATR 2300: Production Workshop I**

Work backstage in support of university theatre productions. Scenery, lighting, costumes, properties or other responsibilities. May be repeated. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 2330: Stage Management**

Study of the role of the theatre stage manager. Practice in becoming effective in planning and stage managing theatre productions. Graded on A/F basis only.

**Credit Hours:** 3

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**THEATR 2360: Stagecraft**

Fundamentals of properties and scenic construction stressing terminology and practical production experience.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320

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**THEATR 2410: Performance Workshop**

Credit for performance in University Theatre Production. Must audition and be cast to receive credit. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1

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**THEATR 2510: Introduction to Theatre Design**

Design principles and elements as they relate to theatre performance. Use of drawing and creative 3-dimensional exercises to develop design concepts.

**Credit Hours:** 3

**Recommended:** to students interested in directing, playwriting, and design for the theatre

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**THEATR 2710: Introduction to Theatre History**

Survey of major periods emphasizing the produced play in its historical context.

**Credit Hours:** 3

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**THEATR 2800: Principles of Script Analysis**

Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**THEATR 2800W: Principles of Script Analysis - Writing Intensive**

Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**THEATR 2810: Script Analysis for Theatre Majors**

Advanced methodologies of script analysis. Critical analysis of scripts for theatre, film, and performance, including the analysis of plots, characters, themes, and language. Students in this class view performances and read scripts, then analyze the connections between the scripts and performances through extensive writing exercises.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** Intended for Theatre Majors

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**THEATR 2920: Beginning Playwriting**

(same as ENGLSH 2560). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours:** 3

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**THEATR 3005: Topics in Theatre - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** Junior Standing

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**THEATR 3005H: Topics in Theatre - Honors - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent and honors eligibility

**Recommended:** Junior standing

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**THEATR 3100: Summer Repertory Theatre**

Participation in production of Summer Repertory Theatre. May be repeated.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 3200: Performance of Literature**

(same as ENGLSH 3570 and COMMUN 3570). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**THEATR 3230: Vocal Performance Technique**

This course develops the ability to use the voice as a creative and expressive instrument through a comprehensive study of speech and voice dynamics which include the exploration of proper breathing, relaxation, tonal placement, and non-regional articulation.

**Credit Hours:** 3

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**THEATR 3300: Production Workshop II**

Credit earned in a technical project in support of a University Theatre production. Scenery, costumes, properties, or other responsibilities. May be repeated to total of 3 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 3310: Costume Crafts**

To develop the skills and techniques needed in executing costume crafts, including millinery, corsetry, painting and dyeing, and embellishment.

**Credit Hours:** 3

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**THEATR 3320: Theatrical Patternmaking**

Patternmaking for the theatre. Basic knowledge of sewing required.

**Credit Hours:** 3

**Prerequisites:** THEATR 1340 or T\_A\_M 1200

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**THEATR 3330: Advanced Costume Construction**

Learn advanced techniques in theatrical costuming through lecture, demonstration and practical application.

**Credit Hours:** 3

**Prerequisites:** THEATR 1340 and instructor's consent

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**THEATR 3340: Scene Painting**

Studio practice in techniques of painting scenery for the Theatre.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**THEATR 3420: Acting I**

Basic theory, practice of acting, stage movement.

**Credit Hours:** 3

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**THEATR 3430: Acting II**

Script analysis, character and role development in modern and contemporary non-realistic theatrical forms. Rehearsal and presentation of scenes, based on contemporary dramatic and performance theory.

**Credit Hours:** 3

**Recommended:** THEATR 2800

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**THEATR 3530: Computer Graphics in Theatre Design**

The use of graphics and CAD software to create theatre designs. The course will progress from 2D CAD drafting to 3D image rendering.

**Credit Hours:** 3

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**THEATR 3540: Advanced Stage Makeup**

Advanced practical experience in stage makeup techniques. Projects might include: mask making, ventilation, advanced character applications. Practice in application. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** THEATR 1360 and instructor's consent

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**THEATR 3550: Sound Design**

Beginning sound design for the theatre. Units include basics of researching, recording, and augmenting sound for the use in a theatrical production.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320 and instructor's consent

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**THEATR 3560: Scene Design**

Theory/practice of scenic design for the theatre with emphasis on the evolutionary process of design from concept to reality.

**Credit Hours:** 3

**Prerequisites:** THEATR 2510

**Recommended:** THEATR 3530

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**THEATR 3600: Theatrical Directing**

Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and instructor's consent

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**THEATR 3600W: Theatrical Directing - Writing Intensive**

Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and instructor's consent

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**THEATR 3700: World Dramatic Literature**

(same as ENGLSH 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance.

**Credit Hours:** 3

**Recommended:** THEATR 2710 and THEATR 2800

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**THEATR 3700W: World Dramatic Literature - Writing Intensive**

(same as ENGLSH 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance.

**Credit Hours:** 3

**Recommended:** THEATR 2710 and THEATR 2800

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**THEATR 3750: New American Theatre**

Survey of drama of the most recent decade as it documents contemporary mores and amplifies cultural themes.

**Credit Hours:** 3

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**THEATR 3770: The Theatre Experience: From Page to Stage and Screen**

Stimulates critical thinking about theatrical performance, its relationship to the society of which it is a part, and its past and present significance

as an art form, a cultural resource, a social institution, and a commercial enterprise.

**Credit Hours:** 3

**Prerequisites:** Journalism Majors only

---

**THEATR 3920: Intermediate Playwriting**

(same as ENGLISH 3560). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

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**THEATR 3930: Screenwriting for Television and Film**

(same as FILM\_S 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**THEATR 4005: Topics in Theatre - Humanities**

Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 4220: Acting III**

(cross-leveled with THEATR 7220). Period acting styles. Special projects in interpretation, rehearsal, creation of roles.

**Credit Hours:** 3

**Prerequisites:** THEATR 3420 or THEATR 3430

**Recommended:** THEATR 2800

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**THEATR 4240: Theory and Practice of Theatre of the Oppressed**

(same as PEA\_ST 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4280: Digital Media and Performance**

(cross-leveled with THEATR 7280). This course introduces students to the history and practice of the combination of live actors and digital media within the context of theatre and performance. Students learn about developments in the history of this topic as well as significant individuals, groups of artists, and theorists who have contributed to the field. Theories of performance are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology and social media on society, virtual reality, telematics, robotics, and video games. Students create their own performances that combine live performances with digital media elements, and learn basic approaches to using computer software that is employed in creating these types of performances.

**Credit Hours:** 3

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**THEATR 4460: Musical Theatre Performance**

A practical study for the actor of theatrical songs through character analysis, lyric interpretation and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4530: Stage Lighting Design**

Theory and practice of lighting for theatre production.

**Credit Hours:** 3

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**THEATR 4570: Theatrical Costume Design**

Basic practice in costume rendering using charcoal, crayon, ink, watercolor and other media. Costume history, both theatrical and general, will be surveyed. Basic problems of theatre design will be considered.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320 or THEATR 1340

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**THEATR 4600: Advanced Directing**

(cross-leveled with THEATR 7600). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once.

**Credit Hours:** 3

**Prerequisites:** THEATR 3600 and instructor's consent

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**THEATR 4650: Introduction to Dramaturgy**

The course focuses on the practice of dramaturgy and the various functions currently performed by the artist/scholar identified as "dramaturg" including research, dramatic criticism/interpretation, new play development, marketing and educational outreach, and textual adaptation.

**Credit Hours:** 3

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**THEATR 4700: Studies in Theatre History**

Advanced survey of major periods, movements. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4720: American Musicals**

(same as MUS\_H\_LI 4376). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**THEATR 4730: Theatre Architecture**

Examines the renovation of existing buildings into workable theatre spaces. Includes history of theatre architecture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4800: Studies in Dramatic Theory**

Analysis of history, meaning and function of selected concepts of contemporary dramatic and performance theory.

**Credit Hours:** 3

**Recommended:** senior standing

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**THEATR 4820: Studies in Dramatic Literature**

(cross-leveled with THEATR 7820). Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4820W: Studies in Dramatic Literature - Writing Intensive**

Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4830: Studies in Dramatic Criticism**

Survey of methods of criticism of scripts and performances.

**Credit Hours:** 3

**Recommended:** senior standing

---

**THEATR 4920: Advanced Playwriting: Problems**

(same as ENGLISH 4560; cross-leveled with THEATR 7920 and ENGLISH 7560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLISH 3560

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**THEATR 4920W: Advanced Playwriting: Problems - Writing Intensive**

(same as ENGLISH 4560; cross-leveled with THEATR 7920 and ENGLISH 7560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLISH 3560

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**THEATR 4930: Adaptation of Literature for the Stage**

(same as ENGLISH 4570; cross-leveled with THEATR 7930 and ENGLISH 7570). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

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**THEATR 4935: Adaptation of Literature for Film**

(same as FILM\_S 4935 and ENGLISH 4935; cross-leveled with THEATR 7935, ENGLISH 7580 and FILM\_S 7935). This upper-division course will explore adaptation principles and practices with a variety of forms for literature that were not originally written for film.

**Credit Hours:** 3

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**THEATR 4938: Advanced Screenwriting: Styles**

(same as ENGLISH 4938; cross-leveled with THEATR 7938, ENGLISH 7938). To develop advanced skills of screenwriting through a focus on a non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic

realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**THEATR 4940: Internship in Theatre**

Internship: Experimental learning as an actor, designer, technician, publicist/manager, or dramaturg with an approved theatre company. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

**Recommended:** junior or senior standing

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**THEATR 4960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 4990: Capstone in Theatre**

Theatre experiences and knowledge gained by students are connected through compilation of resume and portfolio. Student will meet with faculty jury to discuss his/her body of theatrical work. Required for senior theatre students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 7005: Topics**

Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 7220: Acting III**

(cross-leveled with THEATR 7220). Period acting styles. Special projects in interpretation, rehearsal, creation of roles.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and THEATR 3420 or THEATR 3430

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**THEATR 7240: Theory and Practice of Theatre of the Oppressed**

(same as PEA\_ST 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7280: Digital Media and Performance**

(cross-leveled with THEATR 4280). This course introduces students to the history and practice of the combination of live actors and digital media within the context of theatre and performance. Students learn about developments in the history of this topic as well as significant individuals, groups of artists, and theorists who have contributed to the field. Theories of performance are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology

and social media on society, virtual reality, telematics, robotics, and video games. Students create their own performances that combine live performances with digital media elements, and learn basic approaches to using computer software that is employed in creating these types of performances.

**Credit Hours:** 3

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**THEATR 7530: Stage Lighting Design**

Theory and practice of lighting for theatre production.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7600: Advanced Directing**

(cross-leveled with THEATR 4600). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once.

**Credit Hours:** 3

**Prerequisites:** THEATR 3600 and instructor's consent

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**THEATR 7700: Studies in Theatre History**

Advanced survey of major periods, movements. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

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**THEATR 7710: History of American Theatre I**

Examination of theatrical literature and production from the beginnings to World War One.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7720: History of the American Theatre II**

Examination of theatrical literature and production from World War One to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7730: Theatre Architecture**

Examines the renovation of existing buildings into workable theatre spaces. Includes history of theatre architecture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7800: Studies in Dramatic Theory**

Analysis of history, meaning and function of selected concepts of contemporary dramatic and performance theory.

**Credit Hours:** 3

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**THEATR 7820: Studies in Dramatic Literature**

Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

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**THEATR 7830: Studies in Dramatic Criticism**

Survey of methods of criticism of scripts and performances.

**Credit Hours:** 3

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**THEATR 7920: Advanced Playwriting: Problems**

(same as ENGLSH 7560; cross-leveled with THEATR 4920 and ENGLSH 4560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLSH 3560

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**THEATR 7930: Adaptation of Literature for the Stage**

(same as ENGLSH 7570; cross-leveled with THEATR 4930). Explores adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7935: Adaptation of Literature for Film**

(same as ENGLSH 7580 and FILM\_S 7935; cross-leveled with THEATR 4935, FILM\_S 4935 and ENGLSH 4935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**THEATR 7938: Advanced Screenwriting: Styles**

(same as ENGLSH 7938; cross-leveled with THEATR 4938, ENGLSH 4938). To develop advanced skills of screenwriting through a focus on a non-realistic dramatic writing technique in the development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

---

**THEATR 7950: Introduction to Dramaturgy**

This course focuses on the practice of dramaturgy and the various functions currently performed by the artist/scholar identified as "dramaturg" including research, dramatic criticism/interpretation, new play development, marketing and educational outreach, and textual adaptation. Graded on A-F basis only.

**Credit Hours:** 3

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**THEATR 7960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 8005: Topics in Theatre**

Organized study of selected topics. Topic and credit may vary from semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8090: Research in Theatre**

Independent research of advanced nature leading to report. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8100: Theatre Scholarship**

History, goals, and techniques of academic writing in theatre including research, types of studies, primary materials, interpretation, writing techniques, and publication.

**Credit Hours:** 3

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**THEATR 8200: Performance Ethnography**

This graduate seminar will explore intersections of the fields of ethnography and performance: both studies of ethnographic research conducted within a performance paradigm and the performance of ethnographic research. The class will explore major critical and theoretical issues about ethnography and performance, including the conflation and differences between the forms of ethnographic texts and traditional performance scripts, questions about what constitutes performance ethnography as a genre, the construction and deconstruction of identities and communities inherent in performance ethnography, strategies for creating and critiquing the performance of ethnographic research, ethical questions related to representation and the performance of ethnographic research, writing performance ethnography, and the staging of texts based on ethnographic research.

**Credit Hours:** 3

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**THEATR 8385: Problems in Theatre**

Individual study/project not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8720: Backgrounds of Modern Theatre Practice**

Survey of modern performance theory, aesthetics and practice. Emphasis on European theatre since 1875. May be repeated or credit.

**Credit Hours:** 3

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**THEATR 8787: Seminar in Theatre History**

Selected problems in theatre history. May be repeated.

**Credit Hours:** 3

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**THEATR 8820: Graduate Seminar in Dramatic Literature**

This is a course that explores the influence of major playwrights and playwriting in society--specific playwrights and their works are determined by the course professor.

**Credit Hours:** 3

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**THEATR 8887: Seminar in Dramatic Theory and Criticism**

Selected topics in dramatic theory and criticism. May be repeated.

**Credit Hours:** 3

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**THEATR 8960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**THEATR 8987: Graduate Seminar in Playwriting**

(same as ENGLSH 8560). Seminar in theory, practice, and pedagogy of playwriting, students prepare a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**THEATR 9090: Research in Theatre**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Veterinary Medicine - Interdisciplinary (VMED\_I)

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**VMED\_I 5120: Full-Time Enrollment**

Full-Time Enrollment

**Credit Hour:** 16-99

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**VMED\_I 5190: Full-Time Enrollment**

Full-Time Enrollment

**Credit Hour:** 16-99

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## Veterinary Medicine And Surgery (V\_M\_S)

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**V\_M\_S 6001: Topics in Veterinary Medicine**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only. Course instructor consent prior to enrollment is required.

**Credit Hour:** 0.5-6

**Prerequisites:** Restricted to Veterinary Medicine students

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**V\_M\_S 6005: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students. Graded on S/U basis only

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**V\_M\_S 6006: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students. Graded on S/U basis only.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students

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**V\_M\_S 6010: Evaluated Veterinary Preceptorship**

This required co-op style course provides the student with practical exposure and experience in nonacademic veterinary medicine. Duration of 2-6 weeks. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** VM-3 standing

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**V\_M\_S 6020: Veterinary Radiology with Laboratory**

Introduces through lectures and demonstrations the principles of radiographic examination and interpretation of disease processes of domestic animals. Instructional period 8.

**Credit Hours:** 2

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**V\_M\_S 6030: Veterinary Anesthesiology with Laboratory**

Basic principles of anesthesiology for any species of domestic and exotic animals. Instructional period 9.

**Credit Hours:** 2

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**V\_M\_S 6040: Companion Animal Medicine with Laboratory**

Covers basic principles of veterinary internal medicine and selected subdisciplines. Instructional period 9.

**Credit Hours:** 4

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**V\_M\_S 6050: Small Animal Medicine**

Didactic presentations regarding pathophysiology, diagnosis and therapeutic management of organ system diseases in small animals.

**Credit Hours:** 2.5

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**V\_M\_S 6060: Small Animal Surgery with Laboratory**

Basic principles including suture materials, suture patterns, operative techniques, wound healing, and body system approach to soft tissue surgery conditions.

**Credit Hours:** 2

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**V\_M\_S 6071: Small Animal Surgery**

Continuation of V\_M\_S 6060 lectures, focusing primarily on orthopedics.

**Credit Hours:** 2

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**V\_M\_S 6072: Optional Surgery and Anesthesia Laboratory**

Designed to teach entry-level surgical and anesthesia skills using models, live animals, and cadavers. This laboratory is offered as a substitute to V\_M\_S 6073 for students who wish to gain anesthesia and surgical experience with live tissues. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6060

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**V\_M\_S 6073: Fundamental Surgery Laboratory**

Designed to teach entry-level surgical skills using models and cadavers. Canine cadavers will be substituted for pigs in the first two celiotomy laboratories. Students will not anesthetize pigs but will observe clinical anesthesia by following one clinical case from start to finish. Graded on S/U basis only.

**Credit Hour:** 1

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**Prerequisites:** complete V\_M\_S 6060

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**V\_M\_S 6081: Food Animal Medicine and Surgery**

Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2.5

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**V\_M\_S 6082: Food Animal Medicine and Surgery**

Continuation of V\_M\_S 6081. Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2

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**V\_M\_S 6090: Small Animal Emergency and Critical Care with Laboratory**

Basic principles of emergency and critical care of companion animals, and body system approach to emergency and critical care.

**Credit Hour:** 1

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**V\_M\_S 6110: Theriogenology**

Reproductive function, estrous cycle manipulation, and breeding of individual domestic animals and herds. Pathogenesis, diagnosis and management (medical and surgical) of common reproductive disorders.

**Credit Hours:** 3

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**V\_M\_S 6120: Veterinary Ophthalmology**

Covers examination, diagnostic procedures and treatment of important eye diseases of domestic animals.

**Credit Hour:** 1

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**V\_M\_S 6130: Fundamentals of Veterinary Business Management**

To realistically present to the second-year veterinary student a basic explanation of the essential need for strong base of knowledge pertaining to business and management in order to be successful in the veterinary profession.

**Credit Hour:** 1

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**V\_M\_S 6140: Nutrition with Laboratory**

Nutrition of companion and food producing animals and nutritional principles important to veterinary medicine. Subjects presented include feeding of animals for maintenance of healthy conditions during all life stages, evaluation of foods and supplements, and methods of diet formulation and evaluation.

**Credit Hour:** 1.5

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**V\_M\_S 6151: Equine Medicine and Surgery**

Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hours:** 2

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**V\_M\_S 6152: Equine Medicine and Surgery**

Continuation of V\_M\_S 6151. Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hour:** 1.5

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**V\_M\_S 6400: Food Animal Medicine and Surgery I**

Clinical Rotation. Technical, diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Experience in the operation of a large animal hospital and farm outpatient practice.

**Credit Hours:** 6

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**V\_M\_S 6411: Small Animal Internal Medicine**

Clinical rotation in small animal internal medicine for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; that is, students must have successfully completed the DVM curriculum through instruction period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6412: Small Animal Community Practice**

Clinical rotation in small animal general medicine and surgery for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. The entire course may not be repeated for credit but smaller sections may with approval.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; students must have successfully completed the DVM curriculum through instructional period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6413: Small Animal Behavior and Dermatology**

The Small Animal Behavior and Dermatology Rotation is designed to give students experience in the evaluation and management of dogs and cats with behavioral problems and to provide students with hands-on experience in the evaluation, diagnosis and management of dermatology cases. During the rotation the student will develop skills in history taking, behavioral evaluations, dermatology examinations and diagnostic procedures and in the management of behavioral and dermatology cases. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to third- and fourth-year Veterinary Medicine students

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**V\_M\_S 6420: Equine Medicine and Surgery I**

Clinical rotation. Technical, diagnostic and therapeutic procedures common to equine practice. Emphasis on fundamental principles.

**Credit Hours:** 6

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**V\_M\_S 6430: Small Animal Surgery I**

Diagnostic procedures and surgical techniques applicable to companion animal surgery. Practical experience in the operation of a small animal surgical practice. Six times per year.

**Credit Hours:** 6

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**V\_M\_S 6432: Small Animal Soft Tissue Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal soft tissue surgery. Practical experience in the operation of a small animal soft tissue surgical practice.

**Credit Hours:** 2

**Prerequisites:** completion of Vet Med years 1 and 2 and specifically V\_M\_S 6072 or V\_M\_S 6073

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**V\_M\_S 6434: Small Animal Orthopedic Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal orthopedic surgery. Practical experience in the operation of a small animal orthopedic surgical practice. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** completion of Veterinary Medicine years 1 and 2

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**V\_M\_S 6436: Veterinary Neurology/Neurosurgery**

Clinical rotation. A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6441: Clinical Radiology I**

Clinical rotation. Fundamentals of radiology: indications for use, techniques, pathophysiologic alterations, interpretation of results, patient aftercare, protective measures against radiation hazards.

**Credit Hours:** 3

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**V\_M\_S 6442: Clinical Anesthesiology I**

Clinical rotation. Fundamentals of anesthesiology: indications for use techniques, pathophysiologic alterations, and interpretations of results, patient aftercare.

**Credit Hours:** 3

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**V\_M\_S 6450: Theriogenology I**

Clinical rotation. Practical experience in reproductive techniques, obstetrics, breeding soundness and herd reproductive problems.

**Credit Hours:** 2

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**V\_M\_S 6460: Clinical Ophthalmology I**

Clinical rotation. Practical application in problem solving and medical and surgical management of eye conditions of domestic animals.

**Credit Hours:** 2

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**V\_M\_S 6480: Cardiology**

Cardiology

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**Credit Hours:** 2

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**V\_M\_S 6490: Small Animal Specialty Medicine I**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hours:** 2

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**V\_M\_S 6700: Food Animal Medicine and Surgery II Elective**

Additional food animal experience located off-site or on-site under special circumstances.

**Credit Hour:** 2-6

**Prerequisites:** V\_M\_S 6400. Consent required

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**V\_M\_S 6710: Small Animal Medicine II Elective**

Clinical rotation offered to VM3 and VM4 students. Opportunity for concentrated study and experience in medical areas. Enrollment subject to approval of course coordinator.

**Credit Hour:** 2-6

**Prerequisites:** The entire pre-clinical curriculum of the CVM must be completed before taking this course

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**V\_M\_S 6711: Small Animal Internal Medicine Elective Clinical or Research Rotation**

Clinical rotation in SAIM to focus on either clinical diagnostics and therapy, or research relevant to clinically important issues of pet animals.

**Credit Hours:** 2

**Prerequisites:** Veterinary curriculum up until the clinical rotations; must be VM3 or VM4 students

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**V\_M\_S 6712: Private Practice Small Animal Internal Medicine Elective**

Clinical rotation. Improve critical thinking skills in disease diagnosis and management for internal medicine of dogs and cats. Clinical rotation off-site at Associated Veterinary Specialists. Teaching by cases seen by AVS clinician on duty. Student participation determined by supervising clinician.

**Credit Hours:** 2

**Prerequisites:** All required VM1 and VM2 courses. VM3 or VM4 standing required

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**V\_M\_S 6713: Shelter Medicine Elective at the Humane Society of Missouri**

Comprehensive shelter medicine rotation at Humane Society of Missouri.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to VM3 and VM4 students

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**V\_M\_S 6720: Equine Medicine and Surgery II Elective**

Clinical rotation. Continuation of V\_M\_S 6420. Open to VM3 and VM4 students, subject to approval of course coordinator. Opportunity for concentration in specific area of interest.

**Credit Hour:** 2-6

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**V\_M\_S 6730: Small Animal Surgery II Elective**

Opportunity for concentration study and advanced surgical experience.

**Credit Hour:** 3-6

**Prerequisites:** V\_M\_S 6430 or equivalent

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**V\_M\_S 6732: Small Animal Soft Tissue Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced soft tissue surgical experience.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6432 and completion of year VM1 and VM2

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**V\_M\_S 6734: Small Animal Orthopedic Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced orthopedic surgical experience.

**Credit Hours:** 2

**Prerequisites:** completion of VM years 1 and 2

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**V\_M\_S 6736: Veterinary Neurology/ Neurosurgery-Elective**

A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6741: Clinical Radiology II Elective**

Clinical rotation. Continuation of V\_M\_S 6441.

**Credit Hour:** 1-99

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**V\_M\_S 6742: Clinical Anesthesiology II Elective**

Clinical rotation. Continuations of V\_M\_S 6442. This course will focus on anesthetizing and monitoring the more challenging anesthetic cases during rotation. Required projects include a review paper on a relevant topic of choice, a written case report and assistance in research activities.

**Credit Hour:** 1-99

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**V\_M\_S 6743: Radiology - Special Imaging Elective**

Introduction to special imaging modalities including ultrasound, computed tomography, magnetic resonance and nuclear scintigraphy with emphasis towards small animal patients. A major part of the course will be devoted to recognition and interpretation of abdominal ultrasound. Graded on A-F basis only. Prerequisites: V\_M\_S 6020; VM III and VM IV

**Credit Hour:** 2-3

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**V\_M\_S 6744: Veterinary Radiation Oncology -Clinical Elective**

Training in radiation therapy planning, treatment execution, and case management. Develop a better understand of the radiation therapy patient, including side effects of therapy and expected outcomes, that will position them to be quality collaborators on radiation therapy cases as referring veterinarians. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** completed and passed the preclinical veterinary curriculum

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**V\_M\_S 6750: Theriogenology II Elective**

Continuation of V\_M\_S 6450. Opportunity for concentrated study and experience. An elective, subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6751: External Food Animal Service and Theriogenology Teaching Program**

Additional options for off-site clinical training in Theriogenology and Food Supply Veterinary Medicine beyond the core curriculum.

**Credit Hour:** 1-99

**Prerequisites:** V\_M\_S 6081, V\_M\_S 6082, V\_M\_S 6110, and VM3 or VM4 students

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**V\_M\_S 6760: Small Animal Nutrition**

Clinical rotation designed to allow students to gain hands-on experience with canine and feline nutrition.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6140. Restricted to VM3 or VM4

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**V\_M\_S 6770: Herd Health Management and Nutrition II Elective**

Concentrated study/experience in feed lot, dairy, cow/calf swine herd agribusiness enterprises applicable to veterinary practice.

**Credit Hour:** 2-6

**Prerequisites:** V\_M\_S 6400 and VM-4 status

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**V\_M\_S 6800: Clinical Ophthalmology II Elective**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience. Subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6810: Cardiology II Elective**

Cardiology course consists of a three-week clinical rotation in the small animal clinic. Duties include primary care receiving and patient care with clinical case work-up. Additional responsibilities include attendance at clinical rounds and participating in related clinical activities.

**Credit Hour:** 1-99

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**V\_M\_S 6820: Small Animal Emergency and Critical Care**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience in small animal emergency and critical care.

**Credit Hour:** 1-99

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**V\_M\_S 6821: Small Animal Emergency Critical Care Elective**

Clinical rotation providing focused experience in care management and issues pertinent to small animal emergency and critical care. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to levels VM 3 or VM 4

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**V\_M\_S 6830: Food Animal Production Medicine**

Clinical rotation will focus primarily on beef, dairy, and swine with emphasis on preventive medicine by looking at the herd incorporating spreadsheet and the data base application analysis. The course participants will visit various operations and write reports to the producer, which will enhance their farms.

**Credit Hour:** 1-99

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**V\_M\_S 6850: Clinical Oncology**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hour:** 1-99

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**V\_M\_S 6920: Equine Techniques Elective**

This course provides an opportunity for equine oriented veterinary students wishing to enhance their understanding of the clinical techniques used in equine veterinary medicine and gain hands on practical experience in selected clinical techniques. It is offered as a 2 credit, 2 week elective clinical rotation.

**Credit Hours:** 2

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**V\_M\_S 6986: Advanced Clinical Neurology and Neurosurgery**

This is a supplement to neurology taught in the small animal course to improve preparedness for clinical practice. Topics include neurolocalization techniques, electrodiagnostic and CT/MR interpretation, wider exposure to differential diagnosis, and neurosurgical principals.

**Credit Hour:** 1

**Prerequisites:** Passing grade in V\_M\_S 6040

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**V\_M\_S 6987: Problem-Based Learning Clinic Preparation**

This course is designed to prepare the VM 3 student about to enter clinics for a systematic approach to a clinical case. Emphasis will be placed on developing focused problem and differential lists, and logical choices of diagnostic tests. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VM 3 level

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**V\_M\_S 6988: Small Animal Clinical Nutrition**

Application of nutritional principles to prevention and management of common diseases of dogs and cats. Including review of nutrients, commercial and home diets, and basic pathophysiology of nutritional aspects of disorders seen in companion animal practice.

**Credit Hour:** 1

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**V\_M\_S 6989: Advanced Oncology of Animals**

Expanded discussion of veterinary oncology topics not covered in the oncology section V\_M\_S 6050. Important for veterinary students who intend to enter private or academic practice and manage oncology cases, specific tumor types, diagnostic tools, and treatment modalities.

**Credit Hour:** 1

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**V\_M\_S 6990: Zoological Medicine**

Interested students of Zoological Medicine would significantly broaden their understanding of this discipline and increase the likelihood they could enter zoological veterinary practice or a zoological veterinary medical residency. Graded on A-F basis only

**Credit Hours:** 2

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**V\_M\_S 6991: Advanced Equine Lameness with Laboratory**

Learn to recognize forelimb and hind limb lameness through diagnostic techniques for localization of lameness. Gain practical experience in limb support for severe musculoskeletal injuries. One surgical laboratory using equine cadaver limbs to illustrate and practice common distal limb surgeries.

**Credit Hour:** 1

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**V\_M\_S 6992: Small Animal Endoscopy**

Small Animal Endoscopy

**Credit Hour:** 1

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**V\_M\_S 6993: Advanced Veterinary Anesthesia**

Advanced Veterinary Anesthesia

**Credit Hour:** 1

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**V\_M\_S 6994: Advanced Techniques in Small Animal Surgery with Laboratory**

Course designed for students who want exposure to small animal surgical techniques above and beyond the experience gained from the basic surgical training in V\_M\_S.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6072; limited enrollment

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**V\_M\_S 6995: Clinical Cardiology**

Students will utilize a combination of lectures, hands on laboratories, and problem based clinical correlates covering cardiovascular physical examination, radiographic and electrocardiographic interpretation, and the pathophysiology and management of congenital and acquired cardiac diseases.

**Credit Hour:** 1

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**V\_M\_S 6996: Advanced Dermatology**

This is a lecture course that will supplement and expand upon the canine and feline dermatology principles covered in the general pathology and small animal medicine courses. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6050

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**V\_M\_S 6997: Food Animal Diagnostic Exercises**

Discussion based course designed to integrate and review didactic coursework to increase knowledge of livestock diseases. A list of appropriate differential diagnoses will be generated for each problem.

**Credit Hour:** 1

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**V\_M\_S 6998: Small Animal Behavioral Medicine**

Small Animal Behavioral Medicine

**Credit Hour:** 1

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**V\_M\_S 6999: Food Animal Surgery Laboratory**

Routine food animal surgical procedures laboratory.

**Credit Hour:** 1

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**V\_M\_S 7301: Topics in Veterinary Medicine and Surgery**

Organized study of select topics.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**V\_M\_S 7303: Advanced Topics in Veterinary Anesthesia**

(same as V\_M\_S 6993).

**Credit Hour:** 1

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**V\_M\_S 7304: Advanced Equine Surgery**

The purpose of the course is to aid in the preparation of the resident for Board certification in the American College of Veterinary Surgeons.

**Credit Hours:** 2

**Prerequisites:** a DVM or equivalent degree, acceptance to the graduate school, acceptance to the residency program, and instructor approval

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**V\_M\_S 7320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with BIOMED 4320). This course will provide students with the knowledge and skills to assist in a small animal medical emergency and critical care facility.

**Credit Hours:** 3

**Prerequisites:** a bachelor's degree in biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 7328: Introductory Radiation Biology**

(same as RADIOL 7328, NU\_ENG 7328, BIO\_SC 7328).

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in biological sciences and physics/chemistry; or instructor's consent

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**V\_M\_S 7351: Advanced Surgical Techniques**

Special application to large, small animals.

**Credit Hour:** 1-99

**Prerequisites:** D.V.M

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**V\_M\_S 7355: Advanced Techniques in Radiology**

Special application to domestic animals.

**Credit Hour:** 1-99

**Prerequisites:** D.V.M

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**V\_M\_S 7370: Orthopaedic Biomechanics**

(same as BIOL\_EN 7370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, BIOL\_EN 3170; departmental consent

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**V\_M\_S 7385: Problems in Veterinary Medicine and Surgery**

Studies in specific areas of veterinary medicine and surgery.

**Credit Hour:** 1-99

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**V\_M\_S 7510: Equine Clinical Anatomy: Forelimbs**

Basic Foundation in selected aspects of equine clinical anatomy for veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structure of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** A bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 8021: Neurology Journal Review**

Weekly journal review and seminar on current topics in veterinary neurology, related clinical disciplines and basic neurosciences. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8022: Internal Medicine Clinicopathologic Conference**

Advanced discussion of small animal medicine cases with an emphasis on pathophysiology and clinicopathologic findings. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8023: Internal Medicine Journal Review**

Resident led review of the current veterinary internal medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8024: Medicine-Surgery-Pathology Conference**

This is a case-based course in which clinical and pathological findings of interesting cases from the VMTH are presented by those who treated and interpreted the case. Dogs, cats, cows, horses, and small ruminants are included with occasional non-traditional species. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8025: Equine Medicine Journal Review**

Aid Residents in preparing for board certification in ACVIM and ACVS. Articles pertaining to current equine veterinary literature are reviewed on a weekly basis. Participants select, distribute articles to group prior to meeting, then present short review with a discussion following. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8026: Surgery Journal Review**

Resident led review of the current veterinary surgical peer-reviewed literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8027: Food Animal Medicine Journal Review**

Critical review of the scientific literature with a focus on ACVIM board preparation. May also be used as a forum for information exchanged relevant to ACVIM board preparation. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8028: Cardiovascular Medicine Journal Review**

Resident led review of the current veterinary cardiovascular medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8029: Emergency and Critical Care Journal Review**

This course will concentrate on review of emergency and critical care literature. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8030: Seminars in Vet. Med. & Surgery: Ophthalmology Pathology Seminar**

Review of clinical cases presented in two formats: histopathology slides and kodachrome slides. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree or equivalent and acceptance into an ophthalmology residency program

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**V\_M\_S 8031: Sem. in Vet. Med & Surgery: Ophthalmology Seminar & Journal Review**

Weekly journal review and seminar on current topics in veterinary ophthalmology, review of pertinent literature in human ophthalmology, and review of ophthalmic texts. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8032: Seminars in Veterinary Anesthesiology**

A journal review will focus on advances in veterinary anesthesiology, pharmacology, and physiology. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8033: Seminars in Clinical Sciences-Equine Surgery Journal Review**

Journal review will focus on advances in equine surgery and will consist of a review of recent manuscripts pertaining to equine surgery in current journals and review of pertinent book chapters. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree and instructor's consent

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**V\_M\_S 8034: Seminars in Veterinary Radiology**

This journal review will focus on advances in veterinary radiology, ultrasound and alternate imaging. Current and past literature will be reviewed weekly and will be chosen by the class coordinator. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8035: Current Topics in Veterinary Clinical Nutrition**

Review and critical analysis of recently published articles in veterinary nutrition and discussion of aspects relevant to clinical application and management of veterinary patients. Can be repeated for a total of six credit hours. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Graduate Veterinary Medicine majors or instructor's consent

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**V\_M\_S 8036: Advanced Physiology of the Dog and Cat**

To understand advanced medical physiology: cell physiology, muscle function, cardiac and circulatory physiology, renal function, distribution of fluid in the body, functions of red and white blood cells, mechanisms of hemostasis, resistance to infection and pulmonary physiology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent

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**V\_M\_S 8040: Advanced Small Animal Clinical Nutrition**

Advanced study of veterinary clinical nutrition in the dog and cat. Includes review of applied biochemistry, nutrients, and feeding principles along with pathophysiology and nutritional management of common diseases. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Introductory Veterinary Nutrition

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**V\_M\_S 8041: Current Topics in Dairy Production Medicine**

The course will focus on the presentation, evaluation and discussion of contemporary scientific peer-reviewed literature published in indexed journal related to current concepts on dairy production medicine. Participating students will be aimed to critically review current research publication with special emphasis on study design, hypothesis and objectives. Through the analysis of results and discussion, concepts of dairy production medicine will be imparted. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_M\_S 8090: Research in Veterinary Medicine and Surgery (Thesis)**

Thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_M\_S 8400: Clinical Veterinary Regulatory Medicine and Public Health**

(same as P\_HLTH 8400). The goal of this course is to familiarize the student with clinical aspects of veterinary public health/regulatory medicine.

**Credit Hours:** 2

**Prerequisites:** Must be enrolled in MPH (veterinary public health concentration) or DVM curriculum

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**V\_M\_S 8401: Topics in Veterinary Clinical Sciences**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8402: Seminar in Veterinary Clinical Sciences**

Graduate seminars and conferences with a focus on current literature within a specialty area. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8405: Comparative Respiratory Pathophysiology**

A consideration of clinical pathophysiology of the respiratory system relative to diseases of the thorax and clinical anesthesiology.

**Credit Hour:** 1

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**V\_M\_S 8406: Topics in Veterinary Medicine and Surgery**

Current topics, infrequently taught courses, or new courses not yet designated by a permanent course number.

**Credit Hour:** 1-99

**Prerequisites:** must be a DVM or be enrolled in the Veterinary curriculum; instructor's consent

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**V\_M\_S 8410: Veterinary Medicine and Surgery Research Seminar**

Current research in veterinary medicine and surgery. Literature reviews and presentation or original graduate student research. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8411: Clinical Veterinary Endocrinology**

A 2-hour course for post-DMV graduate students. It will focus on clinically relevant physiology, pathophysiology, and diagnostic evaluation of hormone systems.

**Credit Hours:** 2

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**V\_M\_S 8413: Equine Internal Medicine**

The purpose of the course is to aid in the preparation of the Resident for board certification in the American College of Veterinary Internal Medicine-LAIM. Current concepts in the pathophysiology, diagnosis and management of medical disorders of horses.

**Credit Hours:** 2

**Prerequisites:** DVM degree or equivalent

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**V\_M\_S 8415: Advanced Veterinary Neurology**

Basic neuroscience as it relates to clinical neurology and the pathophysiology of diseases of the brain, spinal cord, peripheral nerve and muscle in domestic animals. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM degree

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**V\_M\_S 8416: Advanced Veterinary Internal Medicine: Cardiovascular Medicine**

Pathologic, pathophysiologic, hemodynamic and pharmacological mechanisms of important to the diagnosis, assessment, management and research of cardiovascular diseases of animals.

**Credit Hours:** 3

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**V\_M\_S 8417: Advanced Veterinary Internal Medicine - Clinical Oncology**

Provides graduate students in the clinical and basic sciences alike with a working knowledge of the biological mechanisms of cancer development and progression and the related approaches to cancer prevention and therapy. It is assumed that students will have a strong background in biology as a foundation for discussion.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree recommended

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**V\_M\_S 8418: Advanced Veterinary Internal Medicine: Food Animal Medicine**

Current concepts in the pathophysiology, diagnosis and management of medical disorders, diseases of the limbs, and infectious diseases of cattle and food producing animals.

**Credit Hours:** 2

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**V\_M\_S 8419: Advanced Topics in Cancer Biology and Clinical Oncology**

This course will provide students with a knowledge base in cancer cell biology that may be applied to the practice of clinical oncology. Monthly clinically-oriented seminars by invited speakers will be preceded by a weekly in-depth review of the basic science related to the seminar topic.

**Credit Hours:** 2

**Recommended:** MD or DVM

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**V\_M\_S 8421: Advanced Veterinary Surgery: Small Animal Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disease of the dog and the cat. Includes laboratories of advanced surgical techniques.

**Credit Hour:** 2-4

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**V\_M\_S 8423: Comparative Arthrology**

Lectures and discussion covering anatomy, physiology, biomechanics, pathophysiology, and clinical aspects of mammalian diarthrodial joints.

**Credit Hours:** 3

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**V\_M\_S 8425: Advanced Veterinary Surgery: Equine Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disorders of the horse. Taught yearly as sections A, B, C. Repeatable to a maximum of 10 credit hours (individual sections may be taken once).

**Credit Hour:** 2-4

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**V\_M\_S 8426: Advanced Veterinary Surgery - Ophthalmic Surgery**

Surgery labs consisting of 2-4 hours of surgical instruction per week. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8431: Research Methods and Data Analysis**

A consideration of research methods, data analysis, and practical approaches to analyzing data sets derived from veterinary and biomedical studies.

**Credit Hours:** 2

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**V\_M\_S 8432: Applied Statistics and Informatics**

Educate students in the practical application of statistics and information research tools. Students will learn about application of statistical modeling to biomedical research. They will be trained to use statistical software programs and then use those skills to analyze data sets. Additionally, students will learn about the use of informatics systems for researching scientific questions, data searching, and data dissemination. At the end of the course successful students should be able to develop and perform statistical analyses appropriate for most basic research study designs. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree and enrollment in a veterinary residency program unless an exception is approved by the course coordinator

**Recommended:** Successful completion of a general statistics course is highly recommended prior to taking this course

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**V\_M\_S 8435: Veterinary Clinical Sciences: Clinical Immunology**

Advanced concepts in veterinary immunology and immunopathology.

**Credit Hours:** 2

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**V\_M\_S 8436: Veterinary Clinical Sciences: Clinical Pharmacology**

Advanced concepts in veterinary clinical pharmacology, pharmacokinetics, and anesthesiology.

**Credit Hour:** 1

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**V\_M\_S 8437: Advanced Topics in Veterinary Medicine (Nuclear Medicine)**

An in-depth review of veterinary nuclear medicine. Includes the physics of nuclear medicine, common imaging techniques, common radiopharmaceuticals, radiopharmaceutical kinetic evaluation and some common physiological applications.

**Credit Hour:** 1

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**V\_M\_S 8439: Advanced Veterinary Ultrasonography**

Advanced concepts in veterinary ultrasonography; including ultrasound and Doppler physics, instrumentation, examination methodology, and interpretation of studies.

**Credit Hour:** 2-3

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**V\_M\_S 8440: Adv Veterinary Clinical Sciences: Advanced Clinical Ophthalmology**

Case-based discussion course. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8445: Veterinary Critical Care and Emergency Medicine**  
Advanced study of veterinary critical care and emergency medicine and surgery focusing on current research and literature as well as clinical application.

**Credit Hour:** 2-3

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**V\_M\_S 8450: Research in Veterinary Medicine and Surgery (non-thesis)**  
Non-Thesis research.

**Credit Hour:** 1-99

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**V\_M\_S 8485: Problems in Veterinary Clinical Sciences**  
Supervised individuals studies arranged with a faculty member and approved by the advisory committee. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8487: Nuclear Medicine**  
Principles of radiation detection instrumentation, monitoring radiological safety and diagnostic procedures used on veterinary nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** one year College Physics, D.V.M. degree, and departmental consent

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**V\_M\_S 8488: Radiation Therapy**  
Intermediate level course to review basic and advanced concepts in radiation biology, radiation physics, and clinical application of ionizing radiation for the treatment of cancer Teletherapy, brachytherapy and radiation oncology are covered.

**Credit Hours:** 3

**Prerequisites:** A basic course in radiation physics/dosimetry, radiation biology and medical oncology. One year college physics, DVM degree and departmental consent

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**V\_M\_S 8489: Veterinary Radiographic Physics**  
In depth review of the fundamental principles of radiographic physics, with an emphasis on preparation for the American college of Veterinary Radiology board examination. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 9090: Research in Veterinary Medicine and Surgery**  
PhD Dissertation research. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## **Veterinary Pathobiology (V\_PBIO)**

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### **V\_PBIO 3551: Introduction to Immunology I**

Comprehensive introduction to the basic principles of immunology. The course is designed for undergraduates majoring in biology, biochemistry or health professions. Introduction to cells and organs of the immune system, innate and adaptive immunity, development, activation and effector functions of lymphocytes, hypersensitivity, host response to infection and vaccination, autoimmunity and tumor immunology. Introduction to Immunology 1. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300

**Recommended:** BIO\_SC 2200

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### **V\_PBIO 3554: Introduction to Virology**

Comprehensive introduction to the basic principles of virology. The course is designed for undergraduates majoring in biology, biochemistry, or health professions. The course covers general virology including the molecular structure of viruses, the multiplication strategies of the major virus families, and viral latency, persistence, and oncology. The major families of the bacterial, plant, and animal viruses are discussed. Human viruses and infectious diseases are emphasized. Viral immunology, viral defenses, viral vaccines and antiviral compounds will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300

**Recommended:** BIO\_SC 3750

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### **V\_PBIO 4787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBIO 7787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** B or better in BIO\_SC 2300 and BIO\_SC 2200

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### **V\_PBIO 5511: Veterinary Immunology**

(same as V\_PBIO 8451). Basic immunology techniques. Topics include innate and adaptive immunity, development of the immune system, induction and expression of the immune response, structure and function of antibodies, antigen-antibody reactions, the major histocompatibility complex, aspects of immunology in disease.

**Credit Hour:** 1.5

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### **V\_PBIO 5512: Veterinary Immunology**

(same as V\_PBIO 8451). Continuation of V\_PBIO 5511.

**Credit Hour:** 1.5

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**V\_PBIO 5552: Veterinary Bacteriology with Laboratory**

Classification and properties of pathogenic bacteria and fungi of animals; relationship to public health; considers pathogenesis, immunology of infection. Instructional period 5.

**Credit Hours:** 3

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBIO 5553: Veterinary Bacteriology II**

Continuation of V\_PBIO 5552. Instructional period 6.

**Credit Hours:** 2.5

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**V\_PBIO 5554: Veterinary Virology**

(same as V\_PBIO 8454). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6 and 7.

**Credit Hours:** 2.5

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBIO 5555: Epidemiology and Biostatistics with Laboratory**

(same as V\_PBIO 8455). This course introduces students to methods of determining the influence of disease on populations and how this information is applied to individual animals. Biostatistics and evidence based medicine are also discussed in this course. The knowledge gained in this course is applied to reading professional literature during the course. Instructional period 4.

**Credit Hours:** 2

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**V\_PBIO 5557: Veterinary Parasitology with Laboratory**

(same as V\_PBIO 8457). Parasites and parasitic diseases of ruminants, horses, swine, dogs, cats, poultry and other animals. Includes classification, morphology, and bionomics of protozoa, helminths, and arthropods. Instructional period 6.

**Credit Hours:** 3

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**V\_PBIO 5558: Veterinary Public Health**

(same as V\_PBIO 8458). In this course students are introduced to the wide range of veterinary involvement in maintaining and assuring human health, nationally and globally. Topics discussed include: agencies such as USDA, FDA, CDC, food safety and meat inspection, veterinary responsibility in identifying diseases, legal issues of drug use, and zoonotic diseases. Instructional period 7.

**Credit Hours:** 2

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**V\_PBIO 5575: Veterinary Pathology with Laboratory**

General Pathology. Tissue reactions to various disease agents in domestic animals. Instructional period 5.

**Credit Hours:** 3

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**V\_PBIO 5576: Veterinary Systemic and Special Pathology with Laboratories**

Special and systemic pathology. Tissue reactions to disease in special systems in domestic animals. Instructional period 6.

**Credit Hours:** 3

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**V\_PBIO 5577: Veterinary Systemic and Special Pathology II with**

Follows the general pathology and continues the systemic pathology taught in V\_PBIO 5576. The course, consisting of daily lectures and weekly laboratories, covers disease, mainly in domestic animals, of the following systems or organs: cardiovascular, respiratory, lymphoid, cutaneous, mammary, ophthalmic, and otic. Instructional period 7.

**Credit Hours:** 3

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**V\_PBIO 5578: Veterinary Clinical Pathology with Laboratory**

Physiologic basis, interpretation and clinical application of laboratory assays in hematology, chemistry, cytology, and urinalysis, utilization of laboratory methods to define pathological states and to diagnose disorders of domestic animals. Instructional period 8.

**Credit Hours:** 3

**Prerequisites:** enrollment in College of Veterinary Medicine

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**V\_PBIO 5579: Veterinary Genomics**

Study of genomes, an organism's entire set of the genetic information. Used for detection of pathogen genomes, and markers for mutation causing inherited disease. Instructional period 5.

**Credit Hour:** 1

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**V\_PBIO 5580: Introduction to Veterinary Informatics with Laboratory**

Introduces concepts of veterinary informatics and development of core informatics competencies necessary for successful veterinary practice. The knowledge and skills in this course address topics such as data retrieval, information evaluation, medical records, practice management, communication skills and telemedicine. Instructional period 5.

**Credit Hour:** 1

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**V\_PBIO 5601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBIO 5991: Introduction to Avian Medicine**

Introduction to Avian Medicine

**Credit Hour:** 1

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**V\_PBIO 5995: Foundations in Veterinary Research and Discovery**

This course will introduce veterinary students to concepts of research including hypothesis development, experimental design, data interpretation, grantsmanship, responsible conduct of research, biomedical research careers and presentation and publication methods.

**Credit Hours:** 2

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**V\_PBIO 6010: Laboratory Animal Medicine**

Principles of Veterinary Medicine applied to laboratory animals as pets and in research. Husbandry, handling and clinical techniques, diseases, and use as disease models are discussed. Instructional period 8.

**Credit Hour:** 1.5

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**V\_PBIO 6647: Diagnostic Pathology and Special Species Medicine**

Application of laboratory techniques used to diagnose disease by macroscopic, microscopic, biochemical, microbiologic, and toxicologic findings. Case method of teaching. Domestic avian species and laboratory animals included. Six times yearly.

**Credit Hours:** 8

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**V\_PBIO 6676: Laboratory Animal Medicine and Management Elective**

Elective offered 3rd- and 4th-year students, subject to approval of course coordinator and supervising faculty. Concentrated study/experience in laboratory animal disease(s)/colony management. Available to veterinarians as a continuing education program.

**Credit Hour:** 2-6

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**V\_PBIO 6678: Epidemiology and Community Health**

Elective covering advanced aspects of epidemiology and community health. Emphasizes problem solving and is designed to meet needs of the individual student. Instructional period arranged.

**Credit Hour:** 2-6

**Prerequisites:** V\_PBIO 5558 or instructor's consent

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**V\_PBIO 6679: Diagnostic Pathology and Special Species Medicine**

Third- and fourth-year students. Elective. Approval of coordinator and supervisory staff. Continuation of V\_PBIO 6647 with more depth. Available to D.V.M.'s as part of continuing education program.

**Credit Hour:** 2-6

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**V\_PBIO 6684: Research Techniques in Veterinary Pathobiology**

Research Techniques in Veterinary Pathobiology

**Credit Hour:** 1-6

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**V\_PBIO 7100: Veterinary Clinical Chemistry**

(cross-leveled with BIOMED 4100). This course is designed to hone the skills of the practicing veterinary technician, veterinary student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.

**Credit Hours:** 3

**Prerequisites:** A BS or BSA in veterinary technology or DVM

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**V\_PBIO 7110: Veterinary Cytology**

(cross-leveled with BIOMED 4110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal

cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree or instructor's consent

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**V\_PBIO 7120: Principles of Toxicology**

(cross-leveled with BIOMED 4120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** BS in Biology, Biochemistry, or equivalent, or permission of instructor

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**V\_PBIO 7210: Animal Issues in Disasters**

(cross-leveled BIOMED 4210). Animal Issues in Disasters describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** a bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_PBIO 7787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBIO 4787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Consent of Instructor

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**V\_PBIO 8090: Thesis Research in Veterinary Pathobiology**

Open to graduate students with requisite preparation. Research on specific animal diseases, prevention and treatment. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_PBIO 8401: Topics in Veterinary Pathobiology**

Courses with lectures in various topics in veterinary pathobiology will be given on a trial basis, depending on faculty expertise and student demand. Credit hours are usually 1 or 3. Specialized topics will be covered.

**Credit Hour:** 1-99

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**Prerequisites:** instructor's consent

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**V\_PBio 8410: Seminar in Veterinary Pathobiology**

Discussion of current research methods in veterinary pathobiology.

**Credit Hour:** 1

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**V\_PBio 8411: Seminar in Histopathology**

Discussion of current research and/or case studies in pathology of diseases of domestic animals, laboratory animals and avian species. Team taught.

**Credit Hour:** 1

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**V\_PBio 8421: Advanced Epidemiology**

(same as F\_C\_MD 8421).

**Credit Hours:** 3

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**V\_PBio 8430: Comparative Pathology**

(same as PTH\_AS 8000). Biochemical and morphologic lesions related to the mechanism of disease expression in plants and animals.

**Credit Hours:** 3

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**V\_PBio 8431: Research Methods and Data Analysis**

Specific assignments on diagnostic methods including surgical pathology, necropsies, toxicology.

**Credit Hour:** 2-4

**Prerequisites:** departmental consent

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**V\_PBio 8432: Advanced Histopathology**

Advanced microscopic study of pathological tissues.

**Credit Hours:** 5

**Prerequisites:** departmental consent

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**V\_PBio 8433: Veterinary Oncology**

History and molecular biology of neoplasia; laboratory for discussion of practical aspects of diagnosis.

**Credit Hours:** 2

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**V\_PBio 8434: Advanced Clinical Pathology**

Lecture/tutorial teaching; pathogenesis of clinical laboratory abnormalities in the common domesticated species. Emphasis is placed on mechanisms of disease and pathophysiology of the changes seen in each organ system.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**V\_PBio 8435: Advanced Microscopy in Veterinary Clinical Pathology**

Recognition and pathogenesis of abnormalities found via microscopic analysis of blood smears or cytology.

**Credit Hour:** 1

**Prerequisites:** V\_PBio 5578 and departmental consent; DVM or current enrollment in veterinary curriculum

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**V\_PBio 8436: Pathogenic Mechanisms in Veterinary Pathobiology**

This course will include disease mechanisms, described at the cellular and molecular level, which result in tissue morphologic (gross and microscopic) and clinical abnormalities. Examples of discussion topics include soluble mediators of inflammatory processes, host-agent interactions, and host defense mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8437: Pathology of Laboratory Animals**

Gross and microscopic study of spontaneous and naturally occurring diseases in laboratory animals.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**V\_PBio 8438: Primatology**

Disease and pathology of primates.

**Credit Hours:** 3

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**V\_PBio 8441: Topics in Veterinary Pathobiology**

Subjects appropriate to veterinary pathobiology and/or epidemiology, taught on a one-time basis or infrequently. May include highly specialized topics. Specific course must be approved by departmental faculty.

**Credit Hour:** 1-3

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**V\_PBio 8442: Advanced Veterinary Pathogenic Bacteriology**

Study of pathogenic bacteria causing animal disease. Pathogenic mechanisms and host-parasite relationships are emphasized. Laboratory procedures for isolation and identification of pathogens are included.

**Credit Hours:** 3

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**V\_PBio 8443: Viral Infection and Immunity**

Study of virus infection at the level of the intact animal. Includes immunology of domestic animal species.

**Credit Hours:** 3

**Prerequisites:** graduate standing and instructor's consent

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**V\_PBio 8445: Vectors and Vector-borne Diseases**

This course will focus on arthropod vectors (insects and ticks) and the medically important pathogens / diseases that they transmit, including arboviruses, bacteria, protozoa and nematodes. An emphasis will be on the interactions between the vectors and disease-causing pathogens. Topics include: introductions to systematics, anatomy, physiology, life cycles, and ecology of vectors and classification and biology of the pathogens responsible for such diseases as dengue, yellow fever, malaria, leishmaniasis, lymphatic filariasis, etc. The focus will be not only on specific pathogen-vector interactions but also on big picture topics / discussions of vector competence, insecticide resistance, vector control (including genetically modified insects) and other current issues in vector biology research. Students will learn how these important vector-borne diseases are transmitted, how they are spread and introduced into new regions, and what control strategies exist or are currently under development. Students will realize what impact vector-borne diseases

have on global human and animal health as well as develop and hone critical thinking skills.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in the Life Sciences

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**V\_PBio 8446: Advanced Immunology and Immunopathology**

Study of the immune system at the level of the intact animal. Includes a discussion of immunity-infectious diseases.

**Credit Hours:** 3

**Prerequisites:** MICROB 4304 and instructor's consent

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**V\_PBio 8447: Oncogenic Animal Viruses**

Biology of RNA- and DNA-containing animal tumor viruses and their in vitro and in vivo interactions with host cells.

**Credit Hours:** 3

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**V\_PBio 8448: Molecular Methods in Nucleic Acids**

The course will focus on the most recent developments in technology related to eukaryotic and prokaryotic molecular biology and as analysis a manipulation of nucleic acids and their application to define structure, function and biosynthesis of macromolecules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8450: Non-Thesis Research in Veterinary Pathobiology**

Research not expected to terminate in dissertation.

**Credit Hour:** 1-99

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**V\_PBio 8451: Introduction to Immunology**

(same as V\_PBio 5511 and V\_PBio 5512). Fundamentals of immunology as applied to domestic animals.

**Credit Hours:** 3

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**V\_PBio 8452: Cell and Molecular Electron Microscopy**

Lecture class that describes the use of electron microscopy (transmission and scanning) in biomedical research. Students receive hands-on experience by completing a laboratory project.

**Credit Hours:** 4

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**V\_PBio 8454: Domestic Animal Virology**

(cross-leveled with V\_PBio 5554). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6.

**Credit Hours:** 2.5

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**V\_PBio 8455: Epidemiology and Biostatistics**

Graduate level introduction to veterinary epidemiology and bio-statistics.

**Credit Hour:** 2-3

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**V\_PBio 8457: Animal Parasitology**

(same as V\_PBio 5557).

**Credit Hour:** 3-5

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**V\_PBio 8458: Veterinary Public Health**

(same as V\_PBio 5558).

**Credit Hours:** 2

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**V\_PBio 8468: Laboratory Animal Biology**

Taxonomy, anatomy, physiology, nutrition and behavior of laboratory animals including non-human primates and less common species are covered. Genetics, gnostobiology, housing and production are also presented.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**V\_PBio 8552: Veterinary Pathogenic Bacteriology and Mycology I**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic problems, appropriate treatments and prevention measures. Course graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8553: Veterinary Pathogenic Bacteriology and Mycology II**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic procedures, appropriate treatments and prevention measures. Graded on A-F basis only.

**Credit Hours:** 2.5

**Prerequisites:** V\_PBio 5552 or V\_PBio 8552 and instructor's consent

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**V\_PBio 8601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBio 8641: Introduction to Research Ethics**

This course provides students with a brief overview of many of the ethical issues that confront today's scientist. It is important that scientist think about and develop their abilities to make well-reasoned responses to ethical problems.

**Credit Hour:** 1

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**V\_PBio 9090: Area Veterinary Pathobiology Dissertation Research**

Dissertation Research for PhD students. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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## Women's and Gender Studies (WGST)

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**WGST 1001: Topics in Women's and Gender Studies-General**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1003: Topics in Women's and Gender Studies-Behavioral**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1004: Topics in Women's and Gender Studies-Social Science**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing

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**WGST 1120: Introduction to Women's and Gender Studies**

Introduction to the basic issues of Western feminist thought through a study of classical and contemporary sources. Course will consider images, conditions, activities and visions of women as they vary historically and socially.

**Credit Hours:** 3

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**WGST 1360: The Female Experience: Body, Identity, and Culture**

(same as SOCIOL 1360). Study of the experience of being female in American Culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**WGST 1500: The Black Woman in America**

(same as BL\_STU 1500). Review and critique of a variety of materials about Black women from slavery to the social and philosophical impact of the Black woman's struggle on all women.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**WGST 2001: Topics in Women's and Gender Studies-General**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2003: Topics in Women's and Gender Studies-Behavioral**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2004: Topics in Women's and Gender Studies-Social Science**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2005H: Topics in Women's and Gender Studies-Humanities - Honors**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

**Recommended:** sophomore standing and/or WGST 1120

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**WGST 2010: Gender and Identity: Understanding Intersectionality**

Explores historical and contemporary dimensions of social inequality in gender, race, class and sexuality. Uses an interdisciplinary lens and feminist analysis to analyze social, cultural, political and economic experiences of individuals and communities. Prerequisites: WGST 1120

**Credit Hours:** 3

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**WGST 2020: Feminist Theory**

Introduces central themes and problems in feminist thought, including consciousness-raising, motherhood, class, race, sexuality, nationalism, and transnational feminism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or sophomore standing

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**WGST 2030: Gender Perspectives: Colonial Histories, Post-Colonial Challenges**

Identifies and interrogates key gender issues in post-colonial countries with an acute awareness of their constructions through western and local knowledge, patriarchy, the nation-state, and globalization. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2040: Perspectives on Empowerment**

Women's Empowerment is a popular catch phrase in culture, politics and research. This course explores the meaning of empowerment, the ways empowerment is practiced in organizations and in the everyday lives of girls and women, and the challenges in empowering girls and women in contemporary society. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2050: Gender Perspectives: Issues in Public Health**

Addresses issues of gender and public health in the US and abroad. Considers how race, class, gender, sexuality, and geopolitical context may impact health. May focus on specific health issues. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2080: Perspectives on Sexual and Gender Diversity**

This interdisciplinary, cross-cultural course investigates modern constructions of sexed and gendered bodies, paying particular attention to those systems of gender-based oppression that suppress multiple gender identities and expressions. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2180: Introduction to Women's Literature**

(same as ENGLISH 2180). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**WGST 2186: Introduction to Women's Literature, Beginning to 1603**

(same as ENGLISH 2186). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2187: Introduction to Women's Literature, 1603 to 1789**

(same as ENGLISH 2187). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2188: Introduction to Women's Literature, 1789 to 1890**

(same as ENGLISH 2188). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2189: Introduction to Women's Literature, 1890 to Present**  
(same as ENGLISH 2189). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2200H: British Women Writers - Honors**

Study of works by important British women writers. We also consider the development of women's writing and the contribution of women writers to literature and to larger societal debates. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

**Recommended:** sophomore standing

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**WGST 2250: Perspectives on Gender, Race, Class and Sexuality in the Americas**

Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2250W: Perspectives on Gender, Race, Class and Sexuality in the Americas - Writing Intensive**

Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2260: Perspectives on Mass Media: Constructions of Gender, Race and Sexuality**

Examines constructions of gender, race, class and sexuality in the US media in the twentieth and twenty first centuries. Emphasis placed on media's coverage and uses of various socially constructed identities. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2340: Perspectives on Gender and Popular Culture**

Explores issues in popular culture in the 20th and 21st centuries with respect to feminism, gender, sexuality, race, class, and ability. Areas of study may include television, movies, music, advertisements, magazines, fiction, newspapers, the internet, and social media. May be repeated for credit.

**Credit Hours:** 3

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**WGST 2370: French and Francophone Women Writers**

(same as FRENCH 2370). This course will address issues of race, gender and class in selected works originally written by women of different historical periods and geographical areas. (metropolitan France, French colonies, and territories such as the Caribbean).

**Credit Hours:** 3

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**WGST 2400: Social History of U.S. Women**

(same as HIST 2400). This course, the social history of US women, offers a general overview of US women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**WGST 2410: African American Women in History**

(same as HIST 2410 and BL\_STU 2410). Covers major issues affecting black women since their introduction into English-speaking North America to the present.

**Credit Hours:** 3

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**WGST 2500: Philosophy and Gender**

(same as PHIL 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2960: Sexual Health Advocacy and Service Learning**

Students will critically investigate sexuality and reproductive health within a cultural context including religious, political, social justice, familial, and societal influences. Through assigned readings, reflection, experiential learning, small group activities and discussion, students will increase their awareness of sexual health issues, enhance self awareness, and learn how to effectively educate their peers surrounding issues of sexual health.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3004: Topics in Women's and Gender Studies-Social Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 3005H: Topics in Women's and Gender Studies-Humanities - Honors**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** honors eligibility required

**Recommended:** junior standing and/or WGST 1120

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**WGST 3080: Sexuality and Gender Theory**

(same as ENGLSH 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with departments consent.

**Credit Hours:** 3

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**WGST 3150: Themes in Gender and Work**

This is an interdisciplinary course on gender and work. The course addresses topics such as contemporary and historical feminist debates about gender and work; problems of gender inequality at the workplace; historical context of contemporary patterns of gender inequality at work; and how gender intersects with race, class, sexuality and other social categories to shape people's work lives.

**Credit Hours:** 3

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**WGST 3180: Historical Survey of Women Writers**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3180W: Historical Survey of Women Writers - Writing Intensive**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3220: U.S. Women's Political History, 1880-Present**

(same as HIST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3230: Themes in Sexual Politics**

Explores transnational politics of sex/sexuality, examines the theoretical, historical, analytical, and socio-cultural context of race, gender and

sexuality. Students learn and apply a transdisciplinary approach and analyze shifts in the field of sexuality studies. May be repeated for credit with different themes.

**Credit Hours:** 3

**Prerequisites:** WGST 1120

**Recommended:** sophomore standing

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**WGST 3240: Nonprofit Work and the Pursuit of Social Justice**

This course provides an overview of the work of nonprofit organizations. It will be framed in a social justice paradigm and will explore women's role in nonprofit organizations, why women gravitate to nonprofits, and the implications of their work to achieve social justice.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3260: Themes in Gender, Law and Justice**

Course addresses issues related to gender, law and the justice system in the U.S. and /or globally. Topics may include history of women's rights in the U.S.; contemporary issues in law and justice such as incarceration, human trafficking, and gay marriage; and the ways race, class, sexuality and citizenship shape experiences of justice. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3270: Themes in Masculinities**

Explores how male experiences are shaped by gender expectations and social context, with emphasis on psychosocial challenges and privileges associated with negotiating masculine gender role expectations.

Evaluates the psychological impact of gender, especially in American popular culture, on diverse men and their families. Studies how gender interacts with other aspects of identity, such as race, religion, ethnicity, socioeconomic status, sexual orientation and non-conforming gender identity. Course may be repeated for credit. Recommended: WGST 1120 and sophomore standing,

**Credit Hours:** 3

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**WGST 3300: Queer Theories/Identities**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3300W: Queer Theories/Identities - Writing Intensive**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3320: Sociology of Gender**

(same as SOCIOL 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1360

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**WGST 3370: Themes in Gender and Religion**

Students acquire a basic knowledge and understanding of gender in religious communities including the construction of women's/men's religious identities, their gender relations, societal roles and status. Themes may explore how the organizational structures of religion can be a vehicle of oppression and a place for justice and autonomy; may explore the representation and practices of specific religions; or may address the intersections of gender, class, race, geopolitics, and religion. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3430: Sex Radicals in U. S. History**

(same as HIST 3430). Survey of the history of sexuality in the United States.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3450: Feminist Methodologies**

This course is an opportunity to explore the difference that feminism makes in doing research. Students can begin to identify the research tools and strategies suited to questions they want to pursue.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3480: Themes in Sexuality and Literature**

Examines sexuality and representations of sexuality in literature. The specific topic will be announced at the time of registration. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3560: Themes in Gender and Immigration**

Explores current controversies in immigration in various locations. The course will cover a number of topics including nationalism and citizenship, national identity, identity and fluidity, social inequality and others. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 3570: European Women in the 19th Century**

(same as HIST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's role in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3650: Themes in Feminism**

Course may cover historical and contemporary understandings of feminism, feminist movements in the U.S. and globally, and key debates in feminism. The specific topics will be announced at the time of registration. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 3670: Themes in Gender and Globalization**

Introduces transnational feminist theories, considers the practices and material circumstances related to globalization, and explores how class, gender, place/nation, (dis) ability, sexuality and colonial practices complicate our understanding of globalization. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** WGST 1120

**Recommended:** sophomore standing

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**WGST 3750: Women and Religions**

(same as REL\_ST 3750). A rediscovery of the wealth of religious activity which women have created and enacted. Investigates women's roles and rituals in large-scale and local religions, including ancient Goddess religions, Hinduism, Buddhism, Judaism, Christianity, Islam, and African, South American, and native American groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3850: Themes in Gender and the Politics of Representation**

Examines the gendered politics of representation by analyzing film, literature, popular media, and/or other popular cultural texts. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 3870: Russian Women and Film**

(same as RUSS 3870 and FILM\_S 3870) Traces image(s) of the Russian woman in 20th-century Russia as constructed in Russian, Soviet and late-Soviet film. Discusses heroines of pre-revolutionary melodrama and "new Soviet man and woman" of the 20s. Considers war-time re-alignment of gender roles in defense of motherland and their subtle revamping in post-war and post-Stalinist period, and the shifting relations between women and men, women and women, and women and the State. Emphasizes cultural-historical and ideological status of women as reflected in onscreen image(s) in Russian film. Designed to serve as an introduction to film studies and to 20th-century Russian culture more generally. Conducted in English (all films have English subtitles).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3960: Strategies for Effective Peer Education**

Course is designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**WGST 4001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4004: Topics in Women's and Gender Studies-Social Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hour:** 1-3

**Recommended:** junior standing and/or WGST 1120

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**WGST 4020: Studies in Feminist Thought**

(same as BL\_STU 4020; cross-leveled with WGST 7020). Examines recent problems and critical debates within feminist theory. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** WGST 2020

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**WGST 4110: Feminist Research and Criticism**

(same as SOCIOL 4110) Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 4120: Women, Art and Society**

(same as AR\_H\_A 4120). Analysis of the careers and works of women artists, and images of women (by female and male artists), in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 4180: Major Women Writers**

(same as ENGLSH 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory.

Repeatable with department's consent maximum of six hours for WGST 4180 and WGST 4480.

**Credit Hours:** 3

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**WGST 4181: Themes in Literature by Women**

(same as ENGLISH 4181 and BL\_STU 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4186: Major Women Writers, Beginning to 1603**

(same as ENGLISH 4186). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4187: Major Women Writers, 1603-1789**

(same as ENGLISH 4187). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4188: Major Women Writers, 1789-1890**

(same as ENGLISH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as ENGLISH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4189: Major Women Writers, 1890-Present**

(same as ENGLISH 4189). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, BL\_STU 4230 and PEA\_ST 4230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

**Prerequisites:** BL\_STU 1332, BL\_STU 2200; SOCIOL 2200; WGST 1332 or WGST 2010

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**WGST 4235: Social Perspectives on Gender and Emotion**

(same as BL\_STU 4235, SOCIOL 4235; cross-leveled with BL\_STU 7235, SOCIOL 7235, WGST 7235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** WGST 1332 or WGST 1360; SOCIOL 1360 or SOCIOL 2300; BL\_STU 1332 or BL\_STU 2200; junior standing

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**WGST 4310: Adoption, Child Welfare and the Family, 1850-Present**

(same as HIST 4310; cross-leveled with WGST 7310, HIST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**WGST 4350: Studies in Gender and the Environment**

(cross-leveled with WGST 7350). Explores how gendered social relations affect the relationship between human beings, non-human nature, and the environment. Also examines how historically, the human relationship with nature has been governed by a dualism of culture and nature that enables both an ideology of technical control and the objectification of the environment and people. Draws from ecological feminism, the environmental justice movement, feminist science studies, materialist feminism, and feminist dystopian fiction. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** WGST 1120

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**WGST 4370: Anthropology of Gender**

(same as ANTHRO 4370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 4400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 4400). This 3-hour course covers history of battered women's movement, violence theories, policy issues, prevention and intervention practice models for working with battered women, their children, and abusers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**WGST 4420: Studies in Gender, Culture, and Politics**

Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**WGST 4480: Major African Diaspora Women Writers**

(same as BL\_STU 4480 and ENGLISH 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for WGST 4180 and WGST 4480.

**Credit Hours:** 3

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**WGST 4487: Major African Diaspora Women Writers, 1603 to 1789**

(same as BL\_STU 4487, ENGLISH 4487). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as BL\_STU 4488, ENGLSH 4488). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4489: Major African Diaspora Women Writers, 1890 to Present**  
(same as BL\_STU 4489, ENGLSH 4489). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 4550 and PEA\_ST 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200

**Recommended:** senior standing required

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**WGST 4550W: Gender and Human Rights in Cross Cultural Perspective - Writing Intensive**

(same as SOCIOL 4550 and PEA\_ST 4550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200

**Recommended:** senior standing required

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**WGST 4600: Studies in Women and Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 4640: Studies in Gender and Performance**

Examines the relationship among gender, race, class, and/or sexuality, and performance. Course materials may include theatre performance, visual art, literacy context, theoretical essays, films, and popular culture. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4660: European Women in the 20th Century**

(same as HIST 4660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4716: Women and the Media**

(same as JOURN 4716; cross-leveled with WGST 7716, JOURN 7716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

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**WGST 4730: Women and Politics**

(same as POL\_SC 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4750: Women, Religion and Culture**

(same as REL\_ST 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 3750 or WGST 3750

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**WGST 4780: Women's Folklore and Feminist Theory**

(same as ENGLSH 4780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4873: Women's and Gender Studies Abroad - Behavioral Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4874: Women's and Gender Studies Abroad - Social Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

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**Credit Hours:** 3

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**WGST 4875H: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**WGST 4940: Internship in Women's and Gender Studies**

Directed professional experience in appropriate feminist related agency or organization. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** junior standing; departmental consent

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**WGST 4965: Special Readings in Women's and Gender Studies**

Independent readings in women's and gender studies for highly qualified and motivated students. Topic selected in consultation with supervisory faculty member. Repeatable up to 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** junior standing or WGST 1120

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**WGST 4990: Capstone: Senior Research Seminar in Women's and Gender Studies**

Seminar for senior students earning interdisciplinary B.A. with emphasis in WGST. Students will reflect knowledge and experience gained as WGST majors and explore taking that knowledge and experience out in the "real world".

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 4990W: Capstone: Senior Research Seminar in Women's and Gender Studies - Writing Intensive**

Seminar for senior students earning interdisciplinary B.A. with emphasis in WGST. Students will reflect knowledge and experience gained as WGST majors and explore taking that knowledge and experience out in the "real world".

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3

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**WGST 7003: Topics in Women's and Gender Studies-Behavioral Studies**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3

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**WGST 7004: Topics in Women's and Gender Studies-Social Science**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3

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**WGST 7005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit.

**Credit Hour:** 1-3

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**WGST 7020: Studies in Feminist Thought**

(same as BL\_STU 7020; cross-leveled with WGST 4020). Examines recent problems and critical debates within feminist theory.

**Credit Hours:** 3

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**WGST 7110: Feminist Research and Criticism**

(same as SOCIOL 7110). Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 7120: Women, Art and Society**

(same as AR\_H\_A 7120). Analysis of the careers and works of women artists, and images of women (by female and male artists), in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7180: Major Women Writers**

(same as ENGLSH 7180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. Repeatable with department's consent maximum of six hours for WGST 7180 and WGST 7480.

**Credit Hours:** 3

**Prerequisites:** two courses in British or American Literature

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**WGST 7181: Themes in Literature by Women**

(same as ENGLSH 7181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**WGST 7186: Major Women Writers, Beginning to 1603**

(same as ENGLSH 7186). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7187: Major Women Writers, 1603-1789**

(same as ENGLSH 7187). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7188: Major Women Writers, 1789-1890**

(same as ENGLSH 7188). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7189: Major Women Writers, 1890-Present**

(same as ENGLSH 7189). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7230: Women, Development, and Globalization**

(same as SOCIOL 7230). Examines the history and structure of "development" discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**WGST 7235: Social Perspectives on Gender and Emotion**

(same as BL\_STU 7235, SOCIOL 7235; cross-leveled with SOCIOL 4235, BL\_STU 4235, WGST 4235). Examines theories of affect and emotions, the social contexts and the implications for human development and behavior, with special emphasis on sex, gender, race, class and culture. Graded on A-F basis only.

**Credit Hours:** 3

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**WGST 7310: Adoption, Child Welfare and the Family, 1850-present**

(same as HIST 7310; cross-leveled with WGST 4310, HIST 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meanings of adoption since 1850; historical connections between adoption and poverty, family, gender, race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**WGST 7350: Studies in Gender and the Environment**

(cross-leveled with WGST 4350). Explores how gendered social relations affect the relationship between human beings, non-human nature, and the environment. Also examines how historically, the human relationship with nature has been governed by a dualism of culture and nature that enables both an ideology of technical control and the objectification of the environment and people. Draws from ecological feminism, the environmental justice movement, feminist science studies, materialist feminism, and feminist dystopian fiction. May be repeated for credit.

**Credit Hours:** 3

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**WGST 7370: Anthropology of Gender**

(same as ANTHRO 7370) The Anthropology of Gender Introduces the student to the variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 7400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 7400; cross-leveled with WGST 4400, SOC\_WK 4400). Covers history of the domestic violence movement, intimate

partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma. Graded on A-F basis only.

**Credit Hours:** 3

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**WGST 7420: Studies in Gender, Culture, and Politics**

Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts.

**Credit Hours:** 3

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**WGST 7480: Major African Diaspora Women Writers**

(same as BL\_STU 7480 and ENGLSH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for WGST 7180 and WGST 7480.

**Credit Hours:** 3

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**WGST 7487: Major African Diaspora Women Writers, 1603 to 1789**

(same as BL\_STU 7487 and ENGLSH 7487). See WGST 7480 for course description.

**Credit Hours:** 3

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**WGST 7488: Major African Diaspora Women Writers, 1789 to 1890**

(same as BL\_STU 7488 and ENGLSH 7488). See WGST 7480 for course description.

**Credit Hours:** 3

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**WGST 7489: Major African Diaspora Women Writers, 1890 to Present**

(same as BL\_STU 7489 and ENGLSH 7489). See WGST 7480 for course description.

**Credit Hours:** 3

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**WGST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7550 and PEA\_ST 7550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**WGST 7600: Studies in Women and Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations.

**Credit Hours:** 3

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**WGST 7640: Studies in Gender and Performance**

Examines the relationships among gender, race, class, and/or sexuality, and performance. Course materials may include theatre performance, visual art, literary texts, theoretical essays, films, and popular culture. May be repeated for credit.

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**Credit Hours:** 3

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**WGST 7660: European Women in the 20th Century**

(same as HIST 7660). Examines the history of European women from World War I to the present. The course focuses on wars, migration, and the changing nature of family, work and community.

**Credit Hours:** 3

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**WGST 7716: Women and the Media**

(same as JOURN 7716; cross-leveled with WGST 4716, JOURN 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7750: Women, Religion and Culture**

(same as REL\_ST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**WGST 7780: Women's Folklore and Feminist Theory**

(same as ENGLSH 7780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**WGST 7873: Women's and Gender Studies Abroad - Behavioral Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 7874: Women's and Gender Studies Abroad-Social Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 7875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

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**Credit Hours:** 3

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**WGST 8001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8003: Topics in Women's and Gender Studies-Behavioral**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8004: Topics in Women's and Gender Studies-Social Science**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable.

**Credit Hour:** 1-3

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**WGST 8020: Graduate Feminist Theory**

This course will explore the texts and contexts of feminist theories including women of color socialist/Marxist feminism, queer theory, postmodern feminism, and feminist postcolonial theory.

**Credit Hours:** 3

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**WGST 8040: Seminar: Problems and Issues in Feminist Scholarship**

This course is a broad based exploration of a range of current feminist scholarship, both multidisciplinary and interdisciplinary. Issues of identity and difference, community and change are explored through the complicating lenses of race and sexuality.

**Credit Hours:** 3

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**WGST 8060: New Directions in Feminist Theory**

Offers an in-depth exploration of a recent direction in feminist theory. Students will learn a specific feminist approach to scholarship. Theory explored will change based on the semester and professor teaching the course.

**Credit Hours:** 3

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**WGST 8400: Women Writers of the African Diaspora**

Closely studies the works of women writers in the African Diaspora.

**Credit Hours:** 3

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**WGST 8405: Readings in Feminist and Gender Studies**

Graduate-level exploration of concentrated readings that address gender, sexuality, and/or feminist theory within a specific disciplinary area. May be repeated for credit

**Credit Hours:** 3

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**WGST 8410: Africana Theory and Literature Criticism: Black Feminist/Womanist Thought**

Modern and contemporary Africana Diaspora criticism and theory including the diverse approaches to literary and cultural studies.

**Credit Hours:** 3

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**WGST 8620: Work and Family Seminar**

(same as H\_D\_FS 8620). Interaction of family life and income-producing work with attention to how these interconnections vary by social class, gender, race/ethnicity, and age.

**Credit Hours:** 3

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**WGST 8630: Gendered Relations in Families**

(same as H\_D\_FS 8630). From a feminist perspective, the roles of gender in shaping family life experience and of family life experience in shaping gender will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 8965: Problems in Women's and Gender Studies**

Directed individual study on selected topics for qualified graduate students. Plan of study subject to approval by supervising faculty.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**WGST 9001: Topics in Women's and Gender Studies**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**WGST 9440: Race, Gender, Ethnicity in Higher Education**

(same as ED\_LPA 9440). Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**Credit Hours:** 3

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## Faculty

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Below is a listing of faculty who are currently scheduled to teach Spring 2017 through Spring 2018. Information includes the faculty's name, title, department, highest degree attained and institution of highest degree. The last two items of information are self-reported.

Additional faculty members may be listed on the Faculty tabs in the degree areas within the catalog, or on the College, School, or Department websites.

**Abbott, Carmen Casanova**; Clinical Professor; SHP/Physical Therapy; Doctor of Philosophy; University of Missouri

**Abbott, Colleen Marie**; Specialist; Agricultural Ed and Leadership; Specialist of Education; University of Missouri

**Abbott, Jeanne Martha**; Associate Professional Practice Professor; Journalism; Doctor of Philosophy; University of Missouri

**Aberbach, Ian M**; Professor; Mathematics; Doctor of Philosophy; University of Michigan

**Abrams, Douglas E**; Associate Professor; Law; Juris Doctor; Columbia University

**Abu El Ela, Ahmed Abdallahabdallah**; Adjunct Assistant Professor; Civil/Environmental Engr; Doctor of Philosophy; University of Missouri

**Acker, Robyn Renee**; Instructor; Mizzou K-12 Online; Master of Education; Pittsburg State University

**Action, James D**; Associate Professor Of Clinical Department; Child Health-Pulmonary; Doctor of Medicine; University of Illinois

**Acuff, Michael**; Associate Professor Of Clinical Department; Physical Medicine & Rehab

**Adam, Balkozar S**; Associate Professor Of Clinical Department; Psychiatry; Master's Degree; University of Missouri

**Adamovicz, Jeffrey Joseph**; Associate Professor; Veterinary Pathobiology; Doctor of Philosophy; Uniformed Services University

**Adams, Allison Nicole**; Instructor; Mizzou K-12 Online; Bachelor's Degree; Georgia State University

**Adams, Johanna R**; Assistant Extension Professor; Social Sciences CD; Doctor of Philosophy; University of Missouri

**Adams, John E**; Emeritus; Chemistry; Doctor of Philosophy; University of California, Berkeley

**Adams, Samantha Megan**; Part-Time Adjunct Faculty; MU Partnership Educ Renewal; Bachelor's Degree; University Of Missouri

**Adelstein, Edward H**; Emeritus; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Missouri

**Aderton, Andrea Hope**; Clinical Instructor; Social Work

**Adib Keleh, Shady**; Clinical Instructor; Anesthesiology; Doctor of Medicine; University of Cairo

**Adkins, Denice C**; Associate Professor; Info Science & Learning Tech; Doctor of Philosophy; The University of Arizona

**Adkins, Pamela Rae**; Assistant Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The Ohio State University

**Agca, Yuksel**; Associate Professor; Veterinary Pathobiology; Doctor of Philosophy; Purdue University - North Central

**Aggarwal, Ajay**; Assistant Professor Of Clinical Department; Orthopaedic Surgery

**Aggarwal, Arpit**; Assistant Professor Of Clinical Department; Psychiatry

**Aggarwal, Kul B**; Professor Of Clinical Department; Medicine; Doctor of Medicine; Medical College Amritsar

**Agha, Mohammad Tariq**; Assistant Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; University of Missouri - Kansas City

**Aguiar, Francisco Xavier**; Associate Professor; Forestry; Doctor of Philosophy; Louisiana State University

**Aguiar, Joseph R**; Assistant Teaching Professor; English; Doctor of Philosophy; Oregon State University

**Ahmad, Salman**; Assistant Professor; Surgery-Acute Care

**Ahsan, Humera**; Associate Professor Of Clinical Department; Radiology; Doctor of Medicine; Royal College of Radiologist

**Ailor, Susan Kay**; Associate Clinical Professor; Dermatology; Doctor of Medicine; University of Missouri

**Akhmadullin, Iskander V**; Associate Professor; School of Music; University of North Texas

**Al Wekhian, Jamil A**; Adjunct Instructor; Dean of Journalism; Master of Social Science

**Alafaireet, Patricia Elaine**; Assistant Teaching Professor; Health Mgmt & Informatics; Master's Degree; University of Missouri

**Albright, Joyce Gay**; Assistant Teaching Professor; Management; Master of Business Administration; Saint Louis University

**Alcazar-Estela, Asier**; Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of Southern California

**Alden, Michael F**; Associate Teaching Professor; Educ, School, & Counsel Psych; Master of Education; Arizona State University

**Aldrich, Eric Michael**; Part-Time Adjunct Faculty; VP Undergraduate Studies; Master of Science; University of Missouri

**Aldridge, Kristina J**; Associate Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; Johns Hopkins University

**Alexander, Amanda Caroline**; Assistant Teaching Professor; Hospitality Management; Doctor of Philosophy; University of Missouri

**Alexander, Anne Michele**; Associate Teaching Professor; Law

**Alexander, Gregory Lynn**; Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Alexander, Stephen**; Emeritus; Biological Science; Doctor of Philosophy; Brandeis University

**Alexenko, Andrei Petrovitch**; Assistant Research Professor; Animal Science; Doctor of Philosophy; VNIIGenetika

**Ali Akbarpour, Hadi**; Assistant Research Professor; ZZZ-Computer Science; Doctor of Philosophy; University of Coimbra

**Allen, Brittany Jean**; Assistant Professor Of Clinical Department; Psychiatry; Doctor of Philosophy; Saint Louis University



**Allen, Carla McCaghren;** Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Master's Degree; University of Missouri

**Allen, Russell Todd;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Osteopathic Medicine; Kansas City University of Medicine and Biosciences

**Allen, Stephanie Marie;** Clinical Instructor; SHP/Occupational Therapy; Master's Degree; University of Missouri

**Allen, William D;** Adjunct Instructor; Finance; Doctor of Philosophy; University of Missouri

**Allen, William H;** Assistant Teaching Professor; Applied Soc Sci Div Admin; Master's Degree; University of Illinois at Urbana-Champaign

**Allmon, Amanda Lou;** Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Almasri, Mahmoud Faud;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Southern Methodist University

**Alnijoumi, Mohammed Mustafa;** Assistant Professor Of Clinical Department; Medicine-Pulmonary & Environ; Doctor of Medicine; University of Khartoum

**Alonzo, Donette Rose;** Part-Time Adjunct Faculty; VP Undergraduate Studies; Doctor of Education

**Alpert, Martin Alvin;** Professor; Medicine

**Alrahawan, Mohamad G;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri - St. Louis

**Altes, Talissa Ann;** Professor; Radiology; Doctor of Medicine; University of Washington

**Altman, Claire Estelle;** Assistant Professor; SHP/Health Sciences; Doctor of Philosophy; The Pennsylvania State University

**Amass, Mariann D;** Part-Time Adjunct Faculty; Mizzou Online; Specialist of Education; University of Missouri

**Amos Landgraf, James Michael;** Assistant Professor; Veterinary Pathobiology; Doctor of Philosophy; Case Western Reserve University

**Amponsah, David Kofi;** Assistant Professor; Religious Studies; Doctor of Philosophy; Harvard University

**An, Jella Angela;** Assistant Professor Of Clinical Department; Ophthalmology; Doctor of Medicine; McGill University

**Anderson, Alex I;** Part-Time Adjunct Faculty; Dean of Arts & Science; Master of Education; University of Missouri

**Anderson, Deborah Mae;** Associate Professor; Veterinary Pathobiology; Doctor of Philosophy; University of California, Los Angeles

**Anderson, Erin Abbott;** Adjunct Instructor; Mizzou Online

**Anderson, Katherine Marie;** Librarian IV; MU Libraries; Master of Library Science; University of Wisconsin - Madison

**Anderson, Kerin Kay;** Part-Time Adjunct Faculty; Dean of College of Business; University of Missouri

**Anderson, Laura L;** Part-Time Adjunct Faculty; School of Nursing; Bachelor's Degree; University of Missouri

**Anderson, Paul Ervin;** Assistant Research Professor; Veterinary Pathobiology; Doctor of Philosophy; University of California, Los Angeles

**Anderson, Sharlette Dawn;** Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Master's Degree; University of Missouri

**Anderson, Stephen H;** Professor; School of Natural Res Admin; Doctor of Philosophy; North Carolina State University

**Angelovici, Amos Yaacov;** Part-Time Adjunct Faculty; Technology Mgmt/Indus Relation; Master of Science; Tel Aviv University

**Angelovici, Ruthie;** Assistant Professor; Biological Science; Doctor of Philosophy; Weizmann Institute of Science

**Anilkumar, Arayampambil Chidambaram;** Associate Professor Of Clinical Department; Child Health - Neurology; Doctor of Medicine; University of Calcutta

**Ansaf, Bahaa Ibraheem;** Part-Time Adjunct Faculty; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Baghdad

**Anthony, Douglas C;** Part-Time Adjunct Faculty; Path & Anat Sci-Anatomic Path; Doctor of Philosophy; Duke University

**Anthony, Sarah Elizabeth;** Part-Time Adjunct Faculty; Dean of Health Professions; Bachelor's Degree; University of Missouri

**Anumanthan, Govindaraj;** Assistant Research Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Madras

**Anyokwu, Okah Justin;** Clinical Instructor; Psychiatry

**Appleton, Kathy Jane;** Adjunct Instructor; German & Russian Studies; Master of Arts; University of Missouri

**Appold, Martin Stephan;** Associate Professor; Geological Sciences; Doctor of Philosophy; Johns Hopkins University

**Appuhn-Hodges, Katharine Ellen;** Part-Time Adjunct Faculty; Dean of Journalism; Master of Arts; Southern Illinois University-Edwardsville

**Arce, Moises;** Professor; Political Science; Doctor of Philosophy; The University of New Mexico

**Ardhanari, Sivakumar;** Assistant Professor Of Clinical Department; Medicine-Cardiology

**Aregbe, Farouk Olufunmilayo;** Part-Time Adjunct Faculty; Academic Retention Svcs; University of North Dakota

**Argerich, Alba;** Part-Time Adjunct Faculty; School of Natural Res Admin

**Ariew, Andre I;** Associate Professor; Philosophy; Doctor of Philosophy; The University of Arizona

**Armbrust, Catherine Paisley;** Adjunct Assistant Professor; Art; University of Missouri

**Armer, Jane M;** Professor; School of Nursing; Registered Nurse

**Armstrong, Elizabeth Gemma;** Lecturer; International programs

**Arndt, Jamie L;** Professor; Psychological Sciences; Doctor of Philosophy; The University of Arizona

**Arns, Megan Elizabeth;** Assistant Professor; School of Music; Master of Music; Florida State University

**Aro, Michael R;** Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine; University of Ilorin

**Aronson, Everett;** Part-Time Adjunct Faculty; Veterinary Medicine & Surgery

**Aroor, Annayya R;** Assistant Research Professor; Medicine-Endocrinology; Doctor of Medicine

**Arroyo, Pablo A;** Assistant Extension Professional; East Ctrl Region-B&I; Master of Business Admin; University of South Florida

**Arteaga-Cox, Irma Angela;** Assistant Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Minnesota

**Arthur, Gerald Lee;** Emeritus; Path & Anat Sci-Anatomic Path; Doctor of Medicine; The University of Chicago

**Arunachalam, Vairam;** Professor; Accountancy; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Ashcraft, Nikki L;** Assistant Teaching Professor; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Georgia

**Asher, Irving Mark;** Adjunct Assistant Professor; Neurology; Doctor of Medicine; Yale University

**Asmar, Nakhle;** Professor; Mathematics; Doctor of Philosophy; University of Washington

**Atasoy, Ulus;** Associate Professor; Surgery-Administration; Doctor of Medicine; University of Minnesota

**Atwood, Jerry L;** Curators Distinguished Professor; Chemistry; Doctor of Philosophy; University of Illinois

**Aulgur, Linda J;** Adjunct Instructor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Aura, Saku Petteri;** Associate Professor; Economics; Doctor of Philosophy; Massachusetts Institute of Technology

**Avery, Eileen E;** Associate Professor; Sociology; Doctor of Philosophy; The Ohio State University

**Aviles Quinones, Alicia;** Assistant Teaching Professor; Romance Languages & Literature; Doctor of Philosophy; Tulane University

**Awwad, Mohamed Abdelsalam;** Assistant Teaching Professor; Dean of Engineering; Doctor of Philosophy; University of Central Florida

**Ayllon, Miguel Elias;** Part-Time Adjunct Faculty; International programs; Doctor of Philosophy; University of Missouri

**Bachrach, Bert E;** Professor Of Clinical Department; Child Health-Endocrinology; Doctor of Medicine; Saint Louis University

**Backstrom, Jamie Wallis;** Instructor; Mizzou K-12 Online; Specialist of Education; University of Missouri

**Backus, Bob C;** Associate Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of California, Davis

**Bader, Valerie Gwen;** Assistant Teaching Professor; School of Nursing; Registered Nurse; University of Washington

**Badiane, Mamadou;** Associate Professor; Romance Languages & Literature; Doctor of Philosophy; The University of Iowa

**Badoer, Dominique Carlo;** Assistant Professor; Finance; Doctor of Philosophy; University of Florida

**Bagby-Stone, Stephanie D;** Adjunct Associate Professor; Psychiatry; Doctor of Medicine; University of Missouri

**Baggenstoss, Viann Pearl;** Visiting Instructor; International programs; Master's Degree; Oklahoma State University

**Bailey, Gina Marie;** Assistant Instructor; VP for International Programs; Bachelor's Degree; University of Missouri

**Bailey, Rachel Michelle;** Clinical Instructor; Social Work; Master of Social Work; University of Missouri

**Bailey, Robert Gary;** Emeritus; Law; Juris Doctor; University of Missouri

**Baima, Nicholas R;** Visiting Assistant Professor; Philosophy; Bachelor's Degree - 1st entry; University of Northern Iowa

**Baines, Christopher Philip;** Associate Professor; Biomedical Sciences; Doctor of Philosophy; University of South Alabama

**Baker, Christi Suzanne;** Assistant Clinical Professor; SHP/Comm Sci & Disorders; Master of Science; Southwest Missouri State Unive

**Baker, Elizabeth A;** Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Vanderbilt University

**Baker, Gary Allen;** Assistant Professor; Chemistry; Doctor of Philosophy; University at Buffalo, The State University of New York

**Baker, Sheila N;** Assistant Professor; Chemistry

**Bal, Bhajanjit;** Professor; Orthopaedic Surgery; Juris Doctor; University of Missouri

**Balakrishnan, Bimal;** Associate Professor; Architectural Studies; Doctor of Philosophy; The Pennsylvania State University

**Baldi, Sarah Nayana;** Adjunct Instructor; German & Russian Studies; Master of Arts

**Baldwin, Abagael Nicole;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Missouri State University

**Baldwin, Michael Robert;** Assistant Professor; Molec Microbio & Immunology; Doctor of Philosophy; King's College

**Ball, Angela Dawn;** Part-Time Adjunct Faculty; Women's & Children's Hospital; University of Missouri

**Ball, Anna Leigh;** Professor; Agricultural Ed and Leadership; Doctor of Philosophy; University of Missouri

**Ball, Elizabeth Quarles;** Part-Time Adjunct Faculty; Dean of Health Professions; Master of Education; University of Missouri

**Ball, Stephen Daniel;** Associate Professor; Human Environmental Sci Ext; Doctor of Philosophy; Arizona State University

**Balla, Sudarshan;** Assistant Professor Of Clinical Department; Medicine-Cardiology

**Ballou, Matthew Glenn;** Associate Teaching Professor; Art; Master of Fine Arts; Indiana University Bloomington

**Balser, Christina J;** Part-Time Adjunct Faculty; Student Success Center; Doctor of Education; University of Missouri

**Balser, Nicholas P;** Part-Time Adjunct Faculty; Dean of Engineering; Bachelor's Degree; University of Central Missouri

**Banaszynski, Jacqueline M;** Professor; Journalism; Bachelor's Degree; Marquette University

**Bandyopadhyay, Susanta;** Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine

**Bankhead, Douglas Clair;** Adjunct Assistant Professor; Anesthesiology; Doctor of Medicine; The University of Utah

**Banks, William D;** Professor; Mathematics; Doctor of Philosophy; Stanford University

**Bao, Suping;** Clinical Instructor; School of Nursing

**Barabtarlo, Gene;** Professor; German & Russian Studies; Doctor of Philosophy; University of Illinois

**Baradaran Ebrahimi, Katayoon;** Assistant Professor; Ophthalmology; Doctor of Medicine; Iran University of Medical Sciences

**Bardhan, Sougata;** Assistant Research Professor; School of Natural Resources

**Barge, Jill Andrea;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Barker, Alex W;** Director; Museum of Art & Archaeology; Doctor of Philosophy; University of Michigan

**Barksdale, Debra David;** Adjunct Instructor; Academic Dean; Master of Education; Northwest Missouri State University

**Barnes, Courtney Leigh;** Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Barnes, Michael Heath;** Teaching Professor; Classical Studies; Doctor of Philosophy; University of Missouri

**Barnes, Stephen L;** Professor; Surgery-Acute Care; Doctor of Medicine; The University of Alabama at Birmingham

**Barnstone, Alik Dora;** Professor; English; Doctor of Philosophy; University of California, Berkeley

**Barondes, Royce De;** Professor; Law; Juris Doctor; University of Virginia

**Barquero-Molina, Miriam;** Director; Geological Sciences; Doctor of Philosophy; The University of Texas at Austin

**Barrett, Bruce Allen;** Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; Washington State University

**Barrett, Steve W;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Barrier, Breton Foster;** Associate Professor; Ob, Gyn & Women's Health; Doctor of Medicine; The University of Texas Health Science Center

**Bartholow, Bruce D;** Professor; Psychological Sciences; Doctor of Philosophy; University of Missouri

**Bartlett, Lyria Dickason;** Assistant Teaching Professor; Architectural Studies; Master's Degree; Washington University

**Bartlow, Noel McCay;** Assistant Professor; Geological Sciences; Doctor of Philosophy; Stanford University

**Basker, Emek Meira;** Part-Time Adjunct Faculty; Economics; Doctor of Philosophy; Massachusetts Institute of Technology

**Bauer, Lisa M;** Assistant Teaching Professor; Psychological Sciences

**Baughman, Melissa M;** Adjunct Assistant Professor; School of Music; Doctor of Philosophy; Bowling Green State University

**Baumann, James Frank;** Emeritus; Learning Teaching & Curriculum; Doctor of Philosophy; University of Wisconsin - Madison

**Bausano, Brian J;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Baylor College of Medicine

**Bax, Joshua T;** Adjunct Instructor; Marketing; Master of Public Admin; University of Missouri

**Baxter, Mona Lisa;** Part-Time Adjunct Faculty; SHP/Clinical & Diagnostic Sci

**Beach, Charles;** Instructor; Mizzou K-12 Online; Master of Arts; Marquette University

**Beaird, Nanetta Carol;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Beamer, Lesa J;** Professor; Biochemistry; Doctor of Philosophy; Johns Hopkins University

**Bean, Jennifer Dianna;** Assistant Teaching Professor; Nutrition & Exercise Phys-HES; Master of Science; University of Missouri

**Beavers, Jenelle Marie;** Associate Director; Honors College; Juris Doctor; University of Michigan

**Becevic, Mirna;** Assistant Research Professor; Dermatology; Doctor of Philosophy; University of Missouri

**Bechtel, Sandra Marie;** Associate Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Michigan State University

**Bechtold, Matthew L;** Associate Professor Of Clinical Department; Medicine

**Beck, Mary M;** Emeritus; Law; Juris Doctor; University of Missouri

**Beck, Mary Sue;** Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; Rush University College of Nursing

**Beck Jr, Niels Christian;** Emeritus; Psychiatry

**Beckett, Adam Harty;** Assistant Professor Of Clinical Department; Emergency Medicine

**Beckmann, Joseph Albert;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Bedwinek, Anne Plummer;** Adjunct Associate Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; Union University

**Beerntsen, Brenda T;** Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Wisconsin - Madison

**Beeson, Dennis Allen;** Adjunct Assistant Professor; School of Music; Bachelor's Degree; University of Missouri

**Behura, Susanta Kumar;** Assistant Research Professor; Animal Science; Doctor of Philosophy

**Beissinger, Tim;** Part-Time Adjunct Faculty; Plant Sciences

**Belcher, David C;** Assistant Teaching Professor; Ed Leadership & Pol Analysis; Doctor of Education; University of Missouri

**Belden, Jeffery L;** Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; Southern Illinois University

**Bell, Angela D;** Adjunct Instructor; History; Master's Degree; University of Missouri

**Bell, Debora Jeneen;** Professor; Psychological Sciences; Doctor of Philosophy; West Virginia University

**Bell, Jacquelyn Sue;** Associate Professional Practice Professor; Journalism; Master of Arts; Ohio University

**Bell, Robert Dale;** Clinical Instructor; Surgery-General; Master's Degree; University of Nebraska

**Belmore, Dawn Lanae;** Assistant Teaching Professor; SHP/Athletic Training

**Belmore, Keith M;** Assistant Teaching Professor; SHP/Athletic Training; Master of Education; University of Missouri

**Belt, Dustin David;** Instructor; Mathematics; Doctor of Philosophy; Purdue University

**Benard, Julie Ann;** Assistant Professor Of Clinical Department; Child Health-Gen & Ambulatory; Doctor of Medicine; University of Missouri

**Bender, Shawn B;** Assistant Professor; Biomedical Sciences; Doctor of Philosophy; Ohio University

**Bennett, Linda;** Associate Professor; Learning Teaching & Curriculum; Doctor of Education; University of Northern Colorado

**Benson, Craig A;** Part-Time Adjunct Faculty; Career Center; Master of Business Administration; University of Missouri

**Benson, Jacquelyn J;** Assistant Professor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Benson, Jerry Kenneth;** Emeritus; Sociology; Doctor of Philosophy; The University of Texas at Austin

**Benson, Kelly Lyn;** Part-Time Adjunct Faculty; Academic Dean; Bachelor's Degree; University of Missouri

**Bentley, Clyde;** Associate Professor; Journalism; Doctor of Philosophy; University of Oregon

**Bentley, Julia Anne;** Assistant Teaching Professor; School of Music; Master of Music; Indiana University Bloomington

**Berardini, Nicholas Ryan;** Adjunct Instructor; Journalism; Bachelor's Degree; University of Missouri

**Berent, Linda Marie;** Associate Professor Of Clinical Department; Veterinary Diagnostic Laborato; Doctor of Philosophy; University of Illinois

**Berger, Phillip R;** Adjunct Instructor; SHP/Health Sciences; Master of Health Admin; University of Missouri

**Bergin, Christi A;** Research Professor; Educ, School, & Counsel Psych; Doctor of Social Science; Stanford University

**Bergin, David;** Associate Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; Stanford University

**Bergman, Roger L;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Bernskoetter, Wesley Hans;** Associate Professor; Chemistry; Doctor of Philosophy; Cornell University

**Besch Williford, Cynthia Le;** Part-Time Adjunct Faculty; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Best, Brad A;** Assistant Professional Practice Professor; Journalism; Bachelor's Degree; Southern Illinois University-Edwardsville

**Bettencourt, B Ann;** Professor; Psychological Sciences; Doctor of Philosophy; University of Southern California

**Beucke, Nathan Lewis;** Associate Professor Of Clinical Department; Child Health; Doctor of Medicine; University of Missouri

**Beversdorf, David Q;** Associate Professor; Radiology; Doctor of Medicine; Indiana University

**Bhardwaj, Mohit;** Assistant Professor Of Clinical Department; Psychiatry; Doctor of Medicine

**Bian, Guang;** Assistant Professor; Physics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Biedermann, Gregory Bruce;** Adjunct Assistant Professor; Radiology; Doctor of Medicine

**Bier, Gregory L;** Associate Teaching Professor; Management; Doctor of Philosophy; Missouri University of Science and Technology

**Biggers, Brian D;** Assistant Professor Of Clinical Department; Surgery-General; Doctor of Medicine; University of Missouri

**Bike, Denise Helen;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; Loyola College

**Bilal, Kamau Rafiq;** Assistant Teaching Professor; German & Russian Studies; Bachelor's Degree; Webster University

**Bilyeu, Kristin D;** Part-Time Adjunct Faculty; Plant Sciences; Doctor of Philosophy; Baylor College of Medicine

**Binalsheikh, Ibrahim Makki;** Assistant Professor Of Clinical Department; Child Health - Neurology; Doctor of Medicine; King Faisal University

**Binfield, Julian;** Assistant Research Professor; Ag Econ - Food & Ag Policy Research Inst; Doctor of Philosophy; University of Missouri

**Birchler, James A;** Curators Distinguished Professor; Biological Science; Doctor of Philosophy; Indiana University

**Birjandifar, Nazak;** Adjunct Instructor; German & Russian Studies; Master's Degree; McGill University

**Birk, Stefanie Brooke;** Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; University of Kansas

**Birkby, Patrick Scott;** Instructor; Mizzou K-12 Online; Master of Education; Eastern Oregon University

**Birtley, Nancy Michele;** Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; University of Missouri

**Bishop, Kimberly Ann;** Part-Time Adjunct Faculty; Intercollegiate Athletics; Master of Arts; University of Missouri

**Bismark, Veronika;** Adjunct Instructor; German & Russian Studies; Master's Degree; University of Missouri

**Bitsicas, Katina Cecelia;** Assistant Teaching Professor; English; Master of Fine Arts; University of South Florida

**Bivin, William Worthington;** Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine

**Bixby, Alicia;** Instructor; ZZZ-Conversion Department; Master's Degree; University of Missouri

**Black, Cheryl D;** Professor; Theatre; Doctor of Philosophy; University of Maryland

**Black, Lillian Wilkins;** Emeritus; Journalism; Doctor of Philosophy; University of Oregon

**Blackburn, Botswana Toney;** Associate Teaching Professor; SHP/Health Sciences; Doctor of Philosophy; University of Missouri - Kansas City

**Blakely, Mary Kay**; Emeritus; Journalism; Master of Arts; Northern Illinois University

**Bland, Peter Matthew**; Part-Time Adjunct Faculty; Dean of Journalism; Bachelor's Degree; University of Missouri

**Blandon, Erick**; Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of Pittsburgh

**Bloch, Peter H**; Professor; Marketing; Doctor of Philosophy; The University of Texas

**Blocher, Amber Leigh**; Instructor; Mizzou K-12 Online; Master of Arts; Eastern University

**Blodgett, Clayton F**; Assistant Teaching Professor; Geography; Doctor of Philosophy; University of Kansas

**Blomenkamp, Kyle J**; Part-Time Adjunct Faculty; Customer Service & Supp Svcs; Master of Education; University of Missouri

**Blomquist, Gregory E**; Associate Professor; Anthropology; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Bloom, Sara Ogan**; Lecturer; Special Education; Master of Education; University of Missouri

**Bloom, Tina Lee**; Associate Professor; School of Nursing; Registered Nurse

**Bloss, Jennifer Rebecca**; Part-Time Adjunct Faculty; Dean of Arts & Science; Bachelor's Degree; University of Missouri

**Blow, Constance A**; Clinical Instructor; SHP/Physical Therapy; Master's Degree; The University of North Carolina at Chapel Hill

**Blumberg, Eric M**; Part-Time Adjunct Faculty; Journalism; Bachelor's Degree; University of Missouri

**Bobitan, Luciana Maria**; Instructor; Mathematics; Master of Science; University of Michigan

**Boerman, Erika Mary**; Assistant Research Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Michigan State University

**Boessen, Christian R**; Associate Teaching Professor; Agricultural/ Applied Economics; Doctor of Philosophy; University of Missouri

**Boggs, Kathleen R**; Adjunct Instructor; Educ, School, & Counsel Psych; Doctor of Philosophy; The University of Utah

**Bohanek, Jennifer Geraldine**; Assistant Research Professor; Psychological Sciences; Doctor of Philosophy; Emory University

**Bohon, Tiffany M**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine

**Bolls, Paul David**; Part-Time Adjunct Faculty; Communication; Doctor of Philosophy; Indiana University

**Bollu, Pradeepchakrava**; Assistant Professor Of Clinical Department; Neurology

**Bolshakova, Natalia**; Adjunct Assistant Professor; School of Music; Doctor of Musical Arts; Texas College

**Bolton, Tiffany Leeann**; Assistant Clinical Professor; SHP/Occupational Therapy; Master's Degree; University of Missouri

**Bompadre, Silvia G**; Assistant Teaching Professor; Physics; Doctor of Philosophy; University of Washington

**Bondeson, William Blaine**; Emeritus; Philosophy; Doctor of Philosophy; The University of Chicago

**Bonifay, Wesley Earl**; Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of California, Los Angeles

**Bonnagio, Anthony J**; Part-Time Adjunct Faculty; Military Science

**Bonney, Edwin Nii**; Assistant Instructor; Ed Leadership & Pol Analysis; Master of Arts; University of Missouri

**Bonsall, Aaron**; Assistant Professor; SHP/Occupational Therapy; Doctor of Philosophy; University of Southern California

**Book, William**; Adjunct Instructor; Journalism

**Boon, Robert Eric**; Instructor; English; Doctor of Philosophy; University of Missouri

**Booth, Frank W**; Professor; Biomedical Sciences; Doctor of Philosophy; The University of Iowa

**Bopp, Kenneth D**; Adjunct Assistant Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Bordere, Tashel C**; Assistant Professor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Borduin, Charles M**; Professor; Psychological Sciences; Doctor of Philosophy; University of Memphis

**Boren, Suzanne Austin**; Associate Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Boren, Wendy Ellen**; Clinical Instructor; School of Nursing; Bachelor's Degree; Southern Illinois University-Carbondale

**Borgelt, Steven C**; Associate Professor; Bioengineering; Doctor of Philosophy; Texas A&M University

**Borgmeyer, Les G**; Adjunct Instructor; Journalism; Master of Business Admin; William Woods University

**Borsheski, Robert Ryan**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Osteopathic Medicine; University of Health Sciences

**Bossaller, Jenny Simpson**; Associate Professor; Info Science & Learning Tech; Doctor of Philosophy; University of Missouri

**Bossaller, Stephanie Doyle**; Part-Time Adjunct Faculty; Dean of Veterinary Medicine; Master of Education; University of Missouri

**Bostick, Brian P**; Assistant Professor; Medicine-Cardiology; Doctor of Medicine; University of Missouri

**Bostick, Jane E**; Teaching Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Botezatu, Mona Roxana**; Assistant Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; The Pennsylvania State University

**Bowders JR, John J**; Professor; Civil/Environmental Engr; Doctor of Philosophy; The University of Texas at Austin

**Bowens, Lynn Marie**; Lecturer; Special Education; Specialist of Education; University of Missouri

**Bowers, Gregory Glenn**; Associate Professional Practice Professor; Journalism; Master's Degree; Western Washington University

**Bowers, Jerome David**; Director; Honors College; Doctor of Philosophy; Indiana University

**Bowers, Kristy Sue**; Visiting Assistant Professor; History; Doctor of Philosophy; Indiana University

**Bowles, Douglas K**; Professor; Biomedical Sciences; Doctor of Philosophy; The University of Texas at Austin

**Bowling, Carrie E**; Clinical Instructor; School of Nursing; Master of Nursing; Southeast Missouri State Unive

**Bowman, Katherine G**; Associate Teaching Professor; School of Nursing; Doctor of Philosophy; Saint Louis University

**Bowman, Robin Josephine**; Assistant Teaching Professor; SHP/Health Sciences; Master's Degree; University of Missouri

**Bowman, Tiffany S**; Part-Time Adjunct Faculty; Student Life; Master of Social Work; University of Missouri

**Bowman III, Frank O**; Professor; Law; Juris Doctor; Harvard University

**Boyce, Kenneth A**; Assistant Professor; Philosophy; Doctor of Philosophy; University of Notre Dame

**Boyd, Ashleigh Ohmes**; Part-Time Adjunct Faculty; SHP/Comm Sci & Disorders; Master's Degree; University of Missouri

**Boyd-Kennedy, Victoria Anne**; Part-Time Adjunct Faculty; Learning Center; Master's Degree; University of Nebraska - Lincoln

**Boyer, John**; Adjunct Professor; Plant Sciences; Doctor of Philosophy; Duke University

**Boyer, Lisa Marie**; Instructor; Mizzou K-12 Online; Master of Education; Stephens College

**Boyer, Nathan P**; Associate Professor; Art; Master of Fine Arts; Yale University

**Boyle, Abigail Christa**; Part-Time Adjunct Faculty; Aerospace Studies

**Bozynski, Chantelle Carole**; Clinical Instructor; Orthopaedic Surgery; Doctor of Veterinary Medicine; University of Montreal

**Braaksma, Jenna Elizabeth**; Adjunct Instructor; School of Music; Master of Music; University of Missouri

**Bradley, Kevin W**; Associate Professor; Plant Sciences; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Bradley, Kristina Marie**; Part-Time Adjunct Faculty; Honors College; Master of Education; University of Missouri

**Bradley, Ronda Zinser**; Adjunct Instructor; SHP/Clinical & Diagnostic Sci; Master's Degree; Lindenwood University

**Brandt, Kimberly R**; Assistant Professor Of Clinical Department; Psychiatry

**Brandt, Lea Cheyney**; Associate Professional Practice Professor; Medicine-Administration; Doctor of Occupational Therapy; Creighton University

**Branson, Keith Richard**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Master of Veterinary Science; University of Illinois

**Braudis, Kara M**; Assistant Professor Of Clinical Department; Dermatology; Doctor of Medicine; University of Missouri

**Braun, David Meyer**; Associate Professor; Biological Science; Doctor of Philosophy; University of Missouri

**Breedlove, Linda Sue**; Assistant Instructor; Vice Provost for International Programs

**Breen, Aleisha Ann**; Clinical Instructor; School of Nursing; Master of Science; Saint Louis Univerisity

**Brekhus, Wayne H**; Associate Professor; Sociology; Doctor of Philosophy; Rutgers University

**Brekke, Lindsay Marie**; Part-Time Adjunct Faculty; Dean of College of Business; Master's Degree; University of Kansas

**Brendler, Beth Monica**; Assistant Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Minnesota

**Brengarth, Lauren Elizabeth**; Adjunct Instructor; Journalism; Doctor of Philosophy; University of Missouri

**Brennaman, Lisa M**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Brent JR, Edward Everett**; Professor; Sociology; Doctor of Philosophy; University of Minnesota

**Breske, Shannon Marie**; Part-Time Adjunct Faculty; Dean of College of Business; Master's Degree; University of South Dakota

**Bridgeman, Jay Thomas**; Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; Creighton University

**Bridges, Jeff A**; Assistant Teaching Professor; SHP/Physical Therapy; Master's Degree; University of Missouri

**Briedwell, Teresa A**; Associate Teaching Professor; SHP/Physical Therapy; AT Still University of Health Sciences

**Brietzke, Stephen August**; Professor Of Clinical Department; Medicine-Endocrinology; Doctor of Medicine; University of Missouri

**Brinkerhoff, Charles Tad**; Assistant Dean; School of Business; Master of Business Admin; Brigham Young University

**Brinkman, Barbara L**; Adjunct Associate Professor; SHP/Comm Sci & Disorders; Master of Arts; University of Colorado Boulder

**Britt Rankin, Jo**; Associate Dean; Human Environmental Sci Ext; Doctor of Philosophy; University of Missouri

**Brixey, Elizabeth K**; Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Brock, Caroline C**; Assistant Teaching Professor; Rural Sociology

**Brock, Charles Douglas**; Part-Time Adjunct Faculty; Learning Center; Master of Mathematics; University of Central Missouri

**Brock III, William Allen**; Research Professor; Economics; Doctor of Science

**Brockman, John D**; Associate Research Professor; Chemistry; Doctor of Philosophy; University of Missouri

**Brogan, David Micah**; Assistant Professor; Orthopaedic Surgery; Doctor of Medicine; Washington University

**Bromfield, Corinne Riedel**; Assistant Extension Professor; Extension Vet Med; Doctor of Veterinary Medicine; University of Florida

**Brooker, Kathryn S**; Adjunct Instructor; MU Partnership Educ Renewal; Master of Education; University of Central Missouri

**Brooks, Brian Shedd**; Adjunct Professor; Journalism; Master's Degree; University of Missouri

**Brooks, Constance Moore**; Associate Clinical Professor; SHP/Health Psychology; Doctor of Philosophy; University of Missouri

**Brown, Aisha Chrishaun;** Instructor; Mizzou K-12 Online; Master of Education; Graceland University

**Brown, Charles R;** Professor; Veterinary Pathobiology; Doctor of Philosophy; The University of Chicago

**Brown, Douglas Scott;** Assistant Extension Professor; Ag Ext-Social Sciences; Doctor of Philosophy; University of Missouri

**Brown, Eric S;** Associate Professor; Sociology; Doctor of Philosophy; University of California, Berkeley

**Brown, Gordon Dean;** Emeritus; Health Mgmt & Informatics; Doctor of Philosophy; The University of Iowa

**Brown, Kevin P;** Associate Professor; Theatre; Doctor of Philosophy; University of Colorado Boulder

**Brown, Larry G;** Part-Time Adjunct Faculty; Geography; Doctor of Philosophy; University of Missouri

**Brown, Marybeth;** Emeritus; SHP/Physical Therapy; Doctor of Philosophy; University of Southern California

**Brown, Michael Steven;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Missouri

**Brown, Pamela Jane;** Assistant Professor; Biological Science; Doctor of Philosophy; The University of Georgia

**Brown, Rachel Margaret;** Associate Dean; Dean - Medical Education; Doctor of Medicine; University of London

**Browning, Mary Jean;** Lecturer; International programs; Master of Arts; McGill University

**Brueggenjohann, Jean M;** Professor; Art; Master of Fine Arts; Indiana University Bloomington

**Bruer, Amy E;** Part-Time Adjunct Faculty; Dean of Journalism; Master of Journalism; University of Missouri

**Brune, David Edward;** Professor; Ag Ext-Food Sci & Nutrition; Doctor of Philosophy; University of Missouri

**Brunner, Debra G;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Bruzzese, Leonard J;** Associate Professional Practice Professor; Journalism; Bachelor's Degree; The University of Alabama at Birmingham

**Bryan, Jeffrey N;** Associate Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of California, Davis

**Bryan, Josiah Asher;** Assistant Teaching Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Bryan, Margaret Elena;** Instructor; Statistics; Master of Arts; University of Missouri

**Bryda, Elizabeth A;** Professor; Veterinary Pathobiology; Doctor of Philosophy; Rutgers University

**Buchanan, Martha Ann;** Instructor; Mizzou K-12 Online; Master of Arts; Southeast Missouri State University

**Buchanan, Sarah Alix;** Assistant Professor; Info Science & Learning Tech; Doctor of Philosophy; The University of Texas at Austin

**Buck, Brian W;** Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Osteopathic Medicine; Midwestern University, Chicago College of Osteopathic Medicine

**Budds, Michael J;** Curators Distinguished Professor; School of Music; Doctor of Philosophy; The University of Iowa

**Buffaloe, Lucas Robert;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Buffaloe, Robert Neal;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Arkansas

**Bukoski, Alex D;** Assistant Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Virginia

**Bullion, John Lewis;** Professor; History; Doctor of Philosophy; The University of Texas at Austin

**Bunch, Collin Michael;** Adjunct Instructor; Management; Master of Business Admin; University of Missouri

**Bunyak, Filiz;** Assistant Research Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Missouri University of Science and Technology

**Burch, Milbre Elizabeth;** Visiting Instructor; Graduate Studies; Doctor of Philosophy; University of Missouri

**Burger, Robert C;** Adjunct Associate Professor; Neurology; Doctor of Medicine; University of Medicine and Dentistry

**Burgoyne, Suzanne;** Curators Distinguished Professor; Theatre; Doctor of Philosophy; University of Michigan

**Burke-Aguero, Donald Harrison;** Professor; Life Sciences Center; Doctor of Philosophy; University of California, Berkeley

**Burling, Amanda;** Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Burns, Matthew Kevin;** Associate Dean; Educ, School, & Counsel Psych; Doctor of Philosophy; Andrews University

**Burny, Ilyas;** Adjunct Assistant Professor; Child Health Critical Care; Doctor of Medicine; Children's Hospital of Michigan

**Burris, Joseph E;** Associate Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; The University of Kansas

**Burton, Sarah Marie;** Adjunct Instructor; Accountancy; Master of Accountancy

**Busch, William M;** Adjunct Instructor; Mizzou Online; Master's Degree; Southern Illinois University-Carbondale

**Bush, Sarah L;** Teaching Professor; Biological Science; Doctor of Philosophy; University of East Anglia

**Butcher, Brandon M;** Part-Time Adjunct Faculty; Dean of Journalism; Master of Arts; University of Missouri

**Butcher, Clayton J;** Assistant Professor Of Clinical Department; Medicine-General Internal

**Butler, Miriam D;** Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; University of Missouri - St. Louis

**Butterfield, Jeanise Marie;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Wayne State University School of Medicine

**Buttlar, William Glen;** Professor; Civil/Environmental Engr; Doctor of Philosophy; The Pennsylvania State University

**Buzzard, Sharon Kay**; Assistant Teaching Professor; English; Doctor of Philosophy; University of Missouri

**Byrne, Addison Keelin**; Part-Time Adjunct Faculty; Animal Science; Master of Science; University of Missouri

**Byrne, Nathan Patrick**; Part-Time Adjunct Faculty; Dean of Journalism

**Bysani, Chandrasekar**; Professor; Medicine-Cardiology; Doctor of Philosophy; CDRI, Lucknow, India

**Cai, Zhen**; Assistant Research Professor; Forestry; Doctor of Philosophy; University of Missouri

**Cairns, Scott**; Curators Distinguished Professor; English; Doctor of Philosophy; The University of Utah

**Calcutt, Michael J**; Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Leicester

**Caldwell, Charles W**; Emeritus; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Missouri

**Calhoun, Sarah Lynne**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Callahan, Richard J**; Associate Professor; Religious Studies; Doctor of Philosophy; University of California, Santa Barbara

**Callender, Alexis A**; Assistant Professor; Art; Master of Fine Arts; Massachusetts College of Art

**Calvin, James Halvorsen**; Associate Professor; Art; Master of Fine Arts; Bowling Green State University

**Calyam, Anjaneyaprasad Prabhakar**; Assistant Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; The Ohio State University

**Cameron, Glen T**; Professor; Journalism; Doctor of Philosophy; The University of Texas at Austin

**Camp, Casey William**; Part-Time Adjunct Faculty; Radiology; Master of Public Administration; University of Missouri

**Campbell, Anita Sethi**; Assistant Teaching Professor; SHP/Physical Therapy; Master's Degree; Saint Louis University

**Campbell, James Davis**; Emeritus; Family & Community Medicine; Doctor of Philosophy; University of Missouri

**Campbell, Rex R**; Emeritus; Rural Sociology; Doctor of Philosophy; University of Missouri

**Campbell-Motsinger, Karen LaRue**; Adjunct Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Campione-Barr, Nicole Marie**; Associate Professor; Psychological Sciences; Doctor of Philosophy; University of Rochester

**Canada, Kelli Elizabeth**; Assistant Professor; Social Work; Doctor of Philosophy; The University of Chicago

**Cannon, John F**; Associate Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Wisconsin - Madison

**Cao, Hongyuan**; Assistant Professor; Statistics; Doctor of Philosophy; The University of North Carolina

**Caplow, Julie A**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; The University of Iowa

**Carlo, Roxana C**; Adjunct Instructor; Mizzou Online; Master of Arts; Arizona State University

**Carlo Contreras, Gustavo**; Professor; Human Devl & Family Science; Doctor of Philosophy; Arizona State University

**Carlson, Alisa Louise**; Part-Time Adjunct Faculty; Museum of Art & Archaeology; Doctor of Philosophy; The University of Texas at Austin

**Carlson, Brad Michael**; Assistant Professor; Theatre; Master of Fine Arts; Southern Illinois University

**Carlson, Jay Walter**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Osteopathic Medicine; Texas College of Osteopathic Medicine

**Carney, Christina Jessica**; Assistant Professor; Black Studies Program; Doctor of Philosophy

**Carney, Jacqueline Louise**; Part-Time Adjunct Faculty; Student Success Center; Master of Science; Marshall University

**Carney, Michael T**; Part-Time Adjunct Faculty; Law; Master's Degree

**Carney, William J**; Instructor; Mizzou K-12 Online; Doctor of Philosophy; Capella University

**Caron, Normand Robert**; Assistant Professor Of Clinical Department; Surgery-Cardiothoracic

**Carpenter, Kendra Dee**; Adjunct Instructor; Architectural Studies; Bachelor's Degree; University of Missouri

**Carreno, Jennifer Lynn**; Instructor; Mizzou K-12 Online; Bachelor's Degree; George Washington University

**Carroll, Mark M**; Associate Professor; History; Doctor of Philosophy; University of Houston

**Carroz, Laura Lyng**; Part-Time Adjunct Faculty; Dean of College of Business; Bachelor's Degree; University of Missouri

**Carruth-Rasmussen, Lynn**; Manager II Student Support Services; Academic Dean; Master of Arts; University of Missouri

**Carson, Catherine Roberta**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Carson, Micah Jennings**; Instructor; Mizzou K-12 Online; Bachelor's Degree; William Jewell College

**Carstens, Vicki M**; Instructor; English; Doctor of Philosophy; University of California, Los Angeles

**Carter, Michael Wayne**; Assistant Teaching Professor; Finance

**Carter Dochler, Jennifer Lynne**; Adjunct Instructor; Social Work; Master of Social Work; University of Missouri

**Carver, Mary Heather**; Professor; Theatre; Doctor of Philosophy; The University of Texas at Austin

**Cary, Suzanne M**; Assistant Clinical Professor; Social Work; Master's Degree; University of Missouri

**Casazza, Peter**; Curators Distinguished Professor; Mathematics; Doctor of Philosophy; The University of Iowa

**Cassidy, Dawn Michelle**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri - St. Louis

**Casteel, Stan**; Adjunct Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; Texas A&M University

**Castillo, Raul Antonio**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Escuela Medico Militar, Mexico



**Castro, Antonio Jamie**; Associate Professor; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Texas Health Science Center at Houston

**Cavigioli, Rita C**; Professor; Romance Languages & Literature; Doctor of Philosophy; University of California, Los Angeles

**Cecil, Michelle A**; Curators Distinguished Teaching Professor; Law; Juris Doctor; University of Illinois

**Chabu, Chiswili Yves**; Assistant Professor; Biological Science; Doctor of Philosophy

**Chadha, Rohit**; Assistant Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Pennsylvania

**Chadwick, Virginia Darlene**; Adjunct Instructor; SHP/Health Sciences

**Chagnon, Napoleon Alphonseau**; Research Professor; Anthropology; Doctor of Philosophy; University of Michigan

**Chairman, Dennis Baskaran**; Assistant Professor Of Clinical Department; Medicine-Pulmonary & Environ; Doctor of Medicine; University of Illinois at Urbana-Champaign

**Chakraborty, Sounak**; Associate Professor; Statistics; Doctor of Philosophy; University of Florida

**Chan, Albert K**; Assistant Professor Of Clinical Department; Medicine-Cardiology; Doctor of Medicine

**Chan, Paul Chun**; Adjunct Associate Professor; Chemical Engineering; Doctor of Philosophy; California Institute of Technology

**Chance, Deborah L**; Assistant Research Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri

**Chandrasekhar, Anand**; Professor; Biological Science; Doctor of Philosophy; The University of Iowa

**Chandrasekhar, H R**; Emeritus; Physics; Doctor of Philosophy; Purdue University

**Chandrasekhar, Meera**; Curators Distinguished Teaching Professor; Physics; Doctor of Philosophy; Brown University

**Chang, Cheng Hsiung**; Emeritus; Industrial/Mfg Sys Engr; Doctor of Philosophy; Mississippi State University

**Chang, Elizabeth Hope**; Associate Professor; English; Doctor of Philosophy; University of California, Berkeley

**Chang, Hui-Ming**; Associate Research Professor; Medicine-Cardiology; Doctor of Medicine; National Taiwan University

**Chang, Wai David**; Associate Professor Of Clinical Department; Otolaryngology; Doctor of Medicine; Yale University

**Chase, Ana Dolojan**; Assistant Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Chastain, Claud B**; Adjunct Professor; Dean of Veterinary Medicine; Doctor of Veterinary Medicine; University of Missouri

**Chaurasia, Shyam Sunder**; Assistant Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; Devi Ahilya University

**Cheak Zamora, Nancy Christine**; Assistant Professor; SHP/Health Sciences; Doctor of Philosophy; Saint Louis University

**Cheek, Amber J**; Part-Time Adjunct Faculty; Office Civil Rights-Title IX; Juris Doctor; University of Missouri

**Chela, Harleen Kaur**; Clinical Instructor; Medicine Hospitalist

**Chen, Chung-Lung**; Professor; Mechanical & Aerospace Engr; Doctor of Engineering; University of Colorado Boulder

**Chen, Hsiu-Hung**; Adjunct Assistant Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Washington

**Chen, Jen-Hao**; Assistant Professor; SHP/Health Sciences; Doctor of Philosophy

**Chen, Jinn Kuen**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Purdue University

**Chen, Pengyin**; Professor; Plant Sciences; Doctor of Science; Virginia Tech

**Chen, Shi Jie**; Professor; Physics; Doctor of Philosophy; University of California, San Diego

**Chen, Zhen**; Professor; Civil/Environmental Engr; Doctor of Philosophy; The University of New Mexico

**Cheney, Clayton L**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Saint Louis University Medical School

**Cheng, Jianlin**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of California, Irvine

**Chievous, Tami Lynn**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Master's Degree

**Chikhladze, George**; Associate Teaching Professor; Economics; Doctor of Philosophy; University of Missouri

**Chiles, Todd H**; Associate Professor; Management; Doctor of Philosophy; University of Oregon

**Chindris, Calin Ioan**; Associate Professor; Mathematics; Doctor of Philosophy; University of Michigan

**Chinnakotla, Bhavana**; Clinical Instructor; Medicine Hospitalist

**Cho, Seonghee**; Associate Professor; Hospitality Management; Doctor of Philosophy; University of Nevada - Las Vegas

**Cho, Uee Wan**; Adjunct Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Brown University

**Chockalingam, Anand**; Associate Professor Of Clinical Department; Medicine-Cardiology; Master's Degree; American Board Internal Medicine

**Choi, Hye Jeong**; Assistant Professor; SHP/Health Sciences; Doctor of Philosophy; The Pennsylvania State University

**Choma, Theodore John**; Professor; Orthopaedic Surgery; Doctor of Medicine; Eastern Virginia Medical School

**Chowdhury, Arijit**; Assistant Professor Of Clinical Department; Medicine-Administration; Doctor of Medicine; Yale University School of Medicine-Danbury Hospital

**Chowdhury, Nagib Husain**; Assistant Professor Of Clinical Department; Psychiatry; Doctor of Medicine; University of North Dakota

**Christ, Shawn Edward**; Associate Professor; Psychological Sciences; Doctor of Philosophy; Washington University

**Christensen, Brant Erich**; Assistant Professor; Accountancy; Doctor of Philosophy; Texas A&M University

**Christiansen, Tanya**; Professor; Mathematics; Doctor of Philosophy; Massachusetts Institute of Technology

**Christianson, Scott**; Assistant Teaching Professor; Management; Master's Degree; The George Washington University

**Christy, Michael T**; Adjunct Instructor; School of Business; Doctor of Education; Columbia University

**Chung, Je Kook**; Part-Time Adjunct Faculty; Vice Provost for International Programs; Doctor of Social Science; University of Missouri

**Chval, Kathryn B**; Dean; Dean of Education; Doctor of Philosophy; University of Illinois at Chicago

**Cirstea Apostol, Mihaela Carmen**; Assistant Research Professor; Physical Medicine & Rehab; Doctor of Philosophy; University of Montreal

**Cisco, Jonathan Randall**; Part-Time Adjunct Faculty; Campus Writing Program; Doctor of Philosophy; University of Missouri

**Cisterna Albuquerque, Dante Igor**; Post Doctoral Fellow; Physics; Doctor of Philosophy; Michigan State University

**Clancy, Heather Lynn**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Clark, Chelsea Marie**; Clinical Instructor; Educ, School, & Counsel Psych; Specialist of Education; University of Missouri

**Clark, Clayton Charles**; Instructor; School of Nursing; Registered Nurse

**Clark, Douglas A**; Part-Time Adjunct Faculty; Learning Center; Master's Degree; University of Missouri

**Clark, Gary F**; Associate Research Professor; Ob, Gyn & Women's Health

**Clark, Kerry Maureen**; Senior Research Associate; Applied Soc Sci Div Admin; Doctor of Philosophy; University of Missouri

**Clarke, Andrew D**; Associate Professor; Food Science; Doctor of Philosophy; Colorado State University

**Clarke, Lane L**; Professor; Biomedical Sciences; Doctor of Philosophy; North Carolina State University

**Clarke, Robert Bede**; Professor; Art; Master of Fine Arts; The University of Iowa

**Clary, Kevin W**; Assistant Professor Of Clinical Department; Medicine-General Internal; Doctor of Medicine; University of Missouri

**Clary, Megan Leigh**; Assistant Professor Of Clinical Department; Child Health-Gen & Ambulatory; Doctor of Medicine; University of Missouri

**Claunch, Hillary Lauren**; Instructor; School of Nursing; Registered Nurse

**Clay, Casey James**; Visiting Assistant Professor; SHP/Health Psychology; Doctor of Philosophy; Utah State University

**Clay, Robin Blake**; Part-Time Adjunct Faculty; Dean - Medical Education; Master of Education; Lincoln University

**Clem, Douglas Wayne**; Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Master's Degree; University of Missouri

**Clements, Koby L**; Part-Time Adjunct Faculty; Center for Health Care Quality; Master of Business Administration; University of Missouri

**Cletzer, David Adam**; Assistant Professor; Agricultural Ed and Leadership; Doctor of Philosophy; Virginia Tech

**Clevenger, Kristina Lee**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Clevenger, Thomas Eugene**; Emeritus; Civil/Environmental Engr; Doctor of Philosophy; University of Missouri

**Clifton, Adrian Chanel**; Post Doctoral Fellow; Learning Teaching & Curriculum; Master of Arts; University of Missouri

**Clingan, Jill Shannon**; Instructor; Mizzou K-12 Online; Master's Degree; Kansas State University

**Clithero, Lauren Ashley**; Adjunct Instructor; Mizzou Online; Master of Education; University of Missouri

**Clough, Cynthia H**; Assistant Teaching Professor; SHP/Occupational Therapy; Master's Degree; University of Wisconsin - Milwaukee

**Coates, Joan Ripley**; Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Cobb Orr, Rachael Elizabeth**; Assistant Dean; Dean of Arts & Science; Master's Degree; University of Missouri

**Coberly, Emily Alicia**; Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path

**Cochran, Barbara Stubbs**; Professional Practice Professor; Journalism; Master of Science; Columbia University

**Cochran, Jeffery Leon**; Instructor; Mizzou K-12 Online; Master's Degree; University of Missouri

**Cochran, Sara Louise**; Part-Time Adjunct Faculty; EVP Academic Affairs Office; Master of Arts; Drury University

**Cocroft, Reginald B**; Professor; Biological Science; Doctor of Philosophy; Cornell University

**Coggeshall, Mark V**; Part-Time Adjunct Faculty; School of Natural Res Admin; Master of Science; Mississippi State University

**Cohen, Daniel Jay**; Assistant Professor; Religious Studies; Doctor of Philosophy; University of Virginia

**Cohen, Daniel Richard**; Clinical Instructor; Educ, School, & Counsel Psych

**Cohen, Raneat**; Assistant Professional Practice Professor; Ophthalmology; Doctor of Optometry; Indiana University

**Cohen, Samuel Schlesinger**; Associate Professor; English; Doctor of Philosophy; City University of New York

**Cohen, Signe M**; Associate Professor; Religious Studies; Doctor of Philosophy; University of Pennsylvania

**Cohn, Leah Ann**; Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The University of Tennessee

**Colaner, Colleen Michele**; Assistant Professor; Communication; Doctor of Philosophy; University of Nebraska

**Colbert, Karren S**; Adjunct Instructor; Teachr Educ & Curr Studies; Master's Degree

**Colbert, Stephen**; Associate Professor Of Clinical Department; Surgery-Plastic; Doctor of Medicine; University of Missouri

**Colbrecht, Kristen Leigh**; Part-Time Adjunct Faculty; International programs; Master of Arts; Lesley University

**Cole, Laura Brianna**; Assistant Professor; Architectural Studies; Doctor of Philosophy; University of Michigan

**Coleman, Michael Anthony**; Instructor; Communication; Bachelor's Degree; University of Missouri

**Coleman, William Henry**; Post Doctoral Fellow; History; Doctor of Philosophy; University College London

**Coletti, Maryann Rose**; Clinical Instructor; School of Nursing; Bachelor's Degree; Lincoln University

**Collier, Tara Lynn**; Clinical Instructor; Educ, School, & Counsel Psych; Master of Social Work; University of Missouri

**Collins, Jonathan M**; Assistant Professor Of Clinical Department; Medicine-Pulmonary & Environ

**Collins, Kent S**; Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Collins, Melissa Jill**; Adjunct Assistant Professor; Biological Engineering; Doctor of Philosophy; Texas A&M University

**Collins, Robert Maurice**; Emeritus; History; Doctor of Philosophy; Johns Hopkins University

**Colt, David Eaton**; Associate Teaching Professor; SHP/Athletic Training; Doctor of Education; University of Missouri

**Colwill, Jack M**; Emeritus; Family & Community Medicine; Doctor of Medicine; University of Rochester

**Compaore, Kalyn Rochelle**; Post Doctoral Fellow - Teaching; Romance Languages & Literature; Doctor of Philosophy; University of Missouri

**Compton, Cristin Allton**; Post Doctoral Fellow - Teaching; Communication

**Conant, Gavin C**; Part-Time Adjunct Faculty; Animal Science; Doctor of Philosophy; The University of New Mexico

**Conklin, Carli N**; Associate Professor; Law; Juris Doctor

**Conn, Vicki S**; Associate Dean; School of Nursing; Doctor of Philosophy; University of Missouri

**Conner, Miriam Annette**; Instructor; Mizzou K-12 Online; Master of Arts; Ashland University

**Connett, Deborah Finfgeld**; Professor; School of Nursing; Registered Nurse

**Constantinescu, Gheorghe M**; Adjunct Professor; Biomedical Sciences; Doctor of Philosophy; University of Agronomic Sciences and Veterinary Medicine of Bucharest

**Constantinescu, Ileana A**; Associate Teaching Professor; Biomedical Sciences; Master of Science; University of Agricultural Sciences and Veterinary Medicine of Cluj

**Conway, Robert R**; Adjunct Professor; Physical Medicine & Rehab; Doctor of Medicine; University of Missouri

**Cook, Crystel Reeves**; Adjunct Assistant Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Cook, James L**; Professor; Orthopaedic Surgery; Doctor of Philosophy; University of Missouri

**Cook, Jonathan R**; Adjunct Instructor; Psychological Sciences; Doctor of Philosophy; University of Missouri

**Cook, Lauren P**; Assistant Professor Of Clinical Department; Orthopaedic Surgery

**Cook, Michael L**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; University of Wisconsin - Madison

**Cook, Phyllis Jean**; Adjunct Instructor; MU Partnership Educ Renewal; Master of Education; University of Missouri - St. Louis

**Cook, Roger F**; Professor; German & Russian Studies; Doctor of Philosophy; University of California, Berkeley

**Cool, Dona Sue**; Assistant Instructor; Vice Provost for International Programs

**Cooney, Patrick Michael**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Creighton University

**Cooper, Erin Colleen**; Assistant Teaching Professor; School of Music; Doctor of Musical Arts; University of Alabama

**Cooper, M Lynne**; Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; University of California, Santa Cruz

**Cooperstock, Michael Steven**; Emeritus; Child Hlth-Infectious Disease; Doctor of Medicine; University of Michigan

**Cordel, Taia Diane**; Assistant Professional Practice Professor; Ophthalmology; Doctor of Optometry; Illinois College of Optometry

**Cordones Cook, Juanamaria**; Professor; Romance Languages & Literature; Doctor of Philosophy; The University of Kansas

**Cormier, Bret D**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis; Doctor of Education; The University of Texas at Austin

**Cornelison, Dawn D**; Associate Professor; Biological Science; Doctor of Philosophy; California Institute of Technology

**Cornelius-White PhD, Jeffrey H**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Cornish, Peter Verle**; Associate Professor; Biochemistry; Doctor of Philosophy; Texas A&M University

**Corridori, Frank Salvatore**; Associate Professional Practice Professor; Journalism; Bachelor's Degree; Pratt Institute

**Costello, Christine**; Assistant Research Professor; Bioengineering

**Cotez, Nawel Amina**; Assistant Instructor; Romance Languages & Literature; Master's Degree; University Paris X

**Cothren, Courtney Ann**; Assistant Teaching Professor; Marketing; Master of Business Admin; Stephens College

**Cott, Ronald K**; Adjunct Assistant Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Coudron, Thomas A**; Part-Time Adjunct Faculty; Plant Sciences; Doctor of Philosophy; North Dakota State University

**Coughenour, Jeffrey P**; Associate Professor Of Clinical Department; Surgery-Acute Care; Doctor of Medicine; University of Missouri - Kansas City

**Coutts, Linda D**; Adjunct Instructor; Learning Teaching & Curriculum; Master's Degree; Webster University

**Cowan, Nelson**; Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; University of Wisconsin

**Cowart, Ross Paul;** Emeritus; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The University of Georgia

**Cowden, John W;** Clinical Professor; Ophthalmology; Doctor of Medicine; University of Michigan

**Cowgill, Libby Windred;** Associate Professor; Anthropology; Doctor of Philosophy; Washington University

**Crabb, Richard Paul;** Professor; School of Music; Doctor of Philosophy; Florida State University

**Craggs, Jason George;** Assistant Professor; SHP/Physical Therapy; Doctor of Philosophy; The University of Georgia

**Craig, Kevin W;** Assistant Professor Of Clinical Department; Family & Community Medicine

**Crane, Jennine Marie;** Research Scientist/Academic; Agriculture Biochemistry; Doctor of Philosophy; University of Missouri

**Cravens, David D;** Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Cravens, Lesleigh Kraft;** Instructor; Plant Sciences; Master of Science; University of Missouri

**Crawford, Emily R;** Assistant Professor; Ed Leadership & Pol Analysis

**Crenshaw, Benjamin Hardy;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine

**Crespy, David A;** Professor; Theatre; Doctor of Philosophy; City University of New York

**Crews, Sandra M;** Associate Teaching Professor; Management; Doctor of Philosophy; University of Missouri - St. Louis

**Crim, Julia Ruth;** Professor Of Clinical Department; Radiology; Doctor of Medicine; Columbia University

**Crist, Brett D;** Associate Professor; Orthopaedic Surgery; Doctor of Medicine; The University of Kansas

**Crist, Mary Kathleen;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Tabor College

**Cronk, Nikole J;** Associate Teaching Professor; Family & Community Medicine; Doctor of Philosophy; University of Missouri

**Crook, Jacob Maurice;** Adjunct Assistant Professor; Art; Master of Fine Arts; Syracuse University

**Cropp IV, Frederick William;** Associate Dean; Journalism; Doctor of Philosophy; University of Missouri

**Crosby, Marci Jennings;** Instructor; Animal Science; Master's Degree; University of California, Davis

**Cross, David T;** Associate Teaching Professor; Biomedical Sciences; Doctor of Veterinary Medicine; University of Missouri

**Crouch, Dennis D;** Associate Professor; Law; Juris Doctor; The University of Chicago

**Crozier, Ruth E;** Part-Time Adjunct Faculty; Dean of Health Professions; Master of Public Administration; University of Missouri

**Crozier II, James H;** Assistant Teaching Professor; Classical Studies; Doctor of Philosophy; University of Missouri

**Crumley, Carolyn Elizabeth;** Adjunct Instructor; Pharmacy - General; Doctor of Nursing Practice; University of Missouri - Kansas City

**Cui, Jiankun;** Assistant Research Professor; Path & Anat Sci-Anatomic Path; Doctor of Medicine; Tianjin Medical University

**Culp, Shelly Dawn;** Instructor; Mizzou K-12 Online; Master of Education; Missouri State University

**Cumbie, Billy G;** Emeritus; Biological Science; Doctor of Philosophy; The University of Texas at Austin

**Cummings, James M;** Professor Of Clinical Department; Surgery-Urology; Doctor of Medicine; University of South Alabama

**Cummings, Kevin James;** Assistant Professor; Biomedical Sciences; Doctor of Philosophy; University of Victoria

**Cummins, Ann Elizabeth;** Instructor; Mizzou K-12 Online; Master of Education; Northern Illinois University

**Cummins, Samuel Richard;** Instructor; Mizzou K-12 Online; Master's Degree; Truman State University

**Cunningham, Beth Pike;** Part-Time Adjunct Faculty; Dean of Journalism

**Cunningham, Billie M;** Teaching Professor; Accountancy; Doctor of Philosophy; University of North Texas

**Cupp, Allison Nicole;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Cupp, Garrett William;** Instructor; Mizzou K-12 Online; Master of Education; DePaul University

**Curry, Gianne Danteia;** Instructor; Mizzou K-12 Online; Master of Arts; Golden Gate Baptist Theological Seminary (Gateway Seminary)

**Curry, Randy D;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Saint Andrews

**Curs, Bradley R;** Associate Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Oregon

**Cutkosky, Steven Dale;** Curators Distinguished Professor; Mathematics; Doctor of Philosophy; Brandeis University

**Cutler, Keven Odell;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Ross University School of Medicine

**Daack Jr, Martin Thomas;** Part-Time Adjunct Faculty; Aerospace Studies

**Dache-Gerbino, Amalia Z;** Assistant Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Rochester

**Dade, Alice Katharine;** Assistant Professor; School of Music; Master of Arts; The Juilliard School

**Dailey, Fred Duane;** Emeritus; Science and Agricultural Journ

**Daily, Melody A;** Clinical Professor; Law; Juris Doctor; University of Missouri

**Dalabih, Abdallah Riad;** Assistant Professor Of Clinical Department; Child Health Critical Care; Doctor of Medicine; Istanbul University, Cerrahpasa Tip Fakultesi

**Danforth, Laura Elizabeth;** Clinical Instructor; Educ, School, & Counsel Psych; Master of Social Work; University of Arkansas at Little Rock

**Daniels, Mark Allen;** Associate Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Minnesota

**Daniggelis, Christopher Stephen**; Associate Professor; Art; Master of Fine Arts; The Ohio State University

**Danila, Cristina Ileana**; Assistant Professor Of Clinical Department; Medicine-Cardiology; Doctor of Medicine

**Dannecker, Erin A**; Associate Professor; SHP/Physical Therapy; Doctor of Philosophy; University of Florida

**Darolia, Rajeev**; Assistant Professor; Truman School of Pub Affrs Adm

**Darr, Charles Matthew**; Research Assistant; Biological Engineering; Doctor of Philosophy; University of Missouri

**Dasgupta, Amitava Michael**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine

**Datz, Craig A**; Part-Time Adjunct Faculty; Dean of Veterinary Medicine; Doctor of Veterinary Medicine; Virginia–Maryland College of Veterinary Medicine

**Davenport, Brittany Nichole**; Adjunct Instructor; School of Nursing; Master of Nursing; The University of Texas at Arlington

**David, John Dewood**; Associate Professor; Biological Science; Doctor of Philosophy; Vanderbilt University

**Davidson, Sandra Ann**; Curators Distinguished Teaching Professor; Journalism; Doctor of Philosophy; University of Connecticut

**Davis, Curt H**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; The University of Kansas

**Davis, Geetha Kancherla**; Assistant Professor Of Clinical Department; Ophthalmology

**Davis, George E**; Professor; Med Pharmacology/Physiology; Doctor of Medicine; University of California, San Diego

**Davis, Jennifer Michelle**; Part-Time Adjunct Faculty; Dean of College of Business; Bachelor's Degree; University of Central Missouri

**Davis, Justin Wade**; Part-Time Adjunct Faculty; Medical Research Office; Doctor of Philosophy; University of Missouri

**Davis, Michael John**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Nebraska Medical Center

**Davis, Peter N**; Emeritus; Law; Juris Doctor; University of Wisconsin - Madison

**Davis, Ryan M**; Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine; Northeastern Ohio Medical University

**Daws, Koni Janine**; Part-Time Adjunct Faculty; Accountancy; Master's Degree; Wichita State University

**Day, Margaret Ann**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**De Araujo, Zandra U**; Assistant Professor; Learning Teaching & Curriculum

**De La Torre, Roger Anibal**; Associate Professor; Surgery

**DeArmond, Gabriel E**; Adjunct Instructor; Journalism; Bachelor's Degree; University of Missouri

**DeClue, Amy Elizabeth**; Associate Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Illinois

**DeSouza, Guilherme Nelson**; Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Purdue University

**DeSouza, Luiza Queiroz**; Instructor; Mathematics; Master's Degree; Purdue University

**Deakyne, Carol A**; Emeritus; Chemistry; Doctor of Philosophy; Princeton University

**Dean, Kenneth D**; Dean; Law; Juris Doctor; University of Missouri

**Dean, Walter C**; Part-Time Adjunct Faculty; Dean of Journalism; Bachelor's Degree; University of Nebraska - Lincoln

**Decker, Jared Egan**; Assistant Professor; Ag Ext-Animal Science; Doctor of Philosophy; University of Missouri

**Deidrick, Kathleen Keely**; Part-Time Adjunct Faculty; SHP/Health Sciences; Doctor of Philosophy; Southern Illinois University-Carbondale

**Dejong, James**; Instructor; Architectural Studies; Bachelor's Degree; Arizona State University

**Delafontaine, Patrice**; Dean; Medicine-Cardiology; Doctor of Medicine; University of Geneva

**Demarco, Vincent G**; Associate Research Professor; Medicine-Endocrinology; Doctor of Philosophy; University of Florida

**Deming, Philip E**; Part-Time Adjunct Faculty; Learning Center; Doctor of Philosophy; University of Missouri

**Demir, Fatih**; Post Doctoral Fellow; Info Science & Learning Tech; Doctor of Philosophy; University of Baltimore

**Deng, Baolin**; Professor; Civil/Environmental Engr; Doctor of Philosophy; Johns Hopkins University

**Dennis, William Ray**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Missouri - Kansas City

**Denny, Walter Brent**; Part-Time Adjunct Faculty; Journalism

**Deroche, Chelsea Boquet**; Assistant Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of South Carolina

**Desnoyer, Brad M**; Associate Teaching Professor; Law

**Despins, Laurel A**; Assistant Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Dessem, Ralph L**; Professor; Law; Juris Doctor; Harvard University

**Deutscher, Susan L**; Professor; Biochemistry; Doctor of Philosophy; Saint Louis University

**Devaney, Cheryl L**; Adjunct Instructor; Academic Dean

**Devaney, Michael Joseph**; Emeritus; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri

**Devlin, Steven Leon**; Assistant Dean; Statewide B & I; Master of Arts; Iowa State University

**Dey, Daniel C**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Missouri

**Dhaliwal, Sonia**; Assistant Teaching Professor; Educ, School, & Counsel Psych

**Dhuper, Sonal**; Assistant Professor Of Clinical Department; Medicine-General Internal

**Diamond, Michael A**; Part-Time Adjunct Faculty; Dean of Journalism; Doctor of Philosophy; University of Maryland

**Diamond, Rand J;** Teaching Professor; Law; Juris Doctor; Fordham University

**Dickerson, Shanon Marie;** Program Director; Dean of Agriculture; Master of Arts; Northern Illinois University

**Dickey, Frances;** Associate Professor; English; Doctor of Philosophy; Johns Hopkins University

**Dickson, Christine N;** Part-Time Adjunct Faculty; Career Center

**Diem, Sarah L;** Associate Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; The University of Texas at Austin

**Diener, Jill Suzanne;** Part-Time Adjunct Faculty; Dean of Health Professions; Master of Arts; New York University

**Dietrich, Maria Magdalena;** Assistant Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; University of Pittsburgh

**Dietz, Nancy J;** Adjunct Instructor; SHP/Physical Therapy; Doctor of Philosophy; University of South Dakota

**Dill, Larry Nelson;** Specialist; Small Business Development Ctr; Master of Business Admin; University of Missouri

**Dills, Jennifer A;** Adjunct Instructor; Mizzou Online; Master of Public Health; University of Missouri

**Dimov, Mikayla Louise;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Ding, Dan;** Adjunct Assistant Professor; Civil/Environmental Engr; Doctor of Philosophy; University of Missouri

**Ding, Shinghua;** Associate Professor; Biological Engineering; Doctor of Philosophy; Binghamton University, The State University of New York

**Dingler, Allison Renee;** Adjunct Instructor; Learning Teaching & Curriculum; Master of Education; University of Missouri

**Dix, Mary J;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Dixon, Lonny W;** Director; Office of Animal Resources; Doctor of Veterinary Medicine; University of Missouri

**Dobbs, Sherry Kaye;** Adjunct Instructor; MU Partnership Educ Renewal; Master of Education; University of Missouri

**Dobson, Ramona Kay;** Adjunct Instructor; Academic Dean; Doctor of Education; University of Missouri

**Dodam, John R;** Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The Ohio State University

**Dodds, Michele Mary;** Instructor; Mizzou K-12 Online; Master's Degree; Washington University

**Dohrmann, Mary L;** Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Missouri

**Dolan, Kathleen A;** Part-Time Adjunct Faculty; Dean of College of Business; Master of Business Administration; IESE Business School

**Dolbashian, Edward;** Associate Professor; School of Music; Master's Degree; Yale University

**Doll, Donald C;** Professor Of Clinical Department; Medicine; Doctor of Medicine; The University of Iowa

**Domeier, Timothy L;** Assistant Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Yale University

**Domingues da Silva, Daniel Barros;** Assistant Professor; History; Doctor of Philosophy; Emory University

**Doner, Alyssa S;** Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Bachelor's Degree; University of Missouri

**Dong, Jiang;** Part-Time Adjunct Faculty; Academic Dean; Doctor of Philosophy; University of Missouri

**Dong, Nianbo;** Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Pennsylvania

**Dong, Yuan;** Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Engineering; Tsinghua University

**Dooley, Laura Marie;** Assistant Professor Of Clinical Department; Otolaryngology; Doctor of Medicine; University of Missouri

**Donner, Lisa Marie;** Associate Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; Northwestern University

**Dostoglou, Stamatis;** Professor; Mathematics; Doctor of Philosophy; University of Warwick

**Dougherty, Barbara J;** Research Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Dougherty, Debbie S;** Professor; Communication; Doctor of Philosophy; University of Nebraska - Lincoln

**Dougherty, Thomas Warren;** Emeritus; Management; Doctor of Philosophy; University of Houston

**Douglas, Tyron Michael;** Assistant Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; The University of North Carolina

**Dow, Jay K;** Professor; Political Science; Doctor of Philosophy; The University of Texas at Austin

**Downey, Barbara S;** Associate Teaching Professor; Management; Doctor of Philosophy; University of Missouri

**Downing, Daniel Leon;** Specialist; Ag Ext-Food Sci & Nutrition; Master's Degree; University of Missouri

**Downs, Harry W;** Emeritus; Food Systems/Bioengineer Admin; Doctor of Philosophy; Oklahoma State University

**Dragich, Martha;** Emeritus; Law; Juris Doctor; University of Minnesota

**Drake, Angela Kim;** Instructor; Law

**Draper, Jack A;** Associate Professor; Romance Languages & Literature; Doctor of Philosophy; Duke University

**Drobnis, Erma Z;** Assistant Professional Practice Professor; Ob, Gyn & Women's Health; Doctor of Philosophy; University of California, Davis

**Drtina, Jon A;** Associate Teaching Professor; Theatre; Master of Fine Arts; The University of Southern Mississippi

**Druce, Robert L;** Assistant Teaching Professor; Dean of Engineering; Doctor of Philosophy; Texas Tech University

**Drummond, Nicholas Whitelaw;** Post Doctoral Fellow; Political Science; Doctor of Philosophy; University of North Texas

**Drury, A Cooper;** Associate Dean; Dean of Arts & Science; Doctor of Philosophy; Arizona State University

**Drury, Julie Lynne;** Part-Time Adjunct Faculty; Student Life; Master of Arts; The University of Mississippi

**Drymalski, Mark W;** Assistant Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; University of South Dakota - Sanford School of Medicine

**Duan, Dongsheng;** Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Pennsylvania

**Duan, Ye;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Stony Brook University, The State University of New York

**Duff, Deiter J;** Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Missouri

**Duff, Robert Scott;** Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine; Medical College of Wisconsin

**Duffy, Margaret E;** Professor; Journalism; Doctor of Philosophy; The University of Iowa

**Dulin, Matthew Douglas;** Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Houston

**Duncan, Carrie E;** Assistant Professor; Religious Studies; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Duncan, Carrie M;** Visiting Assistant Professor; Truman School of Pub Affrs Adm; Master's Degree; University of Missouri

**Dunkley, Daive Anthony;** Assistant Professor; Black Studies Program; Doctor of Philosophy; University of Warwick

**Dunn, Michael Wayne;** Part-Time Adjunct Faculty; FM Station; Doctor of Philosophy; The University of Mississippi

**Dunn, Winifred;** Adjunct Professor; SHP/Occupational Therapy; Doctor of Philosophy; University of Kansas

**Duraisamy, Kempuraj;** Assistant Research Professor; Neurology; Doctor of Philosophy; University of Madras, Chennai, India

**Duran, Carrie Lynne;** Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Colorado State University

**Durante, William;** Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Toronto

**Durbak, Amanda Rita;** Assistant Teaching Professor; Biological Science; Doctor of Philosophy; The University of Arizona

**Duren, Dana Leigh;** Professor; Orthopaedic Surgery; Doctor of Philosophy; Kent State University

**Durham, Jordan Marie;** Part-Time Adjunct Faculty; Academic Dean; Master of Fine Arts; University of Idaho

**Dyer, Carla Alexander;** Associate Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine; University of Missouri

**Dyer, Jonathan Alden;** Associate Professor Of Clinical Department; Dermatology

**Dyer, Justin B;** Associate Professor; Political Science; Doctor of Philosophy; The University of Texas at Austin

**Dyke II, Peter C;** Associate Professor Of Clinical Department; Child Health-Cardiology; Doctor of Medicine

**Dykhoush Jr, Charles J;** Adjunct Associate Professor; Law; Juris Doctor

**Eady, Cornelius Robert;** Professor; English; Doctor of Philosophy; University of Rochester

**Easley Marshall, Elizabeth Price;** Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Easter, Matthew Adam;** Assistant Teaching Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Echelmeyer, David W;** Part-Time Adjunct Faculty; MO Orthopaedic Institute Therapies; Master's Degree; Rockhurst University

**Edara, Praveen Kumar;** Associate Professor; Civil/Environmental Engr; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Edgington, Emily Anne;** Director; School of Music; Master of Music

**Eidin, Dan S;** Professor; Mathematics; Doctor of Philosophy; Massachusetts Institute of Technology

**Edison, Karen;** Professor Of Clinical Department; Dermatology

**Edmonds, Carole A;** Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Edwards, Charles F;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; American University

**Edwards, Jill;** Part-Time Adjunct Faculty; Psychological Sciences

**Edwards, Katherine Francis;** Assistant Professor Of Clinical Department; Physical Medicine & Rehab

**Edwards, Ryan Kelly;** Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; Iona University

**Eggert, Lori Suzanne;** Associate Professor; Biological Science; Doctor of Philosophy; University of California, San Diego

**Ehler, Mark;** Associate Research Professor; Economics; Doctor of Philosophy; University of Missouri

**Ehling, Tara Jean;** Assistant Clinical Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Kansas State University

**Ehret, Adielle Nichole;** Clinical Assistant Instructor; Educ, School, & Counsel Psych; Master of Arts; University of Missouri - Kansas City

**Eidson, Stacey Renee;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Eiken, Douglas Kent;** Adjunct Instructor; Parks Recreation & Tourism; Doctor of Philosophy; The University of Utah

**Eisleben, Lauren Elizabeth;** Adjunct Instructor; Journalism; Bachelor's Degree; William Woods University

**Eklund, Katie Renee;** Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of California, Santa Barbara

**Ekwekwu, Bradley E;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**El Boher, Ora;** Adjunct Instructor; German & Russian Studies; Associate Degree; Technical College Beer Sheva

**El Gizawy, Ahmed S;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Waterloo

**Elfrink, Cory J;** Adjunct Instructor; Mizzou Online

**Elkeeb, Ahmed Mohamed;** Assistant Professor Of Clinical Department; Ophthalmology; Doctor of Medicine

**Ellersieck, Mark Robert;** Research Professor; Food Science; Doctor of Philosophy; University of Missouri

**Elliott, Grant P;** Assistant Professor; Geography; Doctor of Philosophy; University of Minnesota

**Ellis, Jason Scott;** Assistant Research Professor; Surgery-Administration; Doctor of Philosophy; University of Missouri

**Ellis, Mark Richard;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Arkansas for Medical Sciences

**Elman, Julie Passanante;** Assistant Professor; Women's & Gender Studies; Doctor of Philosophy; The George Washington University

**Elsawy, Abdel R;** Assistant Teaching Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Toronto

**Elsheikh, Aymen Eltayeb;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy

**Elsik, Christine G;** Associate Professor; Animal Science

**Emanuel Jr, Gregory R;** Adjunct Instructor; Info Science & Learning Tech; Master's Degree; Webster University

**Emerich, David William;** Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Wisconsin - Madison

**Emerson, Abigail Kilpatric;** Assistant Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Missouri

**Emerson, Jane Anne;** Associate Professor Of Clinical Department; Physical Medicine & Rehab

**Empson, Susan Baker;** Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Wisconsin - Madison

**Emter, Craig Allen;** Associate Professor; Biomedical Sciences; Doctor of Philosophy; University of Colorado

**Endersby, James W;** Associate Professor; Political Science; Doctor of Philosophy; The University of Texas at Austin

**Engel, Thomas G;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Texas Tech University

**England-Biggs, Laura Elizabeth;** Part-Time Adjunct Faculty; Info Science & Learning Tech; Master of Arts; University of Missouri

**Engle, Steven Craig;** Adjunct Instructor; Journalism

**English, David M;** Professor; Law; Juris Doctor; Northwestern University

**English, James T;** Director; Plant Sciences; Doctor of Philosophy; University of Florida

**Enriquez, Maithe;** Associate Professor; School of Nursing; Doctor of Philosophy; University of Missouri - Kansas City

**Ensor, Tamera Harpert;** Adjunct Instructor; Learning Teaching & Curriculum; Doctor of Education; University of Missouri

**Epping, Shane Christopher;** Part-Time Adjunct Faculty; Mizzou Creative; Master of Journalism; University of Missouri

**Erb, Joseph Lewis;** Assistant Teaching Professor; English; Master of Fine Arts; University of Pennsylvania

**Erb, Laura Jane;** Associate Research Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Missouri

**Erdelez, Sanda;** Professor; Info Science & Learning Tech; Doctor of Philosophy; Syracuse University

**Ericsson, Aaron C;** Assistant Research Professor; Veterinary Pathobiology; Doctor of Veterinary Medicine; University of Missouri

**Ersoy, Ilker;** Post Doctoral Fellow; Path & Anat Sci-Anatomic Path; Doctor of Philosophy; University of Missouri

**Ervin, Keona K;** Assistant Professor; History; Doctor of Philosophy; Washington University

**Escudero, Carolina;** Part-Time Adjunct Faculty; Dean of Journalism; Master's Degree; University Schuman

**Esebua, Magda;** Associate Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; Tbilisi State Medical University

**Esckridge, Bernard R;** Associate Professor Of Clinical Department; Child Health; Doctor of Medicine; University of Louisville

**Essing, Anne Kathleen;** Adjunct Instructor; Marketing; Bachelor's Degree; University of Missouri

**Eubanks, Gail Lynn;** Adjunct Instructor; Info Science & Learning Tech; Specialist of Education; University of Missouri

**Evans, Andrew L;** Associate Dean; Medicine; Doctor of Medicine; University of Washington

**Evans, Carol J;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri - Kansas City

**Evans, Jason Frederick;** Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Evans, Timothy;** Associate Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; University of Missouri

**Evelev, John O;** Associate Professor; English; Doctor of Philosophy; Duke University

**Evenski, Andrea J;** Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; East Carolina University

**Everett, Kevin Dale;** Associate Professor; Family & Community Medicine; Doctor of Philosophy; Louisiana State University

**Everett, Thomas A;** Assistant Research Professor; Radiology; Doctor of Philosophy; Kansas State University

**Ewing, Mackenzie Christine;** Part-Time Adjunct Faculty; Dean of Arts & Science; Master of Business Admin; William Woods University

**Ezashi, Toshihiko;** Associate Research Professor; Animal Science; Doctor of Philosophy; Gunma University

**Fagan, Lois Eichelberger;** Adjunct Instructor; Management; Master of Business Admin; Indiana University

**Fain, Loretta Lynn;** Instructor; Special Education; Master of Education; University of Missouri

**Fairchild, Steven William;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Fales, Roger C;** Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Iowa State University

**Fales, William Harold;** Adjunct Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; University of Idaho

**Fallon, Rebecca M;** Part-Time Adjunct Faculty; Political Science; Bachelor's Degree



**Famuliner, Ryan M;** Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Farid, Reza S;** Associate Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; Indiana University

**Farmer, Janet E;** Adjunct Professor; SHP/Health Psychology; Doctor of Philosophy; University of Missouri

**Farmer, Matthew Cullen;** Assistant Professor; Classical Studies; Doctor of Philosophy; University of Pennsylvania

**Farra, Hassan;** Assistant Professor Of Clinical Department; Child Health-Cardiology; Doctor of Medicine; Damascus University

**Farrah, Shirley J;** Assistant Dean; School of Nursing; Doctor of Philosophy; University of Missouri

**Farrar, Patricia Lynn;** Part-Time Adjunct Faculty; Office of Animal Resources; Doctor of Veterinary Medicine; University of Missouri

**Faulk, Danae Michelle;** Adjunct Instructor; Religious Studies; Bachelor's Degree; Louisiana State University

**Fay, William Philip;** Professor; Medicine-Cardiology; Doctor of Medicine; University of Illinois

**Feistman, Richard E;** Adjunct Instructor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Feldman, Marvin Fredrick;** Assistant Clinical Professor; SHP/Clinical & Diagnostic Sci; Master of Public Administration; University of Missouri

**Fellabaum-Toston, Jennifer Melissa;** Assistant Teaching Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Missouri

**Feng, Zaichun Frank;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Minnesota

**Fennell, Hilda Martinez;** Assistant Instructor; Romance Languages & Literature; Bachelor's Degree; University of Wisconsin - Milwaukee

**Fennell, John W;** Professional Practice Professor; Journalism; Master's Degree; University of Wisconsin - Milwaukee

**Ferguson, Jeffrey R;** Associate Research Professor; Anthropology; Doctor of Philosophy; University of Colorado Boulder

**Ferguson, Shannon A;** Part-Time Adjunct Faculty; Accountancy; Master's Degree; University of Missouri

**Fernandez, Kristen Lynn;** Assistant Professor Of Clinical Department; Dermatology; Doctor of Medicine; The University of Tennessee

**Ferriero, Richard;** Research Professor; Chemistry; Doctor of Philosophy; Texas A&M University

**Ferris, Stephen P;** Professor; Finance; Doctor of Philosophy; University of Pittsburgh

**Fessehaye, Joseph R;** Part-Time Adjunct Faculty; Dean of Journalism; Bachelor's Degree

**Fete, Mary Donna;** Instructor; School of Nursing; Master's Degree; University of Missouri

**Fete, Timothy Joseph;** Professor Of Clinical Department; Child Health-Administration; Doctor of Medicine; Washington University

**Fiala, Kyle C;** Assistant Professional Practice Professor; Orthopaedic Surgery; Doctor of Medicine; Kent State University College of Podiatric Medicine

**Fidalgo, Maria Marta;** Associate Professor; Civil/Environmental Engr; Doctor of Philosophy; Rice University

**Finch, Kim K;** Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Findeis, Jill L;** Professor; Agricultural/Applied Economics

**Fink, Adrienne Brynn;** Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Finke, Deborah L;** Associate Professor; Plant Sciences; Doctor of Philosophy; University of Maryland

**Firman, Jeffrey D;** Professor; Animal Science; Doctor of Philosophy; University of Maryland

**First, Nathan Laney;** Clinical Instructor; Educ, School, & Counsel Psych; Master of Arts; Regent College

**Fischer, James D;** Resident Instructor; Electrical Eng & Computer Sci; Master's Degree; California Polytechnic State University

**Fischer, Lisa L;** Adjunct Instructor; Journalism; Bachelor's Degree; University of Central Missouri

**Fischer, Monika;** Teaching Professor; German & Russian Studies; Doctor of Philosophy; University of Oregon

**Fish, Michael Nathaniel;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Osteopathic Medicine; Des Moines University - Osteopathic Medical Center

**Fisher, Adrienne N;** Instructor; English; Master of Fine Arts

**Fisher, Kelsy Loren;** Assistant Clinical Professor; SHP/Clinical & Diagnostic Sci; Master's; University of Missouri

**Fisher, Robert B;** Assistant Professor Of Clinical Department; Anesthesiology

**Fishman Weaver, Kathryn Eva;** Director; Mizzou K-12 Online; Doctor of Education; University of Missouri

**Fitch, Dale Kent;** Director; Social Work; Doctor of Philosophy; The University of Texas at Arlington

**Fitzgerald, Gail;** Emeritus; Info Science & Learning Tech; Doctor of Philosophy; The University of Iowa

**Fitzsimmons, Anne B;** Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Flack, Eric Phillip;** Adjunct Instructor; MU Partnership Educ Renewal; Doctor of Education; Saint Louis University

**Flaherty, Victoria Lucinda;** Part-Time Adjunct Faculty; Respiratory Therapy; Bachelor's Degree; University of Missouri

**Flaker, Greg C;** Professor; Medicine

**Flanagan, John R;** Associate Teaching Professor; Religious Studies; Doctor of Philosophy; The University of Iowa

**Fleagle, Jessica M;** Assistant Professor Of Clinical Department; Medicine

**Fleak, Kenneth Paul;** Assistant Teaching Professor; Romance Languages & Literature; Doctor of Philosophy; University of Missouri

**Fleming, David Avery;** Emeritus; Medicine; Doctor of Medicine; University of Missouri

**Flesner, Brian Kent**; Assistant Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Illinois

**Flesner, Marcia**; Clinical Instructor; School of Nursing; Doctor of Philosophy; University of Missouri

**Flink, James Duncan**; Assistant Professional Practice Professor; Journalism; Master of Arts; University of Missouri

**Flink, Jamie Bono**; Assistant Professional Practice Professor; Journalism

**Flinn, Mark V**; Professor; Anthropology; Doctor of Philosophy; Northwestern University

**Flint-Garcia, Sherry**; Part-Time Adjunct Faculty; Plant Sciences

**Flood, David Louis**; Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; The University of Kansas

**Flores, Lisa Y**; Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Flournoy, Nancy**; Emeritus; Statistics; Doctor of Philosophy; University of Washington

**Floyd, Randall C**; Associate Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Kentucky

**Flynn Peters, Kristin Joan**; Associate Clinical Professor; SHP/Health Sciences; Doctor of Philosophy; Northwestern University

**Folescu, Marina Radiana**; Assistant Professor; Philosophy; Doctor of Philosophy; University of Southern California

**Foley, Anne-Marie**; Director; Vice Provost Undergraduate Studies; Doctor of Philosophy; University of Missouri

**Folk, William**; Professor; Agriculture Biochemistry; Doctor of Philosophy; Stanford University

**Folzenlogen, Darcy D**; Emeritus; Medicine-Immunology & Rheumatology

**Font-Montgomery, Esperanza Enid**; Associate Professor Of Clinical Department; Child Health-Genetics; Doctor of Medicine; University of Puerto Rico School of Medicine

**Ford, Holly Beth**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Ford, Jill Halbrook**; Part-Time Adjunct Faculty; Dean of Engineering; Master of Education; University of Missouri

**Forgacs, Gabor**; Emeritus; Physics; Doctor of Philosophy; Roland Eotvos University

**Forrest, Melanie Dawn**; Adjunct Instructor; Journalism; Master of Education; University of Missouri

**Foster, Brian**; Emeritus; Anthropology; Doctor of Philosophy; University of Michigan

**Foster, Gregory Mark**; Assistant Instructor; Honors College; Doctor of Philosophy; University of Missouri

**Foster, Raymond T**; Associate Professor; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Foulkes, Matthew Walton**; Associate Professor; Geography; Doctor of Philosophy; University of Illinois

**Fousie, Angielee AnneMarie**; Instructor; Mizzou K-12 Online; Master of Arts; American Public University

**Fox, Beverly Y**; Instructor; Mizzou K-12 Online; Master's Degree; Boise State University

**Fox, Derek Bradford**; Associate Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Michigan State University

**Fox, Neil Ian**; Associate Professor; School of Natural Res Admin; Doctor of Philosophy; University of Salford

**Fox, Susan Kay**; Adjunct Instructor; Learning Teaching & Curriculum; Master's Degree; University of Missouri

**Francis, Jere R**; Curators Distinguished Professor; Accountancy; Doctor of Philosophy; University of New England

**Francisco, Benjamin David**; Associate Teaching Professor; Child Health-Pulmonary

**Frank, Jerritt J**; Associate Professor; History; Doctor of Social Science; The University of Kansas

**Franklin, Craig**; Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Franklin, JoAnn**; Clinical Instructor; School of Nursing; Doctor of Nursing Practice; Saint Louis University

**Franklin, Tama Lynn**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Franz, Alexander W**; Assistant Professor; Veterinary Pathobiology; Doctor of Philosophy; Kiel University, Germany

**Franzel, Sean B**; Associate Professor; German & Russian Studies; Doctor of Philosophy; Cornell University

**Franzese, Christine Blanche**; Clinical Professor; Otolaryngology; Doctor of Medicine; The State University of New York Upstate Medical Center

**Frappier, Brian Lee**; Associate Clinical Professor; Biomedical Sciences; Doctor of Veterinary Medicine; Michigan State University

**Fraunfelder, Frederick Web**; Professor; Ophthalmology; Doctor of Medicine; Oregon Health and Science University

**Frazer, Kevin G**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Frazier, Shellaine R**; Assistant Professor Of Clinical Department; Pathology and Anatomical Sci; Doctor of Osteopathic Medicine; AT Still University of Health Sciences

**Freborg, Myles Ryan**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Freelin, Tammy Lee**; Clinical Instructor; Social Work; Master's Degree; University of Missouri

**Freeman, Seth C**; Assistant Professor Of Clinical Department; Family & Community Medicine

**Freese, Rebekah Ann**; Clinical Instructor; Social Work; Master's Degree; University of Missouri

**Freese, Sandra Ann**; Adjunct Instructor; Accountancy; Bachelor's Degree; University of Illinois at Urbana-Champaign

**French, Brandi Rose**; Associate Professor Of Clinical Department; Neurology; Doctor of Medicine; The University of Kansas

**French, Dan Wright**; Professor; Finance; Doctor of Philosophy; Louisiana Tech University

**Fresenburg, Brad Steven;** Assistant Extension Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; University of Missouri

**Freund, Stefan R;** Professor; School of Music; Doctor of Musical Arts; Eastman School of Music

**Frey, Linnea H;** Instructor; School of Nursing; Master's Degree; Louisiana State University

**Frey, Scott Harold;** Professor; Psychological Sciences; Doctor of Philosophy; Cornell University

**Freyermuth, Robert W;** Curators Distinguished Teaching Professor; Law; Juris Doctor; Duke University

**Freyermuth, Sharyn K;** Associate Teaching Professor; Agriculture Biochemistry; Doctor of Philosophy; Duke University

**Fried, Gabriel W;** Assistant Teaching Professor; English; Master of Fine Arts; Columbia University

**Frieda, Dustin Bennett;** Adjunct Assistant Professor; School of Music

**Friedrichsen, Patricia J;** Professor; Learning Teaching & Curriculum; Doctor of Philosophy; The Pennsylvania State University

**Frisby, Craig L;** Associate Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of California, Berkeley

**Frisby, Cynthia M;** Associate Professor; Journalism; Doctor of Philosophy; University of Florida

**Fritsche, Kevin L;** Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Fritschi, Felix Beat;** Associate Professor; Plant Sciences; Doctor of Philosophy; University of California, Davis

**Fritz, Dana R;** Associate Professor Of Clinical Department; SHP/Comm Sci & Disorders; Doctor of Philosophy; University of Missouri

**Frogge, Elizabeth Marie;** Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Frohberg, Nora R;** Part-Time Adjunct Faculty; Psychiatry; Doctor of Medicine; University of North Dakota

**Frost, Jason Kyle;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Missouri

**Frye, Laura Marie;** Clinical Instructor; SHP/Comm Sci & Disorders; Master of Science; Rockhurst University

**Frymire, John M;** Associate Professor; History; Doctor of Philosophy; The University of Arizona

**Fuenfhausen, John Scott;** Adjunct Instructor; Journalism; Master of Business Administration; Fontbonne University

**Fulcher, Christopher;** Assistant Research Professor; Rural Sociology; Doctor of Philosophy; University of Missouri

**Fuller, Christopher Todd;** Adjunct Instructor; Journalism; Master's Degree; Missouri State University

**Fuller, Jenna Marie;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Northwest Missouri State University

**Funkenbusch, Karen Brents;** Specialist; Human Environmental Sci Ext; Master's Degree; Truman State University

**Furrer, Jason Lawrence;** Assistant Teaching Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri

**Furstenau, Nina;** Program Director; Science and Agricultural Journ; Master of Arts; University of Missouri

**Fusinatto, Jenna Rae;** Part-Time Adjunct Faculty; School of Natural Res Admin; Bachelor's Degree; University of Missouri

**Gaballah, Ayman Hamdy;** Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine

**Gabel, Candance E;** Associate Extension Professor; Human Environmental Sci Ext; Master's; Texas Woman's University

**Gable, Sara E;** Associate Professor; Human Environmental Sci Ext; Doctor of Philosophy; The Pennsylvania State University

**Gafke, Roger A;** Emeritus; Journalism

**Gahl, John Michel;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Texas Tech University

**Gaines, Julia R;** Associate Professor; School of Music; Doctor of Musical Arts; The University of Oklahoma

**Galambos, Colleen M;** Professor; Social Work; Doctor of Philosophy; The Catholic University of America

**Galat, David L;** Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; Colorado State University

**Galen, Candace;** Professor; Biological Science; Doctor of Philosophy; The University of Texas at Austin

**Galen, Jeff A;** Associate Teaching Professor; SHP/Clinical & Diagnostic Sci; Master of Education; University of Missouri

**Gallazzi, Fabio;** Assistant Research Professor; Chemistry; Doctor of Philosophy; University of Milan

**Galliher, John;** Emeritus; Sociology; Doctor of Philosophy; Indiana State University

**Gallimore, Rangira Bea;** Emeritus; Romance Languages & Literature; Doctor of Philosophy; University of Cincinnati

**Galloway, Tabitha Lynn;** Assistant Professor Of Clinical Department; Otolaryngology

**Galyen, Krista Dawn;** Director; Mizzou K-12 Online; Doctor of Philosophy; University of Missouri

**Gan, Yi;** Adjunct Instructor; Management; Master of Arts; University of Missouri

**Gandolfi, Barbara;** Assistant Research Professor; Veterinary Medicine & Surgery

**Gangloff, Karen Ashley;** Assistant Teaching Professor; Management; Doctor of Philosophy; Auburn University

**Gangopadhyay, Keshab;** Adjunct Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Indian Institute of Technology Madras

**Gangopadhyay, Shubhra;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Indian Institute of Technology Madras

**Ganley, Brian C;** Assistant Teaching Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Missouri

**Ganong, Lawrence H;** Professor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Ganong, Marilyn Coleman;** Emeritus; Human Devl & Family Science; Doctor of Education; University of Missouri

**Garcia, Michael Leonard**; Associate Professor; Biological Science; Doctor of Philosophy; Mayo Clinic College of Medicine

**Garcia Vargas, Liliana Patricia**; Assistant Professor Of Clinical Department; Medicine-Endocrinology; Doctor of Medicine

**Gardner, David Willmark**; Associate Clinical Professor; Medicine-Endocrinology

**Gardner, Jayme Samantha**; Part-Time Adjunct Faculty; Student Life; Bachelor's Degree; University of Missouri

**Gardner, Michael Jay**; Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Missouri

**Garg, Megha**; Associate Professor Of Clinical Department; Radiology

**Garrett, Elizabeth Ann**; Emeritus; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Garrett, Jennifer Lee**; Adjunct Instructor; Learning Teaching & Curriculum; Master's Degree; University of Missouri

**Garrison, Carol Jeanne**; Instructor; Mizzou K-12 Online; Master's Degree; University of Central Missouri

**Garson, Scott Arnold**; Assistant Teaching Professor; English; Master's Degree; George Mason University

**Garton, Bryan L**; Associate Dean; Agricultural Ed and Leadership; Doctor of Philosophy; The Ohio State University

**Gassmann, Walter**; Professor; Life Sciences Center; Doctor of Philosophy; University of California, San Diego

**Gateley, Crystal Aileen**; Associate Teaching Professor; SHP/Occupational Therapy; Doctor of Philosophy; University of Missouri

**Gates, Kent S**; Professor; Chemistry; Doctor of Philosophy; Northwestern University

**Gause, Charles Phillip**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Gautam, Sandeep**; Assistant Professor Of Clinical Department; Medicine-Cardiology; Doctor of Medicine

**Gawenis, Lara Renee**; Adjunct Assistant Professor; Biomedical Sciences; Doctor of Philosophy

**Gay, John W**; Adjunct Associate Professor; Dean - Medical Education; Doctor of Medicine; The University of Iowa

**Gay, Sara Svoboda**; Adjunct Instructor; MU Partnership Educ Renewal; Doctor of Philosophy; University of Missouri

**Geary, David C**; Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; University of California, Riverside

**Geary, Roger Carl**; Part-Time Adjunct Faculty; Law; Juris Doctor; University of Missouri

**Geisert, Rodney Dean**; Professor; Animal Science; Doctor of Philosophy; University of Florida

**Gely, Rafael**; Professor; Law; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Gentry, Bettina Anne**; Part-Time Adjunct Faculty; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Gerardy, Nancy Lynn**; Adjunct Instructor; Mizzou Online; Master's Degree; University of Missouri

**Gerhardt Jr, Howard Carl**; Emeritus; Biological Science; Doctor of Philosophy; The University of Texas at Austin

**Gerhart, Deborah Louise**; Assistant Teaching Professor; SHP/Health Sciences; Master of Public Health; University of Missouri

**Gerlt, Scott A**; Senior Research Associate; Ag Econ - FAPRI; Master's Degree; University of Missouri

**Geyer, Elizabeth O**; Laboratory Instructor; Human Devl & Family Science; Master of Arts; University of Missouri

**Gheni, Saba Adnan**; Assistant Teaching Professor; Chemical Engineering; Doctor of Engineering; Missouri University of Science and Technology

**Ghosh, Jaya**; Assistant Program Director; Biological Engineering; Doctor of Philosophy; University of Missouri

**Ghosh, Tushar K**; Professor; Chemical Engineering; Doctor of Philosophy; Oklahoma State University

**Gibbs, Michael J**; Adjunct Instructor; Finance; Doctor of Philosophy; Eastern Kentucky Univ Richmond

**Gibler, Michelle M**; Clinical Instructor; Physical Medicine & Rehab; Doctor of Philosophy; University of Missouri

**Gibson, Kyle**; Teaching Professor; SHP/Physical Therapy; Doctor of Philosophy; University of Missouri

**Gibson, Maya C**; Assistant Professor; School of Music; Doctor of Philosophy; University of Wisconsin - Madison

**Gibson, Tracie M**; Assistant Teaching Professor; Biological Science; Doctor of Philosophy; Purdue University

**Gibson, Twyla Gail**; Assistant Professor; Info Science & Learning Tech; Doctor of Philosophy; University of Toronto

**Gilles, Carol**; Associate Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Gilles, Jere Lee**; Associate Professor; Rural Sociology; Doctor of Philosophy; Cornell University

**Gillette, Terri Jo**; Instructor; Mizzou K-12 Online; Doctor of Chiropractic Med; National University of Health Sciences

**Gilliam, Stephanie Nicole**; Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Bachelor's Degree; Saint Petersburg College

**Gillis, Kevin D**; Professor; Biological Engineering; Doctor of Philosophy; Washington University

**Gillman, Jason D**; Part-Time Adjunct Faculty; Plant Sciences

**Gingrich, Kari Michelle**; Adjunct Instructor; Accountancy

**Giron, Sonia Eunice**; Adjunct Instructor; Psychological Sciences; Bachelor's Degree

**Giuliano, Elizabeth A**; Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Wisconsin - Madison

**Gizer, Ian R**; Associate Professor; Psychological Sciences; Doctor of Philosophy; Emory University

**Glaser, Rainer Ernst**; Professor; Chemistry; Doctor of Philosophy; University of California, Berkeley

**Glass, Timothy E**; Professor; Chemistry; Doctor of Philosophy; Stanford University

**Gleason, Catherine Honore**; Assistant Teaching Professor; Theatre; Doctor of Philosophy; University of Wisconsin - Madison

**Glendenning, Matthew Ryan**; Assistant Professor; Accountancy; Doctor of Philosophy; The University of Iowa

**Glick, Elisa Fern**; Associate Professor; English; Doctor of Philosophy; Brown University

**Glinkskii, Olga V**; Assistant Research Professor; Med Pharmacology/Physiology; Doctor of Medicine; Medical Institute-Ukraine

**Glinkskii, Vladislav**; Associate Professor; Path & Anat Sci-Anatomic Path; Doctor of Medicine; Chernovtsy Medical University Ukraine

**Glise, Anthony Leroy**; Assistant Teaching Professor; School of Music; Master's Degree; New England Conservatory of Music

**Godwin, Linda Maxine**; Professor; Physics; Doctor of Philosophy; University of Missouri

**Goeller, Emily Griffard**; Adjunct Assistant Professor; Dermatology-Derm; Doctor of Medicine; University of Missouri

**Goggins, Sean Patrick**; Associate Professor; Electrical Eng & Computer Sci; Master's Degree; University of Minnesota

**Gold, Michael**; Research Professor; Forestry; Doctor of Philosophy; Michigan State University

**Golda, Nicholas J**; Associate Professor Of Clinical Department; Dermatology; Doctor of Medicine; University of Southern California

**Goldman, Linda A**; Adjunct Instructor; MU Partnership Educ Renewal; Master's Degree; Maryville University

**Goldschmidt, Michael**; Associate Teaching Professor; Architectural Studies; Master's Degree; San Francisco Institute of Architecture

**Goldschmidt, Steven Richard**; Instructor; Mathematics

**Goldstein, Christina Lynn**; Assistant Professor; Orthopaedic Surgery; Doctor of Medicine; McMaster University

**Goldstein, David Evan**; Emeritus; Child Health; Doctor of Medicine; University of Pittsburgh

**Golemboski, David William**; Post Doctoral Fellow; Political Science; Doctor of Philosophy; Georgetown University

**Golmant, Ruth Cohen**; Instructor; Mizzou K-12 Online; Master of Arts; George Washington University

**Golomb, Miriam W**; Emeritus; Biological Science; Doctor of Philosophy; University of California, Berkeley

**Gomez, Francisco Gustavo**; Associate Professor; Geological Sciences; Doctor of Philosophy; Cornell University

**Gompper, Matthew E**; Professor; Fisheries & Wildlife Sciences; Doctor of Philosophy; The University of Tennessee

**Goodman, Judith C**; Associate Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; The University of Chicago

**Goodman, Karene Marie**; Clinical Instructor; School of Nursing; Doctor of Philosophy; University of Missouri - St. Louis

**Gopalakrishna, Ganesh**; Assistant Professor Of Clinical Department; Psychiatry

**Gopalakrishna, Srinath**; Professor; Marketing; Doctor of Philosophy; Purdue University

**Gopalaratnam, Vellore S**; Professor; Civil/Environmental Engr; Doctor of Philosophy; Northwestern University

**Gordon, Matthew J**; Professor; English; Doctor of Philosophy; University of Michigan

**Gordon, Rachel Elizabeth**; Assistant Professor; Finance; Doctor of Philosophy; Drexel University

**Gorham, Jennie L**; Assistant Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Osteopathic Medicine; KCCOMB

**Gorski, Jerome L**; Professor; Child Health-Genetics; Doctor of Medicine; Northwestern University

**Gotberg, Brook E**; Associate Professor; Law; Juris Doctor; Harvard Law School

**Gotlib, Jacob S**; Director; School of Music; Doctor of Philosophy; University at Buffalo, The State University of New York

**Gov-Ari, Eliav**; Associate Professor Of Clinical Department; Otolaryngology; Doctor of Medicine; Technion, Israel

**Gov-Ari, Hanna Klara**; Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; Israeli Institute of Technology

**Govindarajan, Raghav**; Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine

**Govdy, Mary Ann**; Assistant Teaching Professor; Plant Sciences; Doctor of Philosophy; Oklahoma State University

**Goyal, Munish Kumar**; Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine; DMC Ludhiana, India

**Goynne, Keith William**; Associate Professor; School of Natural Res Admin; Doctor of Philosophy; The Pennsylvania State University

**Grafakos, Loukas**; Professor; Mathematics; Doctor of Philosophy; University of California, Los Angeles

**Graham, David Ellis**; Instructor; Mizzou K-12 Online; Master of Education

**Grant, David A**; Part-Time Adjunct Faculty; Bioengineering

**Grant, Julia Marjorie**; Instructor; Mizzou K-12 Online

**Grant, Sheila Ann**; Professor; Bioengineering; Doctor of Philosophy; Iowa State University

**Graves, Stephen Charles**; Post Doctoral Fellow; Political Science; Doctor of Philosophy; Howard University

**Gray, Aaron D**; Assistant Professor Of Clinical Department; Family & Community Medicine

**Gray, Krista Erin**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Master of Education; Southwest Minnesota State University

**Gray, Laura Elizabeth**; Instructor; Mizzou K-12 Online; Doctor of Philosophy; Capella University

**Greber, Jamie Corryn**; Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Green, Ambra L**; Senior Research Associate; Special Education; Master's Degree

**Green, Daniel Keith**; Assistant Teaching Professor; English; Doctor of Philosophy; University of Missouri

**Green, James Robert;** Adjunct Associate Professor; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Green, James Ryan;** Part-Time Adjunct Faculty; Journalism

**Green, Jonathan Andrew;** Associate Professor; Animal Science; Doctor of Philosophy; University of Missouri

**Greene, Robert Allison;** Assistant Professional Practice Professor; Journalism; Master of Fine Arts; The City College of New York

**Greenlief, C Michael;** Associate Professor; Chemistry; Doctor of Philosophy; The University of Texas at Austin

**Greenway, Roy M;** Adjunct Instructor; Accountancy; Master of Accountancy; Texas Tech University

**Greenwood, B K;** Associate Professor; Journalism; Doctor of Philosophy; University of Missouri

**Greer, Kenyatta Bernard;** Instructor; Mizzou K-12 Online; Master of Arts; American College of Education

**Gregory, Gretchen Anne;** Instructor; School of Nursing; Registered Nurse; University of Missouri

**Gregory, Rabia Anne-Geha;** Associate Professor; Religious Studies; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Greimann, Beth Marie;** Assistant Instructor; Vice Provost for International Programs; Master of Education; Ashford University

**Greitens, Sheena Elise;** Assistant Professor; Political Science; Doctor of Social Science; Harvard University

**Grider, Chris;** Instructor; School of Nursing; Master's Degree; University of Missouri

**Griggs, Melissa Dawne;** Assistant Research Professor; Child Health; Doctor of Philosophy; University of Missouri

**Grigsby, Gary Scott;** Part-Time Adjunct Faculty; TV Station; Master of Journalism; University of Missouri

**Grigsby, Mary;** Emeritus; Rural Sociology; Doctor of Social Science; University of Missouri

**Grillo, Anthony P;** Assistant Professor Of Clinical Department; Ophthalmology

**Grim, Autumn Monique;** Adjunct Instructor; Mizzou Online; Master of Public Health; Saint Louis University

**Grobman, Megan Elizabeth;** Post Doctoral Fellow; Veterinary Medicine & Surgery

**Groh, Ashley Marie;** Assistant Professor; Psychological Sciences; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Grollemund, Rebecca Beatrice;** Assistant Professor; English; Doctor of Philosophy; Université Lyon 2, France

**Groshong, Ted Donald;** Emeritus; Child Health

**Gross, Melinda Kathleen;** Instructor; Mizzou K-12 Online; Specialist of Education

**Grossman, Kandice Lynnette;** Teaching Assistant; Clinical Simulation Center; Master of Arts; University of Manchester

**Gruen, Ingolf Uwe;** Associate Professor; Food Science; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Gruner, Barbara A;** Associate Professor Of Clinical Department; Child Health-Hematology; Doctor of Medicine; University of Missouri

**Grupe, Gregory A;** Adjunct Instructor; Academic Dean; Specialist of Education; University of Missouri

**Gruzdev, Vitaly;** Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; S.I.Vavilov State Optical Institute

**Gu, Chao;** Associate Professor; Economics; Doctor of Philosophy; Cornell University

**Gu, Li-Qun;** Associate Professor; Biological Engineering; Doctor of Philosophy; Nankai University

**Gu, Zezong;** Associate Professor; Path & Anat Sci-Anatomic Path

**Gubera, Christopher C;** Assistant Professional Practice Professor; Electrical Eng & Computer Sci; Master of Education; University of Missouri

**Gubrium, Jaber Fandy;** Professor; Sociology; Doctor of Philosophy; Wayne State University

**Guess, Trent M;** Associate Professor; SHP/Physical Therapy; Doctor of Philosophy; The University of Kansas

**Guest, Yvonne Mae;** Part-Time Adjunct Faculty; SMI OP PT; Some College - 1st entry

**Guha, Subharup;** Associate Professor; Statistics; Doctor of Philosophy; The Ohio State University

**Guha, Suchismita;** Professor; Physics; Doctor of Philosophy; Arizona State University

**Guilliams, Donald Joseph;** Resident Instructor; Electrical Eng & Computer Sci; Master of Arts; Saint Louis University

**Gunn, Victoria;** Assistant Professor Of Clinical Department; Dermatology; Master's Degree; University of Missouri

**Gunther, Cathy V;** Part-Time Adjunct Faculty; Honors College; Doctor of Philosophy; The University of Utah

**Guntur, Vamsi P;** Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; Saint George's University

**Guo, Huatao;** Assistant Professor; Molec Microbio & Immunology; Doctor of Philosophy; The University of Texas at Austin

**Gupta, Bina;** Emeritus; Philosophy; Doctor of Philosophy; Southern Illinois University-Carbondale

**Gupta, Sumit Kumar;** Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; University of Toronto

**Gurd, Sean Alexander;** Professor; Classical Studies; Doctor of Philosophy; University of Toronto

**Guyette, Richard;** Emeritus; School of Natural Res Admin; Doctor of Philosophy; University of Missouri

**Ha-Brookshire, Jung Eun;** Associate Professor; Textile and Apparel Mgmt; Doctor of Philosophy; The University of North Carolina at Greensboro

**Haas, John Isaac;** Post Doctoral Fellow - Teaching; Mathematics; Doctor of Science; University of Houston

**Habibi, Javad;** Assistant Research Professor; Medicine-Endocrinology

**Hacioglu, Aycan**; Assistant Teaching Professor; Chemical Engineering; Doctor of Philosophy; University of Florida

**Hackley, Steven A**; Associate Professor; Psychological Sciences; Doctor of Philosophy; University of Wisconsin - Madison

**Hagan, Catherine Elizabeth**; Part-Time Adjunct Faculty; Veterinary Pathobiology; Doctor of Veterinary Medicine; University of California, Davis

**Hagely, Jason S**; Assistant Professor Of Clinical Department; Child Health-Gen & Ambulatory; Doctor of Medicine; University of Toledo

**Hagely, Katherine B**; Instructor; Plant Sciences; Doctor of Philosophy; University of Missouri

**Hagen, Darren E**; Assistant Research Professor; Animal Science

**Hager, Nora Lynn**; Instructor; Human Devl & Family Science; Master's Degree; University of Missouri

**Hagglund, Kristofer**; Dean; SHP/Health Psychology; Doctor of Philosophy; The University of Alabama at Birmingham

**Hagglund, Lindsey N**; Part-Time Adjunct Faculty; Dean of Health Professions; Bachelor's Degree; University of Missouri

**Hahm, Bumsuk**; Associate Professor; Surgery; Doctor of Philosophy; Pohang University of Science and Technology

**Hahn, Allen W**; Emeritus; Veterinary Medicine & Surgery; Doctor of Philosophy; Drexel University

**Hahn, Shelby Ross**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine

**Hahn Cover, Kristin**; Associate Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine; The University of Texas Southwestern Medical Center at Dallas

**Hainsworth, Dean P**; Professor; Ophthalmology

**Hairston, Casey A**; Part-Time Adjunct Faculty; Intercollegiate Athletics

**Haithcoat, Timothy L**; Part-Time Adjunct Faculty; Geography; Master of Science; University of Missouri

**Halabi, Sam Foster**; Associate Professor; Law; Juris Doctor; Harvard University

**Halenda, Stephen P**; Associate Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Medical College of Virginia

**Hall, Cheryl L**; Associate Teaching Professor; English; Master's Degree; University of Missouri

**Hall, Daniel Yves**; Adjunct Associate Professor; Law; Juris Doctor; University of Missouri

**Hall, Jamie Boswell**; Tutor; SHP/Physical Therapy; Doctor of Physical Therapy; Des Moines University

**Hall, John R**; Assistant Professor Of Clinical Department; Psychiatry; Doctor of Medicine; University of Missouri

**Halsey, Julia Struble**; Assistant Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine; University of Missouri

**Hamilton, Marcus John**; Post Doctoral Fellow; Anthropology; Doctor of Philosophy; University of Missouri

**Hamilton, Stacey A**; Instructor; Ag Ext-Animal Science

**Hammer, Richard David**; Associate Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; Medical University of South Carolina

**Hammock, Lenora Anne**; Associate Professional Practice Professor; Journalism

**Hammond, Karl Daniel**; Assistant Professor; Chemical Engineering; Doctor of Philosophy; University of Massachusetts Amherst

**Hammoud, Ghassan M**; Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; The University of New Mexico

**Hampton, Jeffrey Keith**; Clinical Instructor; School of Nursing; Master of Nursing; The University of Texas

**Han, Xu**; Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Kentucky

**Han, Xu**; Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Hanneken, Daniel Joseph**; Adjunct Instructor; Social Work; Master of Social Work; University of Missouri

**Hannink, Mark**; Professor; Biochemistry; Doctor of Philosophy; University of California, San Diego

**Hans, Chetan Parkash**; Assistant Professor; Medicine-Cardiology; Doctor of Philosophy; Panjab University, Chandigarh India

**Hansen, Benjamin Jacob**; Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; University of Utah

**Hansen, Sarah Ann**; Part-Time Adjunct Faculty; Office of Animal Resources

**Hanson, Brenda M**; Instructor; School of Nursing; Master's Degree; University of Missouri

**Hanson, Rachel M**; Instructor; English; Doctor of Philosophy

**Hanuscin, Deborah L**; Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Indiana University Bloomington

**Harcharras, Asma**; Associate Professor; Mathematics; Doctor of Philosophy; Pierre-and-Marie-Curie University - Paris VI

**Hardin, Christopher D**; Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Cincinnati

**Harding, Gareth**; Part-Time Adjunct Faculty; Dean of Journalism

**Hardy, Justin A**; Part-Time Adjunct Faculty; Military Science

**Hargrove, Marilyn Sanford**; Adjunct Associate Professor; SHP/Physical Therapy; Doctor of Philosophy; University of Missouri

**Harkey, Jeff H**; Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; The University of Tennessee

**Harmata, Michael**; Professor; Chemistry; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Harmon, Meghan Rose**; Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Harms, Aaron A**; Part-Time Adjunct Faculty; Learning Center; Master's Degree; University of Missouri

**Harper, Casandra E**; Associate Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of California, Los Angeles

**Harper, Rachel P;** Part-Time Adjunct Faculty; Learning Center; Doctor of Philosophy; University of Missouri

**Harre, Edward J;** Adjunct Instructor; Mizzou Online; Master of Business Administration; University of Missouri

**Harris, Catharine Jean;** Associate Professor Of Clinical Department; Child Health-Genetics; Doctor of Medicine; Medical College of Ohio

**Harris, Gary Allen;** Adjunct Instructor; Mizzou Online; Specialist of Education; University of Missouri

**Harris, Michael C;** Adjunct Instructor; Health Mgmt & Informatics; Master of Science; University of Missouri

**Harris, Robin Christine;** Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; Rush University

**Harrison, Sheri-Marie Laura;** Associate Professor; English; Bachelor's Degree; University of Miami

**Harrison, William L;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Harry, Bruce E;** Emeritus; Psychiatry; Doctor of Medicine; University of Missouri

**Harstad, Ronald M;** Professor; Economics; Doctor of Philosophy; University of Pennsylvania

**Hart, Eric S;** Associate Clinical Professor; SHP/Health Psychology; Doctor of Philosophy; Adler School of Professional Psychology

**Hart, Jennifer Lynn;** Assistant Vice Provost; Ed Leadership & Pol Analysis; Doctor of Philosophy; The University of Arizona

**Hart, Marcia L;** Part-Time Adjunct Faculty; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Hasan, Syed Muhammad;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine

**Haselswerdt, Jacob Burton;** Assistant Professor; Political Science; Doctor of Philosophy; George Washington University

**Haslag, Joseph H;** Professor; Economics; Doctor of Philosophy; Southern Methodist University

**Hasser, Eileen Mary;** Professor; Biomedical Sciences; Doctor of Philosophy; University of Central Oklahoma

**Hatton, Heather Lea;** Assistant Research Professor; Special Education; Doctor of Philosophy; Texas A&M University

**Hausman, Timothy A;** Part-Time Adjunct Faculty; Advancement; Doctor of Philosophy

**Hawk, William A;** Emeritus; Art; Master of Fine Arts; Washington University

**Hawley, Erin Morrow;** Associate Professor; Law; Juris Doctor; Yale University

**Hawley, Kristin M;** Associate Professor; Psychological Sciences; Doctor of Philosophy; University of California, Los Angeles

**Hawthorne, Marion Fred;** Professor; Radiology; Doctor of Philosophy; University of California, Los Angeles

**Hayes, Alisa Kristine;** Associate Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Missouri

**Hayes, Karen Diana;** Part-Time Adjunct Faculty; SHP Dean's Ofc-Student Affairs; Bachelor of Arts; University of Missouri

**Hazelbauer, Gerald L;** Professor; Biochemistry; Doctor of Philosophy; University of Wisconsin - Madison

**Hdeib, Ecaterina Mariana;** Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Master of Fine Arts; Ion Mincu University of Architecture and Urbanism

**Hdeib, Moses M;** Clinical Professor; SHP/Clinical & Diagnostic Sci; Doctor of Medicine; Carol Davila University

**He, Hong S;** Professor; Forestry; Doctor of Philosophy; Chinese Academy of Sciences

**He, Zhihai;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of California, Santa Barbara

**He, Zhuoqiong;** Professor; Statistics; Doctor of Philosophy; Purdue University

**Headrick, Linda Ann;** Professor; Medicine-General Internal; Doctor of Medicine; Stanford University

**Hearne, Joanna Megan;** Associate Professor; English; Doctor of Philosophy; The University of Arizona

**Heath, Christine M;** Part-Time Adjunct Faculty; Family & Community Medicine; Master of Business Admin; University of Missouri

**Heath, Tanya Suzanne;** Adjunct Instructor; Journalism

**Hecker, Melinda Michelle;** Assistant Professor Of Clinical Department; Family & Community Medicine

**Hedlund, Aaron Douglas;** Assistant Professor; Economics; Doctor of Philosophy; University of Pennsylvania

**Hees, Charles Kenneth;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; Southern Illinois University-Carbondale

**Heesch, Cheryl M;** Professor; Biomedical Sciences; Doctor of Philosophy; The University of Texas Health Science Center at San Antonio

**Heese-Peck, Antje;** Associate Professor; Agriculture Biochemistry; Doctor of Philosophy; Michigan State University

**Heflin, Colleen M;** Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Michigan

**Hegger, Joseph D;** Assistant Teaching Professor; Finance; Bachelor's Degree; University of Missouri

**Heidari, Manijeh B;** Senior Research Associate; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri

**Heidt, Jonathan W;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Washington University

**Heiman, Suzette T;** Professional Practice Professor; Journalism; Master's Degree; Truman State University

**Heine, Anne Gray;** Instructor; School of Nursing; Registered Nurse; University of Missouri

**Heise, David A;** Part-Time Adjunct Faculty; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri

**Heiss, Andrea Brandenburg;** Associate Professional Practice Professor; Journalism; Doctor of Philosophy; The University of Iowa



**Helfer, Adam D;** Professor; Mathematics; Doctor of Philosophy; University of Oxford

**Helpingstine, Cynthia J;** Program Director; Biological Engineering; Doctor of MicroBiology; University of Missouri

**Henderson, Scott A;** Instructor; Mizzou K-12 Online

**Henderson, Whitney Lee;** Assistant Clinical Professor; SHP/ Occupational Therapy; Master's Degree; University of Missouri

**Henderson Kelley, Laura Elizabeth;** Assistant Professor Of Clinical Department; Medicine-General Internal; Doctor of Medicine; Wayne State University School of Medicine

**Hendricks, Marina Aline;** Part-Time Adjunct Faculty; Dean of Journalism

**Hendrickson, Mary K;** Assistant Professor; Rural Sociology; Doctor of Philosophy; University of Missouri

**Henegar, Jeffrey R;** Part-Time Adjunct Faculty; Office of Research; Doctor of Philosophy; University of Missouri

**Heng, Xiao;** Assistant Professor; Biochemistry; Doctor of Philosophy; Howard Hughes Medical Institute at University of Maryland, Baltimore

**Heness, Steven A;** Associate Extension Professional; Youth & 4-H; Master's Degree; University of Missouri

**Hennessy, Sean Michael;** Adjunct Instructor; School of Music

**Hennkens, Heather Marie;** Assistant Research Professor; Accountancy; Doctor of Philosophy; Washington University

**Henrickson, Celeste N;** Instructor; Anthropology; Doctor of Philosophy; University of California, Berkeley

**Henry, Carolyn J;** Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Auburn University

**Hensel, Brian K;** Assistant Teaching Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Henson, Charles Dewayne;** Teaching Professor; Law; Juris Doctor; Georgetown University

**Henzl, Michael T;** Professor; Biochemistry; Doctor of Philosophy; University of Wisconsin - Madison

**Herde, Mary Josephine;** Assistant Instructor; VP for International Programs; Doctor of Philosophy; University of Missouri

**Heringman, Noah I;** Professor; English; Doctor of Philosophy; Harvard University

**Herman, Benjamin Clement;** Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Iowa State University

**Herman, Keith C;** Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Florida

**Hermesen, Joan M;** Associate Professor; Sociology; Doctor of Philosophy; University of Maryland

**Hernandez, Shawnta Marie;** Part-Time Adjunct Faculty; Military Science

**Hertel, Laura Jane;** Part-Time Adjunct Faculty; School of Natural Res Admin; Bachelor's Degree; University of Wisconsin - Stevens Point

**Hervey, Elizabeth I;** Instructor; Mizzou K-12 Online

**Herzog, David L;** Professional Practice Professor; Journalism; Bachelor's Degree; Temple University

**Herzog, Melissa J;** Assistant Research Professor; Human Devl & Family Science; Doctor of Philosophy; Arizona State University

**Hesemann, Laura Ellen;** Assistant Professor Of Clinical Department; Child Health-Nephrology; Doctor of Medicine; University of Missouri

**Hesemann, Nathan P;** Adjunct Assistant Professor; Ophthalmology; Doctor of Medicine

**Hessler, Richard M;** Emeritus; Sociology; Doctor of Philosophy; University of Pittsburgh

**Heston, Dawn M;** Assistant Teaching Professor; Romance Languages & Literature; Master's Degree; University of Missouri

**Hibbard, Bruce E;** Part-Time Adjunct Faculty; Plant Sciences; Doctor of Philosophy; Colorado State University

**Higashi, Yusuke;** Assistant Research Professor; Medicine-Cardiology; Doctor of Philosophy; University of Tokyo

**Higginbotham, Holly;** Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Higgs, Graham Egerton;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; The University of Tennessee - Knoxville

**Hiles, Sara Shipley;** Assistant Professional Practice Professor; Journalism

**Hill, Cheryl A;** Assistant Teaching Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy

**Hill, Michael Andrew;** Director; Dalton Cardiovascular Res Ctr; Doctor of Philosophy; University of Melbourne

**Hill, Timothy David;** Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Hillemann, Linda K;** Clinical Instructor; Social Work; Master's Degree; University of Missouri

**Hillman, Laura Smith;** Emeritus; Child Health; Doctor of Medicine; Yale University

**Hillman, Richard E;** Emeritus; Child Health-Genetics; Doctor of Medicine; Yale University

**Hinkel, Lora Renee;** Adjunct Instructor; SHP/Comm Sci & Disorders; Master's Degree; University of Missouri

**Hinnant, Amanda L;** Associate Professor; Journalism; Doctor of Philosophy; Northwestern University

**Hinojosa, Mark Steven;** Associate Professional Practice Professor; Journalism; Bachelor's Degree; Pepperdine University

**Hinton, Pamela S;** Associate Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Wisconsin - Madison

**Hippenmeyer, Paul J;** Adjunct Instructor; Management; Doctor of Philosophy; Saint Louis University

**Hitzhusen, Gerald Lee;** Emeritus; Conference Office/CE; Master of Social Science

**Ho, Dominic King;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Chinese University of Hong Kong

**Hoard, Mary Katharine;** Part-Time Adjunct Faculty; Psychological Sciences; Doctor of Philosophy; University of Missouri

**Hobbs, Joseph John**; Professor; Geography; Doctor of Philosophy; The University of Texas at Austin

**Hoberek, Andrew P**; Professor; English; Doctor of Philosophy; The University of Chicago

**Hockman, Kristen Michelle**; Associate Teaching Professor; Accountancy; Master's Degree; University of Missouri

**Hodson, Mary Frances**; Part-Time Adjunct Faculty; Theatre; Master of Fine Arts; University of Illinois at Urbana-Champaign

**Hoehne, Jessica Dawn**; Part-Time Adjunct Faculty; Staffing Support Services; Registered Nurse

**Hoernschemeyer, Daniel Gerard**; Assistant Professor Of Clinical Department; Orthopaedic Surgery

**Hofer, Nathan Charles**; Assistant Professor; Religious Studies; Doctor of Philosophy; Emory University

**Hoffman, Janice Joyce**; Associate Dean; School of Nursing; Doctor of Philosophy; University of Maryland School

**Hoffman, Kimberly G**; Associate Dean; Dean - Medical Education; Doctor of Philosophy; University of Missouri

**Hoffman, Timothy**; Professor; Medicine; Doctor of Philosophy; University of Missouri

**Hofmann, Hunter V**; Associate Professor Of Clinical Department; Medicine-Pulmonary & Environ

**Hofmann, Steven**; Curators Distinguished Professor; Mathematics; Doctor of Philosophy; University of Minnesota

**Hogan, Rosemary Grace**; Associate Clinical Professor; SHP/Health Sciences; Doctor of Education; University of Missouri

**Holan, Scott Harold**; Professor; Statistics; Doctor of Philosophy; Texas A&M University

**Holdo, Ricardo Martin**; Part-Time Adjunct Faculty; Biological Science; Doctor of Philosophy; Princeton University

**Holland, Lene J**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of California, San Francisco

**Hollestelle, Colleen Evelyn**; Adjunct Instructor; Human Devl & Family Science; Master of Arts; University of Missouri

**Holliday, Casey Monahan**; Associate Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; The Ohio State University

**Holliday, Gregory A**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Doctor of Philosophy; University of Missouri

**Holman, J Martin**; Assistant Teaching Professor; German & Russian Studies; Master's Degree; University of California, Berkeley

**Holtgrave, Darcy Elizabeth**; Part-Time Adjunct Faculty; Honors College; Doctor of Philosophy; University of Missouri

**Holtmeyer, Michelle Rae**; Instructor; Mizzou K-12 Online; Master of Arts; St. Mary's University

**Hook, Sally B**; Adjunct Instructor; School of Music; Doctor of Philosophy; University of Missouri

**Hooley, Daniel M**; Emeritus; Classical Studies; Doctor of Philosophy; University of Minnesota

**Hoover, Sarah Lynne**; Assistant Instructor; Romance Languages & Literature; Master of Education; Evangel University

**Horisk, Claire S**; Associate Professor; Philosophy; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Horn, Alex Burdett**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Horn, Hope Miller**; Adjunct Instructor; Textile and Apparel Mgmt; Bachelor's Degree -; Brown University

**Hornbeck, Elizabeth Jean**; Assistant Teaching Professor; Art History & Classical Archae; Doctor of Philosophy; University of California, Santa Barbara

**Horner, Joe L**; Specialist; Ag Ext-Social Sciences

**Horner, William Thomas**; Teaching Professor; Political Science; Doctor of Philosophy; The University of Texas at Austin

**Horstman, Haley Ann**; Assistant Professor; Communication; Doctor of Philosophy; University of Nebraska - Lincoln

**Horstmeier, Robin Leann**; Adjunct Instructor; Human Devl & Family Science; Doctor of Philosophy; Oklahoma State University

**Horvit, Beverly Jane**; Assistant Professional Practice Professor; Journalism; Doctor of Philosophy; University of Missouri

**Horvit, Mark Harris**; Associate Professional Practice Professor; Journalism; Bachelor's Degree; The University of Texas at Austin

**Horwitz, Bruce**; Assistant Clinical Professor; Psychiatry

**Horwitz, Ellen**; Adjunct Assistant Professor; Development/Behavioral; Doctor of Philosophy; University of Missouri

**Hosokawa, Michael Charles**; Professor; Family & Community Medicine; Doctor of Education; University of Oregon

**Houghton, Howard Louis**; Associate Professor Of Clinical Department; Psychiatry; Doctor of Medicine; University of Missouri - Kansas City

**Houseman, Richard M**; Associate Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; Texas A&M University

**Houston, John Brian**; Associate Professor; Communication; Doctor of Philosophy; The University of Oklahoma

**Howe, John S**; Professor; Finance; Doctor of Philosophy; Purdue University

**Howe, Timothy E**; Assistant Professor; School of Music; Doctor of Musical Arts; University of Nebraska - Lincoln

**Howenstine, Debra A**; Associate Professor Of Clinical Department; Family & Community Medicine

**Howes, William Seth**; Assistant Professor; German & Russian Studies; Doctor of Philosophy; University of Michigan

**Howland, Jane L**; Teaching Professor; Info Science & Learning Tech; Doctor of Philosophy; University of Missouri

**Hoyt, Daniel Seth**; Assistant Professor Of Clinical Department; Surgery-Urology; Doctor of Medicine; University of Missouri

**Hoyt-Vail, Martina Louise**; Part-Time Adjunct Faculty; Career Center; Bachelor's; University of Missouri

**Hsieh, Fu Hung**; Emeritus; Bioengineering; Doctor of Philosophy; University of Minnesota

**Hsu, Hsun-Ta**; Assistant Professor; Social Work; Doctor of Philosophy

**Hu, Zhiqiang**; Professor; Civil/Environmental Engr; Doctor of Philosophy; University of Connecticut

**Huang, Francis Howard**; Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Virginia

**Huang, Guoliang**; Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy

**Huang, Kan**; Assistant Professor Of Clinical Department; Medicine-Hematology & Oncology; Doctor of Medicine; Guangxi Medical University

**Hubbart, Jason A**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Idaho

**Huber, Dawn Heather**; Assistant Clinical Professor; SHP/Health Psychology; Doctor of Philosophy; The University of Iowa

**Hudson, Candace L**; Clinical Instructor; School of Nursing; Doctor of Nursing Practice

**Hudson, Fraser Berkley**; Associate Professor; Journalism; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Hudson, LeGreta**; Assistant Teaching Professor; Nutrition & Exercise Phys-HES; Master's Degree; Illinois State University

**Hudson, Stanton T**; Part-Time Adjunct Faculty; School of Medicine Center for Health Policy

**Hudson Weems, Clenora**; Professor; English; Doctor of Philosophy; The University of Iowa

**Huelsbergen, Deborah L**; Curators Distinguished Professor; Art; Master of Fine Arts; Iowa State University

**Hughes, Carey Marie**; Instructor; Mizzou K-12 Online; Master of Arts; Stephens College

**Hughes, Dana N**; Adjunct Instructor; SHP/Health Sciences; Master's Degree; University of Michigan

**Hull, Angela Marie**; Assistant Teaching Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Missouri

**Hull, Greta Thompson**; Assistant Clinical Professor; SHP/Comm Sci & Disorders; Master's Degree; University of Missouri

**Hume, Deborah Louise**; Teaching Professor; Public Health Program; Doctor of Philosophy; University of Missouri

**Humfeld, Sarah Conditt**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Missouri

**Humphrey, Kimberly A**; Part-Time Adjunct Faculty; Vice Provost Enrollment Management; Master of Arts; University of Missouri - Kansas City

**Humphries III, William Edward**; Visiting Assistant Professor; Surgery-Neurosurgery; Doctor of Medicine; Duke University

**Huneycutt, Lois L**; Associate Professor; History; Doctor of Philosophy; University of California, Santa Barbara

**Hunt, Heather K**; Assistant Professor; Biological Engineering; Doctor of Philosophy

**Hunt, Paula D**; Post Doctoral Fellow - Teaching; Journalism; Doctor of Philosophy; University of Missouri

**Hunt-Carter, Erin Elizabeth**; Adjunct Instructor; Psychological Sciences

**Hunter, Mark Ira**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health

**Huntley, John W**; Assistant Professor; Geological Sciences; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Hurst, Robin D**; Associate Teaching Professor; Biological Science; Doctor of Education; University of Missouri

**Hurt, Douglas Allan**; Assistant Teaching Professor; Geography; Doctor of Philosophy; The University of Oklahoma

**Husain, Syed Arshad**; Emeritus; Psychiatry

**Husted, Kristofor Hoagnelson**; Part-Time Adjunct Faculty; FM Station; Master's Degree; Northwestern University

**Hutchinson, Sandy L**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis; Doctor of Education; University of Missouri

**Hutchison, Alisa G**; Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Hutson, Andrew Hargrove**; Adjunct Assistant Professor; SHP/Health Sciences; Master's Degree; University of Missouri

**Huxley, Virginia H**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Virginia

**Hwang, Chin-Feng**; Part-Time Adjunct Faculty; Plant Sciences

**Hwang, Peter Y**; Assistant Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; Rosalind Franklin University of Medicine and Science

**Hwang, Sarah Kathryn**; Assistant Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; Southern Illinois University

**Hwang, Tzyh Chang**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Johns Hopkins University

**Hyatt-Wade, Sharyn Jane**; Adjunct Instructor; Academic Dean; Master of Fine Arts; Clemson University

**Hyder, Salman M**; Professor; Biomedical Sciences; Doctor of Philosophy; University of Glasgow

**Hysong, Christopher Robert**; Instructor; Mizzou K-12 Online; Master's Degree; University of Missouri

**Ibdah, Jamal A**; Professor; Medicine-Gastroenterology; Doctor of Medicine; University of Jordan

**Ifshin, Barbara Elaine**; Part-Time Adjunct Faculty; Journalism; Master of Business Administration; Columbia University

**Ilboudo, Christelle Marlyse**; Assistant Professor Of Clinical Department; Child Hlth-Infectious Disease; Doctor of Medicine

**Ingalls, Kevin L**; Assistant Professor Of Clinical Department; Radiology

**Ingraham, Nissa**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Ingram, Ellis Andrew**; Emeritus; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Michigan

**Inniss, Enos C**; Assistant Teaching Professor; Civil/Environmental Engr; Doctor of Philosophy; University of Notre Dame

**Ireton, Sean M**; Associate Professor; German & Russian Studies; Doctor of Philosophy; University of Washington

**Irwin, Gregory Neal**; Instructor; Mizzou K-12 Online; Master of Arts; Truman State University

**Irwin, Jamie Ann**; Instructor; Mizzou K-12 Online; Master's Degree; Truman State University

**Islam, Naz E**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Rensselaer Polytechnic Institute

**Ispa, Jean Mona**; Professor; Human Devl & Family Science; Doctor of Philosophy; Cornell University

**Ithman, Muaid Hilmi**; Associate Professor Of Clinical Department; Psychiatry

**Iveson, Candace Jacob**; Adjunct Instructor; Social Work; Master of Social Work; Washington University

**Ivey, Patrick Alton**; Part-Time Adjunct Faculty; Access/Leadership Development; Doctor of Philosophy; University of Missouri

**Ivey, Starla Lynn**; Assistant Teaching Professor; Personal Financial Planning; Doctor of Philosophy; University of Missouri

**Iyer, Shankar Subramanian**; Assistant Research Professor; Neurology; Doctor of Philosophy; University of Bombay

**Izaguirre, Enrique**; Part-Time Adjunct Faculty; Nuclear Science Engr Institute

**Jackson, Daniel Lee**; Assistant Professor; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Jackson, Norma J**; Part-Time Adjunct Faculty; Academic Dean; Juris Doctor; University of Missouri

**Jackson, Shawna Dianne**; Adjunct Instructor; SHP/Health Sciences

**Jackson-Thompson, Jeannette**; Associate Research Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Jacobson, Brad Martin**; Assistant Instructor; VP for International Programs

**Jacoby, William A**; Associate Professor; Biological Engineering; Doctor of Philosophy; University of Colorado Boulder

**Jago, Arthur G**; Professor; Management; Doctor of Philosophy; Yale University

**Jahan, Sultana**; Associate Professor Of Clinical Department; Psychiatry

**Jahnke, Isa**; Associate Professor; Info Science & Learning Tech; Doctor of Philosophy; TU Dortmund University (Germany)

**Jakubovskis, Aldis**; Specialist; Small Business Development Ctr; Master of Business Admin; Saint Louis University

**Jalisatgi, Satish Subray**; Assistant Research Professor; Radiology; Doctor of Philosophy; University of Bombay

**James, Alexandra Frances**; Assistant Professor Of Clinical Department; Child Health-Gen & Ambulatory

**James, Harvey S**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; Washington University

**James Kracke, Marilyn R**; Associate Professor; Med Pharmacology/Physiology; Doctor of Philosophy; The University of British Columbia

**Jammeh, Amy Linn**; Visiting Instructor; International programs; Master of Arts; University of Central Missouri

**Janes, William Edward**; Assistant Research Professor; SHP/Occupational Therapy; Doctor in Occupational Therapy; Washington University

**Jarstad, John Steven**; Associate Professor Of Clinical Department; Ophthalmology; Doctor of Medicine; University of Washington Seattle

**Jeanetta, Stephen C**; Associate Extension Professor; Social Sciences CD; Doctor of Philosophy; University of Missouri - St. Louis

**Jefferson, Urmeka Taylor**; Assistant Professor; School of Nursing; Doctor of Philosophy; Saint Louis University

**Jenner, Michael Mollet**; Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Jepson, Steven Baker**; Assistant Teaching Professor; School of Music; Doctor of Musical Arts; University of Iowa

**Jerry II, Robert H**; Professor; Law; Juris Doctor; University of Michigan

**Ji, Tieming**; Assistant Professor; Statistics; Doctor of Philosophy; Iowa State University

**JiJi, Renee Denise**; Associate Professor; Chemistry; Doctor of Philosophy; Arizona State University

**Jia, Guanghong**; Assistant Research Professor; Medicine-Endocrinology; Doctor of Philosophy; Huazhong University of Science & Technology

**Jiang, Lin**; Assistant Professor; Management; Doctor of Philosophy; Georgia Institute of Technology

**Jobst, Louis Aloysius**; Instructor; Mizzou K-12 Online; Master of Lliberal Arts; Saint Louis University

**Johannesen, Eric**; Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Osteopathic Medicine; AT Still University of Health Sciences

**Johanning, Gina K**; Adjunct Instructor; MU Partnership Educ Renewal; Master of Education; University of Missouri

**Johnson, Bradley Alan**; Adjunct Instructor; Journalism; Bachelor's Degree; University of Missouri

**Johnson, Brett Gregory**; Assistant Professor; Journalism; Doctor of Philosophy; University of Minnesota

**Johnson, Danielle K**; Adjunct Instructor; Academic Dean; Doctor of Philosophy; University of Missouri

**Johnson, Diane Elizabeth**; Instructor; Mizzou K-12 Online; Specialist of Education; Missouri Baptist University

**Johnson, Gary Steven**; Associate Professor; Veterinary Pathobiology; Doctor of Veterinary Medicine; University of Minnesota

**Johnson, Gayle Christy**; Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; Washington State University

**Johnson, Jeffrey D**; Associate Professor; Psychological Sciences; Doctor of Philosophy; University at Albany

**Johnson, Joseph W**; Associate Professor; Art; Master of Fine Arts; Massachusetts College of Art

**Johnson, Kandice K**; Clinical Professor; Law; Juris Doctor; University of Missouri

**Johnson, Laura Elizabeth**; Assistant Teaching Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; Duke University

**Johnson, Lydia Suzanna**; Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; University of Kansas

**Johnson, Marc C**; Associate Professor; Life Sciences Center; Doctor of Philosophy; Oregon State University

**Johnson, Philip J**; Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Bristol

**Johnson, Quinn Lamar**; Associate Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Saint Louis University

**Johnson, Rebecca A**; Professor; School of Nursing; Registered Nurse

**Johnson, Richard A**; Professor; Management; Doctor of Philosophy; Texas A&M University

**Johnson, Robert N**; Professor; Philosophy; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Johnson, Thomas G**; Emeritus; Ag Ext-Social Sciences; Doctor of Philosophy; Oregon State University

**Johnson, Victoria L**; Associate Professor; Sociology; Doctor of Philosophy; University of California, Davis

**Johnson Moxley, Melanie K**; Adjunct Instructor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Johnston, Laura C**; Associate Professional Practice Professor; Journalism; Master of Journalism; University of Missouri

**Johnston, Nicole Ruth**; Part-Time Adjunct Faculty; Textile and Apparel Mgmt; Master of Science; University of Missouri

**Johnston Jr, Joseph Andrew**; Part-Time Adjunct Faculty; VP Undergraduate Studies; Doctor of Philosophy; University of Michigan

**Johnstone, George**; Professor; SHP/Health Psychology

**Jones, Cason H**; Part-Time Adjunct Faculty; Dean of Health Professions; Master's Degree; University of Missouri

**Jones, Catherine Messick**; Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine; The University of North Carolina

**Jones, Cynthia Lou**; Instructor; Mizzou K-12 Online; Master's Degree; University of Missouri

**Jones, John Richard**; Emeritus; Fisheries & Wildlife Sciences; Doctor of Philosophy; Iowa State University

**Jones, Marlene B**; Adjunct Instructor; Food Science; Master of Science

**Jones, Moneen Marie**; Assistant Research Professor; Plant Sciences; Doctor of Philosophy

**Jorgensen, Jeffrey Brian**; Associate Professor Of Clinical Department; Otolaryngology; Doctor of Medicine; Vanderbilt University

**Jose, Shibu**; Director; Forestry; Doctor of Philosophy; Purdue University

**Josey, Christopher Steven**; Visiting Assistant Professor; Communication; Doctor of Philosophy; University of Illinois

**Joshi, Trupti Subhash**; Assistant Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Judy, Megan Elizabeth**; Part-Time Adjunct Faculty; TV Station; Bachelor's Degree; University of Missouri

**Jun, Bokkwan**; Assistant Professor; Ophthalmology; Doctor of Medicine

**Jung, Na Young**; Assistant Professor; Textile and Apparel Mgmt; Doctor of Philosophy; The University of Georgia

**Jurczyk, Michael**; Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Stuttgart

**Jurisson, Silvia S**; Professor; Chemistry; Doctor of Philosophy; University of Cincinnati

**Juzkiw, Irene Ann**; Instructor; International programs; Master's Degree; University of Illinois at Urbana-Champaign

**Kabel, Allison M**; Assistant Professor; SHP/Health Sciences; Doctor of Philosophy; Wayne State University

**Kabrick, John M**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Wisconsin - Madison

**Kahng, SungWoo**; Associate Professor; SHP/Health Psychology; Doctor of Philosophy; University of Florida

**Kaifi, Jussuf Thomas**; Assistant Professor; Surgery-Cardiothoracic; Doctor of Philosophy

**Kaiser, Helmut**; Research Professor; Physics; Doctor of Philosophy; Technische Universitaet-Vienna

**Kalaitzandonakes, Nicholas**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; University of Florida

**Kalapinski, Angelica Ann**; Instructor; Mizzou K-12 Online; Master of Library Science; University of Missouri

**Kallenbach, Robert L**; Assistant Dean; Ag Ext-CAFNR Admin; Doctor of Philosophy; Texas Tech University

**Kalogeris, Theodore John**; Assistant Research Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of California, Davis

**Kammer, Jenna Frances**; Part-Time Adjunct Faculty; VP Undergraduate Studies; Master's Degree; New Mexico State University

**Kammerich, Mark Alan**; Part-Time Adjunct Faculty; Journalism

**Kampelman, Janine Agnes**; Clinical Instructor; School of Nursing; Doctor of Philosophy; Saint Louis University

**Kanaley, Jill A**; Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Kane, Kevin Yurii**; Associate Dean; Dean - Medical Education; Doctor of Medicine; Creighton University

**Kane, Thomas C**; Part-Time Adjunct Faculty; Provost; Master of Fine Arts; University of Pittsburgh

**Kang, Xunlei**; Assistant Professor; Medicine-Cardiology; Doctor of Philosophy; Shanghai JiaoTong universtivery, school of medicine

**Kannan, Raghuraman**; Associate Professor; Radiology; Doctor of Philosophy; Indian Institute of Science

**Kanne, Stephen Michael**; Director; SHP/Health Psychology; Doctor of Philosophy; Washington University

**Kantor, Jeff Lawrence**; Assistant Professor Of Clinical Department; Child Health-Gastroenterology; Doctor of Medicine; Thomas Jefferson University

**Kaplan, David M;** Assistant Professor; Economics; Doctor of Philosophy; University of California, San Diego

**Kaplan, Joel M;** Adjunct Instructor; Health Mgmt & Informatics; Master's Degree; Pepperdine University

**Kaplan, Michael B;** Part-Time Adjunct Faculty; Counseling Services; Master of Social Work; University of Missouri

**Kapoor, Ragini;** Adjunct Assistant Professor; Child Health-Pulmonary; Doctor of Medicine

**Kapp, Julie M;** Associate Professor; Health Mgmt & Informatics; Doctor of Philosophy; Saint Louis University

**Karian, Stephen Edwin;** Associate Professor; English; Doctor of Philosophy; University of Wisconsin - Madison

**Karthas, Ilyana;** Associate Professor; History; Doctor of Philosophy; Brown University

**Katsev, Conner Theodore;** Instructor; Mizzou K-12 Online; Master of Education; Truman State University

**Katti, Kattesh;** Professor; Radiology; Doctor of Philosophy; Indian Institute of Science

**Katz, Martin L;** Professor; Ophthalmology; Doctor of Philosophy; University of California, Santa Cruz

**Kaussen, Valerie M;** Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of California, Santa Cruz

**Kay, Jacquelyn;** Assistant Teaching Professor; Romance Languages & Literature; Master's Degree; University of Missouri

**Kaylen, Michael S;** Emeritus; Agricultural/Applied Economics; Doctor of Philosophy; Purdue University

**Kaylen, Myoung Lee;** Associate Teaching Professor; Economics; Doctor of Philosophy; University of Missouri

**Kazic, Toni;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Pennsylvania

**Keegan, Kevin G;** Professor; Veterinary Medicine & Surgery; Doctor of Medicine; University of Missouri

**Keeler, Meghan C;** Adjunct Instructor; Mizzou Online

**Keely, Jennifer Loraine;** Assistant Clinical Professor; SHP/Clinical & Diagnostic Sci; Bachelor's Degree; University of Missouri

**Keene, Charles W;** Associate Teaching Professor; Marketing; Master of Business Administration; Fontbonne University

**Keene, Michael Paul;** Adjunct Instructor; Hospitality Management; Master of Agriculture; University of Missouri

**Keene, Misty Suzanne;** Assistant Instructor; VP for International Programs; Bachelor's Degree; Fontbonne University

**Keeney, James A;** Associate Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; Washington University

**Keiser, Lael R;** Professor; Political Science; Doctor of Philosophy; University of Wisconsin - Milwaukee

**Keithahn, Stephen Timothy;** Assistant Professor Of Clinical Department; Medicine-General Internal; Doctor of Medicine; Duke University

**Kellar, Chieko;** Lecturer; German & Russian Studies; Bachelor's Degree; Tokyo University of Foreign Studies

**Keller, Edwin Roy;** Assistant Instructor; Vice Provost for International Programs; Doctor of Philosophy; University of Arkansas

**Keller, James M;** Curators Distinguished Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri

**Keller, Kimberly Jean;** Assistant Research Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Missouri

**Keller, Steven W;** Associate Professor; Chemistry; Doctor of Philosophy; University of California, Berkeley

**Kelley, Cheryl A;** Professor; Geological Sciences; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Kelley, Dennis Francis;** Associate Professor; Religious Studies; Doctor of Philosophy; University of California, Santa Barbara

**Kelley, Elizabeth Spencer;** Assistant Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; Vanderbilt University

**Kelley, Kate Stockton;** Visiting Instructor; Religious Studies; Master's Degree; University of Missouri

**Kelley, Ronald B;** Associate Professional Practice Professor; Journalism; Doctor of Philosophy; University of Missouri

**Kelly, Martha M;** Associate Professor; German & Russian Studies; Doctor of Philosophy; Stanford University

**Kelly, Michael Joseph;** Emeritus; Social Work; Doctor of Philosophy; The University of Texas at Austin

**Keltner, Riley Noelle;** Instructor; Mizzou K-12 Online; Master of Arts; Truman State University

**Kelty, Blanca Gonzalez;** Assistant Instructor; Romance Languages & Literature; Master's Degree; University of Missouri

**Kemp, Michelle Stephens;** Part-Time Adjunct Faculty; Dean of College of Business; Master of Business Administration; William Woods University

**Kendhari, Jusleen;** Assistant Professor Of Clinical Department; Psychiatry; Doctor of Medicine; Medical University of the Americas

**Kennedy, George;** Emeritus; Journalism; Doctor of Philosophy; University of Missouri

**Kennelly, Sean Michael;** Instructor; Mizzou K-12 Online; Master of Arts; Roosevelt University

**Kerl, Marie E;** Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Auburn University

**Kerley, Monty S;** Professor; Animal Science; Doctor of Philosophy; University of Illinois

**Kern, Andrew E;** Assistant Teaching Professor; Finance; Master of Business Administration; University of Missouri

**Kerns, John Gerald;** Professor; Psychological Sciences; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Kerr, Gary;** Part-Time Adjunct Faculty; Military Science

**Kerridge, Bonnie Daria;** Adjunct Assistant Professor; Art; Doctor of Education; University of Missouri

**Kerwin, William J;** Associate Professor; English; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Kester, Kimberly Denise;** Instructor; Mizzou K-12 Online; Master of Education

**Keatson, Jacob P;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Missouri

**Keatson, Julia Marie;** Assistant Professor Of Clinical Department; Child Health-Hospitalist; Doctor of Medicine; University of Missouri

**Key, Elisabeth Elaine;** Assistant Dean; Law; Juris Doctor; Northwestern University

**Kfuri Jr, Mauricio;** Associate Professor; Orthopaedic Surgery; Associate Degree; School of Medicine of Ribeirão Preto - University of São Paulo

**Khairallah, Joelle;** Part-Time Adjunct Faculty; Dean of Health Professions; Master of Science; Western Illinois University

**Khaleel, Nabila I;** Assistant Professor Of Clinical Department; Child Health

**Khan, Erum Z;** Adjunct Instructor; Psychiatry; Doctor of Medicine; University of Missouri

**Khan, Uzma Zubair;** Associate Professor Of Clinical Department; Medicine-Endocrinology; Doctor of Medicine; Aga Khan University

**Khanna, Ramesh;** Professor; Medicine; Doctor of Medicine; University of Bombay

**Khanna, Sanjeev K;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Khare, Sharad;** Associate Professor; Medicine-Gastroenterology; Doctor of Philosophy; University of Kanpur

**Khatri, Naresh;** Associate Professor; Health Mgmt & Informatics; Doctor of Philosophy; University at Buffalo, The State University of New York

**Khurana, Inder K;** Professor; Accountancy; Doctor of Philosophy; Arizona State University

**Kiburz, Douglas William;** Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; University of Nebraska

**Kidd, Joseph Benton;** Part-Time Adjunct Faculty; Museum of Art & Archaeology; Doctor of Philosophy; University of Missouri

**Kiesling, Jerry Wayne;** Part-Time Adjunct Faculty; SHP/Eldercare; Master of Social Work; University of Missouri

**Kiger, Sam A;** Emeritus; Civil/Environmental Engr; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Kil, Kun-Eek;** Assistant Research Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; Stony Brook University, The State University of New York

**Kilgus, Stephen Patrick;** Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Connecticut

**Killoren, Sarah E;** Assistant Professor; Human Devl & Family Science

**Kim, Cheehyung;** Assistant Professor; History; Doctor of Philosophy; Columbia University

**Kim, Dae Young;** Associate Professor Of Clinical Department; Veterinary Diagnostic Laborato; Doctor of Philosophy; Louisiana State University

**Kim, Dae-Young;** Associate Professor; Food Science; Doctor of Philosophy; Purdue University

**Kim, Jae Woo;** Assistant Research Professor; Animal Science; Doctor of Philosophy; Yeungnam University

**Kim, Joohye;** Assistant Instructor; VP for International Programs; Bachelor's Degree; Chonnam National University

**Kim, Jung Hyup;** Assistant Professor; Industrial/Mfg Sys Engr; Doctor of Engineering; The Pennsylvania State University

**Kim, Kihyung;** Assistant Teaching Professor; Dean of Engineering; Doctor of Philosophy; Purdue University

**Kim, Kyonghee;** Associate Professor; Accountancy; Doctor of Philosophy; University of Pittsburgh

**Kim, Min Soon;** Assistant Professor; Health Mgmt & Informatics; Doctor of Philosophy; The University of Texas at Austin

**Kim, Mirae;** Assistant Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; Rutgers University - Newark

**Kim, Sang Soon;** Part-Time Adjunct Faculty; Vice Provost for International Programs

**Kim, So Mi;** Post Doctoral Fellow; Info Science & Learning Tech; Doctor of Philosophy; University of Georgia

**Kim, Yong Jae;** Visiting Scholar; VP for International Programs; Doctor of Science; University of Missouri

**Kimchi, Eric Tzvi;** Associate Professor; Surgery-Surgical Oncology; Doctor of Medicine; The Pennsylvania State Univeristy College of Medicine

**Kimura, Andrea Lynn;** Part-Time Adjunct Faculty; Student Health Center; Master of Education; University of Missouri

**King, Carroll J;** Associate Professor Of Clinical Department; Child Health Critical Care; Doctor of Medicine; Northwestern Medical School

**King, Christina Ursula;** Part-Time Adjunct Faculty; VP Undergraduate Studies; Master of Education

**King, Elizabeth Griep;** Assistant Professor; Biological Science; Doctor of Philosophy; University of California, Riverside

**King, Gavin M;** Associate Professor; Physics; Doctor of Philosophy; Harvard University

**King, Karen Emily;** Assistant Teaching Professor; Physics; Doctor of Philosophy; Dartmouth College

**King, Kevin Grenville;** Part-Time Adjunct Faculty; Naval Science; Master of Arts; Naval War College

**King, LaGarrett Jarriel;** Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Texas at Austin

**King, Laura A;** Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; University of California, Davis

**King, Wilma;** Emeritus; Black Studies Program; Doctor of Philosophy; Indiana University Bloomington

**King III, Dana M;** Assistant Clinical Professor; Otolaryngology; Doctor of Medicine; University of Missouri

**Kingsley, Laurie Ellen;** Associate Teaching Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Kinkade, Scott Edward**; Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; The University of Texas

**Kinney, William C**; Adjunct Assistant Professor; Otolaryngology; Doctor of Medicine; Case Western Reserve University

**Kinnison, Dana Kay**; Teaching Professor; English; Doctor of Philosophy; University of Missouri

**Kipperman, Barry**; Part-Time Adjunct Faculty; Dean of Veterinary Medicine; Doctor of Veterinary Medicine; University of Missouri

**Kirby, Karen A**; Assistant Research Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri

**Kirchhofer, Jessica Mee**; Adjunct Instructor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Kirk, Mark D**; Professor; Biological Science; Doctor of Philosophy; Rice University

**Kiser, Savannah Jade**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri - St. Louis

**Kisida, Brian**; Assistant Research Professor; Economics; Doctor of Philosophy; University of Arkansas

**Kist, Sharon E**; Clinical Instructor; School of Nursing; Doctor of Philosophy; University of Missouri

**Kitchen, Newell R**; Part-Time Adjunct Faculty; School of Natural Res Admin

**Klachko, David M**; Emeritus; Medicine; Doctor of Medicine; University of Witwatersrand

**Kleen, Penny Lynn**; Assistant Teaching Professor; Accountancy; Doctor of Philosophy; University of Missouri

**Klein, Cerry M**; Professor; Industrial/Mfg Sys Engr; Doctor of Philosophy; Purdue University

**Klein Trull, Meg A**; Associate Clinical Professor; Psychological Sciences; Doctor of Philosophy; University of Kentucky

**Kleinsorge, Melody Ann**; Assistant Instructor; VP for International Programs; Bachelor's Degree; Truman State University

**Kleopfer, Natalie Rose**; Part-Time Adjunct Faculty; Advancement; Master of Business Admin; University of Denver

**Kleypas, Jackie Sue**; Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Texas A&M University

**Klien, Stephen Andrew**; Assistant Teaching Professor; Communication; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Klimczak, Aimee**; Assistant Teaching Professor; Info Science & Learning Tech; Doctor of Philosophy; University of Missouri

**Kline II, David D**; Associate Professor; Biomedical Sciences II; Doctor of Philosophy; Case Western Reserve University

**Klote, Michael Anthony**; Adjunct Instructor; Industrial/Mfg Sys Engr; Master's Degree; University of Missouri

**Cluever, Craig Allan**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Iowa State University

**Knapp, Benjamin O**; Assistant Professor; School of Natural Res Admin

**Knapp, Megan Elizabeth**; Part-Time Adjunct Faculty; Academic Dean; Master of Education; Northwestern University

**Knipping, Nancy**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; Southern Illinois University

**Knoop, Andrew**; Associate Clinical Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Koboldt, Timothy J**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Missouri

**Koburov, George T**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Illinois at Chicago

**Koch, Colleen Susan**; Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Illinois

**Kochtanek, Thomas R**; Emeritus; Info Science & Learning Tech; Doctor of Philosophy; Case Western Reserve University

**Koditschek, Theodore**; Emeritus; History; Doctor of Philosophy; Princeton University

**Koedel, Cory R**; Associate Professor; Economics; Doctor of Philosophy; University of California, San Diego

**Koegler, Erica Louise**; Post Doctoral Fellow; SHP/Health Sciences; Doctor of Philosophy; Johns Hopkins University

**Koehn, Kristin L**; Associate Professor Of Clinical Department; Child Health-Hospitalist

**Koenig, Sheryl Faye**; Part-Time Adjunct Faculty; Life Sciences Center; Master's Degree; Lesley University

**Koivunen, Debra G**; Associate Professor; Surgery; Doctor of Medicine; University of Michigan

**Koldobskiy, Aleksandr**; Professor; Mathematics; Doctor of Philosophy; Saint Petersburg State University

**Koller, James P**; Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Missouri

**Komes, Kevin Donserm**; Associate Professor Of Clinical Department; Physical Medicine & Rehab

**Konig, Peter**; Emeritus; Child Health; Doctor of Philosophy; University of London

**Konkle, Maureen A**; Associate Professor; English; Doctor of Philosophy; University of Minnesota

**Koo, Jeong-Kyu**; Assistant Professor; Agriculture Biochemistry; Doctor of Philosophy; Michigan State University

**Koonce, Patricia C**; Assistant Clinical Professor; Child Health - Neurology

**Koopman, Peter J**; Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Pittsburgh

**Koopman, Richelle Diane**; Associate Professor; Family & Community Medicine; Doctor of Medicine; University of Pittsburgh

**Kopeikin, Sergei M**; Professor; Physics; Doctor of Philosophy; Moscow State University

**Kopeikin, Zoia**; Tutor; Learning Center; Doctor of Philosophy; University of Missouri



**Kopolow, Jeffrey**; Instructor; Mizzou K-12 Online; Master of Arts; Washington University

**Kopp, Kristin Leigh**; Associate Professor; German & Russian Studies; Doctor of Philosophy; University of California, Berkeley

**Korasick, Candace Anne**; Assistant Instructor; Honors College; Doctor of Philosophy; University of Missouri

**Korkine, Dmitri Alexandrovitch**; Part-Time Adjunct Faculty; Electrical Eng & Computer Sci; Doctor of Philosophy; University of New Brunswick

**Kornberg, Sanford Jay**; Part-Time Adjunct Faculty; Journalism

**Korte, Scott W**; Part-Time Adjunct Faculty; Office of Animal Resources; Doctor of Veterinary Medicine; University of Missouri

**Korthuis Jr, Ronald J**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Michigan State University

**Kosztin, Dorina C**; Teaching Professor; Physics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Kosztin, Ioan**; Professor; Physics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Kouba, Melissa Miller**; Assistant Professor Of Clinical Department; Medicine Hospitalist

**Koucherik, Elena**; Instructor; Mathematics; Doctor of Philosophy; University of Missouri

**Kovaleski, Scott D**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Michigan

**Kovarik, Mary Cathleen**; Associate Teaching Professor; Biomedical Sciences; Doctor of Philosophy; Iowa State University

**Kozak, Jeannie M**; Instructor; Mizzou K-12 Online; Master of Science; North Carolina State University

**Kracke, George R**; Associate Professor; Anesthesiology; Doctor of Philosophy; Drexel University

**Kraft, Damon**; Instructor; English; Master's Degree; Emporia State University

**Kramer, Joanne**; Associate Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Minnesota

**Kramer, Johanna Ingrid**; Associate Professor; English; Doctor of Philosophy; Cornell University

**Kranzberg, Joshua E**; Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Kratzer, Brian W**; Assistant Professional Practice Professor; Journalism; Master of Journalism; University of Missouri

**Krause, Matthew Philip**; Adjunct Instructor; SHP/Comm Sci & Disorders; Master's Degree; University of Missouri

**Krause II, William John**; Emeritus; Path & Anat Sci - Anatomy; Doctor of Philosophy; University of Missouri

**Kraxberger, Lynda S**; Associate Dean; Journalism; Master's Degree; University of Missouri

**Kremer, Robert J**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; Mississippi State University

**Krenz, Maike**; Associate Professor; Med Pharmacology/Physiology; Doctor of Medicine; University of D usseldorf

**Kreps, Patricia C**; Adjunct Assistant Professor; Art; Master of Fine Arts; University of Missouri

**Kriekhaus, Jonathan T**; Associate Professor; Political Science; Doctor of Philosophy; Princeton University

**Krishnan, Hari B**; Part-Time Adjunct Faculty; Plant Sciences; Doctor of Philosophy; Washington State University

**Kromer, Laura Ann**; Instructor; Mizzou K-12 Online; Master of Arts; University of Missouri

**Kropf II, David Allen**; Adjunct Assistant Professor; Otolaryngology; Doctor of Medicine; university of missouri

**Krug, Giulianne**; Associate Clinical Professor; SHP/Occupational Therapy; Doctor of Philosophy; University of Missouri

**Krug, Jeffrey**; Associate Teaching Professor; SHP/Physical Therapy; Bachelor's Degree; University of Wisconsin - Madison

**Kruse, Michael Scott**; Part-Time Adjunct Faculty; School of Natural Res Admin; Master of Science; The State University of New York

**Kruse, Robin L**; Research Professor; Family & Community Medicine; Doctor of Philosophy; The State University of New York

**Kuby, Candace Ross**; Associate Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Indiana University

**Kuensting, Laura L**; Associate Teaching Professor; College of Nursing

**Kueter, Jennifer**; Adjunct Instructor; Mizzou Online; Specialist of Education; University of Missouri

**Kuhnert, Mark Edward**; Associate Teaching Professor; SHP/Health Psychology; Doctor of Philosophy; Kent State University

**Kumar, Arun**; Associate Professor Of Clinical Department; Medicine-Cardiology; Doctor of Medicine; The University of Iowa

**Kumar, Pragati**; Assistant Professor Of Clinical Department; Radiology

**Kumar, Senthil Annamalai**; Assistant Professor Of Clinical Department; Medicine-Cardiology; Doctor of Medicine; Thanjavur Medical College

**Kumar, Senthil R**; Assistant Research Professor; Veterinary Medicine & Surgery; Doctor of Philosophy

**Kupferer, Kelsey Merella**; Part-Time Adjunct Faculty; Student Life; Master of Public Admin; University of Missouri

**Kuroki, Keiichi**; Associate Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; University of Missouri

**Kurpius, David DeWayne**; Dean; Journalism; Doctor of Philosophy; University of Wisconsin - Madison

**Kurukulasuriya, Lilamani Rg**; Professor Of Clinical Department; Medicine

**Kuruvilla-Dugdale, Mili**; Assistant Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; The University of Queensland

**Kurzejeski, Eric Walter**; Program Director; School of Natural Res Admin; Master's Degree; University of Missouri

**Kuwajima, Vanessa Keith**; Assistant Professor Of Clinical Department; Medicine-Gastroenterology; Doctor of Medicine; University of Missouri

**Kwasniewski, Misha T**; Assistant Research Professor; Food Science; Doctor of Philosophy; Cornell University

**Kwon, Jae Wan**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Southern California

**Kyle, Greeley A**; Emeritus; Journalism; Master of Journalism; University of Memphis

**Labenz, Bradley E**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Missouri

**Lacarrubba, Alison M**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Ladehoff, Paul H**; Director; Law; Juris Doctor; University of Nebraska - Lincoln

**Laffey, James M**; Emeritus; Info Science & Learning Tech; Doctor of Philosophy; The University of Chicago

**Lage, Craig Jason**; Assistant Professor Of Clinical Department; Radiology

**Lai, Yi**; Assistant Research Professor; Molec Microbio & Immunology; Doctor of Philosophy; Sichuan University

**Lair, Linda Marie**; Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Bachelor's Degree; Missouri Baptist University

**Laird, Karen E**; Instructor; English; Master's Degree; University of Missouri

**Lamb, Heather S**; Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Lamberson, William R**; Professor; Animal Science; Doctor of Philosophy; University of Nebraska

**Lambert, Thomas Andrew**; Professor; Law; Juris Doctor; The University of Chicago

**Lampp, Marla Lewis**; Associate Dean; Dean of Medicine; Bachelor's Degree; Houston Baptist University

**Lancaster, Eric Lee**; Adjunct Instructor; German & Russian Studies; Master of Arts; University of Missouri

**Lancey, Robert W**; Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; Creighton University

**Landor, Antoinette Marie**; Assistant Professor; Human Devl & Family Science; Doctor of Philosophy; The University of Georgia

**Lane, Kari Rae**; Assistant Professor; School of Nursing; Doctor of Philosophy; The University of Iowa

**Lane, Ralph Hill**; Adjunct Instructor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; Louisiana State University

**Lang, Chad Michael**; Instructor; Mizzou K-12 Online; Master of Arts; William Woods University

**Langdon, Susan Helen**; Professor; Art History & Classical Archae; Doctor of Philosophy; Indiana University Bloomington

**Lange-Osborn, Margaret Jean**; Assistant Research Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri

**Langen, Timothy C**; Associate Professor; German & Russian Studies; Doctor of Philosophy; Northwestern University

**Langeneckert, Mark G**; Assistant Teaching Professor; Art; Bachelor's Degree; Art Center College of Design

**Langford, Barry Robert**; Adjunct Instructor; Applied Soc Sci Div Admin; Juris Doctor; University of Missouri

**Langley, April C**; Associate Professor; English; Doctor of Philosophy; University of Notre Dame

**Lanigar, Sean E**; Associate Professor Of Clinical Department; Neurology; Doctor of Medicine; Creighton University

**Lannin, Amy Alison**; Director; Campus Writing Program; Doctor of Philosophy; University of Missouri

**Lannin, John**; Associate Dean; Academic Dean; Doctor of Philosophy; Illinois State University

**Lara, Elizabeth Keiko**; Assistant Professor; School of Music; Doctor of Musical Arts; The Juilliard School

**Larsen, David R**; Professor; Forestry; Doctor of Philosophy; University of Washington

**Larsen, Soren C**; Associate Professor; Geography; Doctor of Philosophy; The University of Kansas

**Lasman, Sarah Michelle**; Clinical Instructor; School of Nursing; Master of Nursing; Maryville University

**Lass, Joseph Martin**; Part-Time Adjunct Faculty; Theatre; Bachelor's Degree; James Madison University

**Lasseter, Dean B**; Assistant Professor Of Clinical Department; Child Health-Gen & Ambulatory; Doctor of Medicine; The University of Kansas

**Lastra Gonzalez, Guido**; Assistant Professor; Medicine-Endocrinology; Doctor of Medicine; Universidad La Gran Colombia

**Latshaw, Sandra**; Part-Time Adjunct Faculty; SHP/Clinical & Diagnostic Sci; Master of Arts; University of Nebraska

**Lattimer, Jimmy Christian**; Associate Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Washington State University

**Latushkin, Yuri**; Professor; Mathematics; Doctor of Philosophy; Odessa State University

**Laughlin, Maurice Harold**; Adjunct Professor; Biomedical Sciences; Doctor of Philosophy; The University of Iowa

**Lauriello, John**; Professor; Psychiatry; Doctor of Medicine; Temple University

**Lauriello, Naomi F**; Associate Professor Of Clinical Department; Child Health-Neonatology; Doctor of Medicine; Temple University

**Law, Ryan H**; Adjunct Instructor; Personal Financial Planning; Master's Degree; Texas Tech University

**Lawless, Elaine**; Emeritus; English; Doctor of Philosophy; Indiana University

**Lawrence, Leanna Beth**; Associate Clinical Professor; SHP/Comm Sci & Disorders; Master's Degree; University of Missouri

**Lawrence, Nathan Barrick**; Part-Time Adjunct Faculty; FM Station; Bachelor's Degree; Lawrence University

**Lawson, Melissa**; Associate Professor Of Clinical Department; Child Health-Adolescent; Doctor of Medicine; University of Missouri - Kansas City

**Layfield, Lester James**; Professor; Path & Anat Sci-Anatomic Path

**Layton, James R;** Adjunct Professor; Law; Juris Doctor; Brigham Young University

**Laziuk, Katsiaryna;** Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine

**Lazzaro-Weis, Carol M;** Emeritus; Romance Languages & Literature; Doctor of Philosophy; University of Pennsylvania

**Le, Thu Ngoc;** Assistant Professor Of Clinical Department; Child Health; Doctor of Medicine

**LeBeau, Christopher;** Librarian IV; Libraries; Master of Library Science; Long Island University

**LeFevre, Michael L;** Professor; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Lea, Peter Tate;** Assistant Teaching Professor; School of Music; Doctor of Philosophy; University of Western Ontario

**Leach, Stacey B;** Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Texas A&M University

**Leal, Manuel Salvador;** Associate Professor; Biological Science; Doctor of Philosophy; Washington University

**Leary, Emily Vanessa;** Assistant Professor; Orthopaedic Surgery; Doctor of Philosophy

**Ledoux, David R;** Emeritus; Animal Science; Doctor of Philosophy; University of Florida

**Lee, Alison Jane;** Part-Time Adjunct Faculty; Dean of Arts & Science; Bachelor's Degree; Columbia College

**Lee, Christopher B;** Assistant Teaching Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Missouri

**Lee, Ilhyung;** Professor; Law; Juris Doctor; Boston College

**Lee, Kang Jae;** Assistant Teaching Professor; Parks Recreation & Tourism; Doctor of Philosophy; Texas A&M University

**Lee, Matthew R;** Assistant Research Professor; Psychological Sciences

**Lee, Miranda S;** Adjunct Assistant Professor; Art; Master of Fine Arts; University of Missouri

**Lee, Se Woong;** Assistant Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Wisconsin - Madison

**Lee, Suhwon;** Associate Teaching Professor; Statistics; Doctor of Philosophy; University of Missouri

**Lee, Sungkyoung;** Assistant Professor; Journalism; Doctor of Philosophy; Indiana University Bloomington

**Lee Jr, Mark W;** Assistant Professor; Chemistry; Doctor of Philosophy; University of California, Los Angeles

**Legarsky, Justin J;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; The University of Kansas

**Leigh, Janiece Gail;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Leigh, Rachel Ann;** Adjunct Instructor; Mizzou Online; Master's Degree; University of Missouri

**Lembke, Erica Suzanne;** Professor; Special Education; Doctor of Philosophy; University of Minnesota

**Lentz, Kathy Jolene;** Assistant Clinical Professor; Ophthalmology; Doctor of Medicine; University of Missouri - Kansas City

**Leong, Lampo;** Professor; Art; Doctor of Philosophy; Central Academy of Fine Arts

**Leonhard, Barbara H;** Instructor; International programs; Master's Degree; University of Missouri

**Leshner, Glenn M;** Emeritus; Journalism; Doctor of Philosophy; Stanford University

**Lester, Ashlie Marie;** Assistant Teaching Professor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Leto, Victoria Jung;** Instructor; Mizzou K-12 Online; Master of Education; Webster University

**Leuci, Mary Simon;** Assistant Dean; Rural Sociology; Doctor of Education; University of Missouri

**Lever, John R;** Associate Professor; Radiology; Doctor of Philosophy; North Carolina State University

**Lever, Susan Z;** Associate Professor; Chemistry; Doctor of Philosophy; North Carolina State University

**Lever, Teresa Elaine;** Assistant Professor; Otolaryngology; Doctor of Philosophy; East Carolina University

**Levin, James H;** Assistant Director; Law; Juris Doctor; Northeastern University

**Levine, Alan;** Instructor; Dean of Agriculture

**Lewallen, Jennifer M;** Post Doctoral Fellow - Teaching; Communication; Doctor of Philosophy; University of Missouri

**Lewis, Alexandria Monique;** Clinical Instructor; Social Work; Master of Social Work; University of Missouri

**Lewis, Jennifer Lyn;** Part-Time Adjunct Faculty; Intercollegiate Athletics; Master of Education; University of Missouri

**Lewis, Melissa Erin;** Assistant Professor; Family & Community Medicine; Doctor of Philosophy

**Lewis, Michael Robert;** Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; City of Hope Graduate School of Biological Sciences

**Lewis, Timothy J;** Professor; Special Education; Doctor of Philosophy; University of Oregon

**Lewis, Trudy Lynne;** Professor; English; Doctor of Philosophy; University of Illinois at Chicago

**Lewis Saidi, Janet Lynn;** Adjunct Instructor; Journalism; Master's Degree; University College, London

**Li, Aigen;** Professor; Physics; Doctor of Philosophy; Leiden University

**Li, Guangfu;** Assistant Professor; Surgery-Surgical Oncology; Doctor of Philosophy; Nanjing Medical University

**Li, Hao;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Stevens Institute of Technology

**Li, Jie;** Assistant Professor; School of Natural Res Admin; Doctor of Philosophy; University of Florida

**Li, Yanguang;** Professor; Mathematics; Doctor of Philosophy; Princeton University

**Li, Zheng;** Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Liang, Huichun;** Lecturer; German & Russian Studies; Master's Degree; Governors State University

**Liang, Yayun;** Associate Research Professor; Biomedical Sciences; Doctor of Philosophy; Beijing Medical University

**Lietzan, Erika Fisher;** Associate Professor; Law; Juris Doctor; Duke University

**Light, Justin Robert;** Part-Time Adjunct Faculty; Academic Retention Svcs; Bachelor's Degree; University of Missouri

**Lilien, Megan Jayne;** Instructor; Mizzou K-12 Online; Master of Education; Point Loma Nazarene University

**Lim, Robert W;** Associate Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Washington

**Lim, Teng Teeh;** Associate Extension Professor; Ag Ext-Food Sci & Nutrition; Doctor of Philosophy; Purdue University

**Lin, Chun Shin;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Purdue University

**Lin, Chung Ho;** Assistant Research Professor; Forestry; Doctor of Philosophy; University of Missouri

**Lin, Jian;** Assistant Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of California, Riverside

**Lin, Mengshi;** Associate Professor; Food Science; Doctor of Philosophy; Washington State University

**Lin, Yuyi;** Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of California, Berkeley

**Lindbloom, Erik J;** Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; Northwestern University

**Linhardt, Richard D;** Instructor; Food Science; Master of Science; University of Missouri

**Linit, Marc Jeffrey;** Associate Dean; Dean of Agriculture; Doctor of Philosophy; University of Arkansas

**Linville, Michael Lynn;** Part-Time Adjunct Faculty; Office of Animal Resources; Doctor of Veterinary Medicine; University of Missouri

**Lipscomb, Diane Carol;** Assistant Professor Of Clinical Department; Child Health; Doctor of Medicine; University of Missouri

**Lipton, Emma E;** Associate Professor; English; Doctor of Philosophy; Duke University

**Liscum III, Emmanuel;** Professor; Biological Science; Doctor of Philosophy; The Ohio State University

**Lising, Michael J;** Adjunct Instructor; Art; Bachelor's Degree; University of Missouri

**Litofsky, Scott;** Professor; Surgery-Neurosurgery; Doctor of Medicine; The University of Texas Health Science Center at Houston

**Litt, Jeffrey Scott;** Assistant Professor Of Clinical Department; Surgery-Acute Care; Doctor of Osteopathic Medicine; Lake Erie College of Osteopath

**Little, Edward Ellis;** Part-Time Adjunct Faculty; School of Natural Res Admin

**Little, Randie Raderman;** Research Professor; Pathology and Anatomical Sci; Doctor of Philosophy; Florida State University

**Littlepage, Farrah Sue;** Lecturer; International programs; Master's Degree; University of Missouri

**Litton, Paul J;** Professor; Law; Doctor of Philosophy; University of Pennsylvania

**Littrell, Rachel Lynn;** Assistant Professor Of Clinical Department; Medicine-Cardiology

**Liu, Don;** Professor Of Clinical Department; Ophthalmology; Doctor of Medicine; The State University of New York

**Liu, Mian;** Curators Distinguished Professor; Geological Sciences; Doctor of Philosophy; The University of Arizona

**Liu, Pei;** Assistant Professor; Hospitality Management; Doctor of Philosophy; Kansas State University

**Liu, Ying-Hsiu;** Part-Time Adjunct Faculty; VP Undergraduate Studies

**Lo, Clarence Y;** Associate Professor; Sociology; Doctor of Philosophy; University of California, Berkeley

**Loboa, Elizabeth Grace;** Dean; Biological Engineering; Doctor of Philosophy; Stanford University

**Locke, Sara Janes;** Adjunct Instructor; MU Partnership Educ Renewal; Doctor of Psychology; University of Missouri

**Lockette, Warren;** Professor; Medicine-Endocrinology; Doctor of Medicine

**Loehr, John Erik;** Associate Professor; Civil/Environmental Engr; Doctor of Philosophy; The University of Texas at Austin

**Loesing, Cathie Shook;** Part-Time Adjunct Faculty; R&D ARC; Master of Education; University of Missouri

**Loesing, Jenine M;** Adjunct Instructor; Academic Dean; Specialist of Education; University of Missouri

**Loftin, Richard Bowen;** Director; Physics; Doctor of Philosophy; Rice University

**Logan, Emily Nicole;** Part-Time Adjunct Faculty; Human Devl & Family Science; Master's Degree; Missouri State University

**Logan, Stephanie Ann;** Part-Time Adjunct Faculty; SHP/Comm Sci & Disorders; Doctor of Philosophy; University of Missouri

**Loginova, Oksana;** Associate Professor; Economics; Doctor of Philosophy; Duke University

**Lombardo, Stephen J;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of California, Berkeley

**Long, Janet Louise;** Clinical Instructor; Nursing Extn/CE; Doctor of Nursing Practice; Rush University

**Long, Natalie Abert;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Long, Tahna Brook;** Assistant Teaching Professor; English; Master of Arts; University of Missouri

**Lorenzen, Carol L;** Professor; Animal Science; Doctor of Philosophy; Texas A&M University

**Lorson, Christian Lawrence;** Professor; Life Sciences Center; Doctor of Philosophy; University of Missouri

**Lorson, Monique Ann**; Associate Research Professor; Veterinary Pathobiology

**Lory, John A**; Associate Extension Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; University of Minnesota - Twin Cities

**Lowery, Lea Ann**; Associate Clinical Professor; SHP/Occupational Therapy; Master's Degree; University of Missouri

**Lowry, Karen Eileen**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Loyalka, Sudarshan Kumar**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Stanford University

**Lubahn, Dennis Bryant**; Professor; Biochemistry; Doctor of Philosophy; Duke University

**Luchese, Scott A**; Assistant Clinical Professor; Neurology

**Luce, Gregory Allen**; Adjunct Instructor; Plant Sciences; Master of Science; University of Missouri

**Lucht, Jill R**; Part-Time Adjunct Faculty; SoM Center for Health Policy; Master's Degree; University of Missouri

**Lucy, Matthew C**; Professor; Animal Science; Doctor of Philosophy; University of Florida

**Ludlam, Julianne Gray**; Assistant Teaching Professor; Psychological Sciences; Doctor of Philosophy; Alliant International University

**Ludwig, Genevieve Elizabeth**; Instructor; Mizzou K-12 Online; Doctor of Education; Walden University

**Luecke, Anna M**; Adjunct Instructor; Architectural Studies; Bachelor's Degree

**Lueckenotte, Annette Marie**; Adjunct Instructor; School of Nursing; Master's Degree; Texas Woman's University

**Luksis, Jason James**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Bachelor's Degree; College of Saint Rose

**Luo, Yuyan**; Associate Professor; Psychological Sciences; Doctor of Philosophy; University of Illinois

**Lupo, Anthony R**; Professor; School of Natural Res Admin; Doctor of Philosophy; Purdue University

**Luther, Jill Kristine**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Lynch, Emily Claire**; Instructor; Anthropology; Doctor of Philosophy; Rutgers University

**Lynch, Jennifer Kathryn**; Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine; University of Kansas School of Medicine

**Lyons, Leslie A**; Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Pittsburgh

**Ma, Hongbin**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Texas A&M University

**Ma, Lixin**; Associate Professor; Radiology; Doctor of Philosophy; University of Copenhagen

**Ma, Shen Ying**; Assistant Professor; Orthopaedic Surgery

**Mabary, Judith A**; Associate Professor; School of Music; Doctor of Philosophy; Washington University

**Mabe, Nancy Carol**; Assistant Professor Of Clinical Department; Medicine-General Internal; Doctor of Medicine; University of Missouri

**MacDonald, Brandi Lee**; Assistant Research Professor; Research Reactor; Doctor of Philosophy; McMaster University

**MacGregor, Cynthia Jane**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis; Doctor of Education; University of Missouri

**MacLeod, Kenneth G**; Professor; Geological Sciences; Doctor of Philosophy; University of Washington

**Madaffer, Nicholas Charles**; Clinical Instructor; Physical Medicine & Rehab; Doctor of Osteopathic Medicine; University of New England

**Madsen, Richard**; Adjunct Professor; Biochemistry; Doctor of Philosophy; Iowa State University

**Maggard, Bryan S**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Magnier Demaisonneuve, Alexandre**; Program Director; Agricultural/ Applied Economics; Doctor of Philosophy; University of Missouri

**Mahalic, Katharine Jean**; Instructor; Mizzou K-12 Online; Master of Fine Arts; Columbia College Chicago

**Mahdi, Amin Omar**; Clinical Instructor; Medicine-Gastroenterology

**Mahler, Emily M**; Part-Time Adjunct Faculty; SHP/Health Sciences; Master of Science; Western Illinois University

**Maier, Joshua Ryan**; Part-Time Adjunct Faculty; Art; Master of Fine Arts; University of Missouri

**Maiolino, Stephanie Ane**; Lecturer; Path & Anat Sci - Anatomy; Doctor of Philosophy; Stony Brook University, The State University of New York

**Maitz, Charles A**; Assistant Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Majee, Wilson**; Assistant Professor; SHP/Health Sciences; Doctor of Philosophy; University of Wisconsin - Madison

**Makarov, Konstantin A**; Professor; Mathematics; Doctor of Philosophy; Leningrad State University

**Makarova, Marina Alexandrovna**; Adjunct Instructor; Mathematics; Master of Physics; Leningrad State University

**Malanowski, Sarah Christine**; Lecturer; Philosophy; Master's Degree

**Malfatti, Gabrielle**; Director; Admin & Fac Affairs; Doctor of Education; University of Missouri

**Malhotra, Kunal**; Assistant Professor Of Clinical Department; Medicine-Nephrology; Doctor of Medicine; University of Missouri

**Malm-Buatsi, Elizabeth Ashiokor**; Assistant Professor; Surgery-Urology; Doctor of Medicine; The University of Iowa

**Malnati, Alicia**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Malone, Bernard Robert**; Adjunct Instructor; Mizzou Online; Master of Public Administration; University of Missouri

**Malugani, Izelda**; Instructor; Mizzou K-12 Online; Master of Science; University of Missouri

**Mandy, David M**; Professor; Economics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Manfra II, Louis Paul**; Assistant Professor; Human Devl & Family Science; Doctor of Philosophy; George Mason University

**Manion, Lee B**; Assistant Professor; English; Doctor of Philosophy; University of Virginia

**Mann, Fred Anthony**; Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The Ohio State University

**Mann, James B**; Assistant Clinical Professor; SHP/Physical Therapy; Master's Degree; University of Missouri

**Mannella, Christine Pazia**; Assistant Teaching Professor; Art; Master of Fine Arts; Tyler School of Art, Temple University

**Manring, Noah**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Iowa State University

**Manrique Acevedo, Camila Margarita**; Assistant Professor; Medicine; Doctor of Medicine

**Manske, Gregory Charles**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Vermont School of Medicine

**Manson, Lisa Marie**; Instructor; Mizzou K-12 Online; Master of Liberal Arts; University of Missouri - St. Louis

**Mantrala, Murali Krishna**; Professor; Marketing; Doctor of Philosophy; Northwestern University

**Mantrala, Suryamani**; Adjunct Instructor; Dean of College of Business; Doctor of Philosophy; University of Florida

**Manzella, Abigail Genee**; Visiting Assistant Professor; English; Doctor of Philosophy; Tufts University

**Manzo, Angelo A**; Associate Professor; School of Music; Doctor of Musical Arts; The University of Texas at Austin

**Manzo, Erica France**; Adjunct Assistant Professor; School of Music; Doctor of Philosophy; The University of Texas at Austin

**Marcos Llinas, Monica**; Associate Teaching Professor; Romance Languages & Literature; Doctor of Education; Universitat de les Illes Balears

**Mariea, Sherry Ann**; Assistant Teaching Professor; Management; Juris Doctor; University of Missouri

**Marinova, Detelina Christova**; Associate Professor; Marketing; Doctor of Philosophy; University of Cincinnati

**Market, Patrick S**; Professor; School of Natural Res Admin; Doctor of Philosophy; Saint Louis University

**Markie, Peter Joseph**; Curators Distinguished Teaching Professor; Philosophy; Doctor of Philosophy; University of Massachusetts Amherst

**Markley, John G**; Adjunct Assistant Professor; Surgery-Cardiothoracic; Doctor of Medicine; University of Wisconsin

**Marks, Raymond D**; Associate Professor; Classical Studies; Doctor of Philosophy; Brown University

**Marlo, Michael Robert**; Associate Professor; English; Doctor of Philosophy; University of Michigan

**Marra, Rose M**; Professor; Info Science & Learning Tech; Doctor of Philosophy; University of Colorado Boulder

**Marrs, Mary Elizabeth**; Associate Teaching Professor; Management; Doctor of Philosophy; University of Missouri

**Marshall, Herbert Lincoln**; Associate Teaching Professor; Hospitality Management; Doctor of Philosophy; American University

**Marshall, John Bryson**; Emeritus; Medicine-Gastroenterology; Doctor of Medicine; University of Missouri

**Marshall, Julie Marie**; Associate Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Missouri

**Martens, Matthew P**; Associate Dean; Admin & Fac Affairs; Doctor of Philosophy; University of Missouri

**Martin, Alison Tharp**; Part-Time Adjunct Faculty; Dean - Medical Education

**Martin, Barbara Nell**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis; Doctor of Education; University of Missouri

**Martin, Carol Ann**; Part-Time Adjunct Faculty; Biological Science; Master of Business Administration; Northwest Missouri State University

**Martin, Carolyn Nichole**; Clinical Instructor; School of Nursing; Bachelor's Degree; Central Methodist University

**Martin, Craig Joseph**; Adjunct Assistant Professor; Educ, School, & Counsel Psych; Doctor of Education; Nova Southeastern University

**Martin, Dana Elizabeth**; Associate Teaching Professor; SHP/Physical Therapy; Doctor of Science; Andrews University

**Martin, Joseph Leslie**; Adjunct Instructor; Truman School of Pub Affrs Adm; Juris Doctor; University of Missouri

**Martin, Kari Lyn**; Assistant Professor Of Clinical Department; Dermatology-Derm; Doctor of Medicine; University of Missouri

**Martin, Mark E**; Associate Professor; Biochemistry; Doctor of Philosophy; The University of Mississippi Medical Center

**Martin Kratzer, Renee Ann**; Adjunct Instructor; Journalism; University of Missouri

**Martinez, Miriam**; Assistant Research Professor; Human Devl & Family Science; Doctor of Philosophy; University of Nebraska

**Martinez, Rebecca Gilda**; Assistant Professor; Women's & Gender Studies; Doctor of Philosophy; University of California, Irvine

**Martinez-Lemus, Luis Arturo**; Associate Professor; Dalton Cardiovascular Res Ctr; Doctor of Philosophy; Texas A&M University

**Martz, Nola Beth**; Adjunct Instructor; Mizzou Online; Specialist of Education; William Woods University

**Maschmann, Matthew R**; Assistant Professor; Mechanical & Aerospace Engr

**Mashhoon, Bahram**; Emeritus; Physics; Doctor of Philosophy; Princeton University

**Mason, Debra L**; Professional Practice Professor; Journalism; Doctor of Philosophy; Ohio University

**Massey, Raymond E**; Extension Professor; Ag Ext-Social Sciences; Doctor of Philosophy; Oklahoma State University

**Master, Zankhana Rajendra**; Assistant Professor Of Clinical Department; Child Health-Neonatology; Doctor of Medicine; Pramukh Swami Medical college

**Materer, Timothy John**; Emeritus; English; Doctor of Philosophy; Stanford University

**Matheson, Jodi Suzanne**; Associate Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Mathews, Michelle C**; Assistant Teaching Professor; Child Development Lab; Doctor of Philosophy; University of Missouri

**Matisziw, Timothy C**; Associate Professor; Geography; Doctor of Philosophy; The Ohio State University

**Mattes, Armin**; Visiting Scholar; History; Doctor of Philosophy; University of Virginia

**Mauldin, Elaine G**; Professor; Accountancy; Doctor of Philosophy; University of Nebraska

**Mauler, Daniela Alice**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine

**Maurer, Brian David**; Assistant Professional Practice Professor; Electrical Eng & Computer Sci; Bachelor's Degree; University of Missouri

**Mawhinney, Thomas Patrick**; Professor; Agriculture Biochemistry; Doctor of Philosophy; Albany Medical College

**Maxwell, Mark**; Part-Time Adjunct Faculty; Education - General; Master of Education; University of North Texas

**Mayfield, Cori Ann**; Instructor; Mizzou K-12 Online; Master of Arts; University of Missouri

**Maynard, Deanna Kay**; Part-Time Adjunct Faculty; Special Education; Master of Arts; Marshall University

**Mazurek, Micah Osborne**; Associate Professor; SHP/Health Psychology; Doctor of Philosophy; The University of North Carolina at Greensboro

**Mazuru, Dana**; Assistant Professor Of Clinical Department; Radiology

**Mazza, Joseph Michael**; Visiting Assistant Professor; Communication; Doctor of Philosophy; University of Missouri

**McAllister, Karen Alicia**; Part-Time Adjunct Faculty; SHP/Clinical & Diagnostic Sci

**McBee-Black, Kerri Beth**; Instructor; Textile and Apparel Mgmt; Master's Degree; University of Missouri

**McCadney-McKenzie, Amber Elizabeth**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Science; Oklahoma State University

**McCaffrey, Kimberly A**; Associate Teaching Professor; English; Master's Degree; University of Missouri

**McCann, Laura M**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; University of Minnesota

**McCarthy, Denis Michael**; Professor; Psychological Sciences; Doctor of Philosophy; University of Kentucky

**McCathren, Rebecca**; Associate Professor; Special Education; Doctor of Philosophy; Vanderbilt University

**McClellan, Andrew D**; Professor; Biological Science; Doctor of Philosophy; Case Western Reserve University

**McClellan, Chrissa Lea**; Assistant Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; University of Missouri

**McClintic, Mary Kathleen**; Lecturer; International programs; Master of Arts; Webster University

**McClure, Bruce A**; Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Minnesota

**McCormick, Gary Paul**; Assistant Teaching Professor; Finance; Doctor of Philosophy; University of Missouri

**McCormick-Howell, Annamarie Catherine**; Adjunct Instructor; Learning Teaching & Curriculum; Master of Education; University of Missouri

**McCrae, Christina S**; Professor; SHP/Health Psychology; Doctor of Philosophy; Washington University

**McCullough, Christie Marie**; Adjunct Instructor; Management; Doctor of Business Administration; University of Missouri

**McCullough, Michael Wayne**; Assistant Teaching Professor; Ob, Gyn & Women's Health

**McDaniels, Robert Merle**; Part-Time Adjunct Faculty; Career Center; Master's Degree; University of Missouri

**McDannald, Katie Lynn**; Part-Time Adjunct Faculty; MPC Adult Unit 1; Bachelor's Degree; University of Missouri

**McDonald, Kerry S**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Marquette University

**McDonnell, Dwight E**; Part-Time Adjunct Faculty; Intercollegiate Athletics

**McElroy, Brittany Pieper**; Part-Time Adjunct Faculty; TV Station; Master of Arts; University of Missouri

**McElroy, Jan J**; Adjunct Instructor; SHP/Physical Therapy; Doctor of Philosophy; Rocky Mountain University of Health Professionals

**McElroy, Jane A**; Associate Professor; Family & Community Medicine; Doctor of Philosophy; University of Wisconsin - Madison

**McFadden, Thomas B**; Professor; Animal Science; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**McFarland, Jacob Andrew**; Assistant Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Texas A&M University

**McFarland, Victor Robert**; Assistant Professor; History; Doctor of Philosophy; Yale University

**McGarvey Jr, Ronald Glenn**; Assistant Professor; Industrial/Mfg Sys Engr; Doctor of Philosophy; The Pennsylvania State University

**McGougan, Dava Marie**; Clinical Instructor; School of Nursing; Bachelor's Degree; Maryville University

**McGrath, Matthew S**; Professor; Philosophy; Doctor of Philosophy; Brown University

**McGuire, Richard T**; Adjunct Instructor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Virginia

**McIntosh, Mark Alan**; Vice Chancellor; Molec Microbio & Immunology; Doctor of Philosophy; The University of Texas at Austin

**McIntosh, Renae Lynn**; Instructor; School of Nursing; Registered Nurse

**McIntyre, Katharine Louise**; Lecturer; Missouri Review; Doctor of Philosophy; Oregon State University

**McKarns, Susan Carol**; Associate Professor; Surgery-Administration; Doctor of Philosophy; Michigan State University

**McKean, Michael L;** Associate Professor; Journalism; Master's Degree; Rice University

**McKee, Adryan Marc;** Assistant Teaching Professor; English; Doctor of Philosophy; University of Missouri

**McKendry, Anne Leslie;** Associate Professor; Plant Sciences; Doctor of Philosophy; University of Manitoba

**McKenney, William Thomas;** Emeritus; School of Music; Doctor of Philosophy; University of Rochester

**McKenzie, Gary Austin;** Adjunct Instructor; Electrical Eng & Computer Sci

**McKenzie, Jennifer M;** Post Doctoral Fellow; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**McKinney, Mitchell S;** Professor; Communication; Doctor of Philosophy; The University of Kansas

**McKinstry, Megan Louise;** Assistant Teaching Professor; German & Russian Studies; Master's Degree; University of Washington

**McLaren, Robert Wayne;** Adjunct Instructor; Electrical Eng & Computer Sci; Doctor of Philosophy; Purdue University

**McLay, Barbara;** Associate Clinical Professor; SHP/Comm Sci & Disorders; Master's Degree; The University of Iowa

**McLure, Jason David;** Part-Time Adjunct Faculty; Dean of Journalism; Master of Arts; University of Missouri

**McMillen, Travis W;** Part-Time Adjunct Faculty; Dean of Journalism

**McMillian, Rhodessa;** Part-Time Adjunct Faculty; Access/Leadership Development; Specialist of Education; Georgia Southern University

**McNair, Scott Douglas;** Adjunct Instructor; Management; Master of Business Admin

**McNamee, Turi Ann;** Associate Professor Of Clinical Department; Medicine-General Internal; Doctor of Medicine; The University of Chicago-Pritzke School of Medicine

**McNeill, Brian J;** Adjunct Instructor; Journalism; Bachelor's Degree

**McSteen, Paula Catherine;** Associate Professor; Biological Science; Doctor of Philosophy; Anglia Polytechnic University

**Mcvey, Janette Dianne;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Missouri

**Meadows, Richard L;** Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Texas A&M University

**Means, Lensie Dee;** Instructor; Mizzou K-12 Online; Master of Arts; University of Missouri

**Mechlin, David C;** Adjunct Assistant Professor; Otolaryngology; Doctor of Medicine; University of Missouri

**Mehr, David R;** Professor; Family & Community Medicine; Doctor of Medicine; University of California, San Francisco

**Meininger, Gerald Alan;** Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Missouri

**Meisenbach, Rebecca J;** Associate Professor; Communication; Doctor of Philosophy; Purdue University

**Melendez, Pedro;** Associate Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Florida

**Melnyk, Andrew;** Professor; Philosophy; Doctor of Philosophy; University of Oxford

**Melnyk, Julie A;** Assistant Teaching Professor; English; Doctor of Philosophy; University of Virginia

**Men, Hongsheng;** Assistant Research Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Wisconsin - Madison

**Mendenhall, Denice L;** Instructor; School of Nursing; Registered Nurse

**Mendenhall, Tracy Anne;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Rockhurst University

**Mendez, Adriana Hilda;** Professor; Romance Languages & Literature; Doctor of Philosophy; Cornell University

**Mendez, Carlos A;** Assistant Instructor; Romance Languages & Literature; Master of Arts; University of Missouri

**Mendoza-Cozatl, David Guillermo;** Assistant Professor; Life Sciences Center

**Menifield, Charles E;** Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Missouri

**Merkle, Edgar C;** Associate Professor; Psychological Sciences; Doctor of Philosophy; Central State University

**Mertensmeyer, Carol A;** Associate Clinical Professor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Mesfin, Fassil Brian;** Assistant Professor; Surgery-Neurosurgery; Doctor of Medicine; Albany Medical College

**Messbarger, Quinten;** Part-Time Adjunct Faculty; Missouri Innovation Center; Master of Business Admin; University of Missouri

**Mestres, Jaime Lynn;** Part-Time Adjunct Faculty; Textile and Apparel Mgmt; Doctor of Philosophy; University of Missouri

**Metro, Rosalie;** Instructor; Ed Leadership & Pol Analysis; Doctor of Philosophy; Cornell University

**Mettes, Beth Ellyn;** Part-Time Adjunct Faculty; Operating Room; Registered Nurse

**Metz, Michael Lehman;** Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Stanford University

**Meyer, Allison Marie;** Assistant Professor; Animal Science; Doctor of Philosophy; North Dakota State University

**Meyer, David Christopher;** Post Doctoral Fellow - Teaching; Mathematics; Doctor of Philosophy; University of Iowa

**Meyer, Donald George;** Assistant Teaching Professor; Marketing; Master of Business Administration; University of Missouri - St. Louis

**Meyer III, Magnus Oscar;** Assistant Professor Of Clinical Department; Medicine-Administration; Doctor of Osteopathic Medicine

**Meyers, Blake Colin;** Professor; Plant Sciences; Doctor of Philosophy; University of California, Davis

**Meyers, William H;** Emeritus; Agricultural/Applied Economics; Doctor of Philosophy; University of Minnesota

**Miceli, Paul;** Professor; Physics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Micheas, Athanasios;** Associate Professor; Statistics; Doctor of Philosophy; University of Connecticut



**Middelkoop, Pilar Mendoza**; Associate Professor; Ed Leadership & Pol Analysis

**Middelkoop, Timothy**; Part-Time Adjunct Faculty; Advanced Computing Environment; Doctor of Philosophy; University of Massachusetts Amherst

**Middleton, John R**; Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; Washington State University

**Middleton, Kevin M**; Associate Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; Brown University

**Miernyk, Jan Andrew**; Part-Time Adjunct Faculty; Agriculture Biochemistry; Doctor of Philosophy; Arizona State University

**Mihail, Jeanne Denyse**; Professor; Plant Sciences; Doctor of Philosophy; The University of Arizona

**Milanick, Mark**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; The University of Chicago

**Miles, Judith Helen**; Emeritus; Child Health; Doctor of Medicine; University of Missouri

**Miles, Randall J**; Emeritus; Soil, Environ and Atmo Sci; Doctor of Philosophy; Texas A&M University

**Milescu, Lorin Silviu**; Assistant Professor; Biological Science; Doctor of Philosophy; The State University of New York - Buffalo

**Milescu, Mirela**; Assistant Professor; Biological Science; Doctor of Philosophy; University at Buffalo, The State University of New York

**Miletta, Tina Michele**; Part-Time Adjunct Faculty; Dean of Veterinary Medicine; Doctor of Veterinary Medicine; The Ohio State University

**Milhollin, Ryan Keane**; Specialist; Ag Ext-Social Sciences; Master of Business Admin; Columbia College

**Miller, Charlotte**; Adjunct Instructor; MU Partnership Educ Renewal; Specialist of Education; Northwest Missouri State

**Miller, Douglas C**; Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Miami

**Miller, James Isaac**; Associate Professor; Economics; Doctor of Philosophy; Rice University

**Miller, John Andrew**; Adjunct Instructor; Accountancy; Bachelor's Degree; University of Missouri

**Miller, Judith Ann**; Dean; School of Nursing; Doctor of Philosophy; University of Illinois at Chicago

**Miller, Kathleen K**; Program Director; Truman School of Public Affairs; Master of Science; The Pennsylvania State University

**Miller, Kerby Alonzo**; Emeritus; History; Doctor of Philosophy; University of California, Berkeley

**Miller, William H**; Senior Research Scientist/Academic; Research Reactor; Doctor of Philosophy; University of Missouri

**Miller, William Vencill**; Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Missouri

**Miller Jr, Dennis K**; Associate Professor; Psychological Sciences; Doctor of Philosophy; Texas A&M University

**Miller Jr, Gerald Leo**; Associate Professor; Plant Sciences

**Mills, Mistie Renee**; Associate Professor Of Clinical Department; Ob, Gyn & Women's Health

**Mills, Rilla Dean**; Emeritus; Dean of Journalism; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Millspaugh, Joshua J**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Washington

**Miltenberg, Colleen Kelly**; Instructor; Mizzou K-12 Online; Master of Liberal Arts; Georgetown University

**Miltenberg, Matthew J**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Milyo, Jeffrey Dennis**; Professor; Economics; Doctor of Philosophy; Stanford University

**Minks, Cody L**; Adjunct Instructor; Mizzou Online; Master of Public Health; University of Missouri

**Minor, Frankie D**; Part-Time Adjunct Faculty; Residential Life; Master of Education; Bowling Green State University

**Minturn, Neil B**; Associate Professor; School of Music; Doctor of Philosophy; Yale University

**Misfeldt, Michael Lee**; Professor; Molec Microbio & Immunology; Doctor of Philosophy; The University of Iowa

**Mislan, Cristina**; Assistant Professor; Journalism; Doctor of Philosophy; The Pennsylvania State University

**Misra, Madhukar**; Professor Of Clinical Department; Medicine

**Misra, Shamita**; Associate Professor Of Clinical Department; Family & Community Medicine

**Mitchell, Barbara S**; Assistant Research Professor; Special Education; Doctor of Philosophy; University of Missouri

**Mitchell, Chelsea R**; Adjunct Associate Professor; Law; Juris Doctor; University of Missouri

**Mitchell, Simon D**; Professor; Law; Juris Doctor; University of Pennsylvania

**Mitchell, Venita Marinal**; Adjunct Instructor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Missouri

**Mitchell JR, William J**; Associate Professor; Veterinary Diagnostic Laboratory

**Mitchem, Jonathan Bower**; Assistant Professor; Surgery-Surgical Oncology; Doctor of Medicine; The Ohio State University

**Mitchum, Melissa Goellner**; Associate Professor; Life Sciences Center; Doctor of Philosophy; North Carolina State University

**Mitre, Dorina Irena**; Professor; Mathematics; Doctor of Philosophy; University of Minnesota

**Mitre, Marius**; Professor; Mathematics; Doctor of Philosophy; University of South Carolina

**Miyamoto, Peter Marc**; Professor; School of Music; Doctor of Philosophy; Michigan State University

**Moesel, Douglas D**; Associate Professor; Management; Doctor of Philosophy; Texas A&M University

**Mogetta, Marcello**; Assistant Professor; Art History & Classical Archae; Doctor of Philosophy; University of Michigan

**Mohan, Rajiv Ravindra**; Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; Lucknow University

**Mohmoud, Jama Adam;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine

**Mohrland, Michael D;** Associate Clinical Professor; SHP/Health Psychology; Doctor of Psychology; Nova Southeastern University

**Molnar, Barbara;** Assistant Instructor; German & Russian Studies; Master's Degree; University of Missouri

**Moloney, Timothy Hayes;** Instructor; Plant Sciences; Bachelor's Degree; University of Missouri

**Monk, Terri Gay;** Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Nebraska

**Monnier, Nicole M;** Teaching Professor; German & Russian Studies; Doctor of Philosophy; Princeton University

**Monroe, Heidi Marie;** Instructor; School of Nursing; Registered Nurse

**Monroe, Holly Orr;** Assistant Clinical Professor; Child Health-Gen & Ambulatory

**Monson, Michael J;** Associate Professor; Agricultural/Applied Economics; Doctor of Philosophy; University of Florida

**Montfrooij, Wouter Theodorus;** Associate Professor; Physics; Doctor of Philosophy; Delft University of Technology

**Montgomery, Alison Skye;** Post Doctoral Fellow; History; Doctor of Philosophy; University of Oxford

**Montgomery, John H;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Universidad Autonoma De Guadal

**Montgomery, Scott Brooks;** Adjunct Instructor; Social Work; Master of Social Work; University of Missouri

**Montgomery Smith, Stephen;** Professor; Mathematics; Doctor of Philosophy; Cambridge University

**Mooney, Brian P;** Assistant Research Professor; Agriculture Biochemistry; Doctor of Philosophy; University College Dublin

**Moore, Cecil P;** Adjunct Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Moore, Christina Isabel;** Instructor; Mizzou K-12 Online; Master of Education; Virginia Tech

**Moore, Joi L;** Professor; Info Science & Learning Tech; Doctor of Philosophy; The University of Georgia

**Moore, Kevin C;** Associate Professor; Agricultural/Applied Economics; Doctor of Philosophy; Iowa State University

**Moore, Megan Elizabeth;** Assistant Professor; Romance Languages & Literature; Doctor of Philosophy; University of Michigan

**Moore, Shawn Taylor;** Part-Time Adjunct Faculty; Journalism; Bachelor's Degree; University of Missouri

**Morales, Rosa Marusia;** Assistant Instructor; Romance Languages & Literature; Master's Degree; University of Missouri

**Morawitz, Elizabeth Anne;** Associate Professor; Communication; Doctor of Philosophy; The University of Arizona

**Moreland, Jill Annette;** Instructor; Agricultural/Applied Economics

**Moreland, Natalie Ruth;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Washburn University

**Morgan, John Mark;** Associate Professor; Parks Recreation & Tourism; Doctor of Philosophy; Texas A&M University

**Morgan, Ralph Speer;** Professor; English; Doctor of Philosophy; Stanford University

**Mori, Anatole;** Associate Professor; Classical Studies; Doctor of Philosophy; The University of Chicago

**Morpurgo, Carlo;** Professor; Mathematics; Doctor of Philosophy; Washington University

**Morrey, Christopher Anthony;** Part-Time Adjunct Faculty; Art; Master of Fine Arts; University of Missouri

**Morrill, Alexandra L;** Assistant Instructor; International programs; Master of Social Science; University of Edinburgh

**Morris, Ed F;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Morris, Ellen Kathleen;** Part-Time Adjunct Faculty; School of Natural Res Admin; Bachelor of Science; University of Missouri

**Morris, Kelsey R;** Assistant Teaching Professor; Learning Teaching & Curriculum; Doctor of Education; University of Missouri

**Morris, Kristen Deanne;** Assistant Professor; Textile and Apparel Mgmt; Doctor of Philosophy; Cornell University

**Morris, Laura Elizabeth;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Morris, Mary Michelle;** Associate Professor; History; Doctor of Philosophy; Harvard University

**Mosa, Abu Saleh;** Assistant Research Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Moss, Kathryn Sue;** Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Doctor of Philosophy; University of Missouri

**Mossine, Paul Valerievich;** Adjunct Instructor; Agricultural/Applied Economics; Bachelor's Degree; University of Missouri

**Motavalli, Peter P;** Professor; School of Natural Res Admin; Doctor of Philosophy; Cornell University

**Mott, Rebecca Louise;** Senior Research Associate; Human Environmental Sci Ext; Master of Science; University of Missouri

**Moulaison, Heather L;** Assistant Professor; Info Science & Learning Tech; Doctor of Philosophy; Rutgers University - Newark

**Mountz, William T;** Adjunct Instructor; History; Doctor of Philosophy; University of Missouri

**Moxley, David E;** Clinical Instructor; Health Mgmt & Informatics; Master of Library Science; University of Missouri

**Moyles, Jesse Franklin;** Part-Time Adjunct Faculty; Naval Science

**Mraovic, Boris;** Associate Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Rijeka Medical

**Mueser, Peter;** Professor; Economics; Doctor of Philosophy; The University of Chicago

**Mullen, Helen Braley;** Emeritus; Medicine-Immunology & Rheumatology

**Muller, Virginia Lee;** Associate Teaching Professor; English; Master's Degree; University of Missouri

**Munoz, Leigh Miller**; Assistant Teaching Professor; School of Music; Master of Music; Ohio University

**Munter, Charles Michael**; Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Vanderbilt University

**Muratore, Mary Jo**; Curators Distinguished Teaching Professor; Romance Languages & Literature; Doctor of Philosophy; University of California, Davis

**Murray, Kathy A**; Part-Time Adjunct Faculty; Student Life; Master of Business Admin; University of Missouri

**Murray, Katie S**; Assistant Professor; Surgery-Urology; Doctor of Osteopathic Medicine; Kirksville College of Osteopathic Medicine

**Murtha, Yvonne**; Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; The University of Kansas

**Musgraves, James Darrell**; Part-Time Adjunct Faculty; Naval Science; Master of Education; University of West Florida

**Musser, Dale Roy**; Associate Teaching Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; The Ohio State University

**Mustapha, Azlin**; Professor; Food Science; Doctor of Philosophy; University of Nebraska

**Muzaffar, Arshad R**; Professor; Surgery-Plastic

**Muzika, Rosemarie**; Professor; Forestry; Doctor of Philosophy; Michigan State University

**Myers, Anne Marie**; Associate Professor; English; Doctor of Philosophy; University of California, Los Angeles

**Myers, Bridget Crowley**; Assistant Teaching Professor; Finance; Juris Doctor; The University of Mississippi

**Myers, Danielle N**; Part-Time Adjunct Faculty; Dean of Journalism; Master of Arts

**Myers, Gary**; Professor; Law

**Myers, Mary A**; Associate Teaching Professor; Chemical Engineering; Doctor of Philosophy; University of Missouri

**Myers, Noah Turner**; Assistant Instructor; Romance Languages & Literature; Master of Arts; The University of North Carolina

**Myers, Scott Patrick**; Adjunct Instructor; Journalism; Master of Arts; University of Missouri

**Nabelek, Peter I**; Professor; Geological Sciences; Doctor of Philosophy; Stony Brook University, The State University of New York

**Nagarkar, Sushama A**; Adjunct Instructor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Nagel, Susan Carol**; Associate Professor; Ob, Gyn & Women's Health; Doctor of Philosophy; University of Missouri

**Nagy, Dusty Weaver**; Associate Teaching Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Missouri

**Nahlík, Abigail Rae**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri - St. Louis

**Nahlík, Gregory Carl**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri - St. Louis

**Nail, Michelle Anna**; Part-Time Adjunct Faculty; Veterinary Pathobiology; Bachelor's Degree; University of Missouri

**Nair, Satish S**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; The Ohio State University

**Najem, Lamya Muklef**; Adjunct Instructor; German & Russian Studies; Master's Degree; Concordia College

**Nance, Sally Ann**; Instructor; Mizzou K-12 Online; Master's Degree; Iowa State University

**Naqvi, Syed Hasan**; Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; Allama Iqbal Medical College

**Nassar, Hussein**; Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Science; Université Paris-Est

**Nassir, Fatiha**; Assistant Research Professor; Medicine-Gastroenterology

**Nattanmai Chandrasekaran, Premkumar**; Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine; University of Missouri

**Naughton, Blake Alan**; Part-Time Adjunct Faculty; Statewide-Administration; Doctor of Philosophy; Stanford University

**Naumann, Harley Dean**; Assistant Professor; Plant Sciences; Doctor of Philosophy; Texas A&M University

**Navarro, Marco Antonio**; Part-Time Adjunct Faculty; Biological Science; Bachelor's Degree; Saint Louis University

**Naveh-Benjamin, Esther**; Assistant Teaching Professor; German & Russian Studies; Master's Degree; Eastern Michigan University

**Naveh-Benjamin, Moshe**; Professor; Psychological Sciences; Doctor of Philosophy; University of Michigan

**Nayyar, Manav**; Assistant Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine

**Naz, Sabiha**; Assistant Teaching Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Nazdryn, Andrei**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Rosalind Franklin University Health Clinics

**Neal, Steven Phelps**; Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Iowa State University

**Neaves, Tonya Thornton**; Adjunct Instructor; Truman School of Pub Affrs Adm; Doctor of Philosophy; Mississippi State University

**Neier, Leigh P**; Associate Teaching Professor; Learning Teaching & Curriculum; Master's Degree; University of Missouri

**Neitz, Mary Jo**; Emeritus; Women's & Gender Studies; Doctor of Philosophy; The University of Chicago

**Nell, Amanda E**; Part-Time Adjunct Faculty; Career Center; Master's Degree; University of Michigan

**Nelson, Christopher S**; Assistant Professor Of Clinical Department; Surgery-Acute Care

**Nelson, Donald A**; Part-Time Adjunct Faculty; Health Mgmt & Informatics; Doctor of Medicine; University of Iowa

**Nelson, Gregory N**; Clinical Instructor; Orthopaedic Surgery; Doctor of Medicine; Yale University School of Medicine

**Nelson, Kelly A;** Professor; Plant Sciences; Doctor of Philosophy; Michigan State University

**Nelson, Tany Christ;** Part-Time Adjunct Faculty; VP Undergraduate Studies; Master of Business Admin; University of Missouri

**Nelson, Tiffany J;** Clinical Instructor; School of Nursing; Master of Science; Barnes-Jewish College

**Nemmers, Charles J;** Program Director; Civil/Environmental Engr; Master of Public Admin; The Ohio State University

**Ner, Zarah Hernandez;** Assistant Professor Of Clinical Department; Child Health-Pulmonary; Doctor of Medicine; University of the Philippines

**Neuman, Stevanie Schneider;** Assistant Professor; Accountancy; Doctor of Philosophy; Texas A&M University

**Nevalga, Jemmie Deguzman;** Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Newcomer, Lori L;** Associate Research Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Newey, Christopher Ryan;** Assistant Professor Of Clinical Department; Neurology; Doctor of Osteopathic Medicine; KCOM

**Newkirk, Jon David;** Instructor; Mizzou K-12 Online; Master of Science; Texas Christian University

**Newman, Carol Dell;** Associate Professor; Law

**Newton, Kathleen J;** Professor; Biological Science; Doctor of Philosophy; Indiana University Bloomington

**Newton, Nathan J;** Assistant Professor; Accountancy; Doctor of Philosophy; Texas A&M University

**Ngo, Hilton Lim;** Assistant Professor Of Clinical Department; Child Health-Neonatology; Doctor of Medicine; University of The East

**Nguyen, Henry Thien;** Curators Distinguished Professor; Plant Sciences; Doctor of Philosophy; University of Missouri

**Nguyen, Katy;** Clinical Instructor; School of Nursing

**Nguyen, Quang Thanh;** Adjunct Instructor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri

**Nguyen, Van Thi;** Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; The University of Kansas

**Nguyen, Vu Hoai;** Adjunct Instructor; SHP/Health Sciences; Doctor of Philosophy; University of Missouri

**Ni, Xiaoguang;** Professor; Economics; Doctor of Philosophy; University of Minnesota

**Nicewarner, Daniel Scott;** Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Nichols, Nicole L;** Assistant Professor; Biomedical Sciences; Doctor of Philosophy; Wright State University

**Nichols, Walter Kirt;** Professor; Surgery - Vascular; Doctor of Medicine; University of Michigan

**Niemann, James Michael;** Instructor; Law; Juris Doctor; University of Missouri

**Nies, Kristin Michelle;** Adjunct Instructor; Academic Dean; Master of Education; University of Missouri

**Nieuwenhuizen, Lisa Marie;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy

**Niewoehner, Benjamin Michael;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Nilon, Charles H;** Professor; Fisheries & Wildlife Sciences; Doctor of Philosophy; The State University of New York

**Nistala, Puja;** Assistant Professor Of Clinical Department; Medicine-Hematology & Oncology; Doctor of Medicine; Andhra Medical College

**Nistala, Ravi;** Associate Professor Of Clinical Department; Medicine

**Nittler, Jessica Rae;** Adjunct Assistant Professor; Psychiatry; Doctor of Medicine; University of Missouri - Kansas City

**Noble, James Stewart;** Professor; Industrial/Mfg Sys Engr; Doctor of Philosophy; Purdue University

**Nolan, Gwen L;** Assistant Clinical Professor; SHP/Comm Sci & Disorders; Master's Degree; California University of Pennsylvania

**Nolin, David Anton;** Post Doctoral Fellow; Anthropology; Doctor of Philosophy; University of Washington

**Noltie, Douglas B;** Associate Professor; Fisheries & Wildlife Sciences; Doctor of Philosophy; University of Western Ontario

**Norregaard, Thorkild Vad;** Assistant Professor Of Clinical Department; Surgery-Neurosurgery; Doctor of Medicine; Aarhus University

**North, Rebecca;** Assistant Professor; School of Natural Res Admin; Doctor of Philosophy; University of Waterloo

**Nourbakhsh, Ali;** Assistant Professor; Orthopaedic Surgery; Doctor of Medicine; Tehran University

**Nuelle, Clayton W;** Assistant Professor Of Clinical Department; Orthopaedic Surgery

**Nuetzmann, Kimberley G;** Part-Time Adjunct Faculty; Academic Dean; Master of Education

**O'Brien, David J;** Professor; Rural Sociology; Doctor of Philosophy; Indiana University

**O'Brien, Dennis;** Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Illinois

**O'Brien, Dianna Borsi;** Adjunct Instructor; Journalism; Master of Arts; University of Missouri

**O'Brien, Michael John;** Emeritus; Anthropology; Doctor of Philosophy; The University of Texas at Austin

**O'Connor, Karen Visovsky;** Assistant Research Professor; Special Education; Doctor of Philosophy; University of Missouri

**O'Doherty, Michael S;** Associate Professor; Finance; Doctor of Philosophy; The University of Iowa

**O'Donnell, Frederick Thomas;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; The University of Texas

**O'Keefe, Nolan Daniel;** Part-Time Adjunct Faculty; Aerospace Studies

**Oba, Yuji;** Associate Professor Of Clinical Department; Medicine-Pulmonary & Environ; Doctor of Medicine; Kochi Medical School

**Occena, Luis G;** Associate Professor; Industrial/Mfg Sys Engr; Doctor of Philosophy; Purdue University

**Oconnell, Robert M;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Oconnor, Erin K;** Part-Time Adjunct Faculty; Office of Animal Resources; Master's Degree; University of Missouri

**Odemuyiwa, Olumayowa Adenike;** Instructor; School of Nursing; Master of Nursing; Auburn University

**Odemuyiwa, Solomon Olawole;** Assistant Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Ibadan, Nigeria

**Odum, Melinda Marie;** Adjunct Assistant Professor; SHP/Health Psychology; Master of Social Work; Washington University

**Oertli, Robert Tanner;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Montana

**Oetker, Lindsay M;** Clinical Instructor; Educ, School, & Counsel Psych; Master of Social Work

**Offutt, Cheryl Ann;** Associate Teaching Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; Michigan State University

**Ogden, Jamie Alise;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Ogunniyi, Ruth Oluwaseun;** Clinical Instructor; School of Nursing; Master of Science

**Ohlemeyer, William Stephen;** Part-Time Adjunct Faculty; Law

**Ojinnaka, Chinedum Onyinyechi;** Post Doctoral Fellow; SHP/Health Sciences; Doctor of Philosophy; Texas A&M University

**Okamura, Lawrence;** Emeritus; History; Doctor of Philosophy; University of Michigan

**Okker, Patricia;** Dean; Dean of Arts & Science; Doctor of Philosophy; University of Illinois

**Okonkwo, Christopher;** Associate Professor; English; Doctor of Philosophy; Florida State University

**Oliver, Gina M;** Associate Teaching Professor; School of Nursing; Doctor of Philosophy; Saint Louis University

**Oliver, Richard Edward;** Adjunct Associate Professor; Medicine-Administration; Doctor of Philosophy; University of Missouri

**Oliveri, Rigel Christine;** Professor; Law; Juris Doctor; Stanford University

**Olmstead, Sean Ray;** Part-Time Adjunct Faculty; Social Justice; Master of Education; Texas State University

**Olsberg, Joshua Edward;** Part-Time Adjunct Faculty; Mizzou Online; Doctor of Philosophy; The University of Texas at Arlington

**Olson, Neil C;** Dean; Biomedical Sciences; Doctor of Philosophy; Michigan State University

**Oman, Rachel Elizabeth;** Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Colorado State University

**Oneill, Susan E;** Assistant Clinical Professor; Psychological Sciences; Doctor of Philosophy; University of Missouri

**Ong, Cesar Lee;** Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine

**Oppenheim, Stephen Barry;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Indiana University School of Medicine

**Oram, Lindsay Elaine;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Orbann, Carolyn Marie;** Assistant Teaching Professor; SHP/Health Sciences; Doctor of Philosophy; University of Missouri

**Orejel, Keith David;** Post Doctoral Fellow - Teaching; History; Doctor of Philosophy; Columbia University

**Orr, Brandon Harrell;** Assistant Teaching Professor; Educ, School, & Counsel Psych

**Orscheln, Jennifer Marie;** Part-Time Adjunct Faculty; Pulmonary Function

**Orton, Sarah Lynn;** Associate Professor; Civil/Environmental Engr; Doctor of Philosophy; The University of Texas at Austin

**Osborne, Victoria Anne;** Adjunct Instructor; Social Work; Doctor of Philosophy; Washington University

**Osgood, James Gale;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Missouri

**Ostrow, Jill;** Associate Teaching Professor; Learning Teaching & Curriculum; Doctor of Education; The University of Maine

**Otabela Mewolo, Joseph Desire;** Associate Teaching Professor; Romance Languages & Literature; Doctor of Philosophy; National University of Distance Education

**Otrok, Christopher M;** Professor; Economics; Doctor of Philosophy; The University of Iowa

**Otten, Samuel J;** Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Michigan State University

**Otto, Donna C;** Emeritus; School of Nursing; Master's Degree; University of Missouri

**Overby, Leroy Marvin;** Professor; Political Science; Doctor of Philosophy; The University of Oklahoma

**Owens, Sarah A;** Post Doctoral Fellow; Educ, School, & Counsel Psych

**Ozias, John Peter;** Part-Time Adjunct Faculty; Dean of Journalism; Master's Degree - 2nd entry

**Padilla Paredada, Jaume;** Assistant Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; Indiana State University

**Page, Brenda Kay;** Lecturer; Special Education; Doctor of Philosophy; University of Illinois

**Pai, P Frank;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Palacios Rivera, Jamille;** Assistant Teaching Professor; Agricultural/ Applied Economics; Doctor of Philosophy; University of Florida

**Palaniappan, Kannappan;** Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Palermo, Francisco;** Assistant Professor; Human Devl & Family Science

**Palmer, Craig T;** Associate Professor; Anthropology; Doctor of Philosophy; Arizona State University

**Palmer, Mark Henry**; Associate Professor; Geography; Doctor of Philosophy; The University of Oklahoma

**Palmer-Anderson, Leslie Joan**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy

**Palmero, Mauro Rodrigo**; Assistant Teaching Professor; Hospitality Management; Doctor of Philosophy; Ohio University

**Panchanathan, Karthik**; Assistant Professor; Anthropology; Doctor of Philosophy; University of California, Los Angeles

**Paneck, James Edwin**; Instructor; Architectural Studies; Master's Degree; University of Missouri

**Pang, Michael Man**; Professor; Mathematics; Doctor of Philosophy; University of London

**Pantaleo, Jarrod A**; Part-Time Adjunct Faculty; Academic Dean; Master of Education; University of Missouri

**Pape, Kristen Tara**; Part-Time Adjunct Faculty; Vice Provost Undergraduate Studies; Master of Public Administration; University of Missouri

**Parcell, Joseph L**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; Kansas State University

**Parcell, Julia Hammes**; Part-Time Adjunct Faculty; Vice Provost Undergraduate Studies; Master of Education; The University of Iowa

**Pardalos, John A**; Associate Professor Of Clinical Department; Child Health; Doctor of Medicine; University of Missouri

**Park, Chanwoo**; Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Michigan

**Park, Eun Hae**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Parker, Debbie Sue**; Assistant Instructor; International programs; Bachelor's Degree; University of Missouri

**Parker, Jerry Calvin**; Associate Dean; Physical Medicine & Rehab

**Parker, Rochelle M**; Assistant Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine; Northwestern University

**Parker, Sara Wing**; Assistant Clinical Professor; SHP/Clinical & Diagnostic Sci; Bachelor's; University of Missouri

**Parker-Oliver, Debra Rae**; Professor; Family & Community Medicine; Doctor of Philosophy; University of Missouri

**Parks, Elizabeth Jane**; Professor; Nutrition & Exercise Phys-MED; Doctor of Philosophy; University of California, Davis

**Parrish, Alan Ray**; Associate Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Texas A&M University

**Parshall, Jordan Elizabeth**; Part-Time Adjunct Faculty; Biological Science; Master of Education; University of Missouri

**Parshall, Timothy H**; Part-Time Adjunct Faculty; Vice Provost Undergraduate Studies; Master of Arts; University of Missouri

**Parsons, Eric S**; Assistant Research Professor; Economics; Doctor of Philosophy; University of Missouri

**Parsons, Jean L**; Associate Professor; Textile and Apparel Mgmt; Doctor of Philosophy; University of Maryland

**Pasley, Jeffrey L**; Professor; History; Doctor of Philosophy; Harvard University

**Patane, Christopher Francis**; Post Doctoral Fellow - Teaching; Political Science

**Patel, Harsha N**; Assistant Professor Of Clinical Department; Child Health

**Patel, Purav Prakash**; Clinical Instructor; Anesthesiology; Doctor of Medicine; Medical University of Lublin

**Patil, Ashutosh**; Assistant Professor; Marketing; Doctor of Philosophy; Georgia Institute of Technology

**Patil, Sonal Ashutosh**; Assistant Professor; Family & Community Medicine; Doctor of Medicine; Emory UNiversity

**Patterson, David J**; Professor; Ag Ext-Animal Science; Doctor of Philosophy; Kansas State University

**Patwardhan, Anjali**; Assistant Professor Of Clinical Department; Child Health

**Paukert, Craig Patrick**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; South Dakota State University

**Payne, Craig Alan**; Associate Extension Professor; Extension Vet Med; Doctor of Veterinary Medicine; University of Missouri

**Payne, Thomas L**; Professor; Plant Sciences; Doctor of Philosophy; University of California, Riverside

**Pearce, Ibitola**; Professor; Sociology; Doctor of Philosophy; Brown University

**Pearce, Jacqueline Winona**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Saskatchewan

**Peck, Scott C**; Professor; Agriculture Biochemistry; Doctor of Philosophy; Michigan State University

**Peculis, Brenda A**; Associate Professor; Biochemistry; Doctor of Philosophy; Johns Hopkins University

**Peiser, Megan L**; Instructor; English

**Pele, Nicole Andrea**; Adjunct Instructor; Path & Anat Sci-Anatomic Path; Doctor of Osteopathic Medicine; AT Still University of Health Sciences

**Pellegrin, Richard Scott**; Assistant Teaching Professor; School of Music; Doctor of Philosophy; University of Washington

**Pemberton, Elizabeth Ann**; Clinical Instructor; School of Nursing; Master of Nursing; Maryville University

**Pennella, Mario A**; Assistant Teaching Professor; Agriculture Biochemistry; Doctor of Philosophy; Texas A&M University

**Pennington, Delilah**; Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; The University of Tennessee - Memphis

**Pereira, Raynolde**; Professor; Accountancy; Doctor of Philosophy; The University of Arizona

**Pereira, Susan Lynne**; Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Perez Anzaldo, Guadalupe**; Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of California, Irvine

**Perkowski, Debra Ann**; Instructor; Statistics; Master of Taxation; University of Missouri

**Perkowski, Michael H**; Part-Time Adjunct Faculty; Learning Center; Doctor of Philosophy; University of Missouri

**Perna, Leslie**; Professor; School of Music; Master's Degree; Boston University

**Perry Jr, Earnest Lee**; Associate Dean; Dean of Journalism; Doctor of Philosophy; University of Missouri

**Peters, Ann Marie**; Adjunct Instructor; Learning Teaching & Curriculum; Master of Education; University of Missouri

**Peters, Clark M**; Associate Professor; Social Work; Doctor of Philosophy; The University of Chicago

**Peters, Elizabeth Ann**; Assistant Professor Of Clinical Department; Child Health-Neonatology; Doctor of Medicine; University of Missouri

**Peterson, Catherine A**; Associate Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Peterson, Kristi Michele**; Clinical Instructor; MO Health Prof Consortium; Bachelor's Degree; University of Nebraska - Omaha

**Petris, Carisa Kay**; Assistant Professor; Ophthalmology; Doctor of Medicine; University of Missouri

**Petris, Michael J**; Professor; Biochemistry; Doctor of Philosophy; University of Melbourne

**Petroski, Gregory F**; Assistant Research Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Pettey, Dix Hayes**; Instructor; Mathematics; Doctor of Philosophy; The University of Utah

**Pfeifer, Peter**; Professor; Physics; Doctor of Philosophy; ETH Zurich (Swiss Federal Institute of Technology)

**Pfeiffer, Ferris Michael**; Assistant Professor; Orthopaedic Surgery

**Phanichkul, Tamara E**; Part-Time Adjunct Faculty; Path & Anat Sci-Anatomic Path

**Phillips, Charlotte L**; Associate Professor; Biochemistry; Doctor of Philosophy; North Carolina State University

**Phillips, Lorraine June**; Associate Professor; School of Nursing; Registered Nurse

**Phillips, Lynelle Mae**; Instructor; Public Health Program; Registered Nurse

**Phillips, Thomas E**; Curators Distinguished Professor; Biological Science; Doctor of Philosophy; Northwestern University

**Phillips, Winfred George**; Associate Teaching Professor; Health Mgmt & Informatics; Doctor of Philosophy; Yale University

**Piasecki, Thomas M**; Professor; Psychological Sciences; Doctor of Philosophy; University of Wisconsin - Madison

**Piatak, Jaclyn Schede**; Adjunct Instructor; Truman School of Pub Affrs Adm; Doctor of Philosophy; American University

**Pickerill, Heath A**; Part-Time Adjunct Faculty; MO Local Tech Ast Prog; Master's Degree; University of Illinois at Urbana-Champaign

**Pierce, Heather L**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Pierce II, Robert A**; Associate Extension Professor; Ag Ext-Natural Resources; Doctor of Philosophy; University of Missouri

**Pierre, Jr., David**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Osteopathic Medicine; Philadelphia College of Osteopathic Medicine

**Piester, Jane Jeffries**; Clinical Instructor; Social Work; Master's Degree - 2nd entry; Stephens College

**Pietropaolo, Mariapia**; Post Doctoral Fellow - Teaching; Classical Studies; Doctor of Philosophy

**Pina, Zorina M**; Clinical Instructor; Family & Community Medicine; Master's Degree

**Pine, Darren W**; Adjunct Instructor; English; Doctor of Philosophy; University of Missouri

**Pingrey, Jayme Leigh**; Adjunct Instructor; Learning Teaching & Curriculum

**Pinhero, Patrick Joseph**; Professor; Chemical Engineering; Doctor of Philosophy; University of Notre Dame

**Pinnow, Rachel JaDean**; Associate Professor; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Georgia

**Pintel, David J**; Curators Distinguished Professor; Life Sciences Center; Doctor of Philosophy; University of Illinois

**Pintz, Joseph Edmund**; Assistant Professor; Art; Master's Degree; University of Nebraska

**Piper, Karen L**; Professor; English; Doctor of Philosophy; University of Oregon

**Pippert, Wesley G**; Emeritus; Journalism; Master of Arts; Wheaton College

**Pires, Joseph C**; Professor; Biological Science; Doctor of Philosophy; University of Wisconsin - Madison

**Pirok, Jenna N**; Assistant Instructor; Women's & Gender Studies

**Pithua, Patrick**; Associate Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Minnesota

**Pittman, David L**; Adjunct Associate Professor; Path & Anat Sci-Anatomic Path; Doctor of Medicine; University of Nebraska

**Pivovarov, Peter**; Assistant Professor; Mathematics; Doctor of Philosophy; University of Alberta

**Plank, Crystal Leigh**; Clinical Instructor; School of Nursing; Bachelor's Degree; Southern Adventist University

**Po, Lillian Gallardo**; Part-Time Adjunct Faculty; Food Science; Doctor of Philosophy; Michigan State University

**Poch, Apryl L**; Senior Research Associate; Special Education; Doctor of Philosophy; University of Missouri

**Podgursky, Michael J**; Professor; Economics; Doctor of Philosophy; University of Wisconsin - Madison

**Poe, Andrea Beuth**; Adjunct Instructor; Academic Dean; Master of Education; University of Missouri

**Pokala, Naveen**; Assistant Professor; Surgery-Urology; Doctor of Medicine; Osmania Medical College

**Pokala, Suhasini**; Adjunct Assistant Professor; Psychiatry; Doctor of Medicine

**Polacco, Joseph Carmine**; Emeritus; Agriculture Biochemistry; Doctor of Philosophy; Duke University

**Politte, Lenard L**; Clinical Professor; Medicine-Cardiology; Doctor of Medicine; University of Missouri

**Polo Parada, Luis**; Associate Professor; Dalton Cardiovascular Res Ctr; Doctor of Philosophy; Case Western Reserve University

**Poock, Scott Ervin**; Associate Extension Professor; Extension Vet Med; Doctor of Veterinary Medicine; University of Wisconsin - Madison

**Poor, Joel C**; Associate Teaching Professor; Marketing; Doctor of Philosophy; University of California, Irvine

**Popejoy, Lori L**; Associate Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Popescu, Mihail**; Associate Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Potochnick, Stephanie Rodriguez**; Assistant Professor; Truman School of Pub Affrs Adm

**Powell, Laura**; Adjunct Instructor; SHP/Comm Sci & Disorders; Master of Science; Fontbonne College

**Powell, Melodie Annee**; Part-Time Adjunct Faculty; Law

**Powers, Lisa Jo**; Adjunct Assistant Professor; Ed Prep, Innovation & Research; Doctor of Philosophy; University of Missouri

**Prager, Bradley J**; Professor; German & Russian Studies; Doctor of Philosophy; Cornell University

**Prahlad, Anand**; Professor; English; Doctor of Philosophy; University of California, Los Angeles

**Prasad, Amit**; Associate Professor; Sociology; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Prasad, Srirupa**; Associate Professor; Women's & Gender Studies; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Prather, Randall S**; Curators Distinguished Professor; Animal Science; Doctor of Philosophy; University of Wisconsin - Madison

**Pratt, Pamela Drew**; Adjunct Instructor; Mizzou Online

**Pratzel, Alan David**; Part-Time Adjunct Faculty; Law; Juris Doctor; Washington University

**Preble, Kathleen Murray**; Assistant Professor; Social Work; Doctor of Philosophy; The University of Texas at Arlington

**Prelas, Mark Antonio**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Presberg, Charles D**; Associate Professor; Romance Languages & Literature; Doctor of Philosophy; Harvard University

**Presser, Nan R**; Part-Time Adjunct Faculty; Psychological Sciences; Doctor of Philosophy; The University of Texas at Austin

**Prestigiaco, Carl Christopher**; Associate Teaching Professor; Accountancy; Doctor of Philosophy; University of Missouri

**Prewett, Sara Lynn**; Post Doctoral Fellow; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Price, Nancy Ann**; Instructor; International programs; Master's Degree; University of Illinois at Urbana-Champaign

**Primmer, Raymond Joseph**; Part-Time Adjunct Faculty; Aerospace Studies

**Princivalli, Melissa D**; Part-Time Adjunct Faculty; MPC Adult Unit 1; Registered Nurse

**Proffitt, Rachel Christina**; Instructor; Mizzou K-12 Online; Master's Degree; Truman State University

**Proffitt, Rachel M**; Assistant Professor; SHP/Occupational Therapy; Doctor in Occupational Therapy; Washington University

**Prost, Evan**; Assistant Teaching Professor; SHP/Physical Therapy; Doctor of Physical Therapy; AT Still University of Health Sciences

**Proulx, Christine M**; Associate Professor; Human Devl & Family Science; Doctor of Philosophy; The University of North Carolina at Greensboro

**Pruessner, Bernadine D**; Instructor; Mizzou K-12 Online; Master of Business Admin; Western Governors University

**Puckett, Charles Linwood**; Professor; Surgery; Doctor of Medicine; Wake Forest College

**Pugh, Shanna Marie**; Instructor; Mizzou K-12 Online; Bachelor's Degree; Mid America Nazarene University

**Pukthuanthong, Kuntara**; Associate Professor; Finance; Doctor of Philosophy; University of California, Irvine

**Pulakat, Lakshmidivi**; Professor; Medicine; Doctor of Philosophy; University of Melbourne

**Putnam, Darcie L**; Adjunct Instructor; Academic Dean; Master's Degree; University of Missouri

**Puttaswamy, Sachidevi**; Assistant Research Professor; Biological Engineering

**Puttur, Santhoshkumar**; Assistant Research Professor; Ophthalmology; Doctor of Philosophy; University of Mysore

**Qi, Feng**; Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Engineering; Chinese Academy of Sciences

**Qin, Hua**; Assistant Professor; Rural Sociology; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Qin, Zhenbo**; Professor; Mathematics; Doctor of Philosophy; Columbia University

**Quackenbush, Patricia M**; Instructor; School of Natural Res Adm; Master of Science; Purdue University

**Quackenbush, Stephen Lee**; Associate Professor; Political Science; Doctor of Philosophy; University at Buffalo, The State University of New York

**Quick, Jacob Adam**; Assistant Professor; Surgery-Acute Care; Doctor of Medicine; University of Missouri

**Quinn, Kathleen J**; Associate Dean; Dean of Medicine; Doctor of Philosophy; University of Missouri

**Quinn, Thomas P**; Professor; Biochemistry; Doctor of Philosophy; Saint Louis University



**Quirk, Thomas Vaughan;** Emeritus; English; Doctor of Philosophy; The University of New Mexico

**ROBERTS, SEAN CORY;** Part-Time Adjunct Faculty; Naval Science

**Rabbani, Abed Golam;** Assistant Professor; Personal Financial Planning; Doctor of Philosophy; University of Georgia

**Rabeni, Charles Francis;** Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; The University of Maine

**Radulescu, Alexandru Viorel;** Assistant Professor; Philosophy; Doctor of Philosophy; University of California, Los Angeles

**Raedeke, Maurine Darling;** Assistant Teaching Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Missouri

**Raghavan, Srinivasan;** Part-Time Adjunct Faculty; Sustainability Office; Master's Degree; New Mexico State University

**Ragland, Ellie;** Emeritus; English; Doctor of Philosophy; University of Michigan

**Rahman, Tahir;** Associate Professor Of Clinical Department; Psychiatry

**Raikwar, Sudhanshu P;** Assistant Research Professor; Neurology; Doctor of Philosophy; National Institute of Immunology, New Delhi, India

**Rainey, Claire Elizabeth;** Part-Time Adjunct Faculty; SHP/Health Sciences

**Rajagopalan, Anuradha;** Associate Professor Of Clinical Department; Child Health

**Raju, Murugesan;** Assistant Research Professor; Ophthalmology; Doctor of Philosophy; University of Madras - India

**Ralph, Heather Marie;** Part-Time Adjunct Faculty; Dean of Engineering; Bachelor's Degree; University of Missouri - Kansas City

**Ramachandran, Venkataraman;** Associate Professor Of Clinical Department; Surgery; Doctor of Medicine; University of Madras

**Ramalingam, Anupama;** Assistant Professor Of Clinical Department; Psychiatry

**Ramirez, Alejandro;** Assistant Professor Of Clinical Department; Child Health-Gastroenterology; Doctor of Medicine

**Ramirez, Edward Andrew;** Part-Time Adjunct Faculty; Biological Science; Master of Science; University of Akron

**Ramseyer Winter, Virginia Lynn;** Assistant Professor; Social Work; Doctor of Philosophy; University of Kansas

**Randall, Douglas D;** Emeritus; Agriculture Biochemistry; Doctor of Philosophy; Michigan State University

**Randall, Linda Lea;** Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Wisconsin

**Randolph, Jena K;** Assistant Research Professor; Special Education

**Ransdell, Brennan Myles;** Instructor; Mizzou K-12 Online; Master of Education; Rockhurst University

**Rantz, Marilyn J;** Emeritus; School of Nursing; Doctor of Philosophy; University of Wisconsin - Milwaukee

**Rao, Ajay Krishna;** Adjunct Instructor; Management; Master of Business Admin

**Rasinsky, James E;** Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Osteopathic Medicine; Philadelphia College of Osteopathic Medicine

**Rasmussen, Jacqueline Anne;** Extension Professional; West Ctrl Region-B&I; Master of Business Admin; Oklahoma State University

**Rasse-Cott, Robin Rene;** Clinical Instructor; Educ, School, & Counsel Psych; Master of Education; Stephens College

**Rau, Meagan Brophy;** Adjunct Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Raub, Julia Ann;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Rautman, Marcus;** Professor; Art History & Classical Archae; Doctor of Philosophy; Indiana University

**Ravert, April Anderson;** Adjunct Instructor; Human Devl & Family Science; Master's Degree; Texas Woman's University

**Ravert, Russell Douglas;** Associate Professor; Human Devl & Family Science; Doctor of Philosophy; Indiana University Bloomington

**Ravosa, Matthew Jordan;** Part-Time Adjunct Faculty; Path & Anat Sci - Anatomy; Doctor of Philosophy; Northwestern University

**Rawlings, Arthur L;** Associate Professor Of Clinical Department; Surgery-General; Doctor of Medicine; University of Illinois

**Rawlings, Lori Elaine;** Tutor; SHP/Physical Therapy; Bachelor's Degree; University of Missouri

**Ray, Bimal Kumar;** Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Calcutta

**Read, David T;** Professor; English; Doctor of Philosophy; The University of Chicago

**Read, Sarah J;** Adjunct Professor; Law; Juris Doctor; University of Wisconsin

**Reams, Michelle Jude;** Instructor; School of Nursing; Master of Nursing; University of Missouri

**Rector, Randy S;** Associate Professor; Nutrition & Exercise Phys-MED; Doctor of Philosophy; University of Missouri

**Reddy, Chada Sudershan;** Adjunct Professor; Biomedical Sciences; Doctor of Philosophy; The University of Mississippi

**Redmon, Ryan Wytan;** Adjunct Professor; Law; Juris Doctor; Notre Dame Law School

**Reed, Ebony S;** Associate Professional Practice Professor; Journalism; Master's Degree; University of Missouri

**Reed, Joshua David;** Adjunct Instructor; School of Music; Doctor of Musical Arts; University of Colorado Boulder

**Reed, Katherine Trimarco;** Associate Professional Practice Professor; Journalism; Master's Degree; Hollins University

**Reed, Rachel Carol;** Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Reed, Rita;** Professional Practice Professor; Journalism; Master's Degree; University of Missouri

**Reed, Robert Edward;** Part-Time Adjunct Faculty; Small Business Development Ctr; Doctor of Philosophy; University of Missouri - Rolla

**Reed, Shannon Kelly**; Associate Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Reeder, Bryce W**; Assistant Professor; Political Science; Doctor of Philosophy; University of Illinois

**Reeder, Linda S**; Associate Professor; History; Doctor of Philosophy; Rutgers University

**Rees, David L**; Professional Practice Professor; Journalism; Master's Degree; University of Missouri

**Reese, James W**; Part-Time Adjunct Faculty; Animal Science; Bachelor's Degree; California State University - Fullerton

**Reeves, Randy A**; Associate Professional Practice Professor; Journalism; Master's; University of Missouri

**Reeves Viets, Joseph Loren**; Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; The University of Kansas

**Regunath, Hariharan**; Assistant Professor Of Clinical Department; Medicine Hospitalist

**Reid, Catherine June**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Reid, Chad Rodney**; Assistant Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine

**Reid, David H**; Part-Time Adjunct Faculty; Vice Provost Undergraduate Studies; Doctor of Philosophy; University of Missouri

**Reid Arndt, Stephanie A**; Associate Dean; Health Professions; Doctor of Philosophy; The University of Arizona

**Reilly, Thomas James**; Associate Clinical Professor; Veterinary Diagnostic Laboratory; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Reinero, Carol Rose**; Associate Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of California, Davis

**Reinke, Wendy M**; Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Oregon

**Reiske, Matthew Lawrence**; Part-Time Adjunct Faculty; Dean of College of Business; Bachelor's Degree; Truman State University

**Reist, Whitney Elizabeth**; Adjunct Instructor; Nutrition & Exercise Phys-HES

**Reiter, David Lee**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Iowa

**Reiter, Laurie Jean**; Instructor; Mizzou K-12 Online; Master of Liberal Arts; University of Missouri

**Reiter, Maureen Mary**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Iowa

**Reneker, Lixing W**; Associate Professor; Ophthalmology

**Renner, Gregory J**; Emeritus; Otolaryngology; Doctor of Medicine; Southern Illinois University

**Renoe, Susan Dixon**; Part-Time Adjunct Faculty; Economic Development; Doctor of Philosophy; University of California, Santa Barbara

**Resnik, Andrew G**; Associate Professor Of Clinical Department; Psychiatry

**Retzlaff, David George**; Associate Professor; Chemical Engineering; Doctor of Philosophy; University of Pittsburgh

**Reuben, Richard C**; Professor; Law; Doctor of Philosophy; Stanford University

**Reust, Carin E**; Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Revelle, Sara M**; Adjunct Assistant Professor; School of Nursing; Master's Degree; University of Missouri

**Reyna, Ivan Roberto**; Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of California, Berkeley

**Reynolds, Don F**; Assistant Research Professor; Medicine; Juris Doctor; University of Missouri

**Reynolds, Erin Ashly**; Assistant Clinical Professor; Educ, School, & Counsel Psych; Master of Social Work; University of Chicago

**Reynolds, Frances E**; Assistant Instructor; International programs

**Reys, Barbara Bestgen**; Emeritus; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Reys, Robert Edward**; Emeritus; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Richey, Robert Glenn**; Adjunct Instructor; Dean of College of Business; Doctor of Philosophy; University of Oklahoma

**Richins, Marsha L**; Professor; Marketing; Doctor of Philosophy; The University of Texas at Austin

**Riek, James V**; Part-Time Adjunct Faculty; TV Station; Bachelor's Degree; Missouri Southern State University

**Ries, Lawrence D**; Associate Teaching Professor; Statistics; Doctor of Philosophy; University of Missouri

**Rikoon, James S**; Dean; Dean of Human Env Sci; Doctor of Philosophy; Indiana University

**Riles, Julius Matthew**; Assistant Professor; Communication; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Riley-Tillman, Timothy Christopher**; Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; Syracuse University

**Ringdahl, Erika N**; Professor Of Clinical Department; Family & Community Medicine

**Rion, Jerett Dean**; Teaching Assistant; School of Natural Res Admin; Master of Science

**Rivera, Arnaldo Luis**; Associate Professor; Otolaryngology; Doctor of Medicine; University of Puerto Rico

**Rivera, Izel M**; Adjunct Associate Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; University of Memphis

**Rivera, Luis Alberto**; Assistant Teaching Professor; Dean of Engineering; Doctor of Philosophy; University of Missouri

**Rivera, Rocio Melissa**; Associate Professor; Animal Science; Doctor of Philosophy; University of Florida

**Rivkin, Jacqueline R**; Instructor; Mizzou K-12 Online; Master of Science; Columbia University

**Roam, Alexis Brooke**; Clinical Instructor; Nursing Extn/Cont Educ; Bachelor's Degree; University of Phoenix

**Robbins, Michael Cook**; Instructor; Anthropology; Doctor of Philosophy; University of Minnesota - Twin Cities

**Robbins, Philip Alexander**; Associate Professor; Philosophy; Doctor of Philosophy; The University of Chicago

**Robert, Christopher A**; Associate Professor; Management; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Roberts, Alasdair Scott**; Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; Harvard University

**Roberts, Craig**; Professor; Plant Sciences; Doctor of Philosophy; University of Arkansas

**Roberts, Robert Michael**; Curators Distinguished Professor; Animal Science; Doctor of Philosophy; University of Oxford

**Roberts, Tina**; Adjunct Instructor; Nutrition & Exercise Phys-HES; Master of Science; University of Missouri

**Robertson, Brian Kendall**; Instructor; Agric Systems Management; Master of Science; University of Missouri

**Robertson, John D**; Professor; Chemistry; Doctor of Philosophy; University of Maryland

**Robertson, Michael W**; Assistant Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; University of Missouri

**Robinson, Erin Linn**; Assistant Professor; Social Work; Doctor of Philosophy; The University of Iowa

**Robinson, Karen Margaret**; Librarian III; Library; Master of Library Science; Emporia State University

**Robinson, Matthew Timothy**; Associate Professor Of Clinical Department; Emergency Medicine

**Rodgers, Shelly Lanette**; Professor; Journalism; Doctor of Philosophy; University of Missouri

**Rogers, Brittany Nicole**; Instructor; Mizzou K-12 Online; Master of Education; Missouri State University

**Rogers, Evelyn S**; Part-Time Adjunct Faculty; Missouri Review; Doctor of Philosophy; University of Missouri

**Rohde, Phillip Paul**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Kansas School of Medicine

**Rojas Moreno, Christian Andres**; Assistant Professor Of Clinical Department; Medicine-Infectious Diseases; Doctor of Medicine; Universidad Nacional Asuncion

**Rolan, Terry D**; Adjunct Assistant Professor; Neurology; Doctor of Medicine; Texas Tech University

**Roland, William**; Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Missouri

**Rolbiecki, Abigail J**; Post Doctoral Fellow; Family & Community Medicine; Doctor of Philosophy; University of Missouri

**Roller, Christopher Brian**; Instructor; Mizzou K-12 Online; Specialist of Education; William Woods University

**Rollins, Kathryn Lauren**; Adjunct Instructor; SHP/Health Sciences; Master's Degree; Texas State University

**Romero, Anna Marie**; Associate Professional Practice Professor; Journalism; Bachelor's; New Mexico State University

**Romero, Brianna Swann**; Lecturer; International programs; Master's Degree; Oklahoma State University

**Ronci, Raymond C**; Teaching Professor; English; Doctor of Philosophy; University of Nebraska

**Root, Jonathon Brian**; Visiting Assistant Professor; History; Master of Arts; Kansas State University

**Rose, Amanda J**; Professor; Psychological Sciences; Doctor of Philosophy; University of Illinois

**Rose, Chad Allen**; Assistant Professor; Special Education

**Rosen, Kathleen Routier**; Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Eastern Virginia Medical School

**Rosenberg, Leah Alice**; Visiting Assistant Professor; Religious Studies; Doctor of Philosophy; Emory University

**Rosenberger, Amanda Elizabeth**; Part-Time Adjunct Faculty; School of Natural Res Admin

**Rosenblad, Brent Lyndon**; Associate Professor; Civil/Environmental Engr; Doctor of Philosophy; The University of Texas at Austin

**Rosenfeld, Cheryl S**; Associate Professor; Biomedical Sciences; Doctor of Philosophy; University of Missouri

**Rosenfeld, Julie Anne**; Assistant Professor; School of Music; Master of Music; Yale University

**Rosner, Chelsea Lynn**; Assistant Professor; Human Devl & Family Science; Doctor of Philosophy; Florida State University

**Ross, Robert Raymond**; Part-Time Adjunct Faculty; VP Enrollment Management; Master of Education; University of Missouri

**Ross, Stephanie Rose**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

**Roth, Luanne K**; Assistant Teaching Professor; English; Master's; University of California, Los Angeles

**Rother, Chase Lawrence**; Part-Time Adjunct Faculty; Dean of College of Business; Bachelor's Degree

**Rottinghaus, George Edwin**; Clinical Professor; Biomedical Sciences

**Rottinghaus, Patrick Joseph**; Associate Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; Iowa State University

**Rouder, Jeffrey N**; Professor; Psychological Sciences; Doctor of Philosophy; University of California, Irvine

**Rovetto, Michael J**; Emeritus; Med Pharmacology/Physiology; Doctor of Philosophy; University of Virginia

**Rowe, Jennifer Lynn**; Associate Professional Practice Professor; Journalism; Master's Degree; University of Missouri

**Royal, Angela B**; Assistant Clinical Professor; Veterinary Diagnostic Laborato; Doctor of Veterinary Medicine; University of Missouri

**Rubin, Leona Joyce**; Associate Vice Chancellor; Biomedical Sciences; Doctor of Philosophy; University of Colorado

**Rudy, Duane**; Associate Professor; Human Devl & Family Science; Doctor of Philosophy; University of Toronto

**Ruggeri, David Andrew**; Associate Teaching Professor; SHP/Health Sciences; Doctor of Philosophy; Saint Louis University

**Runnels, Lindsay J**; Clinical Professor; Law - General; Juris Doctor; University of Missouri - Kansas City

**Ruplinger, Jacqueline M**; Associate Professor Of Clinical Department; Family & Community Medicine

**Ruppar, Todd M**; Associate Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Ruth, Aidan Alifair**; Lecturer; Path & Anat Sci - Anatomy; Master of Arts; Kent State University

**Rymph, Catherine E**; Associate Professor; History; Doctor of Philosophy; The University of Iowa

**Saab, Youssef**; Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Sable, Marjorie R**; Emeritus; Social Work; Doctor of Public Health; University of North Carolina

**Sable-Smith, Bram Eric**; Part-Time Adjunct Faculty; FM Station; Bachelor's Degree; Washington University

**Sack, Kimberly Jon**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Sadler, Edward John**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; Texas A&M University

**Sadler, Troy D**; Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of South Florida

**Saeki, Elina**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of California, Santa Barbara

**Saffran, Lisa Jeanne**; Director; Public Health Program; Master's Degree; The University of North Carolina at Chapel Hill

**Safranski, Timothy J**; Professor; Ag Ext-Animal Science; Doctor of Philosophy; University of Missouri

**Safranski, Trista Ann**; Assistant Teaching Professor; Animal Science; Doctor of Philosophy; Texas A&M University

**Safronov, Alexander Valentinovich**; Assistant Research Professor; Radiology; Doctor of Philosophy; AN Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Sciences

**Saguiguit, Leo Contreras**; Associate Professor; School of Music

**Sahota, Pradeep K**; Professor; Neurology; Doctor of Medicine; Christian Medical College

**Salam, Muhammad Waqar**; Assistant Professor Of Clinical Department; Medicine-Endocrinology

**Salau, Muskinni Olanrewaju**; Clinical Instructor; Psychiatry; Doctor of Medicine; University of Lagos

**Sale, Elizabeth W**; Research Associate Professor; MO Inst of Mental Hlth - Research & Evaluation

**Salim, Hani A**; Professor; Civil/Environmental Engr; Doctor of Philosophy; West Virginia University

**Salzer, William L**; Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Medicine and Dentistry of New Jersey

**Samiullah MD, S**; Assistant Professor Of Clinical Department; Medicine-Gastroenterology; Doctor of Medicine; Aga Khan University

**Sample, Jacquelyn Marie**; Adjunct Instructor; MO Health Prof Consortium; Master's Degree; University of Missouri

**Sampson, Cheryl L**; Associate Professor; Art; Master of Fine Arts; The University of Iowa

**Sampson, Christopher S**; Associate Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Royal College of Surgeons

**Sanchez, Francisco Javier**; Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Iowa

**Sanchez, Ninive**; Assistant Professor; Social Work; Doctor of Philosophy; University of Michigan

**Sanchez, Oltan L**; Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Indiana University

**Sandbothe, Mary M**; Adjunct Assistant Professor; Art; Master of Fine Arts; University of Missouri

**Sanders Jr, Harlow Stewart**; Assistant Teaching Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Sandquist, Jeffrey Lauren**; Adjunct Assistant Professor; School of Music; Master of Music; University of Missouri - Kansas City

**Sandvol, Eric A**; Professor; Geological Sciences; Doctor of Philosophy; New Mexico State University

**Sanford-Martens, Tiffany Casandra**; Assistant Professional Practice Professor; Psychiatry; Doctor of Philosophy; University of Missouri

**Sangha, Harbaksh Singh**; Assistant Professor Of Clinical Department; Medicine-Pulmonary & Environ

**Sapp, Lesley Jeanne**; Part-Time Adjunct Faculty; Vice Provost for International Programs; Not Indicated - 1st entry; Indiana University

**Sappington, Jill Lynne**; Adjunct Instructor; Learning Teaching & Curriculum; Bachelor's Degree; University of Missouri

**Sarafianos, Stefanos**; Professor; Life Sciences Center; Doctor of Philosophy; Georgetown University

**Sarais, Maria Silvia**; Assistant Instructor; Classical Studies; Doctor of Philosophy; University of Missouri

**Sargsyan, Gevorg**; Visiting Scholar; Finance; Master of Business Admin; University of Alicante

**Sasser, Katherine Jean**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Sasser, Patrick Anthony**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Sasser, Tracy Nicole**; Instructor; Mizzou K-12 Online; Master's Degree

**Sathi, Bindu Kanathezhath**; Assistant Professor Of Clinical Department; Child Health-Hematology; Doctor of Medicine; Los Angeles County - University of Southern California Medical Center

**Satpathy, Sashi**; Curators Distinguished Professor; Physics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Sattenspiel, Lisa**; Professor; Anthropology; Doctor of Philosophy; The University of New Mexico

**Saucier, Aaron James**; Adjunct Instructor; Civil/Environmental Engr; Master of Science; University of Missouri

**Sauer III, Gordon C**; Assistant Teaching Professor; English; Master of Fine Arts; Columbia University

**Saxton, Christopher K**; Instructor; Mizzou K-12 Online; Master's Degree; Southern Illinois University-Edwardsville

**Sayers, Stephen P**; Associate Professor; SHP/Physical Therapy; Doctor of Philosophy; University of Massachusetts Amherst

**Scaboo, Andrew M**; Assistant Research Professor; Plant Sciences; Doctor of Philosophy; University of Arkansas

**Scales, Karen McCallum**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Scanlon, Thomas C**; Adjunct Assistant Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; University of Michigan

**Scantlin, Aaron Joseph**; Part-Time Adjunct Faculty; Security; Some College - 4th entry; University of Missouri

**Scates, Kimberly Michelle**; Part-Time Adjunct Faculty; Student Health Center; Master of Social Work; University of Missouri

**Schachter, Elissa Beth**; Instructor; Mizzou K-12 Online; Master of Arts; New York University

**Schachtman, Todd R**; Professor; Psychological Sciences; Doctor of Philosophy; Binghamton University, The State University of New York

**Schadt, James C**; Emeritus; Biomedical Sciences; Doctor of Philosophy; Texas Tech University

**Schaefer, Susan Degginger**; Adjunct Instructor; MU Partnership Educ Renewal; Master's Degree; Saint Mary University

**Schaffer, Jennifer M**; Part-Time Adjunct Faculty; Dean of Arts & Science; Master's Degree; University of Wisconsin - Madison

**Scharf, Martha Elizabeth**; Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Scharf, Peter C**; Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Schatten, Heide**; Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Heidelberg

**Schatz, Enid Joy**; Associate Professor; SHP/Health Sciences; Doctor of Philosophy; University of Pennsylvania

**Scheckter, Sarah Elizabeth**; Assistant Professional Practice Professor; Psychiatry; Doctor of Philosophy; Bryn Mawr College

**Scheer, Lisa K**; Professor; Marketing; Doctor of Philosophy; Northwestern University

**Scheese, Lisa Marie**; Part-Time Adjunct Faculty; Learning Center; Master of Business Administration; Stephens College

**Schenker, David Joseph**; Associate Professor; Classical Studies; Doctor of Philosophy; University of California, Berkeley

**Scherer, Laura Danielle**; Assistant Professor; Psychological Sciences; Doctor of Philosophy; Washington University

**Schibig, Monica Ann**; Associate Clinical Professor; SHP/Clinical & Diagnostic Sci; Master's Degree; Fontbonne University

**Schick, Carol Anne**; Assistant Teaching Professor; Social Work; Doctor of Philosophy; The Ohio State University

**Schieltz, Kelly Michele**; Assistant Teaching Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; The University of Iowa

**Schiffbauer, James D**; Assistant Professor; Geological Sciences; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Schirmer, Amanda Joy**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Schirmer, Benjamin David**; Instructor; Academic Dean; Master of Education; Rockhurst University

**Schliep, Erin M**; Assistant Professor; Statistics; Doctor of Philosophy; Colorado State University

**Schmaltz, Chester Lee**; Part-Time Adjunct Faculty; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Schmaltz, Richard Allen**; Associate Professor Of Clinical Department; Surgery

**Schmardebeck, Lyle Roy**; Assistant Professor; Accountancy; Doctor of Philosophy; University of Arkansas

**Schmid, Sasha Ayn**; Adjunct Instructor; Mizzou Online; Bachelor's Degree; The University of Iowa

**Schmidt, Francis John**; Professor; Biochemistry; Doctor of Philosophy; University of Wisconsin

**Schmidt, Olaf**; Assistant Teaching Professor; German & Russian Studies; Master's Degree; Humboldt State University

**Schmitz, Amy Jean**; Professor; Law; Juris Doctor; University of Minnesota Law

**Schmitz, Stephan**; Post Doctoral Fellow - Teaching; Mathematics; Doctor of Science; University Mainz, Germany

**Schnabel, Robert D**; Associate Research Professor; Animal Science; Doctor of Philosophy; Texas A&M University

**Schnatterly, Karen Ann**; Associate Professor; Management; Doctor of Philosophy; University of Michigan

**Schneeberger, Kenneth C**; Assistant Dean; CAFNR International Programs

**Schneller, Jacqueline M**; Part-Time Adjunct Faculty; Academic Dean; Master of Social Work; University of Arkansas

**Schneller, John T**; Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Schoelz, James E**; Professor; Plant Sciences; Doctor of Philosophy; University of Kentucky

**Schoenleber, Dana B**; Adjunct Associate Professor; Ophthalmology

**Scholes, Roberta J**; Teaching Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Schopp, Laura**; Professor; SHP/Health Psychology; Doctor of Philosophy; University of Missouri

**Schrimpf, Lindsey A**; Assistant Professor Of Clinical Department; Psychiatry; Doctor of Medicine; University of Missouri

**Schrock, Melody L**; Clinical Instructor; School of Nursing; Bachelor's Degree; Cox College of Nursing

**Schroeder, Jacqueline Lee**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri - Kansas City

**Schueller, Michael John**; Research Professor; Physics; Doctor of Philosophy; University of Wisconsin

**Schul, Johannes**; Professor; Biological Science; Doctor of Philosophy; Phillips University

**Schultz, Eric D**; Tutor; SHP/Physical Therapy; Doctor of Practical Theology; University of Missouri

**Schultz, John Charles**; Director; Life Sciences Center; Doctor of Philosophy; University of Washington

**Schultz, Loren G**; Associate Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Kansas State University

**Schulz, David J**; Associate Professor; Biological Science; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Schulz, Laura Clamon**; Associate Professor; Ob, Gyn & Women's Health; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Schumacher, Leon George**; Professor; Agric Systems Management; Doctor of Philosophy; Iowa State University

**Schust, Danny Joseph**; Professor; Ob, Gyn & Women's Health; Doctor of Medicine; University of Wisconsin - Madison

**Schwain, Kristin A**; Associate Professor; Art History & Classical Archae; Doctor of Philosophy; Stanford University

**Schwartz, Kenneth Stuart**; Instructor; Mizzou K-12 Online; Juris Doctor; Washington University

**Schwartz, Richard B**; Emeritus; English; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Schwarz, Benjamin**; Professor; Architectural Studies; Doctor of Philosophy; University of Michigan

**Schweser, Kyle Michael**; Post Doctoral Clinical Fellow Year 3; Orthopaedic Surgery

**Scogin, Joseph M**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Scott, Grant J**; Assistant Research Professor; Center Geospatial Intelligence; Doctor of Philosophy; University of Missouri

**Scott, James K**; Vice Provost; VP for International Programs; Doctor of Philosophy; University of Missouri

**Scott, James Stephen**; Associate Professor Of Clinical Department; Surgery-General; Doctor of Medicine; University of Missouri

**Scott, Jessica Rene**; Adjunct Instructor; Human Devl & Family Science; Bachelor's Degree; Drury University

**Scott, Joseph Brian**; Lecturer; International programs; Doctor of Philosophy; University of Missouri

**Scott, Rebecca R**; Associate Professor; Sociology; Doctor of Philosophy; University of California, Santa Cruz

**Seabaugh, Janice Louise**; Adjunct Assistant Professor; Otolaryngology; Doctor of Medicine; University of Missouri

**Seagrave, Stephen Adam**; Associate Professor; Political Science; Doctor of Philosophy; University of Notre Dame

**Sebacher, Mary C**; Adjunct Assistant Professor; SHP/Clinical & Diagnostic Sci; Master's Degree; University of Missouri

**Sebastian, Jimmy**; Assistant Professor; Ed Leadership & Pol Analysis

**Segal, Steven S**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Michigan

**Segert, Ines L**; Assistant Teaching Professor; Psychological Sciences; Doctor of Philosophy; Princeton University

**Segert, Jan**; Associate Professor; Mathematics; Doctor of Philosophy; Princeton University

**Seitz, Christine O**; Associate Teaching Professor; School of Music; Master of Music; University of Wisconsin - Madison

**Seitz, Paul Thomas**; Adjunct Assistant Professor; School of Music; Doctor of Musical Arts; University of Wisconsin - Madison

**Selting, Kimberly Anne**; Associate Teaching Professor; Veterinary Medicine & Surgery; Master's Degree; Colorado State University

**Selva, Regina M**; Assistant Clinical Professor; Child Health-Gen & Ambulatory; Doctor of Medicine; The University of Mississippi

**Selva, Thomas J**; Professor Of Clinical Department; Child Health; Doctor of Medicine; The University of Mississippi

**Sengupta, Shramik**; Associate Professor; Biological Engineering; Doctor of Philosophy; University of Minnesota

**Senter, David A**; Adjunct Assistant Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Iowa State University

**Serfass, Thomas Dean**; Instructor; Mizzou K-12 Online; Bachelor's Degree; Washington University

**Serna, Pablo Andres**; Assistant Instructor; Romance Languages & Literature; Master of Arts; University of Missouri

**Serota, Susan B**; Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Nevada - Las Vegas

**Sethi, Tarunjit Kaur**; Intern; Public Health Program; Master of Public Health; University of Missouri

**Setzer, David R**; Professor; Biological Science; Doctor of Philosophy; Stanford University

**Sewell, Thomas Dan**; Professor; Chemistry; Doctor of Philosophy; Oklahoma State University

**Sexton, Jay Jarrett**; Professor; History; Doctor of Philosophy; University of Oxford

**Shababi, Monir**; Assistant Research Professor; Veterinary Pathobiology

**Shade, Scott Alaric**; Adjunct Instructor; Journalism; Bachelor's Degree; University of Missouri

**Shaffer, Travis L**; Assistant Teaching Professor; Art; Master of Arts; University of Kentucky

**Shaffer, Victoria A**; Associate Professor; SHP/Health Psychology; Doctor of Philosophy; The Ohio State University

**Shahan, Victoria**; Part-Time Adjunct Faculty; Dean of Human Env Sci; Master's Degree; University of Missouri

**Shahriari, Sara Ann**; Assistant Professional Practice Professor; Journalism; Master of Arts; University of Missouri

**Shang, Yi**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Shankar, Ravi**; Assistant Professor Of Clinical Department; Psychiatry; Doctor of Medicine; Gandhi Medical College, Bhopal, India

**Shanks, Patti A**; Adjunct Assistant Professor; Art; Master of Fine Arts; University of Missouri

**Shannon, Donald Kent**; Extension Professional; Northeast Region-Agriculture & Natural Resources; Master of Science; University of Missouri

**Shannon, James Grover**; Emeritus; Plant Sciences; Doctor of Philosophy; Purdue University

**Shannon, Marcia Carlson**; Professor; Ag Ext-Animal Science; Doctor of Philosophy; Michigan State University

**Shaon, Kelli Yvette**; Assistant Professional Practice Professor; Ophthalmology; Doctor of Optometry; University of Missouri - St. Louis

**Sharma, Krishna**; Professor; Ophthalmology; Doctor of Philosophy; Mysore University

**Sharma, Rishi**; Assistant Research Professor; Neurology; Doctor of Philosophy; Jawaher Lal Nehru University

**Sharp, Gordon Craig**; Emeritus; Medicine

**Sharp, Paul R**; Emeritus; Chemistry; Doctor of Philosophy; Massachusetts Institute of Technology

**Sharp, Rex L**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Master of Science; Michigan Technological University

**Sharp, Robert E**; Professor; Plant Sciences; Doctor of Philosophy; University of Lancaster

**Sharpe, Deanna L**; Associate Professor; Personal Financial Planning; Doctor of Philosophy; Iowa State University

**Shaver, Jason Thomas**; Lecturer; International programs

**Shaw, Andrea L**; Adjunct Instructor; Social Work; Master of Social Work; University of Illinois at Chicago

**Shaw, Daniel Porter**; Professor; Veterinary Diagnostic Laboratory; Doctor of Philosophy; University of Missouri

**Shaw, Kenneth William**; Associate Professor; Accountancy; Doctor of Philosophy; University of Wisconsin

**Shaw, Meredith Dawn**; Part-Time Adjunct Faculty; School of Business; Master of Education; University of Missouri

**Shaw, Richard Franklin**; Part-Time Adjunct Faculty; Dean of Journalism; Master of Arts; University of Missouri

**Shea, Cory Michael**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; Saint George's University

**Shea, Layne Marie**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; St. George's University

**Sheets, Lincoln Ralph**; Assistant Research Professor; Health Mgmt & Informatics; Doctor of Medicine

**Sheldon, Kennon M**; Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; University of California, Davis

**Sheldon, Melanie S**; Assistant Teaching Professor; Psychological Sciences; Doctor of Philosophy; University of Missouri

**Shelton, Jana Jo**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Central Oklahoma

**Shelton, Kevin L**; Professor; Geological Sciences; Doctor of Philosophy; Yale University

**Shenk, Mary Katherine**; Associate Professor; Anthropology; Doctor of Philosophy; University of Washington

**Shenker, Joel Isaac**; Associate Professor Of Clinical Department; Neurology; Doctor of Medicine; University of Illinois College of Medicine at Urbana - Champaign

**Sher, Kenneth**; Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; Indiana University

**Sherman, Janice**; Teaching Professor; School of Nursing; Doctor of Philosophy; Texas Woman's University

**Sherman, Michael Parker**; Emeritus; Child Health-Neonatology; Doctor of Medicine; Medical College of Wisconsin

**Sherman, Seth L**; Assistant Professor; Orthopaedic Surgery; Doctor of Medicine; Wells College

**Sherwin, LeeAnne**; Assistant Professor; School of Nursing; Doctor of Philosophy; Oregon Health and Science University

**Sherwood, Richard James**; Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; Kent State University

**Shields, Kenneth W**; Post Doctoral Fellow - Teaching; Philosophy; Master's Degree; Henderson State University

**Shin, Dmitriy**; Assistant Professor; Path & Anat Sci-Anatomic Path; Doctor of Philosophy; University of Missouri

**Shin, Geiguen**; Visiting Scholar; VP for International Programs; Doctor of Philosophy; University of Missouri

**Shiu, Patrick Ka**; Associate Professor; Biological Science; Doctor of Philosophy; The University of British Columbia

**Shivers, Ayanna Lichelle**; Instructor; Honors College; Doctor of Philosophy; University of Southern Mississippi

**Shivers, Meredith Lynn**; Instructor; Mizzou K-12 Online; Master of Science

**Shoemaker-Moyle, Michael Sean**; Assistant Professor Of Clinical Department; Medicine-Nephrology; Doctor of Medicine; The State University of New York Health Science at Syracuse

**Shonekan, Stephanie Uku**; Associate Professor; Black Studies Program; Doctor of Philosophy; Indiana University

**Shows, Justin H**; Assistant Teaching Professor; Statistics; Doctor of Philosophy; North Carolina State University

**Shukla, Shivendra D**; Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Liverpool

**Shyu, Chi-Ren**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Purdue University

**Siegel, Marcelle Arra**; Associate Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of California, Berkeley

**Siem, Carol A**; Clinical Instructor; School of Nursing; Master of Nursing; University of Missouri

**Sievert, Donald Edward**; Professor; Philosophy; Doctor of Philosophy; The University of Iowa

**Sievert, MaryEllen Cullinan**; Emeritus; Info Science & Learning Tech

**Sill, Gerald M**; Adjunct Professor; Health Mgmt & Informatics

**Silverman, Lewis Phillip**; Instructor; Chemistry; Master's Degree; The University of Georgia

**Silvey, Brian Ashley**; Associate Professor; School of Music; Doctor of Philosophy; The University of Texas

**Silvey, Stanley R**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Not Indicated - 1st entry; University of Missouri

**Simmons, Juanita Marie**; Emeritus; Ed Leadership & Pol Analysis; Doctor of Philosophy; The University of Texas at Austin

**Simoes, Eduardo J**; Professor; Health Mgmt & Informatics; Doctor of Medicine; Universidade De Pernambuco

**Simons, Amy B**; Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Simonsen, Jon Christian**; Associate Professor; Agricultural Ed and Leadership; Doctor of Philosophy; The Ohio State University

**Sims, Wendy L**; Professor; School of Music; Doctor of Philosophy; Florida State University

**Sims, Wesley A**; Adjunct Instructor; Mizzou Online

**Singh, Amolak**; Professor; Radiology

**Singh, David J**; Professor; Physics; Doctor of Philosophy; University of Ottawa

**Singh, Deepak Kumar**; Assistant Professor; Physics; Doctor of Philosophy

**Singh, Garima**; Assistant Professor Of Clinical Department; Psychiatry

**Singh, Kamleendra**; Assistant Research Professor; Molec Microbio & Immunology; Doctor of Philosophy; Banaras Hindu University

**Singh, Niranjana Narain**; Adjunct Associate Professor; Neurology; Doctor of Medicine; University of Missouri - St. Louis

**Singh, Sindhu**; Assistant Professor Of Clinical Department; Medicine-Hematology & Oncology; Doctor of Medicine

**Sink, Phillip Andrew**; Post Doctoral Fellow - Teaching; School of Music; Doctor of Musical Arts; Indiana University

**Sipe, Daniel A**; Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of Minnesota

**Sites, Kelly H**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Sites, Robert William**; Professor; Plant Sciences; Doctor of Philosophy; Washington State University

**Siva, Chokkalingam**; Associate Professor Of Clinical Department; Medicine-Immunology & Rheumato

**Sivaraman, Manjamalai**; Associate Professor Of Clinical Department; Neurology

**Skelley, Nathan William**; Clinical Instructor; Orthopaedic Surgery; Doctor of Medicine; Johns Hopkins School of Medicine

**Skevas, Theodoros**; Assistant Professor; Agricultural/Applied Economics; Doctor of Science

**Skinner, Jeremy B**; Associate Clinical Professor; Psychological Sciences; Doctor of Philosophy; The State University of New York

**Skubic, Marjorie**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Texas A&M University

**Skyberg, Jerod Alan**; Assistant Professor; Veterinary Pathobiology; Doctor of Philosophy; North Dakota State University

**Slane, Kathleen W**; Emeritus; Art History & Classical Archae; Doctor of Philosophy; Bryn Mawr College

**Slansky, Barry**; Adjunct Assistant Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; University of Wisconsin - Madison

**Slaten, Christopher Daniel**; Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Wisconsin - Milwaukee

**Slavik, Julia Nichole**; Clinical Instructor; School of Nursing; Master of Nursing; University of South Alabama

**Slavikova, Lenka**; Post Doctoral Fellow - Teaching; Mathematics; Doctor of Philosophy; Charles University, Prague

**Slawski, Daniel Paul**; Adjunct Assistant Professor; Orthopaedic Surgery; Doctor of Medicine; Washington University School of Medicine

**Slivka, Judd**; Assistant Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Slutske, Wendy S**; Professor; Psychological Sciences; Doctor of Philosophy; University of Minnesota

**Smale, Robert Leland**; Associate Professor; History; Doctor of Philosophy; The University of Texas at Austin

**Smeda, Reid J**; Professor; Plant Sciences; Doctor of Philosophy; Purdue University

**Smith, A Mark**; Curators Distinguished Professor; History; Doctor of Philosophy; University of Wisconsin - Madison

**Smith, Charles J**; Professor; Radiology; Doctor of Philosophy; University of Missouri

**Smith, Dan Alan**; Assistant Teaching Professor; Nutrition & Exercise Phys-HES; Master of Science; University of Missouri

**Smith, Dennis David**; Adjunct Instructor; MU Partnership Educ Renewal

**Smith, Dennis Lynn**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Osteopathic Medicine; Des Moines University

**Smith, Douglas Earl**; Part-Time Adjunct Faculty; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Smith, Emily Hoffman**; Assistant Professor Of Clinical Department; Dermatology-Derm; Doctor of Medicine; University of Missouri

**Smith, Gary Lee**; Emeritus; Vice Provost Enrollment Management; Doctor of Education; University of Missouri

**Smith, Joshua T**; Part-Time Adjunct Faculty; Dean of College of Business; Master's Degree; Missouri State University



**Smith, Kaylie Elizabeth**; Part-Time Adjunct Faculty; VP Enrollment Management; Bachelor's Degree; University of Missouri

**Smith, Kibby L**; Part-Time Adjunct Faculty; Multidisciplinary Programs; Master's Degree; Framingham State College

**Smith, Leo Patrick**; Adjunct Assistant Professor; Path & Anat Sci-Anatomic Path; Doctor of MicroBiology; Pacific Western University

**Smith, Leonard Daryl**; Assistant Teaching Professor; Management; Master of Business Admin; Washington University

**Smith, Matthew J**; Associate Professor Of Clinical Department; Orthopaedic Surgery; Doctor of Medicine; Creighton University

**Smith, Michael Fielding**; Curators Distinguished Professor; Animal Science; Doctor of Philosophy; Texas A&M University

**Smith, Pamela**; Assistant Teaching Professor; School of Nursing; Registered Nurse

**Smith, Patricia N**; Editor; Dean of Journalism; Master's Degree; University of Missouri

**Smith, Rachel Lynn**; Part-Time Adjunct Faculty; Dean of College of Business; Master's Degree; University of Kansas

**Smith, Randall Darby**; Professional Practice Professor; Journalism; University of Missouri

**Smith, Rebecca**; Part-Time Adjunct Faculty; FM Station; Bachelor's Degree; Truman State University

**Smith-Parris, Penny Jane**; Associate Teaching Professor; English; Master's Degree; University of Missouri

**Snipkie, Scott Michael**; Adjunct Instructor; Mizzou Online; Juris Doctor; The Pennsylvania State University

**Snitzer, Lauren A**; Assistant Professor Of Clinical Department; Dermatology-Derm

**Snyder, Paula M**; Lecturer; International programs; Master's Degree; University of Illinois at Urbana-Champaign

**Snyder-Rivas, Linley Anne**; Adjunct Instructor; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Socarides, Alexandra A**; Associate Professor; English; Doctor of Philosophy; Rutgers University - New Brunswick

**Soden, Gregory John**; Instructor; Mizzou K-12 Online; Master of Education; University of Saskatchewan

**Soest, Michele J**; Clinical Instructor; School of Nursing; Master of Science; University of Wisconsin - Madison

**Sohal, Harjot Singh**; Associate Professor Of Clinical Department; Medicine

**Sohl, Kristin Amanda**; Associate Professor Of Clinical Department; Child Health; Doctor of Medicine; University of Missouri

**Solbrekken, Gary L**; Associate Teaching Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Minnesota

**Solbrekken, Yvonne E**; Part-Time Adjunct Faculty; Learning Center; Master's Degree; University of Missouri

**Sommer, Richard C**; Adjunct Instructor; Health Mgmt & Informatics; Master's; University of Missouri

**Sommi JR, Roger W**; Associate Dean; Pharmacy - General; Doctor of Pharmacy; University of Utah

**Song, Qisheng**; Professor; Plant Sciences; Doctor of Philosophy; University of Maryland

**Song, Xuesong**; Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Science; University of Missouri

**Sonnenberg, Douglas Charles**; Adjunct Instructor; SHP/Clinical & Diagnostic Sci; Master's Degree; University of Missouri

**Soria, Victor M**; Instructor; Mathematics; Bachelor's Degree; Grinnell College

**Soria Lopez, Maria Del**; Assistant Professor; Romance Languages & Literature; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Sorley, David Cole**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; The University of Texas Southwestern Medical Center at Dallas

**Sottile PhD, James**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Souther, Matthew Edward**; Assistant Professor; Finance; Doctor of Philosophy; University of Florida

**Sowa, Grzegorz**; Associate Professor; Med Pharmacology/Physiology

**Sowers, Jim Russell**; Professor; Medicine

**Sowers, Linda Franz**; Instructor; Agricultural/Applied Economics; Bachelor's Degree; University of Missouri

**Spain, Jimmy N**; Vice Provost; Animal Science; Doctor of Philosophy; Virginia Polytechnic Institute and State University

**Spain, Vickie L**; Assistant Teaching Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Spear, David G**; Adjunct Assistant Professor; Art; Master of Fine Arts; University of Missouri

**Speck, Angela Karen**; Professor; Physics; Doctor of Philosophy; University College

**Speckman, Paul L**; Emeritus; Statistics; Doctor of Philosophy; University of California, Los Angeles

**Spence, Marcia L**; Professor; School of Music; Doctor of Musical Arts; University of North Texas

**Spencer, Thomas Edward**; Professor; Animal Science; Doctor of Philosophy; Texas A&M University

**Speno, Ashton Lee**; Post Doctoral Fellow - Teaching; Communication; Doctor of Philosophy; University of Missouri

**Sperber, Jonathan**; Curators Distinguished Professor; History; Doctor of Philosophy; The University of Chicago

**Spiers, Donald E**; Emeritus; Animal Science; Doctor of Science; Michigan State University

**Spollen, Linda Kay**; Emeritus; Path & Anat Sci-Anatomic Path; Doctor of Medicine; The University of Kansas

**Springer, Gordon Kent**; Part-Time Adjunct Faculty; Electrical Eng & Computer Sci; Doctor of Philosophy; The Pennsylvania State University

**Sprouse, Nina G;** Instructor; Mizzou K-12 Online; Master of Science; Central Missouri State University

**Squire, Peverill;** Professor; Political Science; Doctor of Philosophy; University of California, Berkeley

**Srinivasan, Hema;** Professor; Mathematics; Doctor of Philosophy; Brandeis University

**Srivastava, Rashmi;** Associate Professor Of Clinical Department; Child Health Critical Care

**Stacey, Gary;** Curators Distinguished Professor; Life Sciences Center; Doctor of Philosophy; The University of Texas at Austin

**Stacey, Minviluz;** Assistant Research Professor; Plant Sciences

**Stack, Mary Sharon;** Part-Time Adjunct Faculty; Path & Anat Sci-Anatomic Path; Doctor of Philosophy; University of Louisville

**Stacy, Carl Christopher;** Assistant Professor Of Clinical Department; Path & Anat Sci-Anatomic Path; Doctor of Medicine; The University of Oklahoma

**Stacy Jr, James M;** Part-Time Adjunct Faculty; Dean of Journalism

**Stader, David L;** Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Staiculescu, Ioana Claudia;** Part-Time Adjunct Faculty; SoM Center for Health Policy; Master of Public Health; University of Missouri

**Staley, Robert Eric;** Adjunct Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Missouri

**Stallmann, Judith I;** Professor; Agricultural/Applied Economics; Doctor of Philosophy; Michigan State University

**Stam, Antonie;** Professor; Management; Doctor of Philosophy; The University of Kansas

**Stambaugh, Michael C;** Associate Research Professor; Forestry; Doctor of Philosophy; University of Missouri

**Staner, Derek Ross;** Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine; The University of Texas at Dallas

**Stanley, Trisha Lee;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Stannard, James Patrick;** Professor; Orthopaedic Surgery; Doctor of Medicine; University of Virginia

**Stansfield, John J;** Associate Teaching Professor; Finance; Doctor of Philosophy; University of Missouri

**Stanton, Anne R;** Associate Professor; Art History & Classical Archae; Doctor of Philosophy; The University of Texas at Austin

**Stanton, Laura A;** Adjunct Instructor; Dean of Journalism; Bachelor's Degree; University of Notre Dame

**Starr, Steven;** Clinical Instructor; SHP/Clinical & Diagnostic Sci; Master of Public Health; University of Missouri

**Stauss, Melanie;** Adjunct Instructor; German & Russian Studies; Master of Arts; University of Missouri

**Staveley-O'Carroll, Kevin Finnbar;** Professor; Surgery-Administration; Doctor of Medicine

**Stealey, Josephine;** Professor; Art; Doctor of Philosophy; University of Missouri

**Steele, Beth A;** Adjunct Instructor; Finance; Master of Business Administration; William Woods University

**Steffens, Brian L;** Part-Time Adjunct Faculty; Dean of Journalism; Bachelor's Degree; Bowling Green State University

**Steffens, Martha M;** Professional Practice Professor; Journalism; Bachelor's Degree; Indiana University

**Stegmaier, Mary Ann;** Assistant Professor; Truman School of Pub Affrs Adm; Doctor of Philosophy; The University of Iowa

**Stein, Jeffrey Mark;** Assistant Professor Of Clinical Department; Child Health-Nephrology; Doctor of Medicine; Yale University

**Steinhoff, Douglas Charles;** Instructor; Physics; Master of Education; University of Missouri

**Steinley, Douglas Lee;** Professor; Psychological Sciences; Doctor of Philosophy; University of Illinois

**Stelzer, Henry Ellis;** Associate Professor; Ag Ext-Natural Resources; Doctor of Philosophy; Purdue University

**Stemmler, Jonathan T;** Associate Professional Practice Professor; Journalism; Master of Arts; The University of Arizona

**Stephens, Amanda Jo;** Clinical Instructor; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Stephens, Cynthia Stotler;** Clinical Instructor; Nursing Extn/Cont Educ; Master of Science; University of Missouri

**Stephens, Elizabeth Conner;** Assistant Professional Practice Professor; Journalism

**Stephens, Kelly Ann;** Assistant Teaching Professor; SHP/Physical Therapy; Master of Arts; University of Missouri

**Sterling, James;** Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Stern, Reuben Joseph;** Part-Time Adjunct Faculty; Dean of Journalism; Bachelor's Degree; University of Missouri

**Stevens, Jeffrey Allen;** Post Doctoral Fellow - Teaching; History; Doctor of Philosophy; University of California, Los Angeles

**Stevens, Lisa M;** Part-Time Adjunct Faculty; TV Station; Bachelor's Degree; University of Missouri

**Stevens, Mason Owen;** Adjunct Instructor; Nutrition & Exercise Phys-HES; Master of Science; University of Missouri

**Stevens, William Eugene;** Extension Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; Mississippi State University

**Stevenson, Brittney Lynn;** Part-Time Adjunct Faculty; SHP/Occupational Therapy; Master's Degree; University of Missouri

**Stevermer, James J;** Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; Washington University

**Stewart, Alexander Rupp;** Instructor; Mizzou K-12 Online; Master of Arts; George Washington University

**Stewart, Angela Ruth;** Associate Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; University of Missouri

**Stewart, Bob R;** Emeritus; School of Nursing; Doctor of Education; University of Maryland

**Stewart, George**; Professor; Life Sciences Center; Doctor of Philosophy; The University of Texas Health Science Center at Dallas

**Stewart, Kara**; Part-Time Adjunct Faculty; Animal Science

**Stewart, Ralsa Marshall**; Vice Chancellor; Agricultural Ed and Leadership; Doctor of Education; North Carolina State University

**Stich, Roger William**; Professor; Veterinary Pathobiology; Doctor of Philosophy; Oklahoma State University

**Stichter, Janine Peck**; Professor; Special Education; Doctor of Philosophy; The University of Iowa

**Stickles, Sean Patrick**; Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; New York Medical College

**Stidham, Lisa Ledell**; Instructor; School of Nursing

**Stober, Clinton P**; Associate Professor; Psychological Sciences; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Stoker, Aaron M**; Associate Research Professor; Orthopaedic Surgery; Doctor of Philosophy; University of Missouri

**Stoker, Nancy Cummings**; Instructor; Mizzou K-12 Online; Master of Arts

**Stokes, Garnett Sue**; Provost; Psychological Sciences; Doctor of Philosophy; The University of Georgia

**Stone, Bethany**; Teaching Professor; Biological Science; Doctor of Philosophy; University of Missouri

**Storey, Pamela**; Laboratory Instructor; Human Devl & Family Science; Master's Degree; University of Missouri

**Stormont, Melissa**; Professor; Special Education; Doctor of Philosophy; Purdue University

**Stowers, Lester Samuel**; Teaching Professor; English; Master's Degree; University of Missouri

**Stoyanov, Alexandre**; Assistant Research Professor; Path & Anat Sci-Anatomic Path

**Strathausen, Carsten**; Professor; German & Russian Studies; Doctor of Philosophy; University of Oregon

**Strathman, Alan J**; Part-Time Adjunct Faculty; Psychological Sciences; Doctor of Philosophy; The Ohio State University

**Strickland, Donna G**; Associate Professor; English; Doctor of Philosophy; University of Wisconsin - Milwaukee

**Strobel, Johannes**; Professor; Info Science & Learning Tech; Doctor of Philosophy; University of Missouri

**Strong, Stacie Ilene**; Professor; Law; Doctor of Philosophy; University of Oxford

**Stroud, Tracy Ann**; Associate Professor Of Clinical Department; Child Health

**Stryjewski, Megan Coats**; Adjunct Instructor; Learning Teaching & Curriculum; Doctor of Education; Maryville University

**Stubbs, Sue**; Adjunct Assistant Professor; Music; University of Missouri

**Stucky, Renee**; Professional Practice Professor; Physical Medicine & Rehab

**Studer, Melanie Prather**; Instructor; Mizzou K-12 Online; Bachelor's Degree; Baylor University

**Stuhlman, Brian P**; Instructor; Honors College; Master of Education; University of Missouri

**Stutz, Michele Bamihias**; Instructor; Mizzou K-12 Online; Master of Science; Purdue University

**Sudduth, Kenneth Alan**; Part-Time Adjunct Faculty; Bioengineering; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Suedmeyer, Kirk**; Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Suits, Arthur Gilmore**; Professor; Chemistry; Doctor of Philosophy; University of California, Berkeley

**Sukhanov, Sergiy**; Associate Research Professor; Medicine-Cardiology; Doctor of Philosophy; Zabolotny Microbiology and Virology Institute

**Sukys, Julija**; Assistant Professor; English; Doctor of Philosophy; University of Toronto

**Sulko, Sara L**; Lecturer; International programs

**Summerhays, Benjamin John**; Assistant Professional Practice Professor; Orthopaedic Surgery; Doctor of Medicine; Ohio College of Pediatric Medicine

**Summers, Gerald F**; Associate Professor; Biological Science; Doctor of Philosophy; University of Illinois

**Sumner, Lloyd**; Professor; Agriculture Biochemistry; Doctor of Philosophy; Oklahoma State University

**Sun, Carlos Chung**; Professor; Civil/Environmental Engr; Doctor of Philosophy; University of California, Irvine

**Sun, Dongchu**; Professor; Statistics; Doctor of Philosophy; Purdue University

**Sun, Grace Y**; Emeritus; Biochemistry; Doctor of Philosophy; Oregon State University

**Sun, Hongmin**; Associate Professor; Medicine; Doctor of Philosophy; The University of Texas at Houston

**Sun, Jianguo**; Professor; Statistics; Doctor of Philosophy; University of Waterloo

**Sun, Zhe**; Assistant Research Professor; Med Pharmacology/Physiology; Doctor of Philosophy; University of Toledo

**Sunna, Ramez Sami**; Associate Professor Of Clinical Department; Medicine

**Suppes, Galen**; Professor; Chemical Engineering; Doctor of Philosophy; Johns Hopkins University

**Sutovsky, Peter**; Professor; Animal Science; Doctor of Philosophy; Czech Academy of Sciences

**Suttmoller, Kevin Edward**; Assistant Professor Of Clinical Department; Medicine-General Internal; Doctor of Medicine; AT Still University of Health Sciences

**Sveum, Kristi Turner**; Part-Time Adjunct Faculty; Social Work; Master of Social Work; University of Missouri

**Sveum, Matthew Arthur**; Post Doctoral Fellow; Agricultural/Applied Economics; Master of Arts; University of Missouri

**Svoma, Bohumil M;** Assistant Professor; School of Natural Res Admin; Doctor of Philosophy; Arizona State University

**Swofford, Scott Cunningham;** Associate Professional Practice Professor; Journalism; Master of Journalism; University of Missouri

**Swanson, Mark Kenneth;** Associate Professional Practice Professor; Journalism; Bachelor's Degree; University of Missouri

**Swee, Mitchell Evan;** Part-Time Adjunct Faculty; Intercollegiate Athletics; Master of Science; Oregon State University

**Swenson, Amanda;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Swenson, John;** Associate Teaching Professor; Management; Juris Doctor; University of Missouri

**Swick, Marly A;** Emeritus; English; Doctor of Philosophy; American Universtiy

**Swofford, Sarah Jean;** Associate Professor Of Clinical Department; Family & Community Medicine

**Swyers, Gay;** Instructor; Mizzou K-12 Online; Bachelor's Degree

**Syam, Niladri Baran;** Associate Professor; Marketing; Doctor of Philosophy; The University of Texas at Dallas

**Sykuta, Michael E;** Associate Professor; Agricultural/Applied Economics; Doctor of Philosophy; Washington University

**Syler, Claire P;** Assistant Professor; Theatre; Doctor of Philosophy; University of Pittsburgh

**Szabo, Jamie Lynne;** Part-Time Adjunct Faculty; Sponsored Program Admin; Master of Public Administration; University of Missouri

**Szekely, Eva Diana;** Professor; School of Music; Master's Degree; The Juilliard School

**Tabanelli, Roberta;** Associate Professor; Romance Languages & Literature; Doctor of Philosophy; University of Wisconsin - Madison

**Tacker, Allen Bernard;** Assistant Instructor; Vice Provost for International Programs; Doctor of Philosophy; University of Missouri

**Taha, Ammar;** Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine; Damascus University

**Tahan, Veyssel;** Assistant Professor Of Clinical Department; Medicine-Gastroenterology; Doctor of Medicine; Akdeniz University

**Takeda, Shuichiro;** Associate Professor; Mathematics; Doctor of Philosophy; University of Pennsylvania

**Tan, Change Laura;** Associate Professor; Biological Science; Doctor of Philosophy; University of Pennsylvania

**Tan, Jinglu;** Director; Bioengineering; Doctor of Philosophy; University of Minnesota

**Tanaka, Tomoko;** Assistant Professor; Surgery-Neurosurgery; Doctor of Medicine; Kitasato University

**Taneja, Harsh;** Assistant Professor; Journalism; Doctor of Philosophy; Northwestern University

**Tanner, John J;** Professor; Agriculture Biochemistry; Doctor of Philosophy; Brown University

**Tanner, Steven Dwight;** Part-Time Adjunct Faculty; Biological Science; Doctor of Philosophy; University of Missouri

**Tanner Jones, Lou A;** Assistant Clinical Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Tarkow, Theodore Alfred;** Associate Dean; Classical Studies; Doctor of Philosophy; University of Michigan

**Tarlov, Nicholas Edward;** Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine; University of Southern California

**Tarr, James E;** Professor; Learning Teaching & Curriculum; Doctor of Philosophy; Illinois State University

**Tartiere, Jean-Gerald;** Adjunct Instructor; Theatre; Master's Degree; The Pennsylvania State University

**Tarwater, Kristen Deane;** Associate Professor Of Clinical Department; Family & Community Medicine

**Tarwater, Kurtis Daniel;** Assistant Professor Of Clinical Department; Medicine

**Tatarko Jr, John Lawrence;** Assistant Teaching Professor; Chemical Engineering; Doctor of Philosophy; University of Louisville

**Tatum III, Paul E;** Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; The University of Texas

**Taub, Haskell;** Emeritus; Physics; Doctor of Philosophy; Cornell University

**Taylor, Jeremy F;** Curators Distinguished Professor; Animal Science; Doctor of Philosophy; University of New England

**Taylor, Julia A;** Assistant Research Professor; Biological Science; Doctor of Philosophy; University of Keele

**Taylor, Kristen Hawkins;** Assistant Professor; Path & Anat Sci-Anatomic Path; Doctor of Philosophy; Texas A&M University

**Tchatalbachev, Vladislav Velizarov;** Assistant Professor Of Clinical Department; Radiology

**Tedbury, Philip Richard;** Assistant Research Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Leeds

**Teixeiro Pernas, Maria Emma;** Associate Professor; Molec Microbio & Immunology; Doctor of Philosophy; University Complutense Madrid

**Tenkku Lepper, Leigh Ellen;** Associate Research Professor; Social Work; Doctor of Philosophy; Saint Louis University

**Tennison, Angela K;** Assistant Teaching Professor; Veterinary Medicine & Surgery; Bachelor's Degree; University of Missouri - St. Louis

**Terjung, Ronald L;** Emeritus; Biomedical Sciences; Doctor of Philosophy; The University of Iowa

**Terry, Melissa Virginia;** Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine

**Teti, Michelle;** Associate Professor; SHP/Health Sciences; Doctor of Philosophy; Drexel University

**Tew, Patricia A;** Assistant Clinical Professor; SHP/Clinical & Diagnostic Sci; Master's Degree; Colorado State University

**Thakkar, Mahesh Maganlal;** Professor; Neurology; Doctor of Philosophy; Jawaharlal Nehru University

**Tharakan, Ajit Kurien;** Associate Professor Of Clinical Department; Surgery; Doctor of Medicine; Christian Brothers University

**Tharp, Steven Michael**; Assistant Professor; School of Music; Master's Degree; Wichita State University

**Thelen, Jay J**; Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Missouri

**Thies, Karen M**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Osteopathic Medicine; Kansas City University of Medicine and Biosciences

**Thomas, Andrew L**; Assistant Research Professor; Plant Sciences; Master of Science; Iowa State University

**Thomas, Cathy**; Associate Professor; Special Education; Doctor of Philosophy; The University of Texas at Austin

**Thomas, Jonathan Lee**; Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Thomas, Lloyd B**; Adjunct Assistant Professor; Economics; Doctor of Philosophy; Northwestern University

**Thomas, Ryan James**; Assistant Professor; Journalism; Doctor of Philosophy; Washington State University

**Thomas, Shari Lynne**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Thomas, Shelby Anne**; Assistant Teaching Professor; School of Nursing; Doctor of Nursing Practice; University of Missouri

**Thombs, Lori Ann**; Associate Professor; Statistics; Doctor of Philosophy; Southern Methodist University

**Thompson, Aaron Mathew**; Assistant Professor; Social Work; Doctor of Philosophy; University of North Carolina

**Thompson, Allen L**; Professor; Bioengineering; Doctor of Philosophy; University of Nebraska

**Thompson, Anne Elizabeth**; Adjunct Assistant Professor; Art; Master of Fine Arts; Yale University

**Thompson, Donald Leo**; Professor; Chemistry; Doctor of Philosophy; University of Arkansas

**Thompson, Frank R**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Missouri

**Thompson, James E**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Texas Tech University

**Thompson, Wyatt Warren**; Associate Professor; Agricultural/Applied Economics; Doctor of Philosophy; University of Missouri

**Thornburg, Kathy**; Emeritus; Human Devl & Family Science

**Thornton, Jessica Mercedes**; Assistant Professor; Art; Master of Fine Arts; Washington University

**Thorson, Esther L**; Part-Time Adjunct Faculty; Communication; Doctor of Philosophy; University of Minnesota

**Thyfault, John P**; Part-Time Adjunct Faculty; Nutrition & Exercise Phys-MED; Doctor of Philosophy; The University of Kansas

**Tillitt, Donald E**; Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; Michigan State University

**Timms, Kathy L**; Professor; Ob, Gyn & Women's Health; Doctor of Philosophy; The University of Tennessee

**Tipton, Peter A**; Professor; Biochemistry; Doctor of Philosophy; University of Wisconsin - Madison

**Tlapek, Sarah Myers**; Assistant Professor; Social Work; Master of Social Work; University of Pittsburgh

**Toalson, Marilyn Lee**; Instructor; Mizzou K-12 Online; Master of Arts; University of Missouri

**Tofle, Ruth Brent**; Professor; Architectural Studies; Doctor of Philosophy; University of Minnesota

**Toigo, Stephanie Christine**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Education

**Tomlinson, James Leroy**; Adjunct Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Minnesota

**Tompson Jr, Robert V**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Torres, Bryan Thomas**; Assistant Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Georgia

**Tosh, Aneesh Kumar**; Associate Professor Of Clinical Department; Child Health; Doctor of Medicine; University of Missouri

**Townsend, Martha A**; Emeritus; English; Doctor of Philosophy; Arizona State University

**Trachtenberg, Ben Lev**; Associate Professor; Law

**Tran, Dieu T**; Clinical Instructor; Medicine-Gastroenterology; Doctor of Medicine

**Trauth, Kathleen M**; Associate Professor; Civil/Environmental Engr; Doctor of Philosophy; Texas Tech University

**Travis, Frederick William**; Assistant Teaching Professor; Finance; Master of Business Administration; University of Pittsburgh

**Travis, Mark Douglas**; Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine; The University of Iowa

**Trendle, Michael C**; Associate Professor Of Clinical Department; Medicine-Hematology & Oncology; Doctor of Medicine

**Triatik, Rebecca L**; Part-Time Adjunct Faculty; International programs; Bachelor's Degree

**Trindade, Vitor Manuel**; Associate Professor; Economics; Doctor of Philosophy; University of California, San Diego

**Trinklein, David Herbert**; Associate Professor; Plant Sciences; Doctor of Philosophy; University of Missouri

**Trombold, John Matthew**; Assistant Professor Of Clinical Department; Surgery-General; Doctor of Medicine; University of Kansas School of Medicine

**Trout, Dennis E**; Professor; Classical Studies; Doctor of Philosophy; Duke University

**Trull, Timothy J**; Curators Distinguished Professor; Psychological Sciences; Doctor of Philosophy; University of Kentucky

**Tsai, Chia-Lin**; Part-Time Adjunct Faculty; R&D ARC; Doctor of Philosophy; University of Missouri

**Tse, Eliza**; Professor; Food Science; Doctor of Philosophy; Virginia Tech

**Tsika, Richard W**; Professor; Biomedical Sciences; Doctor of Philosophy; University of California, Irvine

**Tsoi, Allanus Hakman;** Professor; Mathematics; Doctor of Philosophy; University of Alberta

**Tu, Junwu;** Assistant Professor; Mathematics; Doctor of Philosophy; University of Wisconsin - Madison

**Tucker, Charles Michael;** Instructor; Mizzou K-12 Online; Master of Science; University of Missouri

**Tuller, Erin Ragan;** Assistant Professor Of Clinical Department; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

**Tummons, John D;** Assistant Teaching Professor; Agricultural Ed and Leadership; Doctor of Philosophy; University of Missouri

**Tummons, Martha Elizabeth;** Part-Time Adjunct Faculty; Graduate Studies; Master's Degree; University of Central Missouri

**Turban, Daniel B;** Professor; Management; Doctor of Philosophy; University of Houston

**Turner, Steven Lawrence;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Columbia College

**Turpin, William Monroe;** Part-Time Adjunct Faculty; Missouri Innovation Center

**Tuttle, Gabrielle Elaine;** Instructor; Mizzou K-12 Online; Master of Library Science; University of Missouri

**Twenter, Hannah Marie;** Part-Time Adjunct Faculty; Animal Science; Master's Degree; Colorado State University

**Tyler, Lindsey Leigh;** Adjunct Instructor; Journalism

**Tzou, Robert Da;** Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Lehigh University

**Udawatta, Ranjith P;** Associate Research Professor; Forestry; Doctor of Philosophy; University of Missouri

**Ugarte, Michael;** Emeritus; Romance Languages & Literature; Doctor of Philosophy; Cornell University

**Uhlmann, Jeffrey;** Associate Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Oxford

**Ulbrich, Sherri Lynn;** Associate Teaching Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Ulery, Bret Daniel;** Assistant Professor; Chemical Engineering; Doctor of Philosophy; Iowa State University

**Ulery, Eva Schott;** Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Iowa State University

**Ullrich, Carsten Andreas;** Professor; Physics; Doctor of Philosophy; University of Wurzburg

**Underwood, Michael B;** Emeritus; Geological Sciences; Doctor of Philosophy; Cornell University

**Unger, Brent J;** Associate Chair; Aerospace Studies; Master's Degree; University of Missouri

**Unger, Irene M;** Part-Time Adjunct Faculty; School of Natural Res Admin; Doctor of Philosophy; University of Missouri

**Unrath, Kathleen;** Associate Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri

**Upah, Jennifer R;** Assistant Teaching Professor; Parks Recreation & Tourism; Master's Degree; University of Houston

**Upendran, Anandhi;** Part-Time Adjunct Faculty; Instit Clinical & Trans Sci; Doctor of Philosophy; Indian Institute of Science

**Uphoff, Rodney J;** Emeritus; Law; Juris Doctor; University of Wisconsin - Madison

**Urban, Michael A;** Associate Professor; Geography; Doctor of Philosophy; University of Illinois

**Ureta-Cooper, Laura;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Urie, Cassidy Lynn;** Adjunct Instructor; Academic Dean; Master of Education; University of Missouri

**Uriyo, Angela Furaha;** Part-Time Adjunct Faculty; Patient Dining Services; Master of Science; Virginia Tech

**Valdivia, Corinne B;** Associate Professor; Agricultural/Applied Economics; Doctor of Philosophy; University of Missouri

**Valentine, Jerry Wayne;** Emeritus; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Nebraska

**Valettas, Petros;** Post Doctoral Fellow - Teaching; Mathematics; Doctor of Philosophy; University of Athens, Greece

**Valiavska, Anna;** Part-Time Adjunct Faculty; Dean of Arts & Science; Master of Science; Western Illinois University

**Vallentyne, Peter L;** Professor; Philosophy; Doctor of Philosophy; University of Pittsburgh

**Van Doren, Steven R;** Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Van Dyke, James A;** Associate Professor; Art History & Classical Archae; Doctor of Philosophy; Northwestern University

**Van Garderen-Anderson, Delinda;** Associate Professor; Special Education; Doctor of Philosophy; University of Miami

**Van Morian, Amie Margett;** Assistant Professor Of Clinical Department; Child Health-Endocrinology; Doctor of Medicine; Saint Louis University

**Van Pool, Christine I;** Associate Professor; Anthropology; Doctor of Philosophy; The University of New Mexico

**VanEngelenhoven, Orley Andrew;** Instructor; VP Undergraduate Studies; Master of Science; University of Missouri

**VanGerven, Jesse Peter;** Part-Time Adjunct Faculty; Mizzou Online; Doctor of Philosophy; University of Missouri

**VanMarle, Kristy L;** Associate Professor; Psychological Sciences; Doctor of Philosophy; Yale University

**Vance, Michael D;** Part-Time Adjunct Faculty; Military Science; Some College - 3rd entry; University of Kansas

**Vangilder, Larry D;** Senior Research Associate; School of Natural Res Admin; Doctor of Philosophy; The Ohio State University

**Vanpool, Todd Logan;** Associate Professor; Anthropology; Doctor of Philosophy; The University of New Mexico

**Vardhanabhuti, Bongkosh;** Assistant Professor; Food Science; Doctor of Philosophy; North Carolina State University

**Varella Miranda, Bruno;** Adjunct Instructor; Management

**Varghese, Ebby G;** Assistant Professor Of Clinical Department; Physical Medicine & Rehab

**Varre, Satyanarayana Rao**; Assistant Professor Of Clinical Department; Medicine Hospitalist; Doctor of Medicine; Marshfield Clinic

**Vaught, David R**; Associate Teaching Professor; Parks Recreation & Tourism; Doctor of Philosophy; University of Missouri

**Velazquez, Celso Raul**; Associate Professor Of Clinical Department; Medicine-Immunology & Rheumato; Doctor of Medicine

**Velloff-Burris, Tara Marie**; Assistant Professor Of Clinical Department; Medicine-General Internal

**Verbitsky, Igor**; Curators Distinguished Professor; Mathematics; Doctor of Philosophy; Kazan State University

**Vergara, Jose Alejandro**; Visiting Assistant Professor; German & Russian Studies; Doctor of Philosophy; University of Wisconsin - Madison

**Verkamp, Laura Elizabeth**; Adjunct Instructor; SHP/Health Sciences; Master of Education

**Vetter-Smith, Molly J**; Assistant Teaching Professor; SHP/Health Sciences; Master's Degree

**Veum, Trygve Lauritz**; Emeritus; Animal Science; Doctor of Philosophy; Cornell University

**Vie, Laura Leigh**; Adjunct Instructor; Mizzou Online

**Vieira Potter, Victoria Jeanne**; Assistant Professor; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Vignale, Giovanni**; Curators Distinguished Professor; Physics; Doctor of Philosophy; Northwestern University

**Vilceanu, Daniel**; Assistant Professor Of Clinical Department; Anesthesiology; Doctor of Philosophy

**Villamil Monroy, Astrid Milena**; Assistant Teaching Professor; Communication; Doctor of Philosophy; The University of Kansas

**Vincent, Erin Nicole**; Instructor; Mizzou K-12 Online; Master of Education; University of Missouri

**Vincent, Paul Leszek**; Instructor; Agriculture Biochemistry; Doctor of Philosophy; University of Natal

**Vinson, Daniel C**; Emeritus; Family & Community Medicine; Doctor of Medicine; The University of North Carolina at Chapel Hill

**Vinze, Ajay Shreekrishna**; Dean; Dean of College of Business; Doctor of Philosophy; University of Arizona

**Virkler, Mark Robert**; Emeritus; Civil/Environmental Engr; Doctor of Philosophy; University of Virginia

**Voelkl, Dawna Lynn**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Cornell University

**Vogel, Paul LeRoy**; Part-Time Adjunct Faculty; Law

**Vogel, Todd Rudolph**; Associate Professor; Surgery - Vascular; Doctor of Medicine; New York Medical College

**Vogelsang, Carly Lou**; Lecturer; International programs; Master of Arts; Southeast Missouri State Unive

**Vogelsmeier, Amy**; Associate Professor; School of Nursing; Doctor of Philosophy; University of Missouri

**Vogelweid, Mary Catherine**; Clinical Professor; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Volgas, David Andrew**; Associate Professor; Orthopaedic Surgery; Doctor of Medicine; The University of Tennessee

**Volkman, Dietrich Hans**; Teaching Professor; Veterinary Medicine & Surgery; Doctor of Philosophy; Cornell University

**Volz, Michael John**; Assistant Teaching Professor; German & Russian Studies; Master's Degree; Stanford University

**Volz, Yong Zhang**; Associate Professor; Journalism; Doctor of Philosophy; University of Minnesota

**Vomsaal, Frederick Stephen**; Emeritus; Biological Science; Doctor of Philosophy; Rutgers University

**Vories, Earl**; Part-Time Adjunct Faculty; Bioengineering; Doctor of Philosophy; The University of Tennessee

**Vornholt, Catherine Louise**; Teaching Assistant; Biological Science; Bachelor's Degree; Lawrence University

**Vos, Tim P**; Associate Professor; Journalism; Doctor of Philosophy; Syracuse University

**Vought Jr, Thomas J**; Adjunct Instructor; Geography; Master's Degree; Kansas State University Salina

**Vroman, Amber Nicole**; Part-Time Adjunct Faculty; Care Management; Registered Nurse

**Vu, Emily Hong**; Instructor; Mizzou K-12 Online; Some College - 2nd entry; University of California, Berkeley

**Wade, Marcus Jerome**; Assistant Professor Of Clinical Department; Radiology; Doctor of Medicine

**Waggie, Aaron K**; Adjunct Assistant Professor; Child Health-Gen & Ambulatory; Doctor of Osteopathic Medicine; University of Health Sciences

**Wagman, Roy Alan**; Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Kansas

**Wagner Mann, Colette Carol**; Adjunct Associate Professor; Biomedical Sciences; Doctor of Veterinary Medicine; University of Missouri

**Wagovich, Stacy Ann**; Associate Professor; SHP/Comm Sci & Disorders; Doctor of Philosophy; The University of Georgia

**Wahman, Michael**; Assistant Professor; Political Science; Doctor of Philosophy

**Waid, Timothy R**; Associate Teaching Professor; Management; Doctor of Philosophy; University of Missouri

**Waigandt, Alexander C**; Emeritus; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Oregon

**Wakefield, Bonnie**; Part-Time Adjunct Faculty; School of Nursing; Registered Nurse

**Wakefield, Douglas Sidney**; Emeritus; Center for Health Care Quality; Doctor of Philosophy; The University of Iowa

**Wakefield, Mark Richard**; Associate Professor; Surgery-Urology; Doctor of Medicine; University of Missouri

**Waldron, Anna M**; Assistant Clinical Professor; Restem Institute; Doctor of Philosophy; Cornell University

**Walensky, Justin Ross**; Associate Professor; Chemistry; Doctor of Philosophy; University of California, Irvine

**Walker, John Charles;** Curators Distinguished Professor; Biological Science; Doctor of Philosophy; The University of Georgia

**Walker, Robert S;** Associate Professor; Anthropology; Doctor of Philosophy; The University of New Mexico

**Walker, Robin Gene;** Part-Time Adjunct Faculty; Graduate Studies; Doctor of Philosophy; University of Missouri

**Wall, Judy Davis;** Professor; Agriculture Biochemistry; Doctor of Philosophy; Duke University

**Wall, Timothy Jason;** Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Wall Jr, James Allen;** Curators Distinguished Teaching Professor; Management; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Wallace, Kathleen S;** Adjunct Instructor; Human Devl & Family Science; Master of Arts; University of Missouri

**Wallace, Laurie L;** Adjunct Associate Professor; Dean of Veterinary Medicine; Doctor of Veterinary Medicine; Kansas State University

**Wallace, Paul;** Instructor; Honors College; Doctor of Philosophy; University of California, Berkeley

**Wallach, Barbara Price;** Associate Professor; Classical Studies; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Waller, Erika McGraw;** Assistant Clinical Professor; Psychological Sciences; Doctor of Philosophy; University of Missouri

**Walsh, Robert Murray;** Assistant Teaching Professor; Architectural Studies; Doctor of Philosophy; University of Michigan

**Walsh, Samuel Peter;** Assistant Professor; Mathematics

**Walter, Margaret Rose;** Adjunct Instructor; Journalism; Master of Arts; Ball State University

**Walter, Stephanie Paige;** Instructor; Mizzou K-12 Online

**Walters, Eric Michael;** Assistant Research Professor; Animal Science; Doctor of Philosophy; University of Illinois at Springfield

**Walther, Harold A;** Adjunct Instructor; Personal Financial Planning; Juris Doctor; University of Missouri

**Wan, Caixia;** Assistant Professor; Biological Engineering; Doctor of Philosophy; The Ohio State University

**Wang, Fang;** Assistant Teaching Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri

**Wang, Juan;** Assistant Teaching Professor; Romance Languages & Literature; Doctor of Philosophy; University of Colorado

**Wang, Margaret;** Assistant Professor Of Clinical Department; Child Health

**Wang, Sheng;** Assistant Research Professor; Mechanical & Aerospace Engr; Doctor of Engineering; Chinese Academy of Sciences

**Wang, Shuguang;** Professor; Mathematics; Doctor of Philosophy; University of Oxford

**Wang, Xinghe;** Professor; Economics; Doctor of Philosophy; The University of Iowa

**Wang, Ze;** Associate Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Wankum, Patricia Catherine;** Associate Professor Of Clinical Department; Child Health Critical Care; Doctor of Medicine; University of Missouri

**Wara, AllisonMary;** Clinical Instructor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Atlantic Veterinary College

**Ward, Carol V;** Professor; Path & Anat Sci - Anatomy; Doctor of Philosophy; Johns Hopkins University

**Warhover, Thomas A;** Associate Professor; Journalism; Bachelor's Degree; University of Missouri

**Warmund, Michele Renee;** Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; University of Missouri

**Warner, Benjamin R;** Assistant Professor; Communication; Doctor of Philosophy; The University of Kansas

**Warnhoff, Wesley Ralph;** Assistant Teaching Professor; School of Music; Doctor of Musical Arts; Michigan State University

**Warzinik, Kelly Anne;** Instructor; Human Devl & Family Science; Master of Science; University of Missouri

**Washer, Glenn Alden;** Professor; Civil/Environmental Engr; Doctor of Philosophy; Worcester Polytechnic Institute

**Washington, Karla Thomasson;** Assistant Professor; Family & Community Medicine; Doctor of Philosophy; University of Missouri

**Watkins, Benjamin L;** Instructor; Architectural Studies; Bachelor's Degree; University of Missouri

**Watkins, Paul J;** Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis; Doctor of Education; Saint Louis University

**Watts, Steven;** Professor; History; Doctor of Philosophy; University of Missouri

**Wayland, Patricia Kay;** Lecturer; International programs; Master of Education; University of Missouri

**Weachter Jr, Richard J;** Associate Professor Of Clinical Department; Medicine-Cardiology; Doctor of Medicine; The University of Mississippi

**Weagley, Pamela N;** Professor; Textile and Apparel Mgmt; Doctor of Philosophy; Cornell University

**Weatherford, Ted;** Part-Time Adjunct Faculty; Health Mgmt & Informatics; Master of Public Admin; University of Missouri

**Weaver, Jan C;** Part-Time Adjunct Faculty; Biological Science; Doctor of Philosophy; University of Missouri

**Webb, Lisa;** Part-Time Adjunct Faculty; School of Natural Res Admin

**Webb, Weldon D;** Associate Dean; School of Medicine Expansion; Master of Arts; University of Missouri

**Webber, David J;** Assistant Instructor; Clinical Simulation Center; Doctor of Philosophy; Indiana University

**Webel, Corey M;** Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Delaware

**Webel, Richard R;** Associate Professor Of Clinical Department; Medicine

**Webster, James Nickels;** Adjunct Instructor; Academic Dean; Specialist of Education; University of Missouri

**Wechsler, Barton J;** Dean; H S Truman School of Pub Affrs; Doctor of Philosophy; The Ohio State University



**Weegman, Mitchell Dale**; Assistant Professor; Fisheries & Wildlife Sciences; Doctor of Philosophy; University of Exeter

**Weems, Linda M**; Part-Time Adjunct Faculty; SHP/Clinical & Diagnostic Sci

**Wegman, Lora Ellen**; Part-Time Adjunct Faculty; Mizzou Online; Master of Journalism

**Weinstein, Stephen H**; Associate Professor; Surgery

**Weir, Dana Erin**; Part-Time Adjunct Faculty; Office of Animal Resources; Bachelor's Degree; University of Missouri

**Weir, Robert B**; Part-Time Adjunct Faculty; The Missourian; Bachelor's Degree; University of Missouri

**Weirich, Paul**; Curators Distinguished Professor; Philosophy; Doctor of Philosophy; University of California, Los Angeles

**Weisbrook, Christa M**; Part-Time Adjunct Faculty; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Weisman, Gary A**; Professor; Agriculture Biochemistry; Doctor of Philosophy; University of Nebraska - Lincoln

**Weldon, Bruce Craig**; Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Saint Louis University

**Wells, Christina E**; Professor; Law; Juris Doctor; The University of Chicago

**Wells, Jack Cody**; Associate Professor Of Clinical Department; Family & Community Medicine

**Wells, Kevin Dale**; Associate Professor; Animal Science; Doctor of Philosophy; North Carolina State University

**Wells, William Thomas**; Associate Professional Practice Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Welshons, Wade Vincent**; Associate Professor; Biomedical Sciences; Doctor of Philosophy; Harvard University

**Wen, Dennis Y**; Associate Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; East Carolina University

**Wenger, Janice Kay**; Professor; School of Music; Doctor of Musical Arts; University of Missouri - Kansas City

**Wergeles, Nickolas Michael**; Assistant Professional Practice Professor; Electrical Eng & Computer Sci; Bachelor's Degree; University of Central Missouri

**Wescott, Sarah Jo**; Clinical Instructor; Medicine Hospitalist

**West, Nancy M**; Professor; English; Doctor of Philosophy; The University of North Carolina

**Westbrook, Kaitlin Marie**; Lecturer; International programs; Master of Arts; University of Kansas

**Westgate, Steven Judson**; Adjunct Assistant Professor; Radiology

**Westgren, Randall Edward**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; Purdue University

**Westhoff, Patrick**; Professor; Agricultural/Applied Economics; Doctor of Philosophy; Iowa State University

**Weston, Dana T**; Associate Professor; Mathematics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Wetzel, M Annice**; Assistant Teaching Professor; Romance Languages & Literature; Master's Degree; Middlebury College

**Wexler, Carlos**; Professor; Physics; Doctor of Philosophy; University of Washington

**Whaley-Connell, Adam Tyler**; Associate Professor; Medicine; Doctor of Osteopathic Medicine; Kansas City University of Medicine and Biosciences

**Wharton, Alexandra**; Part-Time Adjunct Faculty; Dean of Journalism

**Wheeler, Diamond Wade**; Adjunct Instructor; Marketing; Master of Business Admin; University of Missouri - Kansas City

**Wheeler, Tina Lynn**; Instructor; Mizzou K-12 Online; Master's Degree; Webster University

**Whelchel, Dorothy Daniel**; Assistant Teaching Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The University of Georgia

**Whelove, Richard T**; Adjunct Instructor; Mechanical & Aerospace Engr; Master of Education; University of Missouri

**Whisenhunt, Kenneth Chase**; Adjunct Instructor; School of Natural Res Admin; Master's Degree; University of Missouri

**Whistance, Jarrett Lea**; Research Scientist/Academic; Ag Econ - Food & Ag Policy Research Inst; Doctor of Philosophy; University of Missouri

**Whitaker, Margaret (Beth) Elizabeth**; Assistant Teaching Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; Indiana State University

**Whitaker, Todd Curtis**; Assistant Teaching Professor; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Missouri

**White, Enola Riann**; Part-Time Adjunct Faculty; School of Nursing; Masters Degree; University of Missouri

**White, Henry W**; Emeritus; Physics; Doctor of Philosophy; University of California, Riverside

**White, Shannon Hill**; Assistant Extension Professional; Youth & 4-H; Doctor of Philosophy; North Carolina State University

**White, Tommi A**; Director; Research Core Facilities

**Whites, Leeann**; Emeritus; History; Doctor of Philosophy; University of California, Irvine

**Whitesell, Angie**; Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Whiting, Rebecca Elizabeth**; Assistant Research Professor; Ophthalmology; Doctor of Philosophy; University of Missouri

**Whitman, Dale A**; Emeritus; Law; Juris Doctor; Duke University

**Whitney, Marlyn S**; Clinical Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; Purdue University

**Whitney, Stephen Dennis**; Associate Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Washington

**Whitt, Stevan P**; Associate Professor Of Clinical Department; Medicine; Doctor of Medicine; University of Missouri

**Whittier, Joanna Blair**; Assistant Research Professor; Fisheries & Wildlife Sciences; Doctor of Philosophy; Oklahoma State University

**Whittington, Alan Geoffrey**; Professor; Geological Sciences; Doctor of Philosophy; Open University

**Wiebold, William J;** Professor; Ag Ext-Plant Sciences; Doctor of Philosophy; The University of Georgia

**Wiedermann, Wolfgang;** Assistant Professor; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Klagenfurt

**Wiedmeyer, Charles E;** Associate Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; University of Illinois

**Wiegand, Bryon R;** Professor; Animal Science; Doctor of Philosophy; Iowa State University

**Wiese, Jeffrey A;** Assistant Dean; Dean of College of Business; Doctor of Philosophy; University of Missouri

**Wigger, John H;** Professor; History; Doctor of Philosophy; University of Notre Dame

**Wikle, Christopher K;** Curators Distinguished Professor; Statistics; Doctor of Philosophy; Iowa State University

**Wilden, Peter A;** Associate Professor; Med Pharmacology/Physiology; Doctor of Philosophy; The University of Iowa

**Wiley, Tara Marie;** Instructor; Mizzou K-12 Online; Bachelor's Degree; Kansas State University

**Wilhelm Stanis, Sonja Ann;** Associate Professor; Parks Recreation & Tourism; Doctor of Philosophy; University of Minnesota

**Will, Matthew J;** Associate Professor; Life Sciences Center; Doctor of Philosophy; University of Colorado Boulder

**Willard, Adam R;** Part-Time Adjunct Faculty; Dean of Health Professions; Master of Public Administration; University of Missouri

**Willett, Dan L;** Professor; School of Music; Master's Degree; Michigan State University

**Willett, Justin F;** Part-Time Adjunct Faculty; Communications; Bachelor's Degree; University of Missouri

**Williams, Amy S;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Williams, Casey D;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Williams, Laron K;** Associate Professor; Political Science; Doctor of Philosophy; Texas A&M University

**Williams, Paige Ashley;** Associate Professional Practice Professor; Journalism; Master of Fine Arts; Columbia University

**Williams III, Fred;** Assistant Clinical Professor; Veterinary Diagnostic Laborato; Doctor of Veterinary Medicine

**Willis, Bradley W;** Assistant Teaching Professor; SHP/Physical Therapy; Master's Degree; University of Missouri

**Wills, Theodore E;** Assistant Clinical Professor; Ophthalmology; Doctor of Medicine; University of Nebraska

**Wilmot, Jennifer Marie;** Instructor; Charter Schools; Master of Arts; University of Missouri

**Wilson, Christopher;** Teaching Professor; English; Master of Fine Arts; Kansas State University

**Wilson, David Alan;** Professor; Veterinary Medicine & Surgery; Master of Science; University of Illinois at Urbana-Champaign

**Wilson, David J;** Adjunct Instructor; Mizzou Online; Doctor of Education; University of Missouri

**Wilson, Erin Kathleen;** Adjunct Instructor; German & Russian Studies; Doctor of Philosophy; University of Missouri

**Wilson, Lisa Ruth;** Clinical Instructor; School of Nursing; Master of Nursing; Saint Louis University

**Wilson, Rachel A;** Assistant Teaching Professor; Accountancy; Master of Laws; New York University

**Wilson, Richard A;** Associate Professor; Art; Master of Fine Arts; University of Missouri

**Wilson Kleekamp, Traci Lizzette;** Tutor; Intercollegiate Athletics; Bachelor's Degree; California State University

**Wilson-Wunsch, Beverley;** Visiting Assistant Professor; Hospitality Management; Master of Education; University of Nevada - Las Vegas

**Windett, Tina Yvonne;** Part-Time Adjunct Faculty; Academic Dean; Specialist of Education; University of Missouri

**Wingo, Kristian Matthias;** Visiting Instructor; International programs; Master of Arts; University of Illinois at Urbana-Champaign

**Winholtz, Robert Andrew;** Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Northwestern University

**Winn, Hung N;** Professor; Ob, Gyn & Women's Health; Doctor of Medicine; University of Illinois

**Wintemberg, Jenna N;** Instructor; SHP/Health Sciences; Master of Public Health; Univeristy of Missouri

**Winton, Beth Joelle;** Part-Time Adjunct Faculty; Mizzou Online; Doctor of Philosophy; Univeristy of Missouri

**Wipke Tevis, Deidre D;** Associate Professor; School of Nursing; Doctor of Philosophy; University of California, San Francisco

**Wirkus, Anthony Aaron;** Part-Time Adjunct Faculty; Intercollegiate Athletics; Bachelor's Degree; University of Missouri

**Wisdom-Behounek, Jennifer R;** Assistant Professor Of Clinical Department; Family & Community Medicine; Doctor of Medicine; University of Illinois College of Medicine

**Wise, Rachel Kristene;** Part-Time Adjunct Faculty; Journalism; Master of Arts; New York University

**Wise, Ramsay B;** Lecturer; English & Tech Communication; Doctor of Philosophy; Univeristy of Missouri

**Wisnewski, Lindsey D;** Part-Time Adjunct Faculty; Dean of Engineering; Master of Public Admin; University of Missouri

**Witter, David J;** Instructor; Mizzou K-12 Online

**Woelfel, Stacey W;** Associate Professional Practice Professor; Journalism; Doctor of Philosophy; University of Missouri

**Wojciehowski, Kathleen Ann;** Adjunct Instructor; Mizzou Online; Juris Doctor; University of Missouri

**Wolf, Christopher J;** Associate Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Osteopathic Medicine; AT Still University of Health Sciences

**Wolf, Danica Suzanne;** Part-Time Adjunct Faculty; Social Justice; Master of Social Work; University of Missouri

**Wolf, Timothy J;** Associate Professor; SHP/Occupational Therapy; Doctor of Philosophy; Washington University

**Wolff, Tonya T;** Adjunct Instructor; Dean of College of Business; Master of Business Administration; University of Missouri

**Wolken, Bradley R;** Assistant Instructor; VP for International Programs; Bachelor's Degree; Indiana Wesleyan University

**Womack, Abner Willis;** Emeritus; Ag Econ - Food & Ag Policy Research Inst; Doctor of Philosophy; University of Minnesota

**Wood, Bondi Jo;** Instructor; Truman School of Pub Affrs Adm; Master's Degree; University of Missouri

**Wood, Jeffrey David;** Assistant Research Professor; School of Natural Resources; Doctor of Philosophy; University of Guelph

**Wood, Jill Hermesen;** Part-Time Adjunct Faculty; EVP Academic Affairs Office; Doctor of Philosophy; University of Missouri

**Wood, Lea Ashleigh;** Assistant Teaching Professor; School of Nursing; Registered Nurse; University of Missouri

**Wood, Phillip;** Professor; Psychological Sciences; Doctor of Philosophy; University of Minnesota

**Wood Turley, Sharon;** Assistant Teaching Professor; Applied Soc Sci Div Admin; Master's Degree; University of Missouri

**Woods, Christine Michelle;** Clinical Instructor; Social Work; Master's Degree; University of Missouri

**Woods, Jayne Tiana;** Adjunct Associate Professor; Law; Juris Doctor; University of Missouri

**Woods, Stephanie Lynn;** Visiting Instructor; Graduate Studies; Master's Degree; The University of Southern Mississippi

**Woodson, Stanley C;** Part-Time Adjunct Faculty; Civil/Environmental Engr

**Woolery, Daniel R;** Clinical Instructor; Medicine Hospitalist; Bachelor's Degree; Lindenwood College

**Woolery, Lee Ann;** Associate Extension Professional; Community Development Admin

**Worsowicz, Gregory M;** Professor Of Clinical Department; Physical Medicine & Rehab; Doctor of Medicine; University of Florida

**Worthington, Ian;** Curators Distinguished Professor; History; Doctor of Philosophy; Monash University

**Wren, Danna;** Part-Time Adjunct Faculty; Vice Provost Undergraduate Studies; Doctor of Philosophy; University of Missouri

**Wright, Abbie C;** Assistant Professor Of Clinical Department; Emergency Medicine; Doctor of Medicine; University of Washington

**Wright, Farroll Tim;** Emeritus; Statistics; Doctor of Philosophy; University of Missouri

**Wright, Kathryn Eleanor;** Instructor; Mizzou K-12 Online; Bachelor's Degree; University of Missouri

**Wright, Lisa Ann;** Adjunct Instructor; Mizzou Online; Doctor of Philosophy; University of Missouri

**Wright, Risa Marie;** Teaching Assistant; Biological Science; Master of Science; Missouri State University

**Wu, Bin;** Professor; Industrial/Mfg Sys Engr; Doctor of Philosophy; Brunel University

**Wu, Zihao;** Assistant Professor Of Clinical Department; Surgery-Surgical Oncology; Doctor of Medicine; Sun Yat-sen University

**Wung, Lynn M;** Assistant Professor Of Clinical Department; Family & Community Medicine

**Wybrant, Stephanie Joy;** Adjunct Instructor; Human Devl & Family Science; Master of Arts; University of Missouri

**Wycoff, Linda Dianne;** Adjunct Instructor; Learning Teaching & Curriculum; Master's Degree; University of Missouri

**Xiao, Chengshan;** Professor; Electrical and Computer Engr; Doctor of Philosophy; University of Sydney

**Xin, Ming;** Associate Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; Missouri University of Science and Technology

**Xing, Yangchuan;** Professor; Chemical Engineering; Doctor of Philosophy; Yale University

**Xiong, Xi;** Associate Professor; Plant Sciences; Doctor of Philosophy; Oklahoma State University

**Xu, Dong;** Professor; Life Sciences Center; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Yabe, Mariko;** Assistant Professor Of Clinical Department; Child Health-Administration; Doctor of Medicine; Aga Khan University

**Yacovazzi, Cassandra Leigh;** Post Doctoral Fellow - Teaching; History; Doctor of Philosophy; Baylor University

**Yaglom, Hayley Danielle;** Adjunct Instructor; Mizzou Online; Master of Public Health; University of Missouri

**Yan, Haojing;** Associate Professor; Physics; Doctor of Philosophy; Arizona State University

**Yan, Xuemin;** Professor; Finance; Doctor of Philosophy; The University of Iowa

**Yang, Hsiao Tung;** Research Professor; Biomedical Sciences; Doctor of Philosophy; Brigham Young University

**Yang, Meng-Hsuan;** Assistant Professor; History; Doctor of Philosophy; The University of British Columbia

**Yang, Sherry Wei;** Clinical Instructor; Medicine Hospitalist; Doctor of Medicine; University of Alabama

**Yanos, John;** Physician; Emergency Medicine; Doctor of Medicine

**Yao, Gang;** Professor; Biological Engineering; Doctor of Philosophy; Texas A&M University

**Yao, Rui;** Associate Professor; Personal Financial Planning; Doctor of Philosophy; The Ohio State University

**Yeh, Edward T;** Professor; Medicine-Cardiology; Doctor of Medicine; University of California, Davis

**Yelon, Harriet Most;** Assistant Instructor; VP for International Programs; Master of Social Work; University of Missouri

**Yerram, Preethi;** Associate Professor Of Clinical Department; Medicine-Nephrology

**Yin, Dezhi;** Assistant Professor; Management; Doctor of Philosophy; Georgia Institute of Technology

**Yohannes, Yordanos**; Assistant Professor Of Clinical Department; Anesthesiology

**Yona, Sergio**; Assistant Professor; Classical Studies; Doctor of Philosophy

**Yonan, Michael E**; Associate Professor; Art History & Classical Archae; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Yonkman, Carol Ann**; Emeritus; School of Nursing; Master's Degree; University of Missouri

**Yoo, Ill Hoi**; Associate Professor; Health Mgmt & Informatics; Doctor of Philosophy; Drexel University

**Yoon, Dongpil**; Associate Professor; Social Work; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Yore, Adam Shane**; Assistant Professor; Finance; Doctor of Philosophy; Drexel University

**Yoshida, Tadashi**; Assistant Research Professor; Medicine-Cardiology; Doctor of Philosophy; The University of Tokyo

**You, Seung Kwon**; Part-Time Adjunct Faculty; Vice Provost for International Programs; Doctor of Philosophy; University of Missouri

**Young, Jason S**; Part-Time Adjunct Faculty; School of Natural Res Admin; Bachelor of Science; University of Missouri

**Young, Margaret Raeanna**; Part-Time Adjunct Faculty; Academic Dean; Master of Arts; Truman State University

**Young, Virginia A**; Adjunct Instructor; Journalism; Master's Degree; University of Missouri

**Young Walker, Laine M**; Associate Professor Of Clinical Department; Psychiatry; Doctor of Medicine; University of Missouri

**Younger, Sarah Beth**; Assistant Professor Of Clinical Department; Child Health

**Youngquist, Robert Steven**; Adjunct Professor; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Iowa State University

**Yunker, Thomas Dirk**; Professor Of Clinical Department; Anesthesiology; Doctor of Medicine; Medical College of Georgia

**Youse, M Elizabeth**; Clinical Instructor; School of Nursing; Associate Degree; Hannibal LaGrange College

**Yu, Mansoo**; Associate Professor; Social Work; Doctor of Philosophy; Washington University

**Yu, Ping**; Professor; Physics; Doctor of Philosophy; Hong Kong University of Science & Technology

**Yu, Qingsong**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Yu, Ying-Chun**; Assistant Research Professor; Med Pharmacology/Physiology; Doctor of Philosophy; Department of Pharmacology

**Zachary, Iris**; Assistant Research Professor; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Zaghouani, Habib**; Professor; Molec Microbio & Immunology; Doctor of Philosophy; University of Paris

**Zaheer, Asgar**; Professor; Neurology; Doctor of Philosophy; Bombay University, India

**Zangori, Laura Ann**; Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; University of Nebraska - Lincoln

**Zaniletti, Isabella**; Assistant Teaching Professor; Statistics; Doctor of Philosophy; University of Missouri

**Zapata, Maria Angelica**; Assistant Professor; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Texas at Austin

**Zars, Troy D**; Associate Professor; Biological Science; Doctor of Philosophy; University of Notre Dame

**Zeiders, Katharine Ellen**; Part-Time Adjunct Faculty; Human Devl & Family Science; Doctor of Philosophy; Arizona State University

**Zeilenga, Jeffrey R**; Part-Time Adjunct Faculty; Student Auxiliary Services; Doctor of Education; University of Arizona

**Zema, Phillip Matthew**; Lecturer; Philosophy; Doctor of Philosophy; University of Missouri

**Zemke, John M**; Professor; Romance Languages & Literature; Doctor of Philosophy; University of California, Davis

**Zeng, Wenjun**; Part-Time Adjunct Faculty; Electrical Eng & Computer Sci; Doctor of Philosophy; Princeton University

**Zephir, Flore**; Professor; Romance Languages & Literature; Doctor of Philosophy; Indiana University Bloomington

**Zguta, Russell**; Professor; History; Doctor of Philosophy; The Pennsylvania State University

**Zhang, Bing**; Professor; Biological Science; Doctor of Philosophy; Cornell University

**Zhang, Guoquan**; Associate Professor; Veterinary Pathobiology; Doctor of Philosophy; Gifu University

**Zhang, Michael Z**; Associate Clinical Professor; Biomedical Sciences; Doctor of Philosophy; Kansas State University

**Zhang, Qi**; Professor; Mathematics; Doctor of Philosophy; Duke University

**Zhang, Shuping**; Professor; Veterinary Diagnostic Laborato; Doctor of Philosophy; Kansas State University

**Zhang, Shuqun**; Professor; Agriculture Biochemistry; Doctor of Philosophy; The University of Texas at Austin

**Zhang, Yan**; Assistant Research Professor; Veterinary Pathobiology; Doctor of Philosophy; Texas A&M University Health Science Center

**Zhang, Yun**; Associate Teaching Professor; Physics; Doctor of Philosophy; University of California, San Diego

**Zhang, Yuwen**; Professor; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Connecticut

**Zhang, Zhanyuan**; Research Professor; Plant Sciences; Doctor of Philosophy; University of Nebraska - Lincoln

**Zhao, Yunxin**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Washington

**Zhou, Jianfeng**; Assistant Professor; Agric Systems Management; Doctor of Philosophy; Washington State University

**Zhou, Xiangping**; Assistant Professor Of Clinical Department; Neurology; Doctor of Medicine; Sun Yat-sen University

---

**Zhuang, Xinhua**; Professor; Electrical Eng & Computer Sci; Doctor of Philosophy; Peking University

**Zitsch III, Robert P**; Professor; Otolaryngology; Doctor of Medicine

**Zohrabian, Armineh**; Assistant Professor; Health Mgmt & Informatics; Doctor of Philosophy; Auburn University

**Zollmann, Marie Michelle**; Adjunct Instructor; School of Business; Bachelor's Degree; University of Missouri - St. Louis

**Zou, Shaoming**; Professor; Marketing; Doctor of Philosophy; Michigan State University

**Zou, Xiaoqin**; Professor; Physics; Doctor of Philosophy; University of California, San Diego

**Zulovich, Joseph M**; Assistant Extension Professor; Ag Ext-Food Sci & Nutrition; Doctor of Philosophy; University of Nebraska - Lincoln

**Zumwalt, Andrew Mark**; Assistant Extension Professor; Human Environmental Sci Ext; Master of Science; University of Missouri

**Zurowski, Susan**; Associate Professor Of Clinical Department; Dermatology; Doctor of Medicine; Rush University

**Zweig, Steven C**; Professor; Family & Community Medicine; Doctor of Medicine; University of Missouri

## Glossary

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**Below are definitions of academic terms used throughout the University catalog. Additional terms used at MU can be found in the Mizzou Glossary.** (<http://glossary.missouri.edu>)

**Academic Action:** Students who do not meet requirements for University academic standing requirements are subject to academic action, such as being placed on probation or being declared ineligible to enroll, which is often called dismissal. NOTE: Academic units may have more restrictive standards. (Also refer to Academic Standing and Satisfactory Progress for additional policy information.)

**Academic Plan:** A primary field of specialized study also referred to as a degree program or major.

**Academic Program:** The academic organization to which a student applies, is admitted, and ultimately graduates. These will, in most cases, correspond to schools and colleges.

**Academic Progress for Financial Aid:** Federal regulations require the University of Missouri to establish, publish, and apply standards of satisfactory academic progress (SAP) for financial aid eligibility. For detailed criteria, please visit Student Financial Aid's website (<http://financialaid.missouri.edu/eligibility/satisfactory-academic-progress.php>).

**Academic Standing:** For further information see, Academic Policies: Academic Standing (p. 760).

**Academic Sub-plan:** An emphasis area or concentration within a specific academic plan.

**Academic Unit:** Colleges and schools are approved to offer degree programs or oversee degree or non-degree programs approved by the state Coordinating Board of Higher Education. Because the organization of these units varies across the campus, these entities are referred to as academic units, or AUs for short.

**Applied Course:** A course that is focused on the personal practice of the subject matter. Applied courses are typically found in music, art, and courses preparing for certain vocations.

**Audit:** A method of taking a course in which a student receives no grade or credit. Sometimes referred to as Hearer. See Academic Policies: Auditing a Course(Hearer (p. 761)).

**Basic Skills Courses:** Basic skills courses are considered remedial or preparatory for college level course work that follows. Credit hours for basic skills courses do apply toward minimums required for financial aid and grades earned in these courses show on the transcript and are averaged into the cumulative grade point average. However, credit hours earned in basic skills courses do NOT apply to the minimum number of hours required for a degree.

**Capstone Experience:** An academic activity that integrates general knowledge with the specialized knowledge each student has developed in the major area and, when appropriate, the related field.

**Certificate:** A program of study that requires completion of a minimum of 12 credits. It can be part of a degree program, may be completed in addition to a degree program, or may stand-alone. Officially approved Certificates are listed on transcripts.

**Commencement:** A ceremony in which students are recognized for degree completion. In May and December, each MU school and college holds commencement ceremonies for graduates, during which students walk across the stage and are recognized individually. Ceremonies are not held for summer session graduates; however, these students are invited to participate in May or December commencements.

**Consent Required:** Courses that require the permission of the instructor, department or division. Also referred to as permission required.

**Corequisite:** A course or requirement that must be met prior to or concurrent with enrolling in a course. Exceptions may be made with permissions.

**Core Requirements:** The basic, required courses or standards that students must meet for a given major, degree, minor, emphasis or concentration.

**Course Components:** A portion or part, (i.e. subset) of a course.

- **Lecture/Standard (LST):** Faculty delivered instruction to multiple students often in, but not always, a classroom setting. A lecture or standard class is the primary portion of the course that is often delivered face to face, but does not have to be. It may be presented on-line or via other delivery methods. While it is usually presented in a small or large group setting led by a faculty member the course might also be very interactive and include group activities. It may be offered in a traditional lecture format, a seminar format, sections with group interaction, etc.
- **Discussion (DIS):** A small group that meets to discuss topics introduced in a related lecture to supplement the instruction and allow for discussion.
- **Lab (LAB):** A class or the "practice" portion of a course in which experimentation, class projects or other exercises or skills conjunction with material presented, are performed.
- **Individual Study (IST):** One-on-one instruction allowing for greater individualized learning and self direction. Individual study may be directed studies that are based upon an agreed upon topic between instructor and student. Titles may include but are not limited to research, problems and readings.
- **Lesson (LES):** Typically a musical or other performance art instruction delivered one-on-one or in a small group.
- **Studio (STU):** Hands-on, interactive, project-oriented instruction that is delivered one-on-one or in a small group. May apply to art, architectural studies, textile and apparel management, broadcast media, film creation, and communication instruction.
- **Exam-only (EXM):** Graduate student enrollment required to complete the final, comprehensive examination.
- **Internship/Externship (IXT):** Provides opportunity for students to gain experience in their field outside the classroom. Instruction is hands-on, experimental learning that may require additional research and written assignments. Titles may include, but are not limited to, preceptorships, clinical, practicums.
- **Field Study (FLD):** Off-campus, hands-on instruction directed by a faculty member with one or more students. Typically part of science and social science, as well as some humanities instruction.

**Credit by Exam:** Credit earned by passing advanced-standing examinations in a subject-matter field. Examinations can include: departmental exams, CLEP subject-matter exams and International Baccalaureate and Advance Placement exams given by the College

Entrance Examination Board of Princeton, N.J. See Academic Policies: Advanced Standing - Credit By Exam. (p. 760)

**Credit:** *The following applies to MU courses, regardless of mode of delivery.* One credit represents approximately three hours of a student's time each week for one semester. This may mean one hour in lecture or standard classroom instruction, in addition to two hours spent in preparation. According to State of Missouri policy, a credit hour is a permanently transcribed instructional activity in which one semester credit hour shall consist of a minimum of 750 minutes (for example, 15 weeks x 50 minutes per week) of classroom experiences, such as lecture, discussion, or similar instructional approaches, or a minimum of 1,500 minutes of such experiences as laboratory, studio or equivalent experiences. Both of the above are exclusive of registration and final examination time. Greater amounts of supervised practicum or internship instruction are normally required to be the equivalent of one credit. (Also referred to as Units.)

**Cross-level Course:** A cross-level course is a course offered at both the undergraduate and the graduate level. Undergraduate students enroll in a course numbered in the 4000 range and graduate students enroll in a course numbered in the 7000 range. Lectures and discussions may be held jointly, but different graduate level work will be required of students in the 7000-level courses. (They are also referred to as combined sections.)

**Cross-listed Course:** A course that is considered the same as, and often may meet with a section of, another course with a different curricular abbreviation and possibly a different course number. (They are also referred to as combined sections.)

**Curriculum:** An organized program of study arranged to provide integrated cultural or professional education.

**Curriculum Designator (Subject Area):** A specific area of instruction within an academic organization. These are the subject matter headings that appear in the Course Catalog and the Schedule of Classes.

**Dean's Signature:** The dean's signature is the mark of approval for certain academic actions, such as approvals to withdraw at certain points in the term. Usually a "dean's signature" refers to a stamped signature from the academic advising office within the academic unit. A dean's signature may also be the signature of the dean or associate dean of the college or school. When instructions indicate that a student should obtain a dean's signature for approval of a process, students should first inquire in the academic advising office for their degree program.

**Degree:** A formal award or title conferred upon an individual for the completion of a program or courses of study.

**Degree Audit Report:** MU uses a degree audit system called DARS for short, which tracks degree programs. Many academic units and departments use these reports to assist in advising students. Students may look at their own DARS reports using myZou.

**Degree Program:** A primary field of specialized study also referred to as a major or academic plan.

**Discipline:** A branch of learning or field of study (e.g., mathematics, history or psychology).

**Dual Degree (undergraduate):** A student may be granted two baccalaureate degrees if all requirements for both degrees have been met and the student has completed at least 12 semester hours of course work beyond that required for the first degree. See Faculty Handbook (<http://facultycouncil.missouri.edu/handbook/article-9.html>)

**Emphasis Area:** A sub-area of specialized study within a major that has been formally approved. Emphasis areas are printed on students' transcripts.

**General Education (University):** The MU Faculty has developed a comprehensive program of University general education course work that equips students with the skills, knowledge and foundations in the disciplines required of all informed citizens. All MU students must satisfy University general education requirements as a part of their undergraduate degrees. See General Education Requirements. (p. 33)

**GPA of Record:** The GPA stands for grade point average. A GPA of record is the official GPA. See Academic Policies: Grades. (p. 770)

**Graded Course:** A course in which credit is awarded if successfully completed. A course in which a student has enrolled as a "Hearer/Auditor" is not regarded as a graded course for that student.

**Grading Basis:** The grading system used to assign a grade. See Academic Policies: Grades (p. 770).

**Graduation:** Graduation is the completion of all degree requirements, as recorded on the official transcript, and the conferring of a diploma.

**Honors Course-Departmental:** See Academics at MU: Course Numbering section (p. 787). Catalog number is not followed by an "H".

**Honors Course-General:** A course limited to honors-eligible students. Course has been approved by Honors college for use towards Honors Certificate or University Honors. Catalog number is followed by an "H".

**Honors Eligibility:** See Undergraduate/Graduate: Honors College (p. 733) for more information.

**Instructional Mode:** The dominant delivery method of instruction of the class content.

- **Traditional (TR):** No online technology used -- content is delivered in writing or orally. May have a video of the class that is used during the initial delivery and viewed later. Course attributes should indicate this.
- **Web Facilitated (WF):** Includes face-to-face instruction. Includes those courses in which zero to 29 percent of the content is delivered online. May have a video of the class that is used during the initial delivery and viewed later. Course attributes should indicate this.
- **Blended class instruction (BL):** Defined as having between 30 percent and 80 percent of the course content delivered online. It is sometimes called hybrid.
- **On-line (OL):** A course where most or all (80% or greater) of the content is delivered online. Typically these sections have no face-to-face meeting, but there may be some or face-to-face exams, etc.
- **E-Learning (EL):** A course where 100% of the content is delivered online. (May have proctored exams)

**Interdisciplinary:** A course of study that combines two or more academic disciplines.

**Location:** An indication of where a student is taking a course for billing and informational purposes.

**Lower Division:** Undergraduate courses numbered less than 3000.

**Major:** A primary field of specialized study also referred to as a degree program or academic plan..

**Minor:** A secondary field of specialized study that does not lead to a degree. A minor will be noted on the transcript by not on the diploma.

**Mizzou Online:** Mizzou Online partners with academic units to develop, market, and deliver programs and courses designed for distance students.

**Mizzou Online-Self Paced:** Students may enroll in self-paced, online courses year-round, (minimum six weeks, maximum six months) and complete coursework at their own pace. Students with 60 or more approved credit hours may complete a bachelor of general studies degree online.

**Mizzou Online-Semester Based:** Semester-based courses have specific start and end dates and follow the University semester calendar. Students participate with other students and instructors in the courses and have assignment due dates and deadlines. Enrollment periods are the same as campus sections.

**myZou:** MU's online student information system.

**Option:** A track or other portion of a major that may be required or optional. A separate designation is not made on the transcript or diploma for an option or track.

**Prerequisite:** A course or requirement that must be met prior to enrolling in a course. Exceptions may be made with permissions.

**Readmission:** See Admissions Office (<http://admissions.missouri.edu/apply/re-admission>) for information on the readmission process and standards.

**Recommended course:** A course that is beneficial or preferred for the student to have taken before enrolling in a subsequent course. It is a strong suggestion, but not a requirement.

**Registration:** The act of enrolling in classes for a given semester or term. At the University of Missouri, registration refers to the process in which students select course work for a term and, reserve spaces (enroll) in the courses in the University's computer system. This may be done through myZou.

**Repeat for Credit:** Courses that may be taken more than once for credit (e.g., music performance courses.)

**Satisfactory Progress towards degree:** The time progression in meeting the requirements of the student's established educational objective, typically, the completion of a degree program. Satisfactory progress is based on two concepts:

- Minimum number of credits completed expressed as a percentage of total credits attempted
- Maximum time to complete the degree as expressed by a total number of credits attempted

The term may also refer to financial aid requirements. See *Financial Aid* (<http://financialaid.missouri.edu>).

**Second Undergraduate Degree:** Some academic units will admit students who have already earned one undergraduate degree to pursue a different degree program. Ordinarily students who enroll for a second degree are expected to meet requirements in place at the time of beginning work of the second degree instead of requirements in place at the beginning of work on the first degree.

**Sequence of Courses:** Two or three closely related courses that must be taken in specified order.

**Session:** A class scheduling/enrollment control time period within an academic term.

**Student Center (myZou):** The page in myZou where a student can view a synopsis of all their information. (i.e. schedule, service indicators, enrollment dates, financial information.)

**Student Level:** Students are assigned to a particular class level based upon the number of credits they have completed. (i.e. freshmen, sophomore, junior and senior.) See Academic Policies: Student Level (p. 782).

**Track:** An option or other portion of a major that may be required or optional. A separate designation is not made on the transcript or diploma for an option or track.

**Upper Division:** Undergraduate courses numbered 3000-4000.

**Variable Credit (Units):** For some courses, the student may choose the number of credits.

**Waive:** To waive a requirement is to set it aside without credit. In other words, if a requirement is waived for a student that student does not have to meet the requirement, but no credit hours are earned. For example, an international student pursuing a BA degree in the College or Arts and Science has the foreign language requirement waived but will not receive academic credit for his/her native language.

**Writing Intensive Course:** All writing intensive courses use writing as a tool for thinking and learning; all require revision as a way of improving critical thinking. WI courses can be identified on the Schedule of Classes in two ways: they will have a "W" after the catalog number and they will have an attribute of Writing Intensive Section attached to the course.

**Writing Intensive Requirement:** After completing ENGLISH 1000, select one Writing Intensive (WI) course from anywhere in the University curriculum to meet the WI requirement in general education. After that, select a WI course at a 3000- or 4000-level in your major area of study. In some cases, your department may ask you to take a 3000- or 4000-level WI course in another department but still in an area closely related to your major. To receive credit for taking a writing intensive course, students must earn a grade in the C-range or better.



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